COLORADO CONVENTION CENTER EXPANSION PROJECT

DESIGN-BUILD CONTRACT

Contract Control Number: 202055290

THIS DESIGN-BUILD CONTRACT ("Design-Build Contract" or "Contract" or "Agreement") is made and entered into as of the Effective Date (as hereinafter defined) by and between the **CITY AND COUNTY OF DENVER**, a municipal corporation of the State of Colorado (the "City"), and **HENSEL PHELPS CONSTRUCTION CO.**, a Delaware general partnership, with an address of, 420 SIXTH AVENUE, GREELEY, CO 80631, CO, (the "Design-Build Team" or "Contractor").

RECITALS

A. The City completed a competitive selection process resulting in the selection of the Design-Build Team to design, construct and provide all other Work to deliver the Colorado Convention Center Expansion Design-Build Project in Denver, Colorado as described in the Contract Documents.

B. The Design-Build Team will provide all professional design builder services necessary to complete the Project. The Project includes design, construction, and construction administration services for approximately 175,000 sq. ft. of vertical expansion, renovation of lobby space, new vertical conveyances and other required code & life safety upgrades. The Design-Build Team's scope of services includes design development, Construction Documents, construction, and construction administration through project completion.

C. The City is relying upon the qualifications presented in the Design-Build Team's response to the RFQ, dated August 26, 2019 (the "RFQ Response"), and its response to the RFP, dated April 15, 2020 (the "RFP Response"), in entering into this Design-Build Contract. As used in this Design-Build Contract, the term "Proposal" shall mean and refer collectively to the Design-Build Team's RFQ Response and its RFP Response.

D. The Design-Build Team was selected after a determination that its Proposal was the most advantageous to the City.

AGREEMENT

In consideration of the mutual promises and covenants contained herein, the sufficiency of which is hereby acknowledged by the parties hereto, the Design-Build Team and the City do each hereby promise and agree as follows:

SECTION 1 – AUTHORITY; ENGAGEMENT; COORDINATION OF WORK

1.1 Line of Authority

The City's Executive Director of the Department of Transportation and Infrastructure ("DOTI"), his designee or successor in function (hereinafter referred to as the "Executive Director" or "Manager") authorizes all work performed under this Design-Build Contract. The Executive Director hereby designates

the City Engineer (the "Director") as the City official responsible for those actions and decisions identified as the responsibility of the Deputy Manager in the General Conditions and delegates to the Director the authority necessary to oversee the work under this Design-Build Contract. The City Engineer has designated Adam Phipps as the Project Director and Brett Hahnenkamp as the Project Manager. On a daily basis the City Project Manager will report to the City Project Director. The Executive Director and the Director may rescind or amend any such designation of representatives or delegation of authority and designate a different City Project Director or City Project Manager, upon written notice to the Design-Build Team.

The City retained the services Rider Levett Bucknall, LTD ("RLB") to provide Program and Project Management Services for the Project. The Project Manager will direct, coordinate and approve RLB's services. On a day-to-day basis RLB will communicate with and provide direction to the Design-Build Team. However, RLB has no independent authority to act on behalf of the City, is not a general agent of the City, cannot modify this Agreement, change the Scope of Work or otherwise bind the City.

The Design-Build Team shall copy the Project Manager on all written communications with RLB and notify the Project Manager in writing of all verbal direction given by RLB unless otherwise directed in writing by the Project Manager.

1.2 Limitation on Delegation of Authority

It is expressly understood that although the Project Manager and/or RLB may gather information about proposed changes in the contract time and contract price from the Design-Build Team, only the Executive Director or his designated representative has the authority to legally bind the City to changes in contract time and contract price through a validly executed Change Order in accordance with the requirements of this Contract.

1.3 Design-Build Team Selection

In accordance with the terms and requirements set forth in Section 20-56 of the Denver Revised Municipal Code (the "DRMC"), the City implemented and completed a competitive selection process to identify qualified Design-Build teams to perform both design and construction services for the Project. The Design-Build Team was selected as best value proposer to perform such services for the City as set forth in the City's RFQ and RFP and the Design-Build Team's Proposal.

1.4 Relationship of the Parties

(a) By entering into this Design-Build Contract, the Design-Build Team accepts the relationship of trust and confidence between it and the City. The Design-Build Team shall furnish its reasonable professional skill and judgment and shall cooperate with the officials, employees and agents of the City, including the Project Manager, in furthering the interests of the City. The Design-Build Team will furnish efficient business administration and superintendence and will use reasonable efforts to perform the Work in an expeditious and economical manner consistent with the interests of the City. In no event shall the Design-Build Team be considered a fiduciary of the City by reason of this Section 1.4.

(b) The parties intend herein to establish a relationship wherein the City relies upon the integrity and fidelity of the Design-Build Team to complete the Project within the time and budget constraints set forth in this Design-Build Contract and in a manner which satisfies the City's longstanding commitment to quality, efficiency, value, innovation, partnering, responsiveness to agency and community needs and compliance with all applicable regulatory requirements in the performance of general public improvements.

(c) The Design-Build Team accepts the relationship of trust and confidence established by this Design-Build Contract with the City. The Design-Build Team further agrees to utilize the Design-Build Team's reasonable skills, efforts, and judgment in furthering the interests of the City regarding the Project; to furnish at all times an adequate supply of qualified and competent workers and quality materials; and to perform the work in the best, most expeditious, and economical manner. Further, the Design-Build Team agrees to furnish efficient business administration, construction management and superintendence and to use its reasonable efforts to complete the Work in an expeditious and economical manner, consistent with the interests of the City.

(d) The Design-Build Team hereby confirms that it is ready, willing and able to design, build and deliver a fully functional and approved (per all applicable laws, requirements and standards set forth in the Contract Documents) Project in compliance with the Design-Build Requirements and in accordance with the terms and conditions of this Design-Build Contract on and subject to the terms and conditions set forth herein.

1.5 Coordination and Cooperation

(a) The Design-Build Team agrees to cooperate and coordinate fully with the City in its performance of the Work to meet or exceed the City's time and budgetary objectives and limitations, while maintaining the City's longstanding commitment to quality, efficiency, value, innovation, partnering, responsiveness to agency and community needs and compliance with all applicable regulatory requirements in the construction of general public improvements.

(b) The Design-Build Team shall, as a continuing work item under this Design-Build Contract, facilitate coordination, communication and cooperation regarding its performance hereunder between the City's Department of Transportation and Infrastructure ("DOTI"), the Project Manager, other City consultants and any affiliated entities. In addition, the Design-Build Team shall coordinate its efforts under this Design-Build Contract with all involved governmental and regulatory entities.

(c) The Design-Build Team shall be responsible for taking accurate and comprehensive minutes at all Design and Construction Phase meetings attended by the Design-Build Team regarding the Project. Those minutes shall be prepared in a format approved by the Project Manager and issued to all attendees, as well as those other parties designated by the City, no later than three working days after the meeting. Unless approved in advance in writing by the Project Manager and to the greatest extent practicable, Project meetings with the City shall be conducted in the City and County of Denver, Colorado.

(d) The Design-Build Team will notify the Project Manager by email within 48 hours, or as soon as practicable thereafter, of all communications (in-person meetings, telephone calls, emails, texts or written communication, etc.) regarding the Project including all communications with partner entities (Visit Denver, SMG, Downtown Denver Partnership, Mayor's Office etc.).

SECTION 2 – CONTRACT DOCUMENTS

2.1 Contract Documents

The following list (Section 2.3) of instruments, drawings and documents which are attached hereto, bound herewith or incorporated herein by reference constitute and shall be referred to collectively as the "Contract

Documents." All such instruments, drawings and documents taken together as a whole constitute the Design-Build Contract between the parties hereto, and they are as fully a part of this Design-Build Contract as if they were set out verbatim and in full herein.

2.2 Integration

The Contract Documents represent the entire and complete integration of all understandings between the City and the Design-Build Team as to the subject matter hereof, and supersede all prior negotiations, representations or agreements. No prior or contemporaneous addition, deletion or other amendment hereto shall have any force or effect whatsoever, unless embodied herein in writing. No subsequent novation, renewal, addition, deletion or other amendment hereto shall have any force or effect unless embodied in a written amendatory or other agreement or change order properly executed by the parties. When the Contract Drawings and Technical Specifications are complete, they will be incorporated by written directive of the Executive Director or the Executive Director's designee.

2.3 Contract Documents

(a) "The Contract Documents" consist of the documents listed in this Section 2.3 which replaces General Contract Condition 104.

(b) This Design-Build Contract, as modified by fully executed amendment or fully executed Change Order, including all exhibits to the Contract, including those incorporated by reference, which are part of the Contract and have the same effect as if they were fully set forth in the Contract:

Exhibit A:	Design-Build Requirements
Exhibit B:	General Requirements
Exhibit C:	Special Contract Conditions
Exhibit D:	General Contract Conditions (incorporated herein by reference in their entirety, index attached)
Exhibit E:	Not Used
Exhibit F:	CCD ROCIP Insurance Manual, the City Insurance Requirements and the ROCIP Safety Manual
Exhibit G:	Insurance Certificates
Exhibit H:	Approved M/WBE Compliance Plan (incorporated herein by reference)
Exhibit I:	Prevailing Wage Rate Schedule
Exhibit J:	City and County of Denver Equal Employment Opportunity Provisions
Exhibit K:	Approved Workforce Plan (incorporated herein by reference)
Exhibit L:	Targeted Areas
Exhibit M:	Payment and Performance Bond Form
Exhibit N:	Appropriation and Encumbrance Form
Exhibit O:	Notice to Proceed (sample)

(c) RFQ (incorporated by reference)

(d) Design-Build Team's RFQ Response (incorporated by reference)

(e) Amended RFP dated December 23, 2019 (incorporated by reference)

(f) RFP Response (incorporated by reference)

(g) Notice to Proceed (incorporated by reference after issuance by the City)

(h) Construction Documents - consisting of the City accepted Contract Drawings and accepted Technical Specifications (incorporated by reference upon City's written acceptance)

(i) Accepted Shop Drawings (incorporated by reference upon City's written acceptance)

2.4 Order of Precedence

In the event of a conflict between provisions of any of the Contract Documents which cannot be resolved by giving effect to both provisions, the order of precedence of the Contract Documents in descending order, shall be as follows:

(a) This Design-Build Contract which includes Exhibits A through O, as modified by fully executed amendment or fully executed Change Order, with precedence of amendments and Change Orders in reverse order of execution. In event of a conflict between the body of this Design-Build Contract and (or between) Contract Exhibits which cannot be resolved by giving effect to both provisions, the order of precedence shall be the body of the Design-Build Contract followed by the exhibits in the order they are attached to the body of the Contract.

(b) Construction Documents

(c) Accepted Shop Drawings

(d) Notice to Proceed

(e) RFP Response

(f) Amended RFP dated December 23, 2019

(g) RFQ

(h) Design-Build Team’s RFQ Response

2.5 Documents Complementary

The intent of the Contract Documents is to include all terms, conditions, work items and services necessary or required for the proper execution and completion of the Work. The Contract Documents are complementary, and what is required by any one shall be binding as if required by all. Work items or services not covered in the Contract Documents will be required unless they are not consistent with the Contract Documents and are not inferable from the Contract Documents as being necessary to produce the result intended by the Contract Documents. Anything mentioned in the Technical Specifications and not shown on the Contract Drawings or shown on the Contract Drawings and not mentioned in the Technical Specifications, shall be of like effect as if shown or mentioned in both. Words and abbreviations that have well known technical or trade meanings are used in the Contract Documents in accordance with such recognized meaning.

2.6 Documents Following Contract Execution

It is contemplated by the parties that numerous exhibits or attachments, including Contract Drawings and final Technical Specifications, will not be accomplished or must be developed after execution of this Design-Build Contract and, as such, must be finalized, incorporated by reference and/or attached to and be made a part of the Contract Documents subsequent to execution of this Design-Build Contract. The incorporation of such exhibits or attachments into this Design-Build Contract shall be accomplished by written directive from the Executive Director or the Executive Director’s designee. The parties shall be diligent in accomplishing these exhibits and attachments. To the extent these new exhibits or attachments conflict with other exhibits or portions of this Design-Build Contract, the greater service, better quality or

greater quantity shall be included in the Work. However, nothing contained in this section shall limit the Design-Build Team's ability to seek Change Order time and compensation adjustments utilizing the Change Order process for changes to the Work.

2.7 Construction

Where reference is made in this Design-Build Contract to a provision of the General Conditions or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

SECTION 3 – SCOPE OF WORK

3.1 Construction Documents

The Design-Build Team shall prepare or provide to the Project Manager for review and acceptance the detailed plans and specifications for the Project, including, without limitation, those items set forth in the General Requirements. Design services shall be performed by qualified architects, engineers and other professionals selected and paid by the Design-Build Team. Collectively, the City accepted Contract Drawings and accepted Technical Specifications are the "Construction Documents."

3.2 Standard of Care for Professional Design Services

The Design-Build Team shall perform all services required by this Design-Build Contract with the degree of skill, care and diligence consistent with the professional standards prevailing in the Denver Metropolitan Area for services of comparable scope and magnitude.

3.3 Ownership of Documents

(a) The City shall have title and all intellectual and other property rights, in and to all phased and final Project Documents. Project Documents include all Contract Documents, Construction Documents as well as all data and reference materials used in the development of the same, the results of any tests, surveys or inspections at the Project site, all photographs, drawings, drafts, studies, estimates, reports, models, notes, shop drawings, reference materials, alternative technical concepts, and any other materials or work products, whether in electronic or hard copy format, created by the Design-Build Team as a result of this Design-Build Contract, in preliminary and final forms and on any media whatsoever (collectively, the "Project Documents"), whether the Project for which the documents were created is executed or not. The Design-Build Team shall identify and disclose, as requested, all such Project Documents to the City upon request.

(b) To the extent permitted by the U.S. Copyright Act, 17 USC § 101 et seq., as the same may be amended from time to time, the Design Documents are a "work made for hire," and all ownership of copyright in the Design Documents shall vest in the City at the time the Design Documents are created. To the extent that the Design Documents are not a "work made for hire," the Design-Build Team hereby assigns and transfers all right, title and interest in and to the Design Documents to the City, as of the time of the creation of the Design Documents, including the right to secure copyright, patent, trademark, and other intellectual property rights throughout the world and to have and to hold such copyright, patent, trademark, and other intellectual property rights in perpetuity.

(c) The Design-Build Team shall provide (and cause its employees and subcontractors to provide) all assistance reasonably requested in securing for the City's benefit any patent, copyright, trademark, service mark, license, right or other evidence of ownership of such Design Documents, and shall provide full information regarding the Design Documents and execute all appropriate documentation in applying for or otherwise registering, in the City's name, all rights to such Design Documents.

(d) The Design-Build Team agrees to allow the City to review any of the procedures used in performing the Work hereunder, and to make available for inspection the field notes and other documents used in the preparation for and performance of any of the services performed hereunder.

(e) The Design-Build Team shall be permitted to retain reproducible and electronic copies of all of the Design Documents for the information and reference, and the originals of all of the Design Documents, including all electronic files, shall be delivered to the City promptly upon completion thereof, or if authorized by the City's Project Manager, upon termination or expiration of this Design-Build Contract.

(f) Retention and Examination of Records. The Design-Build Team's records including the records of direct personnel, Design-Build Team's subcontractors and subconsultants and records of reimbursable expenses pertaining to this Agreement shall be kept on a generally recognized accounting basis. The Design-Build Team agrees that any duly authorized representative of the City, including the City Auditor, shall, until the expiration of three (3) years after the final payment under this Agreement, have access to and the right to examine any books, documents, papers and records of the Design-Build Team, involving transactions related to this Agreement.

(g) Records of Design-Build Team's Communications. The Design-Build Team shall retain all communications, including but not limited to written communications, emails and texts related to the Project. The Design-Build Team shall produce all such communications upon written request of the City Engineer at no additional cost to the City within ten (10) calendar days of the request in a searchable electronic format. This Section does not create an affirmative duty on behalf of the City to request documents in response to a request made pursuant to C.R.S. 24-72-201, *et. seq.*

3.4 Design-Build Services

All Work on the Project shall be performed by qualified contractors (licensed and bonded for work in the City and County of Denver), subcontractors and suppliers, selected and paid by the Design-Build Team and acting in the interest of the Design-Build Team. Selection of the Design-Build Team's contractors, subcontractors, consultants, subconsultants, vendors and suppliers shall be at the sole discretion of the Design-Build Team subject to the Design-Build Team's commitment to Major Participants and Key Personnel. As used herein, the term "Major Participant" means any of the following entities: all general partners or joint venture members of the Design-Build Team; all individuals, persons, proprietorships, partnerships, limited liability partnerships, corporations, professional corporations, limited liability companies, business associations, or other legal entity, however organized, holding (directly or indirectly) a 25% or greater interest in the Design-Build Team; any subcontractor(s) that will perform work valued at 20% or more of the overall contract amount; the lead engineering/design firm(s); and each engineering/design sub-consultant that will perform 20% or more of the Work. As used herein, the term "Key Personnel" refers to the key personnel named in the Design-Build Team's Proposal. Key Personnel or Major Participants identified in the Design-Build Team's Proposal may not be removed, replaced, or added without the written approval of the City. The City may revoke an awarded contract if any Key Personnel or Major Participant identified in the Proposal is removed, replaced, or added to without the City's prior written approval. To qualify for the City's approval, the written request must document that the proposed removal, replacement, or addition will be equal to or better than the Key Personnel or Major

Participant provided in the Proposal. The City will use the criteria specified in the RFQ, and the qualification submitted by the Design-Build Team in the Proposal, to evaluate all requests. Requests for removals, replacements, and additions must be submitted in writing to City's Project Manager.

3.5 Conflict of Interests

(a) Neither the Design-Build Team nor any of its subcontractors or subconsultants shall have an interest that conflict with the interests of the City. Design-Build Team shall make written inquiry of all subcontractors and subconsultants concerning the existence of a potential for such conflict. In unusual circumstances, and with full disclosure to the City of such conflict of interest, the City, in its sole discretion, may grant a written waiver for the consultant, subconsultant or subcontractor.

(b) The Design-Build Team has a continuing duty to disclose to the Project Director, in writing, any actual or potential conflicts of interest it has or may have including work the Design-Build Team is performing or anticipates performing for or with other entities or individuals involved with the Project as well as any information it becomes aware of suggesting that any consultant or employee of the City may have a conflict of interest. If the Design-Build Team fails to disclose in writing actual or potential conflicts, the Manager, in his sole discretion, may terminate this Agreement.

(c) No employee of the City shall have any personal or beneficial interest in the services or property described herein, and the Design-Build Team further agrees not to hire or contract for services with any employee or officer of the City which would be in violation of the Revised Municipal Code Chapter 2, Article IV, Code of Ethics or Denver City Charter provisions 1.2.9 and 1.2.12. The Design-Build Team shall not provide (or accept) any entertainment, gifts, or meals to any City employee or consultant involved with the Project without the written approval of the Project Director. The Manager may, in his sole discretion, terminate this Contract for violation of this provision.

(d) The Design-Build Team agrees that it will not engage in any transaction, activity or conduct that would result in a conflict of interest under this Agreement. The Design-Build Team represents that it has disclosed all current or potential conflicts of interest. A conflict of interest shall include transactions, activities or conduct that would affect the judgment, actions or work of the Design-Build Team by placing the Design-Build Team's own interests, or the interests of any party with whom the Design-Build Team has a contractual arrangement, in conflict with those of the City. The City, in its sole discretion, shall determine the existence of a conflict of interest and may terminate this Agreement in the event such a conflict exists after it has given the Design-Build Team written notice which describes the conflict. The Design-Build Team shall have thirty (30) days after the notice is received to eliminate or cure the conflict of interest in a manner that is acceptable to the City.

(e) Design-Build Teams shall not use City resources for non-City business purposes. City resources include computers, computer access, telephones, email accounts, copiers, printers, office space and other City facilities and equipment. If, as a result of access to City resources or as a result of Design-Build Team providing services pursuant to the Agreement, Design-Build Team obtains information about potential City contracts before that information is publicly available, Design-Build Team shall notify the City in writing. The City, in its sole discretion, will determine if Design-Build Team obtained an unfair advantage and is therefore disqualified from proposing or bidding.

(f) No design consultant, subconsultant or subcontractor, not already approved by the City, shall be engaged to perform work on the Project wherein a conflict exists, such as being connected with the sale or promotion of equipment or material which may be used in the Project, provided, however, that in unusual circumstances and with full disclosure to the City of such interest, the City may provide a waiver, in writing, in respect to the particular consultant, subconsultant or subcontractor.

3.6 Completion Obligation

The Design-Build Team shall execute all Work to deliver the Project described in the Contract Documents. The Design-Build Team agrees to commence and undertake the performance of the Work under this Design-Build Contract within ten (10) days of the date of issuance of a Notice to Proceed in substantially the form attached as a Contract Document and agrees to complete the Work in accordance with the Contract Documents and within the time requirements of this Design-Build Contract.

3.7 Phases of Work

The City currently anticipates that the Project will be divided into the following phases to facilitate management and tracking of Project funding. The anticipated phasing does not alter Contractor's responsibility to complete the Project as set forth in this Agreement.

(a) Phase 1 - Phase 1 includes preconstruction, design, demolition, steel fabrication and erection, concrete, utilities, long lead material procurement, enabling work, other early work and associated general conditions and mobilization.

(b) Phase 2 - Phase 2 includes design completion, steel, concrete, MEP rough in and trim, exterior envelope work, interiors, vertical transportation, food service, commissioning, and all other work required to complete the Project including general conditions.

3.8 The Work

The terms “Scope of Work” or “Work” as used herein shall mean all labor, management, administration, supervision, materials and services required for the full completion of the Project described by the Contract Documents, or reasonably inferable from the Contract Documents, including, but not limited to, professional services, preliminary engineering drawings, specifications, design development drawings, Contract Drawings, installation, inspection, as-built drawings and all other submittals design work, shop drawings, construction services, parts, supplies, coordination, equipment, tools, temporary utilities, studies, reports, permitting documents personnel costs, compliance costs, overhead and profit and all other costs required to complete the Project in compliance with this Design-Build Contract. This definition replaces the definition of "Work" in Section 121 of the General Conditions.

3.9 The Project

The term "Project" as used herein means the Colorado Convention Center Expansion as described in the Contract Documents and all Work required to deliver the Colorado Convention Center Expansion. This definition replaces the definition of "Project" in Section 114 of the General Conditions.

3.10 Acknowledgement of Scope of Work

(a) The Design-Build Team expressly recognizes and acknowledges that this Project must be completed within the time and fiscal constraints as set forth throughout this Design-Build Contract.

(b) The Design-Build Team further represents to the City that by executing this Design-Build Contract, it has been fully informed of and has thoroughly reviewed the following: the Design-Build

Requirements; the work effort of the City's Consultants performed to date for the Project; all of the Contract Documents attached to this Design-Build Contract or incorporated by reference; and all of the Work required by the Design-Build Team by the Contract Documents. Based upon this thorough review and analysis, the Design-Build Team represents to the City that it will provide or perform all of the necessary Work within the requirements of the Contract Documents.

(c) The Design-Build Team covenants and represents that the Design-Build Team has visited the site of the Project (the "Site") and has had sufficient time and opportunity to independently examine and is sufficiently familiar with: the Site, the character and nature of the Site layout and materials, the character and nature of all Site constraints, restrictions and limitations, and limitations on ingress, egress and construction staging and performance; and the local conditions under which the Work is to be performed, including weather conditions and any other factors which may impact the Work. The Design-Build Team further represents that it has taken into consideration and correlated these direct observations, examinations and investigations with the requirements of the Contract Documents and in the pricing of the Work and the formulation of the Lump Sum Contract Price.

(d) The Design-Build Team represents that it has reviewed and is familiar with the City's general expectations and scheduling assumptions regarding completion of the Project and use and that these scheduling assumptions are reasonable and achievable. The Design-Build Team further represents that it has taken into consideration and correlated these assumptions and constraints with the requirements of the Contract Documents and in the pricing of the Work, the Lump Sum Contract Price.

(e) The Design-Build Team represents that it has reviewed the Contract Documents, accepts the terms and requirements thereof and affirmatively states that the Project is a reasonable and constructible Project, incorporating a reasonable and workable delivery approach, schedule and budget.

SECTION 4 – CONTRACT TERM AND TIME OF COMMENCEMENT

4.1 General

The Contract Term shall begin on the Effective Date, but no work shall be performed prior to the delivery of all bonds and insurance certificates (as required) of the Design-Build Team and until the City issues a Notice to Proceed. The Contract Time for the Project shall be the period of performance beginning on the date of Notice to Proceed. The Design-Build Team is not authorized to commence Work prior to its receipt of the Notice to Proceed, and any Work performed prior to the Notice to Proceed is at the Design-Build Team's sole risk, cost and expense and with no obligation by the City to pay for any such Work.

4.2 Contract Time

The term "Project Contract Time" or "Contract Time" is defined as the period beginning on the date of Notice to Proceed and ending on the date of Final Completion of the Work subject to Change Orders as provided for in the Contract Documents. The terms "Substantial Completion" and "Final Completion" are defined in the General Conditions.

4.3 Contract Milestones

Substantial Completion shall be achieved no later than: 1116 calendar days from NTP
Final Acceptance shall be achieved no later than: 1175 calendar days from NTP
As may be adjusted by Change Order executed pursuant to the terms of this Design-Build Contract

4.4 Liquidated Damages

It is understood and agreed by and between the City and the Design-Build Team that, if the Design-Build Team fails to achieve the Final Acceptance Contract Milestone set forth in Section 4.3, the City will suffer substantial damages, which damages would be difficult to accurately determine. The parties hereto have considered the possible elements of damages and have agreed upon the amount of liquidated damages for the Design-Build Team's failure to achieve the Final Acceptance Contract Milestone set forth above (the "Liquidated Damages"). Should the Design-Build Team fail to achieve the Final Acceptance Contractual Milestone set forth in Section 4.3 the Contractor shall pay to the City as Liquidated Damages, and not as a penalty, $10,000.00/day.

Notwithstanding any term or provision of this Design-Build Contract to the contrary, in no event shall the total amount of Liquidated Damages payable by the Contractor hereunder accrue at a cumulative rate of more than $10,000.00/day.

The parties agree that the Liquidated Damages established by this Section 4.4 are the City's sole remedy for the Design-Build Team's failure to achieve the Final Acceptance Contract Milestone in Section 4.3 and replaces General Condition 602.

4.4 Effective Date

As used herein, the term "Effective Date" shall be the date of the full execution of this Design-Build Contract as reflected by the date set forth on the City's signature page attached hereto.

SECTION 5 – INSURANCE REQUIREMENTS

5.1 General Information

The City and County of Denver has arranged for certain construction activities to be insured under a Rolling Owner Controlled Insurance Program ("ROCIP") that provides certain insurance coverage for the City, the Design-Build Team, subcontractors and consultants and other designated parties ("Enrolled Parties") for work performed at the Project site. Certain trade contractors and subcontractors are ineligible for this program.

5.2 ROCIP Requirements

The Insurance Requirements for the Project, including participation in the CCD Rolling Owner Controlled Insurance Program ("Insurance Requirements"), are found in this Section 5 and **Exhibit F** which consists of **t**he ROCIP Insurance Manual, the CCD Insurance Requirements and the ROCIP Safety Manual. The Design-Build Team agrees to secure, at or before the time of execution of this Design-Build Contract, all insurance required by the Insurance Requirements and to comply with all requirements of the ROCIP Insurance Manual.

5.3 Requirements for Non-ROCIP Required Coverage

For all required coverage not provided by the ROCIP the Design-Build Team shall comply with the following requirements:

(a) Proof of Insurance: The Design-Build Team shall provide a copy of this Design-Build Contract to its insurance agent or broker. Design-Build Team may not commence services or work relating to the Agreement prior to placement of coverage. Design-Build Team certifies that the certificate of insurance attached as **Exhibit G**, preferably an ACORD certificate, complies with all insurance requirements of this Design-Build Contract. The City requests that the City's contract number be referenced on the Certificate. The City's acceptance of a certificate of insurance or other proof of insurance that does not comply with all insurance requirements set forth in this Design-Build

Contract shall not act as a waiver of Design-Build Team's breach of this Design-Build Contract or of any of the City's rights or remedies under this Design-Build Contract. The City's Risk Management Office may require additional proof of insurance, including but not limited to policies and endorsements.

(b) Additional Insureds: For Commercial General Liability (Off-Site Exposures), Auto Liability, and Excess Liability/Umbrella, Design-Build Team and subcontractor's insurer(s) shall name the City and County of Denver, its elected and appointed officials, employees and volunteers as additional insured.

(c) Waiver of Subrogation: For all coverages, the Design-Build Team's insurer shall waive subrogation rights against the City.

(d) Subcontractors and Subconsultants: All subcontractors and subconsultants (including independent contractors, suppliers or other entities providing goods or services required by this Contract) shall be subject to all of the requirements herein and shall procure and maintain the same coverages required of the Design-Build Team, but in amounts of at least $1,000,000 Commercial General Liability, Business Auto insurance of $1,000,000 combined single limit, statutory Workers' Compensation coverage, and $2,000,000 professional liability for any subcontractor performing design or engineering work. Design-Build Team shall include all such subcontractors as additional insured under its policies (with the exception of Workers' Compensation) or shall ensure that all such subcontractors and subconsultants maintain the required coverages. Design Build Team agrees to provide proof of insurance for all such subcontractors and subconsultants upon request by the City.

(e) Workers' Compensation/Employer's Liability Insurance (Off-Site Exposures): The Design-Build Team shall maintain the coverage as required by statute for each work location and shall maintain Employer's Liability insurance with limits of $100,000 for each bodily injury occurrence claim, $100,000 for each bodily injury caused by disease, and $500,000 aggregate for all claims. The Design-Build Team expressly represents to the City, as a material representation upon which the City is relying in entering into this Contract, that none of the Design-Build Team's officers or employees who may be eligible under any statute or law to reject Workers' Compensation Insurance shall affect such rejection during any part of the term of this Design-Build Contract, and that any such rejections previously effected, have been revoked as of the date the Design-Build Team executes this Design-Build Contract.

(f) Commercial General Liability (Off-Site Exposures): The Design-Build Team shall maintain limits of $1,000,000 for each occurrence claim, $1,000,000 for each personal and advertising injury claim, $2,000,000 products and completed operations for each occurrence, and $2,000,000 policy aggregate.

(g) Business Automobile Liability: The Design-Build Team shall maintain Business Auto Liability, or its equivalent, with minimum limits of $1,000,000 combined single limit applicable to all owned, hired and non-owned vehicles used in performing services under this Design-Build Contract. If transporting wastes, hazardous materials, or regulated substances, Design-Build Team shall carry a pollution coverage endorsement and an MCS 90 endorsement on their policy. Transportation coverage under the Contractors Pollution Liability policy shall be an acceptable replacement for a pollution endorsement to the Business Automobile Liability policy.

(h) Professional Liability: The Design-Build Team shall maintain limits of $2,000,000 for each claim, and $5,000,000 aggregate limit for all claims.

(i) Excess/Umbrella Liability: The Design-Build Team shall maintain excess liability limits of $10 million. Coverage must be written on a "follow form" basis. Any combination of primary and excess coverage may be used to achieve required limits.

(j) Additional Provisions: For all Commercial General Liability and Excess Liability, the policies must provide the following:

(i) That this Agreement is an Insured Contract under the policy.
(ii) Defense costs in excess of policy limits.
(iii) A severability of interests or separation of insureds provision (no insured vs. insured exclusion).
(iv) A provision that coverage is primary and non-contributory with other coverage or self-insurance maintained by the City.
(v) For claims-made coverage: The retroactive date must be on or before the contract date or the first date when any goods or services were provided to the City, whichever is earlier.

(k) If any aggregate limit is reduced by twenty-five percent (25%) or more by paid or reserved claims, the Design Build Team shall notify the City within ten (10) days and reinstate aggregates required.

SECTION 6 – COMPENSATION AND MAXIMUM CONTRACT AMOUNT

In accordance with the terms of this Design-Build Contract, the amount to be paid by the City to the Design-Build Team under this Design-Build Contract for all Work required to complete the Project shall be the Lump Sum Contract Price of Two Hundred and Twelve Million Dollars and no/100 Cents ($212,000,000.00) as adjusted by Change Order executed pursuant to the terms of this Design-Build Contract. In no event will the City's liability exceed the Lump Sum Contract Price, as adjusted by Change Order executed pursuant to the terms of this Design-Build Contract (the "Maximum Contract Amount").

SECTION 7 – ADDITIONAL PROVISIONS

7.1 Dispute Resolution

It is the express intention of the parties to this Design-Build Contract that all disputes of any nature whatsoever regarding this Design-Build Contract including, but not limited to, any claims for compensation or damages arising out of breach or default under this Design-Build Contract, shall be resolved by administrative hearing pursuant to the provisions of Section 56-106, DRMC, or, with respect to appropriate issues involving MWBE compliance, by Section 28-33, DRMC. The Design-Build Team expressly agrees that this dispute resolution process is the sole and only dispute resolution mechanism that will be recognized and employed by the parties for any claims put forward by the Design-Build Team, notwithstanding any other claimed theory of entitlement on the part of the Design-Build Team or its subcontractors or suppliers.

7.2 Acts and Omissions

The Design-Build Team shall be responsible to the City for the acts and omissions of its agents and employees, contractors, consultants, subconsultants, subcontractors and suppliers of any tier, and their agents and employees performing Work under this Design-Build Contract.

7.3 No Discrimination in Employment

In connection with the performance of work under this contract, the Design-Build Team may not refuse to hire, discharge, promote or demote, or discriminate in matters of compensation against any person otherwise qualified, solely because of race, color, religion, national origin, gender, age, military status,

sexual orientation, gender identity or gender expression, marital status, or physical or mental disability. The Design-Build Team shall insert the foregoing provision in all subcontracts. Further, the Design-Build Team agrees to comply with the provisions of Section 28-41 to 28-47, DRMC, and all rules and regulations promulgated and adopted by the Executive Director pursuant thereto relating to nondiscrimination in employment by contractors, subcontractors and suppliers receiving compensation for Work performed on the Project.

7.4 Title to the Work

The parties agree that the City shall have title to all components and aspects of the Project which are in place and title to all materials for which any payment has been made to the Design-Build Team hereunder.

7.5 Workforce Requirements

(a) Objectives of Expanded Pilot Program**.** The City is committed to developing and implementing an Expanded Pilot Workforce Program for the Colorado Convention Center Expansion design build construction contract that will increase outreach, training, job opportunities and employment of people in economically disadvantaged areas and populations. In addition, the City is committed to addressing shortages in qualified construction workers generally and in Targeted Categories by increasing the number of apprentices and pre-apprentices.

(b) Targeted Categories**.** "Targeted Categories" are the Targeted Areas and Targeted Populations defined below.

(c) Targeted Areas. "Targeted Areas" are economically disadvantaged areas of the City identified by zip code on the map attached as **Exhibit L.**

(d) Targeted Populations. "Targeted Populations" are:

(i) Veterans - A "Veteran" is any person who has served any amount of time in any branch of the United States Armed Forces.

(ii) Formerly Incarcerated Individuals – A "Formerly Incarcerated Individual" is anyone incarcerated for any amount of time because of a felony conviction.

(iii) TANF recipients – Individuals who have been Temporary Assistance for Needy Families ("TANF") Recipients within the last two years.

(iv) History of Homelessness – People have a History of Homelessness if they are living in a place not meant for human habitation, in an emergency shelter, in transitional housing or are exiting an institution where they temporarily resided. People who lose their primary nighttime residence, which may include a motel or hotel, or a doubled-up situation also have a History of Homelessness. Individuals who are or have in the past two years lived in public or private shelters, transitional housing have a History of Homelessness.

(v) Exiting the foster care system - Individuals who attest that they have aged out of the foster care system, or who have attained 16 years of age and left foster care for kinship, guardianship or adoption qualify as having exited the foster care system whether or not they return to their foster families before turning 18.

(vi) Graduates of pre-apprentice programs approved by the City's Office of Economic Development in partnership with WORKNOW.

(e) Apprenticeship.

(i) Overall Apprenticeship Requirement: Fifteen percent (15%) of Construction Hours will be performed by apprentices in registered apprenticeship programs ("Overall Apprenticeship Requirement").

(ii) Targeted Category Requirement: Twenty-five percent (25%) of the Overall Apprenticeship Requirement that are performed by Colorado residents will be performed

by apprentices in registered apprenticeship programs who reside in Targeted Areas or that are from Targeted Populations ("Targeted Category Requirement").

(iii) First Year Apprentice Requirement: Twenty-five percent (25%) of the Overall Apprenticeship Requirement will be performed by first year apprentices in registered apprenticeship programs ("First Year Apprenticeship Requirement").

(iv) Apprentices may be counted in all applicable categories for purposes of meeting the requirements in 7.5.5.1, 7.5.5.2 and 7.5.5.3.

(v) "Construction Hours" are the hours of every worker, mechanic or other laborer employed by Design-Build Team or its subcontractors in the work of construction, alteration, improvement, maintenance or demolition as documented in LCPtracker.

(f) Failure to Achieve Overall Apprenticeship Requirements.

(i) Design-Build Team must exercise good faith efforts to meet or exceed the Overall Apprenticeship Requirement. Design-Build Team's failure to deliver this scope item and achieve the stated Overall Apprenticeship Requirement as established by the apprentice work hours reflected in LCPtracker (or its replacement if LCPtracker is replaced) will result in a reduction in payment to Design-Build Team. If Design-Build Team does not meet or exceed the Overall Apprenticeship Requirement at substantial completion, the City will reduce Design-Build Team's final payment by $29 for each hour of apprentice work not achieved as reflected by LCPtracker up to a maximum of $500,000. Design-Build Team's final payment shall not be reduced if it negotiates and the City approves a compliance plan.

(g) Workforce Platform. Design-Build Team shall utilize the City's common workforce platform ("WORKNOW") and coordinate its workforce efforts with any supporting program.

(h) Workforce Plan. Design-Build Team's approved Workforce Plan is attached as **Exhibit K**. Design-Build Team shall comply with all requirements of its approved Workforce Plan. The approved Workforce Plan shall at a minimum address:

(i) Specific additional actions Design-Build Team will take to increase outreach, training, job opportunities and employment in Target Categories.

(ii) Design-Build Team's commitment to coordinate and interface with WORKNOW.

(iii) Specific actions Design-Build Team will take to meet the City's Apprenticeship Requirements.

(iv) Mandatory Reporting Requirement: Periodic reporting of progress meeting specific goals consistent with the objectives of the Pilot Workforce Program including data on outreach, training, job opportunities and the employment of people in Targeted Categories and apprentices.

(v) A Workforce coordinator who will be the central point of contact for workforce issues.

7.6 Compliance with Minority/Women Owned Business Enterprise Requirements

(a) This Design-Build Contract is subject to all applicable provisions of Article III, Divisions 1 and 3 of Chapter 28 of the DRMC (the "M/WBE Ordinance") and all rules and regulations promulgated pursuant thereto. In accordance with the requirements of the M/WBE Ordinance, the Design-Build Team is committed to, at a minimum, meet the participation goal of Twenty Two percent (22%) established for the design aspect of this Project (Design Goal), utilizing properly certified M/WBE subcontractors and suppliers, as set forth in this Contract and the supporting Letters of Intent. The Design Goal must be met with certified participants as set forth in Section 28-55, D.R.M.C. or through the demonstration of a sufficient good faith effort under Section 28-67, D.R.M.C. For compliance with good faith effort requirements under Section 28-62(b)(2), the percentage solicitation level required for this Project is 100%. The Design-Build Team identified in its Proposal MBE and/or WBE firms with which it intends to

subcontract for design related services under this Agreement, with a total participation level by such firms of Twenty-Two percent (22%).

(b) In accordance with the requirements of the M/WBE Ordinance, the Design-Build Team is committed to, at a minimum, meet the participation goal of seventeen percent (17%) established for the construction aspect of this Project (Construction Goal), utilizing properly certified M/WBE subcontractors and suppliers. In accordance with Section 28-60(b) and all rules and regulations promulgated pursuant thereto, the Executive Director has authorized the utilization of a compliance plan to address the Construction Goal for this Project. Upon execution of this Design-Build Contract, the Design-Build Team will update for the review and approval of the Director the Division of Small Business Opportunity ("DSBO") the compliance plan submitted with the response to the RFP for meeting the requirements of the M/WBE Ordinance. At a minimum, the proposed compliance plan shall comply with all requirements of the rules and regulations pertaining to such plans and shall be approved in writing by the Director of DSBO. Upon such approval, the plan will be incorporated into this Design Build Contract.

(c) Without limiting the general applicability of the foregoing, the Design-Build Team acknowledges its continuing duty, pursuant to Section 28-72 DRMC, to meet and maintain throughout the duration of this Design-Build Contract its participation and compliance commitments and to ensure that all subcontractors subject to the M/WBE Ordinance also maintain such commitments and compliance. Failure to comply with these requirements may result, at the discretion of the Director of DSBO, in the imposition of sanctions against the Design-Build Team in accordance with Section 28-77, DRMC. Nothing contained in this Section 7.6 or in the M/WBE Ordinance shall negate the City's right to obtain prior approval of subcontractors, or substitutes therefor, under this Design-Build Contract.

7.7 Compliance with Wage Rate Requirements

(a) Contractor shall comply with, and agrees to be bound by, all requirements, conditions and City determinations regarding the Payment of Prevailing Wages Ordinance, Sections 20-76 through 20-79, D.R.M.C. including, but not limited to, the requirement that every covered worker working on a City owned or leased building or on City-owned land shall be paid no less than the prevailing wages and fringe benefits in effect on the date the bid or request for proposal was advertised. In the event a request for bids, or a request for proposal, was not advertised, Contractor shall pay every covered worker no less than the prevailing wages and fringe benefits in effect on the date funds for the contract were encumbered.

Date bid or proposal issuance was advertised: July 12, 2019.

If contract opportunity was not advertised, date of written encumbrance: n/a.

(b) Prevailing wage and fringe rates will adjust on the yearly anniversary of the actual date of bid or proposal issuance, if applicable, or the date of the written encumbrance if no bid/proposal issuance date is applicable. Unless expressly provided for in this Agreement, Contractor will receive no additional compensation for increases in prevailing wages or fringe benefits.

(c) Contractor shall provide the Auditor with a list of all subcontractors providing any services under the contract.

(d) Contractor shall provide the Auditor with electronically-certified payroll records for all covered workers employed under the contract.

(e) Contractor shall prominently post at the work site the current prevailing wage and fringe benefit rates. The posting must inform workers that any complaints regarding the payment of prevailing wages or fringe benefits may be submitted to the Denver Auditor by calling 720-913-5000 or emailing auditor@denvergov.org.

(f) If Contractor fails to pay workers as required by the Prevailing Wage Ordinance, Contractor will not be paid until documentation of payment satisfactory to the Auditor has been provided. The City may, by written notice, suspend or terminate work if Contractor fails to pay required wages and fringe benefits.

7.8 Minimum Wage

Design-Build Team shall comply with, and agrees to be bound by, all requirements, conditions, and City determinations regarding the City's Minimum Wage Ordinance, Sections 20-82 through 20-84 D.R.M.C., including, but not limited to, the requirement that every covered worker shall be paid no less than the City Minimum Wage in accordance with the foregoing D.R.M.C. Sections. By executing this Agreement, Design-Build Team expressly acknowledges that Design-Build Team is aware of the requirements of the City's Minimum Wage Ordinance and that any failure by the Design-Build Team, or any other individual or entity acting subject to this Agreement, to strictly comply with the foregoing D.R.M.C. Sections shall result in the penalties and other remedies authorized therein.

7.9 Applicable Laws

This Design-Build Contract between the Design-Build Team and the City shall be deemed to have been made in the City and County of Denver, State of Colorado and shall be subject to, governed by and interpreted and construed in accordance with the laws of the State of Colorado and the Charter, the Revised Municipal Code, Rules, Regulations, Executive Orders and fiscal rules of the City. Design-Build Team shall at all times comply with the provisions of the Charter, Revised Municipal Code, Rules, Regulations, Executive Orders and fiscal rules of the City, and all other federal, state, and local laws, codes, ordinances, permits, rules, regulations, and guidelines which in any manner limit, control, or apply to the Work and/or the actions or operations of the Design-Build Team, including any subcontractors, employees, agents or servants of the Design- Build Team engaged in the Work or affecting the materials and equipment used in the performance of the Work, as the same may be, from time to time, promulgated, revised, or amended, including, without limitation, all such laws, rules, and regulations relating to safety and the protection of health and the environment (including the Environmental Requirements, as defined in the Special Conditions) and the laws, rules, regulations, and guidelines known as the Americans with Disabilities Act (ADA) (collectively, the "Applicable Laws"). The Charter and Revised Municipal Code of the City, as the same may be amended from time to time, are hereby expressly incorporated into this Design-Build Contract as if fully set out herein by this reference.

7.10 Appropriation and Encumbrance

Notwithstanding any other term, provision, or condition herein, all payment obligations under this Construction Contract shall be limited to the funds appropriated or otherwise made available by the Denver City Council, paid into the Treasury of the City and encumbered for this contract. As of the date of this Design-Build Contract, One Hundred Million Dollars and no/100 Cents ($100,000,000.00) have been appropriated and encumbered for this Construction Contract. This amount includes Ninety-Five Five Million Dollars and no/100 Cents ($95,000,000.00) for Work included in the Lump Sum Contract Amount and Five Million Dollars and no/100 Cents ($5,000,000.00) for Change Orders (including Change Directives) executed in compliance with the terms of this Design-Build Contract. Any Work performed, or costs incurred, by Design-Build Team exceeding the amount appropriated for Work included in the Lump Contract Amount or Work performed pursuant to a Change Order exceeding the amount appropriated for Change Orders is done without authorization and at Design-Build Team's sole risk. The Project Manager will notify Design-Build Team when additional funds are appropriated and encumbered for this Construction Contract by providing Design-Build Team with a fully executed Appropriation and Encumbrance Form – attached as **Exhibit N**. The Appropriation and Encumbrance Form is only valid when signed by the Project Manager and the Chief Financial Officer or his/her designee. The issuance of any form of order or directive by the City which would cause the amount payable to the Design-Build Team

to exceed these amounts is expressly prohibited. In no event shall the issuance of any Change Order or other form of order or directive by the City be considered valid or binding if it requires additional compensable Work to be performed, which Work will cause the amount payable for such Work to exceed the amount appropriated and encumbered for Change Orders, unless and until such time as the Design-Build Team has been advised in writing by a fully executed Appropriation and Encumbrance Form that a an appropriation and encumbrance sufficient to cover the entire cost of all Change Orders has been made. It shall be the responsibility of the Design-Build Team to verify that the amounts already appropriated and encumbered are sufficient to cover the entire cost of such Work. Work undertaken or performed in excess of the amounts appropriated and encumbered is undertaken or performed in violation of the terms of this Agreement, without the proper authorization for such Work, and at the Design-Build Team's own risk and sole expense.

7.11 City Council Approval

Approval by the City Council of the City and County of Denver, acting by ordinance, in accordance with Section 3.2.6 of the Charter of the City and County of Denver, is and shall be an express condition precedent to the lawful and binding execution and effect and performance of this Design-Build Contract.

7.12 Assignment Strictly Prohibited.

The Design-Build Team shall not assign or otherwise transfer, in whole or in part, any of its rights, benefits, claims, obligations, duties or entitlement to monies owed or which may become due under this Construction Contract, except upon the prior written consent and approval of the Executive Director to such assignment. The Design-Build Team acknowledges that the City has leased portions of the site upon which construction is to occur to the Denver Public Facilities Leasing Trust 2018A (2018A Trust). The City leases back the site in order to construct and equip the Project and, upon completion, to utilize for Convention Center purposes. In the event the City fails to make rental payments to the 2018A Trust, the 2018A Trust may take over the Project from the City and may require the City to assign this agreement for purposes of completing construction of the Project. The Design-Build Team has no objection to the assignment and if requested by the Trustee of the 2018A Trust shall timely provide written consent to the assignment to the 2018A Trust.

7.13 Taxes, Charges and Penalties

Except as provided in the City's Prompt Payment ordinance, codified at DRMC Sections 20-107, 20-108 and 20-109, the City shall not be liable for the payment of any taxes, late charges, interest or penalties of any nature arising out of this Design-Build Contract.

7.14 Waiver of C.R.S. 13-20-802 *et. seq*.

The Design-Build Team specifically waives all the provisions of Part 8 of Article 20 of Title 13, Colorado Revised Statutes regarding defects in the Work under this Design-Build Contract.

7.15 Proprietary or Confidential Information

(a) City Information: The Design-Build Team understands and agrees that, in performance of this Design-Build Contract, the Design-Build Team may have access to private or confidential information that may be owned or controlled by the City and that such information may contain proprietary or confidential details, the disclosure of which to third parties may be damaging to the City. The Design-Build Team agrees that all information disclosed by the City to the Design-Build Team shall be held in confidence and used only in performance of the Design- Build Contract. The Design- Build Team shall exercise the same standard of care to protect such information as a reasonably prudent Design-Build Team would to protect its own proprietary data.

(b) Design-Build Team Information: The parties understand that all the material provided or produced under this Design-Build Contract may be subject to the Colorado Open Records Act, C.R.S. 24-72-

201, et seq., ("CORA") and that in the event of a request to the City for disclosure of such information, the City shall advise the Design-Build Team of such request in order to give the Design-Build Team the opportunity to object to the disclosure of any of its proprietary or confidential material. In the event of the filing of a lawsuit to compel such disclosure, the City will tender all such material to the court for judicial determination of the issue of disclosure and the Design-Build Team agrees to intervene in such lawsuit to protect and assert its claims of privilege against disclosure of such material. The Design-Build Team further agrees to defend, indemnify and save and hold harmless the City, its officers, agents and employees, from any claim, damages, expense, loss or costs arising out of the Design-Build Team's intervention to protect and assert its claims of privilege against disclosure under this Section including, but not limited to, prompt reimbursement to the City of all reasonable attorney fees, costs and damages that the City may incur directly or may be ordered to pay by such court.

7.16 Status of Design-Build Team

It is understood and agreed that the status of the Design-Build Team shall be that of an independent contractor retained on a contractual basis to perform work or services for limited periods of time, and it is not intended, nor shall it be construed, that the Design-Build Team, or any member of its staff or any consultant, is an employee or officer of the City for any purpose whatsoever.

7.17 Rights and Remedies Not Waived

No payment or failure to act under the Design-Build Contract by the City shall constitute a waiver of any breach of covenant or default which may then exist on the part of the Design-Build Team. No assent, expressed or implied, by either party to any breach of the Design-Build Contract shall be held to be a waiver of any default or other breach.

7.18 Notices

Any notices, demands, or other communications required or permitted to be given by any provision of this Design-Build Contract shall be given in writing, delivered personally or sent by registered mail, postage prepaid and return receipt requested, addressed to the parties at the addresses set forth herein or at such other address as either party may hereafter or from time to time designate by written notice to the other party given in accordance herewith. Notice shall be considered received on the day on which such notice is actually received by the party to whom it is addressed, or the third (3rd) day after such notice is mailed, whichever is earlier. Unless changed in writing, such notices shall be mailed to:

If to the Design-Build Team:

Hensel Phelps Construction Co
Attn: Allan Bliesmer
12121 Grant Street
Suite 410
Thornton, CO 80241

If to the City:

Manager of the Department of Transportation & Infrastructure
City and County of Denver
201 W. Colfax, Dept. 608
Denver, CO 80202

With a copy to:

Denver City Attorney Municipal Operations
201 W. Colfax Ave. Dept. 1207
Denver, CO 80202

7.19 Survival of Certain Provisions

The parties understand and agree that all terms, conditions and covenants of this Design-Build Contract, together with the exhibits and attachments hereto, if any, any or all of which, by reasonable implication, contemplate continued performance or compliance beyond the expiration or termination of this Design-Build Contract (by expiration of the term or otherwise), shall survive such expiration or termination and shall continue to be enforceable as provided herein. Without limiting the generality of the foregoing, the Design-Build Team's obligations for the provision of insurance, for indemnity to the City and for preserving confidentiality of trade secrets and other information shall survive for a period equal to any and all relevant statutes of limitation, plus the time necessary to fully resolve any claims, matters, or actions begun within that period.

7.20 Contract Binding

It is agreed that this Design-Build Contract shall be binding on and inure to the benefit of the parties hereto, their heirs, executors, administrators, successors and duly authorized assigns.

7.21 Section Headings

The captions and headings set forth herein are for convenience of reference only and shall not be construed so as to define or limit the terms and provisions hereof.

7.22 Severability

It is understood and agreed by the parties hereto that, if any part, term, or provision of this Design-Build Contract, except for the provisions of this Design-Build Contract requiring prior appropriation and limiting the total amount to be paid by the City, is by the courts held to be illegal or in conflict with any law of the State of Colorado, the validity of the remaining portions or provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Design-Build Contract did not contain the particular part, term or provision held to be invalid.

7.23 Use, Possession of Sale of Alcohol or Drugs

The Design-Build Team shall cooperate and comply with the provisions of Executive Order 94 and its Attachment A concerning the use, possession or sale of alcohol or drugs. Violation of these provisions or refusal to cooperate with implementation of the policy can result in contract personnel being barred from City facilities and from participating in City operations.

7.24 Electronic Signatures and Electronic Records

Contractor consents to the use of electronic signatures by the City. The Agreement, and any other documents requiring a signature hereunder, may be signed electronically by the City in the manner specified by the City. The Parties agree not to deny the legal effect or enforceability of the Agreement solely because it is in electronic form or because an electronic record was used in its formation. The Parties agree not to object to the admissibility of the Agreement in the form of an electronic record, or a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature, on the ground that it is an electronic record or electronic signature or that it is not in its original form or is not an original.

[SIGNATURE PAGES FOLLOW]

Contract Control Number: DOTI-202055290-00
Contractor Name: HENSEL PHELPS CONSTRUCTION CO.

IN WITNESS WHEREOF, the parties have set their hands and affixed their seals at Denver, Colorado as of:

SEAL

CITY AND COUNTY OF DENVER:

ATTEST:

By: _____

_____

APPROVED AS TO FORM:

Attorney for the City and County of Denver

By: _____

REGISTERED AND COUNTERSIGNED:

By: _____

By: _____

Contract Control Number: DOTI-202055290-00
Contractor Name: HENSEL PHELPS CONSTRUCTION CO.

By: _____

Name: Allan Bliesmer
(please print)

Title: District Manager / VP
(please print)

ATTEST: [if required]

By: _____

Name: JASON C. WALLACK
(please print)

Title: OPERATIONS MANAGER
(please print)

Exhibit A

Design-Build Requirements

Exhibit A – Design-Build Requirements

The expansion will add approximately 220,000 gross square feet in a new level on top of the existing Colorado Convention Center, including approximately 80,000 square feet of flexible meeting space. The meeting space will be capable of being configured as a single, large room for ballroom-style events, or divided into at least 18 smaller meeting rooms, each with independent controls and functionality, and with the flexibility to set and service the space in various configurations and sizes.

The expansion will provide supporting spaces, including approximately 30,000 square feet of pre-function (lobby) space with views of the Rocky Mountains and city skyline, configured to facilitate use for stand-alone events and provide operational flexibility, a kitchen of approximately 18,000 square feet, an outdoor terrace, restrooms, elevators and escalators from lower levels, and supporting back-of-house spaces.

The expansion will comply with the City of Denver's Green Building Ordinance (XO123), provide code and life safety improvements , and include features that improve the quality and character of the facility and guest experience, enhancing technology and connectivity, and delivering flexible and unique spaces, all of which will keep the facility vibrant and attractive for years to come.

The Design-Build Team shall deliver the expansion in accordance with the following documents, which are incorporated herein by reference. In the event of a conflict between provisions of any of the documents which cannot be resolved by giving effect to both provisions, the order of precedence shall be as listed below:

- Attachment 1 – Program Room Data Sheets
- Attachment 2 – Program Narratives
- Attachment 3 – Differentiation Document
- Attachment 4 – Preliminary Program Area Summary
- Attachment 5 – Preliminary Concept Plan
- Attachment 6 – Preliminary Schedule

Attachments (6)

COLORADO CONVENTION CENTER EXPANSION

Exhibit A – Design-Build Requirements

Attachment 1 – Program Room Data Sheets

Rev. 23 Jul 2020

CONTENTS

Group:

1. PUBLIC SPACES

Space / Room Name:

1.1 Multi-Function Space

Space Function

The Multi-Function room will be designed to accommodate exhibits, large banquets, plenary sessions, lectures, meetings, and receptions. Events will make use of audio-visual equipment and will require food and beverage service. The room will be capable of being divided into at least 18 meeting rooms. The character of the room will be that of a Ballroom with carpeted floors and a finished ceiling.

Area (SF) and Key Dimensions

- (approximately) 80,000 Sq. ft.
- The room must be column-free.
- Dimensions should be in modules of 30'-0" in each direction where possible.
- Minimum clearance to the bottom of the ceiling should be 30'-0".

Occupancy

- Deviation from IBC 2018: Based on approval of the Authorities Having Jurisdiction, the occupant load will be posted based on a total population of 8,000 for the combined Multi-Function Level.

Doors, Windows and Movable Partitions

- Provide operable walls for division of room into smaller spaces. Meeting Room sub-dividable size shall be approximately 1,800 sf each (30'x60'), resulting in at least 18 rooms at the smallest division, with consideration given to exiting criteria.
- Operable walls shall be finished with manufacturer's standard fabric.
- Operable walls shall have code complaint doors for exiting, public and service access. Door hardware should utilize concealed rods and closers with smooth, quiet operation. Stops must be within overhead closer or on walls (not on floor).
- Natural light is not required, but if provided must have blackout shades.

Architectural Finishes

- FLOOR: Custom Axminister carpet.
- WALLS: Abuse resistant finishes up to 4' above floor, acoustical panels, gypsum board, finish panels.
- BASE: Impact resistant base
- CEILING: Highly finished ceiling appropriate for a premier hospitality space that accommodates functional requirements of the rooms.
- OTHER: Protect corners as required with impact resistant corner guards, Consistent with existing building.

Heating, Ventilation and Air Conditioning

- Provide independent and ganged controls for each possible configuration of the meeting rooms.

Electrical

- Provide recessed 30A, 208V (NEMA L21-30) Legrand EFB6S (or equal) floor boxes on 30-foot centers each way
- Provide (4) 100A, 208V receptacles within Multi-Function Floor.
- The floor boxes will be circuited similar to the expansion Exhibit Hall floor boxes with alternating floor boxes on a circuit. A maximum of 2 floor boxes per circuit. Lid of utility floor box should be capable of receiving a carpet inset to match adjacent carpet.
- Provide recessed wall utility boxes at each large divisible space with (2) 30A, 208V (NEMA L21-30) and (1) 100A, 208V (Pin and Sleeve). Provide wall receptacles in service corridor in lieu of wall boxes
- Provide 4" mouse hole (similar to the expansion) at each recessed wall box above.
- Provide (4) sets of fused disconnects: (2) 400A, 120/208V, cam-locs and (1) 200A, 480V, cam-locs. Provide similar to what is in the expansion ballroom.
- Provide pathway from floor box for low voltage cable to Telecom Room.

Acoustics

- Noise Criteria level: NC 30 max for individual rooms
- Noise Criteria level: NC 35 max for overall room
- Reverberation time (T60) of each divisible room: < 0.8 seconds
- Reverberation time (T60) overall room: < 1.4 seconds
- Minimum separation between divided rooms: STC 50
- Minimum separation between Pre-Function and Multi-Function Room: STC 50
- Minimum separation from service corridors to Multi-Function Room: STC 50

Audio-Visual

- Provide a zoned public address system for voice and program audio and for ambient music. A Bi-Amp system and control will be provided.
- Provide distributed ceiling speakers.
- Provide network audio control and processing with interface to allow mass notification system to mute system. Background music assignment and volume control will be through audio processing.

- OTHER: Electrically operated blackout shades at any window locations.
- OTHER: Cable management channels integrated in base and door openings.

Structure

- Clear span. There should be no columns within the space.
- Floor live load: 150 psf. non-reducible
- Ceiling Rigging Capacity: 2,000 lbs per hanging point with hanging points at 30'-0" on center each way. Total hanging load will not exceed 30,000 lbs. in one 90'-0" x 90'-0" structural bay.
- Provide 8 pts. @ 1500 lb rigging points for lighting bars at stage along east, south, and west walls.
- Consider deflection criteria for movable partitions in structural design.
- Design floors for concentrated live loads of 3,000 pounds with a total equipment weight limit of 10,000 pounds for scissor lift, pallet truck, or other miscellaneous equipment.

Lighting

- Fixtures should not hang lower that the 30'-0" overhead clearance required.
- TYPE: LED dimmable down lights, LED architectural lights for accent and LED theatrical lighting/track for head table locations.
- CONTROLS: Provide programmable dimming lighting control system with minimum of (4) programmable touch screens at public side and (1) 2 button on/off at service side of each room division. Provide (15) control zones per 20,000 sq ft. All DMX fixtures shall be individual addressable.
- LEVEL: 40-50 foot-candles
- AV touch screen tablets that allow full operability of the lighting system for any room configuration.

- Provide audio, video, and AV network inputs at walls and in floor boxes at locations designed for stages or head tables, with at least one in every possible meeting room. In addition, provide a minimum of 12 touch screen tablets that allow full operability of the AV system.
- Provide assignable wireless microphone reinforcement.
- Other audio and video equipment will be portable and will be set up as required by the event. This portable equipment will tie into the house systems.
- RF assisted listening system will be provided by a portable ALS System.
- Provide fiber/copper interconnects to existing infrastructure for broadcast trucks.
- Provide LED panels at each entrance, size and mounting coordinated with graphics, coordinate software requirements with Owner.
- Cable TV System outlets.

Telecom

- Provide (6) Cat6A UTP data cables terminated with RJ45 outlet at each floor utility box for telephone, data, POS, and TV.
- Provide Cat6A UTP data cables with RJ45 outlets for Wi-Fi.
- Provide (high-density) Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security

- Provide Proximity/Smart Card Reader control at main entry doors, monitored in the Central Security Office.
- Provide CCTV cameras for monitoring perimeter doors

Plumbing

- Provide one hose bibb and drain at 4 points along the Service Corridor wall of the Multi- Function Room.

Graphics

- ADA signage required
- LED screens at entries
- Static signage, legible from distance in Pre-function space, perpendicular to wall
- Fire Evacuation plaques at Exit Doors

Group:	*Space / Room Name:*
1. PUBLIC SPACES	**1.1 Multi-Function Space**
	• Motorized retractable signage banners at each operable wall entry door installed in the ceiling, refer to RCP for locations or similar system as approved by Owner **Furniture, Fixtures & Equipment** • N/A

Group:

1. PUBLIC SPACES

Space / Room Name:

1.2 Public Restrooms

Space Function
Restrooms fixture count and capacity for building guests per building code. Restrooms should have at least two locations and should be highly visible and accessible to guests from the Pre-Function space. Two women's, two men's, and two gender neutral / family restrooms should be provided.

Area (SF) and Key Dimensions
- Determined by required fixture count.

Occupancy
- N/A

Doors, Windows and Movable Partitions
- Where restroom layout allows, provide movable partition for changeable restroom size.

Architectural Finishes
- FLOOR: Porcelain tile
- WALLS: Porcelain tile on wet walls to ceiling
- BASE: Porcelain tile
- CEILING HT.: 9'-0" min
- CEILING: Painted gypsum board above toilet partition and vanities footprint. Acoustical ceilings throughout the rest of the space
- OTHER: Stone or similar countertops
- OTHER: Full height stainless steel toilet partitions
- OTHER: Painted access panels to match surrounding surfaces

Structure
- Live Load Capacity: Per occupancy served.
- At vanities, provide concealed steel supports to support the weight of the countertops. Any exposed steel shall be painted to match adjacent surface.

Lighting
- TYPE: LED cove, down, and decorative accent lighting.
- CONTROL: Occupancy sensors
- LEVEL: 30 foot-candles at countertop

Heating, Ventilation and Air Conditioning
- Exhaust as required by code
- Ensure that toilet rooms are heated and cooled to a comfortable level throughout the year

Electrical
- (2) 120V, 20A, 1P (NEMA 5-20) for convenience and housekeeping
- Power to paper towel dispensers, automatic flush toilets, faucets, and soap dispensers.

Acoustics
- Provide STC 55 minimum wall partitions to isolate restrooms from the adjacent spaces.
- Attach plumbing to bathroom side of riser only with no contact to meeting room side.

Audio-Visual
- Background paging

Telecom
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security
- N/A

Plumbing
- Water-saving toilets, urinals, and lavatories with electronic flush valves and faucet.
- Floor drains
- One hose bib with lockable cover

Graphics
- ADA compliant room identification as required by code

Furniture, Fixtures & Equipment
- Typical restroom fixtures with automatic operation
- Provide direct power to all accessories such as but not limited to faucets, soap dispensers, and paper towel dispensers.

Space Function
The Pre-Function Space serves as the lobby for and the circulation to Multi-Function Room. Public vertical circulation from the street level will arrive in this area. The Pre-Function Space will include areas for gathering prior to and breaks during events. The space will also host independent receptions, (which will not be concurrent with events in the Multi-Function room) which will include food and beverage service and light exhibits. Registration zones will be located adjacent to each entry door into Multi-Function Room.

Area (SF) and Key Dimensions
- Approximately 30,000 sq. ft.
- 30’ deep from Multi-Function Hall to majority of outside wall.
- Direct access from all Multi-Function public doors indicate that the Pre-Function width should match the Multi-Purpose width

Occupancy
- No cumulative occupancy. People occupying this space are counted in the Multi-Function Room.

Doors, Windows and Movable Partitions
- All exterior glazing should be high performance insulated units. Curtainwall systems should be visually compatible with the remainder of the Convention Center systems.
- Curtainwall, opening to terrace, will be capable of having three openings. This arrangement will allow the Pre-Function and Terrace to function as one space. These large exterior openings will have an air curtain to allow use in variable weather conditions.

Architectural Finishes
- FLOOR: Custom Axminister Carpet pattern with a large format porcelain floor tile around perimeter of exterior curtain wall.
- WALLS: Painted abuse resistant gypsum board, decorative finishes and acoustic treatments
- BASE: Impact Resistant Base
- CEILING HT.: Varies.
- CEILING: Acoustical treatment, gypsum board (function)
- OTHER: Corner protection as required Decorative lighting incorporated into architectural features
- GFRG or Snap together aluminum column covers with metal finish.

Structure
- Live Load Capacity = 150 psf. non-reducible
- Ceiling Rigging Capacity: 1,500 lbs per hanging point with hanging points at 30'-0" on center each

Heating, Ventilation and Air Conditioning
- HVAC to provide heating and cooling for comfort and to address potential solar heat gain.

Electrical
- Provide 120V, 20A, 1P (NEMA 5-20) recessed floor/wall box on column locations or 45-foot centers along exterior walls and wall receptacles along interior walls. Lid of utility floor box should be capable of receiving a carpet inset to match adjacent carpet. (3) locations will have 60A Pin & Sleeve connection.
- (3) of the floor boxes mentioned above will also include a 100A, 208V (Russellstoll) DS1516FR000) receptacle.

Acoustics
- Noise Criteria level: NC 40 max
- Reverberation time (T60): <2 seconds
- Minimum separation between Pre-function and Multi-Purpose Room: STC 50

Audio-Visual
- Provide a zoned public address system for voice and program audio and for ambient music. The Bi-Amp system and control will be expanded.
- Ceiling/wall speakers as required.
- Provide audio/video inputs at walls or in floor boxes (AV network enabled).
- Provide network audio control and processing with interface to allow mass notification system to mute system.
- Provide assignable or portable/wireless microphone reinforcement.
- Any audio and video equipment will be portable and will be set up as required by the event. This portable equipment will tie into the house systems.

Telecom
- Provide (6) Cat6A UTP data cables terminated with RJ45 outlet at each floor utility box for telephone, data, POS, and TV.
- Provide Cat6A UTP data cables with RJ45 outlets for Wi-Fi. Provide (high-density) Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area

way. Total hanging load will not exceed 30,000 lbs. in one 90'-0" x 90'-0" structural bay.
- Design floors for concentrated live loads of 3000 pounds with a total equipment weight limit of 10,000 pounds for scissor lift, pallet truck or other miscellaneous equipment

Lighting
- Ceiling lighting should not reduce the minimum clear height.
- TYPE: LED downlights and LED architectural fixtures.
- CONTROLS: Provide dimmable controls for fixtures and connect to dimming system. All non-dimming lighting to be controlled by programmable lighting system. Daylight sensors shall be provided in areas with adequate natural light. Lighting controls should be responsive to daylight, dimming lighting as the ambient light level increases. Multiple scenes shall be pre-programmed for the space. Provide (1) programmable touch screen.
- LEVEL: 25-30 foot-candles

Security
- Provide CCTV cameras for monitoring area and vertical transportation.
- Provide access control on exterior doors.

Plumbing
- Provide water and drain capabilities with lockable cover plates at three (3) portable food cart location(s).

Graphics
- ADA compliant signage as required by code
- Wayfinding signage, fixed, legible from the vertical circulation points (displays included in audiovisual requirements)
- Monitors at Multi-Function entrances to be included for events to display logos, corporate media, etc. (displays included in audiovisual requirements)

Furniture, Fixtures & Equipment
- N/A

Group:

1. PUBLIC SPACES

Space / Room Name:

1.4 Rooftop Terrace

Space Function
New outdoor terrace adjacent to expansion Pre-Function Space. Terrace should be designed to host light exhibits and receptions as well as serving as additional Pre-Function space.

Area (SF) and Key Dimensions
- Approximately 20,000 sq. ft.
- Extent of space will be determined by layout

Occupancy
- No cumulative occupancy. People occupying this space are counted in the Multi-Function Room.

Doors, Windows and Movable Partitions
- A wind break that does not obstruct views should be considered at the perimeter of the Rooftop Terrace similar to the wind screen at the upper D Lobby.

Architectural Finishes
- FLOOR: Pavers or cast-in-place topping slab over a waterproofing deck system.
- WALLS: Glass Wind Screen at Terrace perimeter
- BASE: N/A
- CEILING HT: N/A
- CEILING: N/A
- OTHER: Plaza deck system with hot-applied rubberized asphalt waterproofing membrane.

Structure
- Live Load Capacity = 150 psf. non-reducible Integral tie-downs for temporary tents and shade structures.
- Design floors for concentrated live loads of 3,000 pounds with a total equipment weight limit of 10,000 pounds for scissor lift, pallet truck or other miscellaneous equipment.

Lighting
- TYPE: LED wall mounted and architectural fixtures to create mood or highlight special building features
- CONTROLS: All fixtures controlled by lighting control system and time clock.
- LEVEL: code minimum

Heating, Ventilation and Air Conditioning
- N/A

Electrical
- (1)_60A, 4P (Pin & Sleeve) receptacle.
- Provide (2) 100A, 208V (Russellstoll DS1516FR000) receptacle Combination box with technology devices.
- Provide 120V, 20A, 1P (GFCI, WP, NEMA 5-20) convenience outlets, along interior curtainwall and perimeter, at 60 feet on centers. Provide weatherproof while in use cover
- Provide (1) - 200A, 120/208V fused disconnect with cam-locs. Isolated power. 100A, 208V (Russellstoll DS1516FR000) receptacle.

Acoustics
- N/A

Audio-Visual
- Provide outdoor-rated loudspeakers
- Provide dedicated audio, video, and AV network jacks in outdoor-rated boxes for video and audio distribution
- Any audio and video equipment will be portable and will be set up as required by the event. This portable equipment will tie into the house systems.

Telecom
- Provide (2) Cat6A UTP data cables terminated with RJ45 outlet at each POS terminal at floor utility boxes, 6 locations.
- Provide Cat6A UTP data cables with RJ45 outlets for Wi-Fi.
- Provide (high-density) Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security
- Provide exterior grade CCTV cameras for monitoring perimeter doors

Plumbing
- Provide water and drain capabilities with lockable cover plates at portable food cart location(s) (3)
- Provide hose bibs with lockable covers for cleaning

Group:	*Space / Room Name:*
1. PUBLIC SPACES	**1.4 Rooftop Terrace**
	• Provide two gas connections for portable fire pits and for outdoor radiant heating devices. • Provide snowmelt system, located in the area of the Pre- Function doors and along exit pathways **Graphics** • N/A **Furniture, Fixtures & Equipment** • N/A

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.1 Staging Pantry

Space Function

Staging pantries are required adjacent to Multi-Function Room and unenclosed within the Service Corridor. Functions include beverage preparation and service, areas for warming and cooling carts, and final prep of plates for service. This area might also be used for clearing and racking soiled service wares.

Area (SF) and Key Dimensions

- Determined by openings into the Multi-Function Room. Staging pantry areas are contained within the Back-of-House Corridor space.

Occupancy

- IBC 2018, Business occupancy with 200 sq. ft. per Person.

Doors, Windows and Movable Partitions

- N/A

Architectural Finishes

- FLOOR: Sealed concrete
- WALLS: Stainless Steel wall paneling at food areas; High Performance paint elsewhere
- BASE: None
- CEILING HT.: 10'-0" min
- CEILING: Vinyl Coated acoustical ceiling tile
- OTHER: Comply with current health codes.

Structure

- Live Load Capacity = 150 psf. non-reducible
- Concentrated live load: 3000 pounds

Lighting

- TYPE: Recessed LED with acrylic diffuser, task lighting at service counters
- CONTROLS: All lights to be on lighting control system with local override 2-button stations.
- LEVEL: 50 foot-candles

Heating, Ventilation and Air Conditioning

- Negative pressure to ensure odors do not travel to Multi-Function room.

Electrical

- Provide 120V, 20A,1P (NEMA 5-20) convenience outlets
- Power as required for food service equipment, anticipate (20) dedicated 20A receptacles and (4) 30A, 3 wire outlets wired from a 100A, 42 cct. 208Y/120V panel in the space.
- Power from ceiling at service pantry work areas

Acoustics

- Noise Criteria level: NC 40 max
- Minimum separation between Pantry and Multi-Function Room: STC 55
- NRC 0.95 minimum ceiling tile, Armstrong Health Zone Optima or equal

Audio-Visual

- N/A.

Telecom

- Provide Cat6A UTP cables terminated with RJ45 outlets at each wall telephone, Wi-Fi, POS, and printer locations.
- Provide Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security

- CCTV to monitor work areas and Multi- Function doors.

Plumbing

- Hand-washing sink Hot and cold water and drains as required by the food service equipment Trench drains at ice making machines

Graphics

- Indication of emergency exiting
- Floor striping to indicate clear exit width in which equipment cannot be stored

Furniture, Fixtures & Equipment

- Refrigerator / Refrigerated carts
- Coffee brewing equipment

Group:	*Space / Room Name:*
2. FOOD SERVICE GROUP	**2.1 Staging Pantry**
	• Beverage table with sink Ice machine with bin • Provisions for Class II food service equipment (portable): • Banquet carts • Queen Marys • Dish dollies • Portable worktables

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.2 Kitchen

Space Function
The new Kitchen will provide food and beverage support to the expansion area Multi-Function Room, Pre-Function Space, and Rooftop Terrace areas. All food preparation for the new areas will take place in this kitchen.

Area (SF) and Key Dimensions
- Approximately 18,000 sq. ft.

Occupancy
- IBC 2018, Business occupancy with 200 sq. ft. per person.

Doors, Windows and Movable Partitions
- Double-acting doors, including large double doors into service corridor for movement of food into service pantries and dishes back into dishwashing areas.

Architectural Finishes
- FLOOR: Epoxy coating
- WALLS: High performance paint; fiber- reinforced plastic paneling at wet and food prep areas and stainless steel paneling at all cook areas; Stainless steel corner guards on all exposed corners
- BASE: Epoxy cove base; rubber base at storage rooms
- CEILING HT.: 9'-0" min
- CEILING: Vinyl coated acoustical ceiling tile

Structure
- Live Load Capacity = 150 psf. non-reducible
- Concentrated live load: 3000 pounds

Lighting
- TYPE: Recessed LED with acrylic diffuser, task lighting at service counters
- CONTROLS: All lights to be on lighting control system with local override 2-button stations.
- LEVEL: 50 foot-candles

Heating, Ventilation and Air Conditioning
- Exhaust and make up air for general conditioning Exhaust hoods and grease duct as required for all cooking equipment Fire suppression equipment at cooking areas General HVAC for comfort

Electrical
- Provide 120V, 20A, 1P (NEMA 5-20) convenience outlets
- Power as required for food service equipment; Dedicated branch circuits for equipment and located in the kitchen space for local disconnecting of appliance requirements.
- All 120V, 20A outlets to be GFCI type
- Power from ceiling for kitchen work tables that are centered between cooking areas.

Acoustics
- NRC 0.95 minimum ceiling tile, Armstrong Health Zone Optima or equal

Audio-Visual
- N/A

Telecom
- Provide wall telephones throughout area. Provide Cat6 UTP data cables at workstations for telephone, data and Wi-Fi at ceiling.
- Provide Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security
- Provide Proximity/Smart Card Reader control at main entry doors, cash counting, vault, and liquor storage monitored in the Central Security Office.
- Provide CCTV cameras for monitoring perimeter doors and vault.

Plumbing
- Hand washing sinks Water, drain, and gas as required by kitchen equipment Trench drains at ice making machines Central grease interceptor

Graphics
- ADA room identification

Group:	*Space / Room Name:*
2. FOOD SERVICE GROUP	**2.2 Kitchen**

	Furniture, Fixtures & Equipment
	• Class I (Fixed) equipment:
	  ○ Walk-in coolers and freezers
	  ○ Ice-making equipment
	  ○ Prep sinks, work sinks, hand-washing sinks
	  ○ Plating tables
	  ○ Fryers
	  ○ 4 Combi Ovens
	  ○ Grilles
	  ○ Hoods with fire suppression equipment
	  ○ Warming / finishing equipment
	  ○ Dry storage areas
	  ○ Beverage equipment
	• Class II (Portable) equipment (location for):
	  ○ Refrigerated carts
	  ○ Banquet carts
	  ○ 24 Queen Marys

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.3 Kitchen Dry Storage

Space Function

Dry storage for non-perishable food and supplies. This space should be along the path from the delivery point for incoming supplies to the kitchen. Within the space, there will be a small staff receiving office.

Area (SF) and Key Dimensions

- TBD. Kitchen Dry Storage area is contained within the total Kitchen area.

Occupancy

- IBC 2018, Storage occupancy with 300 sq. ft. per person

Doors, Windows and Movable Partitions

- Primary entry doors should accommodate large deliveries on pallet jacks.

Architectural Finishes

- FLOOR: Sealed concrete
- WALLS: High performance paint
- BASE: Rubber base
- CEILING HT.: 9'-0" min
- CEILING: Vinyl coated acoustical ceiling tile

Structure

- Live Load Capacity = 150 psf. non-reducible
- •Concentrated live load: 3000 pounds

Lighting

- TYPE: LED strip fixtures
- CONTROLS: All lights to be on lighting control system with local occupancy sensor and override 2-button station.
- LEVEL: Per Code

Heating, Ventilation and Air Conditioning

- Ventilation

Electrical

- Provide 120V, 20A, 1P (NEMA 5-20) convenience outlets

Acoustics

- N/A

Audio-Visual

- N/A

Telecom

- Provide Cat6 UTP data cables with RJ45 outlets for Wi-Fi.
- Provide Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area

Security

- N/A

Plumbing

- N/A

Graphics

- N/A

Furniture, Fixtures & Equipment

- Shelving as required by stored items

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.4 Liquor Storage

Space Function
Liquor Storage is a secured room for storage of all alcohol products. The room will also contain coolers for chilled alcoholic beverages and an area for beer keg storage.

Area (SF) and Key Dimensions
- TBD. Liquor Storage area is contained within the total Kitchen area

Occupancy
- IBC 2018, Storage occupancy with 300 sq. ft. per person.

Doors, Windows and Movable Partitions
- Entry through a secured door.

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: High performance paint
- BASE: Rubber base
- CEILING HT.: 9'-0" min
- CEILING: Vinyl coated acoustical ceiling tile

Structure
- Live Load Capacity = 150 psf. non-reducible
- Concentrated live load: 3,000 pounds

Lighting
- TYPE: LED strip fixtures
- CONTROLS: All lights to be on lighting control system with local occupancy sensor and override 2-button station.
- LEVEL: code approved

Heating, Ventilation and Air Conditioning
- N/A

Electrical
- Provide 120V, 20A, 1P (NEMA 5-20) convenience outlets

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- Provide Cat6 UTP data cables with RJ45 outlets for Wi-Fi.
- Provide Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security
- Provide Proximity/Smart Card Reader control storage monitored in the Central Security Office.

Plumbing
- Condensate drain for coolers

Graphics
- ADA required signage

Furniture, Fixtures & Equipment
- Shelving as required for stored items

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.5 Coffee / Condiment Storage

Space Function
This space is for the storage of condiments. The area should be accessible from the Service Corridor to enable servers access without entering the Kitchen.

Area (SF) and Key Dimensions
- Coffee / Condiment Storage area is contained within the total Kitchen area.

Occupancy
- IBC 2018, Storage occupancy with 300 sq. ft. per person.

Doors, Windows and Movable Partitions
- No special requirements.

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: High performance paint
- BASE: Rubber base
- CEILING HT.: 9'-0" min
- CEILING: Vinyl coated acoustical ceiling tile

Structure
- Live Load Capacity = 150 psf. non-reducible
- Concentrated live load: 3,000 pounds

Lighting
- TYPE: LED strip fixtures
- CONTROLS: All lights to be on lighting control system with local occupancy sensor and override 2-button station.
- LEVEL: 40--50 foot-candles;

Heating, Ventilation and Air Conditioning
- Ventilation

Electrical
- Provide 120V, 20A, 1P (NEMA 5-20) convenience outlets Power for coffee brewing equipment

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- Provide Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Provide Cat6 UTP data cables with RJ45 outlets for Wi-Fi.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area

Security
- N/A

Plumbing
- Sinks, drains, and connections to support coffee brewing.

Graphics
- ADA required signage

Furniture, Fixtures & Equipment
- Shelving and bins as required for stored materials

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.6 Kitchen Walk-In Cooler and Freezer

Space Function

These Walk-In Coolers and Freezers will be located along the path from the delivery area to the Kitchen and will be monitored by the receiving office located in the Dry Storage area. It is preferred that the coolers and freezers are stocked from an outside door and accessed by the kitchen staff from an inside door. Required coolers and freezers include:

- Protein cooler
- Protein freezer
- Beverage cooler
- Produce and dairy cooler
- Central freezer
- In process cooler
- Finished product cooler
- Beer and wine cooler

Area (SF) and Key Dimensions

- Walk-In Coolers and Freezers are contained within the total Kitchen area

Occupancy

- IBC 2018, Storage occupancy with 300 sq. ft. per person

Doors, Windows and Movable Partitions

- As supplied by cooler/freezer manufacturer

Architectural Finishes

- FLOOR: Epoxy flooring
- WALLS: by cooler/freezer manufacturer
- BASE: by cooler/freezer manufacturer
- CEILING HT.: N/A
- CEILING: by cooler/freezer manufacturer

Structure

- Live Load Capacity = 150 psf. non-reducible
- Depressed slab to allow top of cooler / freezer insulating floor panel to align with kitchen finish floor.
- Concentrated live load: 3,000 pounds

Lighting

- Lights to be provided internal to walk-in units.
- LEVEL: 50 foot-candles

Heating, Ventilation and Air Conditioning

- N/A

Electrical

- Provide power and fused disconnects for all components of walk-in units and connections to junction boxes for interior 120V lighting

Acoustics

- N/A

Audio-Visual

- N/A

Telecom

- N/A

Security

- N/A

Plumbing

- Condensate drain for coolers

Graphics

- ADA required signage

Furniture, Fixtures & Equipment

- Shelving as required

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.7 Dishwashing / Pot Washing

Space Function
Dishwashing / Pot Washing is the area that receives soiled dishes from an outside door, cleans, and passes clean dishes into a storage area for the next use. Loose cooking equipment comes from the Kitchen for cleaning and storing in this area. The Dishwashing / Pot Washing area includes an area for detergent storage and a bay for washing carts on which the dishes are moved and stored.

Area (SF) and Key Dimensions
- The Dishwashing / Pot Washing area is within the total Kitchen area.

Occupancy
- IBC 2018, Storage occupancy with 300 sq. ft. per person.

Doors, Windows and Movable Partitions
- N/A

Architectural Finishes
- FLOOR: Epoxy flooring
- WALLS: High performance paint; plastic paneling at wet areas; Stainless steel corner guards on all exposed corners
- BASE: Epoxy cove base; rubber base at storage rooms
- CEILING HT.: 9'-0" min
- CEILING: Vinyl coated acoustical ceiling tile

Structure
- Live Load Capacity = 150 psf. non-reducible
- Concentrated live load: 3,000 pounds

Lighting
- TYPE: LED strip fixtures
- CONTROLS: All lights to be on lighting control system with local occupancy sensor and override 2-button station.
- LEVEL: 50 foot-candles

Heating, Ventilation and Air Conditioning
- Exhaust dishwashing equipment as required

Electrical
- Provide 120V, 20A, 1P (NEMA 5-20) convenience outlets Power for equipment fed from panels noted above

Acoustics
- NRC 0.95 minimum ceiling tile, Armstrong Health Zone Optima or equal

Audio-Visual
- N/A

Telecom
- N/A

Security
- N/A

Plumbing
- Connections to equipment as required
- Hand washing sinks
- Hose reel in cart-washing area

Graphics
- ADA required signage

Furniture, Fixtures & Equipment
- Dish and glassware-washing machines
- Pot-washing sink
- High volume dish machine
- Racks and carts for dish and glassware storage
- Racks for flatware storage
- Shelving for cookware storage

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.8 China / Flatware / Prop Storage

Space Function

The China / Flatware / Prop Storage area is a secured room, accessed from the Dishwashing area for stocking, the Kitchen for plating, and the Service Corridor for servicing. The room is secured, and within the room, cages with silverware and props are also secured. This area includes dish cart storage.

Area (SF) and Key Dimensions

- The China / Flatware / Prop Storage is within the total Kitchen area.

Occupancy

- IBC 2018, Storage occupancy with 300 sq. ft. per person.

Doors, Windows and Movable Partitions

- No special requirements.

Architectural Finishes

- FLOOR: Sealed concrete
- WALLS: High performance paint
- BASE: Rubber base
- CEILING HT.: 9'-0" min
- CEILING: Vinyl coated acoustical ceiling tile

Structure

- Live Load Capacity = 150 psf. non-reducible
- Concentrated live load: 3,000 pounds

Lighting

- TYPE: LED strip fixtures
- CONTROLS: All lights to be on lighting control system with local occupancy sensor and override 2-button station.
- LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning

- Ventilation

Electrical

- Provide 120V, 20A, 1P (NEMA 5-20) convenience outlets

Acoustics

- N/A

Audio-Visual

- N/A

Telecom

- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security

- N/A

Plumbing

-

Graphics

- ADA required signage

Furniture, Fixtures & Equipment

- Dish carts for service ware

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.9 Linen Storage

Space Function
The Linen Storage area contains shelving and hanging space for table linens and should be accessed from the Service Corridor.

Area (SF) and Key Dimensions
- The Linen Storage area is within the Kitchen area.

Occupancy
- IBC 2018, Storage occupancy with 300 sq. ft. per person.

Doors, Windows and Movable Partitions
- No special requirements.

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: High performance paint
- BASE: Rubber base
- CEILING HT.: 9'-0" min
- CEILING: Vinyl coated acoustical ceiling tile

Structure
- Live Load Capacity = 150 psf. non-reducible
- Concentrated live load: 3000 pounds

Lighting
- TYPE: LED strip fixtures
- CONTROLS: All lights to be on lighting control system with local occupancy sensor and override 2-button station.
- LEVEL: 20 foot-candles or code required

Heating, Ventilation and Air Conditioning
- Ventilation

Electrical
- Provide 120V, 20A, 1P (NEMA 5-20) convenience outlets

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- Provide Cat6 UTP data cables with RJ45 outlets for Wi-Fi.
- Provide Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security
- N/A

Plumbing
- N/A

Graphics
- ADA required signage

Furniture, Fixtures & Equipment
- Shelving and hanging for tablecloths, etc.

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.10 Kitchen Offices

Space Function
Offices that need to be directly adjacent to the food preparation area of the kitchen. The Chef will use this area to plan menus and perform administrative tasks while maintaining oversight on Kitchen operations.

Area (SF) and Key Dimensions
- Two offices at 120 sq. ft. each. This area is included in the total Kitchen area.

Occupancy
- IBC 2018, Business occupancy with 100 sq. ft. per person.

Doors, Windows and Movable Partitions
- Window looking into kitchen.

Architectural Finishes
- FLOOR: Luxury vinyl tile
- WALLS: Painted gypsum board
- BASE: Rubber
- CEILING HT.: 9'-0" min
- CEILING: Acoustic ceiling tile
- OTHER: Windows in each office must look from the office directly into the cooking areas

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- TYPE: Recessed LED with acrylic diffuser and task lighting at desk
- CONTROLS: All lights to be on lighting control system with local occupancy sensor and override 4-button dimming station.
- LEVEL: 40 foot-candles

Heating, Ventilation and Air Conditioning
- Ventilation, comfort conditioning

Electrical
- Provide 120V, 20A, 1P (NEMA 5-20) convenience outlets on each wall
- Provide 120V, 20A, 1P Quad receptacle at each desk

Acoustics
- Noise Criteria level: NC 40 max
- Minimum separation between Office and Kitchen: STC 50
- NRC 0.95 minimum ceiling tile, Armstrong Health Zone Optima or equal

Audio-Visual
- N/A

Telecom
- Provide Cat6 UTP data cables at workstations for telephone, data and Wi-Fi at ceiling.
- Provide Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area

Security
- Manual locking

Plumbing
- N/A

Graphics
- ADA room identification

Furniture, Fixtures & Equipment
- N/A

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.11 Tasting Room

Space Function
The Tasting Room will be an elegant conference room in which the Chef presents meals to potential customers for tasting

Area (SF) and Key Dimensions
- 350 sq. ft.

Occupancy
- IBC 2018, Business occupancy with 100 sq. ft. per person.

Doors, Windows and Movable Partitions
- Single door

Architectural Finishes
- FLOOR: LVT or other durable hospitality finish
- WALLS: Painted gypsum board
- BASE: Rubber
- CEILING HT.: 9'-0" min
- CEILING: Acoustic ceiling tile
- OTHER

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- TYPE: Recessed LED with acrylic diffuser and task lighting above conference table
- CONTROLS: All lights to be on lighting control system with local override 2-button station.
- LEVEL: 50 foot-candles
- Decorative LED pendant light fixtures

Heating, Ventilation and Air Conditioning
- Ventilation, comfort conditioning

Electrical
- Provide 120V, 20A, 1P (NEMA 5-20) convenience outlets

Acoustics
- Noise Criteria level: NC 35 max Minimum separation between Tasting Room and Kitchen: STC 50
- NRC 0.90 minimum ceiling tile

Audio-Visual
- Monitor for content display with the room
- Table connectivity of laptop to display content

Telecom
- Provide Cat6 UTP data cables at conference table for telephone, data and Wi-Fi at ceiling.
- Provide Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security
- Manual locking

Plumbing
- N/A

Graphics
- ADA compliant room identification

Furniture, Fixtures & Equipment
- N/A

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.12 Break Room – Kitchen Staff

Space Function
The break room for kitchen staff, with a full-size refrigerator, dishwasher, and microwave, should be in reasonable proximity to the Kitchen. The primary use of this room is as a conference room for planning and briefing food service staff.

Area (SF) and Key Dimensions
- 350 sq. ft., included in the Kitchen area

Occupancy
- IBC 2018, Business occupancy with 100 sq. ft. per person

Doors, Windows and Movable Partitions
- Single door

Architectural Finishes
- FLOOR: LVT WALLS: Gypsum board
- BASE: Rubber
- CEILING HT.: 9'-0" min
- CEILING: Acoustical tile
- OTHER: Solid surface counters Plastic laminate cabinets

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- TYPE: Recessed LED with acrylic diffuser and task lighting at appliances
- CONTROLS: All lights to be on lighting control system with local override 2-button station.
- LEVEL: 35 foot-candles

Heating, Ventilation and Air Conditioning
- Ventilation, comfort conditioning

Electrical
- Provide 120V, 20A, 1P (NEMA 5-20) convenience outlets
- Power for appliances and vending machines

Acoustics
- Background Noise Criteria level: NC 40 max
- NRC 0.90 minimum ceiling tile

Audio-Visual
- Accommodations for future video monitor

Telecom
- Provide Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard. Provide wall telephones throughout area.
- Provide Cat6 UTP data cables for telephone, data and Wi-Fi.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area

Security
- N/A

Plumbing
- Break room sink
- Water and drain to icemaker and dishwasher

Graphics
- ADA compliant room Identification

Furniture, Fixtures & Equipment
- Refrigerator
- Microwave
- Dishwasher

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.13 Staff Restrooms / Dressing Rooms

Space Function
Two unisex, accessible, single fixture restrooms of approximately 80 square feet each will be provided for the staff adjacent to the Kitchen.

Area (SF) and Key Dimensions
- 160 sq. ft. The Restrooms are included in the Kitchen area.

Occupancy
- N/A

Doors, Windows and Movable Partitions
- Single door with privacy lock

Architectural Finishes
- FLOOR: Porcelain tile
- WALLS: Ceramic tile at wet walls BASE: Ceramic tile
- CEILING HT.: 9'-0" min
- CEILING: Painted gypsum board
- OTHER:
  - Solid surface counters
  - Painted metal toilet partitions

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- TYPE: LED cove and down lighting
- CONTROL: Occupancy sensors
- LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning
- Exhaust as required by code

Electrical
- (2) 120V, 20A, 1P (NEMA 5-20) for convenience and housekeeping - additional above counter GFCI outlets in dressing rooms
- Power to paper towel dispensers, automatic toilet and faucet valves

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- Provide Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Provide Cat6 UTP data cables with RJ45 outlets for telephone, data, and Wi-Fi.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area

Security
- N/A

Plumbing
- Fixtures to be high-efficiency, low-water use Toilet and urinals will have electronic flushing Lavatories and soap dispensers will have electronic operation

Graphics
- ADA compliant room Identification

Furniture, Fixtures & Equipment
- Changing area curtain

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.14 Janitor Closets

Space Function
One Janitor's Closet will be required in each kitchen area.

Area (SF) and Key Dimensions
- 60 sq. ft. The Janitor's Closets are included in the Kitchen area.

Occupancy
- N/A

Doors, Windows and Movable Partitions
- Single door with storage lock

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: Paint; plastic paneling to 48" AFF at wet wall, to structure to encapsulate room
- BASE: Rubber
- CEILING HT.: 9'-0"
- No ceiling if all walls to structure
- CEILING: Painted gyp board where walls not to structure

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- TYPE: LED strip fixtures
- CONTROLS: Occupancy sensor.
- LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning
- Exhaust as required by code

Electrical
- (2) 120V, 20A, 1P GFCI (NEMA 5-20) for convenience and housekeeping
- Power to recharge equipment (if required)

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- N/A

Security
- Manually lockable

Plumbing
- Floor mop sink with hot and cold water and drain

Graphics
- ADA Room Identification

Furniture, Fixtures & Equipment
- Open shelves to 84" AFF for janitor supplies

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.15 Can Wash

Space Function
The Can Wash area requires a three-sided room into which soiled trash receptacles can be placed and cleaned.

Area (SF) and Key Dimensions
- 150 sq. ft.

Occupancy
- N/A

Doors, Windows and Movable Partitions
- N/A

Architectural Finishes
- FLOOR: Sealed concrete, sloped to an area drain
- WALLS: Epoxy-painted CMU
- BASE: none
- CEILING HT.: 9'-0"
- No ceiling if all walls to structure
- CEILING: None

Structure
- Live Load Capacity = 100 psf. non-reducible
- Concentrated live load: 3,000 pounds

Lighting
- TYPE: LED strip fixtures
- CONTROLS: Occupancy sensor.
- LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning
- Exhaust as required by code

Electrical
- Provide (1) GFCI, WP, 120V, 20A, 1P (NEMA 5-20) for convenience

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- N/A

Security
- N/A

Plumbing
- Slope floor to trench drain in opening.
- Hose reel

Graphics
- ADA Room Identification

Furniture, Fixtures & Equipment
- N/A

Group:

2. FOOD SERVICE GROUP

Space / Room Name:

2.16 Trash / Compost / Recycling Storage

Space Function
The Trash / Compost / Recycling area is the collection area for outgoing remains from all rooftop areas. This area must be easily accessible from the Kitchen and from the Service Corridor and must have a direct path to vertical conveyance to the dock without passing through any public area.

Area (SF) and Key Dimensions
- TBD. The Trash / Compost / Recycling area is contained within the Kitchen area.

Occupancy
- N/A

Doors, Windows and Movable Partitions
- N/A

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: Epoxy-painted CMU
- BASE: none
- CEILING HT.: 9'-0"
- No ceiling if all walls to structure
- CEILING: None

Structure
- Live Load Capacity = 100 psf. non-reducible
- Concentrated live load: 3,000 pounds

Lighting
- TYPE: LED strip fixtures
- CONTROLS: Occupancy sensor.
- LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning
- Exhaust as required by code. Cool trash room if enclosed

Electrical
- Provide (1) 120V, 20A, 1P (NEMA 5-20) for convenience
- Power to recharging and compactor equipment (if required)

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- N/A

Security
- N/A

Plumbing
- Slope floor to trench drain in opening.
- Hose reel

Graphics
- ADA Room Identification

Furniture, Fixtures & Equipment
- N/A

Group:

3. BACK-OF-HOUSE GROUP

Space / Room Name:

3.1 Back-of-House Service Corridors

Space Function
Corridor to wrap around Multi-Function room. Minimum 10'-0" clear width in addition to all storage areas and service pantries, which will add width of service corridor. In additional to serving two sides of the Multi-Function room, this Service Corridor must have direct access to the Pre-Function area, Kitchen, Storage, and Trash areas as described in each of those program elements.

Area (SF) and Key Dimensions
- Dependent on Configuration

Occupancy
- No cumulative occupancy. People occupying this space are counted in other back-of-house spaces. This approach must be confirmed with the Authority Having Jurisdiction.

Doors, Windows and Movable Partitions
- Doors into Multi-Function space
  - Sound seals, door sweeps
  - Kick plates

Architectural Finishes
- FLOOR: Sealed Concrete, paint striping to denote storage areas
- WALLS: High performance paint
- BASE: N/A
- CEILING HT.: N/A
- CEILING: Absorptive ceiling at openings into Multi-Function Room to dampen corridor noise

Structure
- Live Load Capacity = 150 psf. non-reducible
- Concentrated live load: 3,000 pounds

Lighting
- TYPE: LED strip fixtures in corridor, recessed LED with acrylic diffuser at food service locations
- CONTROLS: Occupancy sensor and local two-button override stations.
- LEVEL: 10 foot-candles in corridor, 50 foot-candles at food service locations

Heating, Ventilation and Air Conditioning
- Ventilation, comfort conditioning

Electrical
- Provide (1) 120V, 20A, 1P (NEMA 5-20) for convenience
- Power to recharge equipment (lifts, etc.)
- Provide 120V, 1P power for charging equipment at back of house service corridor.
- Provide power for food service warming carts at service location to the Multi-Function space

Acoustics
- Noise Criteria level: NC -40 max
- Minimum separation between Corridors and MF Room: STC 50
- NRC 0.90 minimum ceiling tile

Audio-Visual
- AV equipment storage areas in corridor

Telecom
- Provide Cat6 UTP data cables terminated with RJ45 outlets for telephone, data, Wi-Fi and POS.
- Provide Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security
- Provide CCTV cameras for monitoring perimeter doors

Plumbing
- Hand-Washing sinks in service pantry area
- Food Service sinks in service pantry area

Graphics
- Designate egress clear zone with painted stripe on floor
- Indicate ADA Room Identification/meeting room numbers for service personnel
- Identify "Authorized Personnel Only" at all public-to-service interface points

Furniture, Fixtures & Equipment
- N/A

Group:

3. BACK-OF-HOUSE GROUP

Space / Room Name:

3.2 Enclosed Storage

Space Function
Building operations and furniture storage for the expansion area. This area must be on the level of the Multi-Function Room or have access to elevators to convey materials (on forklift) to the floor.

Area (SF) and Key Dimensions
- Convention Center: Approx. 12,000 sq. ft.
- Decorator / Vendor: Approx. 12,000 sq. ft.

Occupancy
- IBC 2018, Storage occupancy with 300 sq. ft. per person

Doors, Windows and Movable Partitions
- Overhead coiling door to move materials into the space.
- One pair of doors to accommodate pallet jacks
- Single man door
- Chain link cages to isolate vendor storage from convention center storage

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: High performance paint
- BASE: None
- CEILING HT.: 15' clear space, where appropriate
- CEILING: Exposed structure, painted

Structure
- Live Load Capacity = 150 psf. non-reducible
- Concentrated live load: 3,000 pounds

Lighting
- TYPE: LED strip fixtures
- CONTROLS: Occupancy sensor.
- LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning
- Ensure that all mechanical equipment and ductwork is placed to maximize clearance..
- Ventilation

Electrical
- Provide (2) 120V, 20A, 1P (NEMA 5-20) on each wall for convenience
- Power to recharging electric forklift and scissor lift.

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios) and facility operations radios distributed antenna system (DAS) throughout area.

Security
- Manual lock

Plumbing
- N/A

Graphics
- ADA required signage Painted storage border on floor

Furniture, Fixtures & Equipment
- N/A

Group:

3. BACK-OF-HOUSE GROUP

Space / Room Name:

3.3 Dressing Rooms

Space Function
This space will be used by presenters and performers for preparing to present. Space should have closed-circuit feed from event space, and service corridor access to the head table location. Can be on level other than the Multi-Function Space.

Area (SF) and Key Dimensions
- Two at 120 sq. ft. each
- Small reception area at 200 sq. ft

Occupancy
- IBC 2018, Business occupancy with 100 sq. ft. per person.

Doors, Windows and Movable Partitions
- N/A

Architectural Finishes
- FLOOR: Modular carpet
- WALLS: High performance paint and
- decorative vinyl wall coverings.
- BASE: Millwork Contoured rubber wall base.
- CEILING HT.: 9'-0"
- CEILING: Acoustical tile

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- TYPE: LED lay-in fixtures
- CONTROLS: Occupancy sensor.
- LEVEL: 20 foot-candles
- Decorative light fixtures.
- .

Heating, Ventilation and Air Conditioning
- Comfort conditioning

Electrical
- Provide (2) 120V, 20A, 1P (NEMA 5-20) on each wall for convenience

Acoustics
- N/A

Audio-Visual
- Video feed from Multi-Function event space

Telecom
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security
- Controlled access

Plumbing
- N/A

Graphics
- ADA Signage

Furniture, Fixtures & Equipment
- N/A

Group:

3. BACK-OF-HOUSE GROUP

Space / Room Name:

3.4 Open Storage

Space Function
This storage is located along the service corridor and will be used as storage of tables and chairs for use in the Multi-Function Room. Approximately 50% of the open storage within the Service Corridor will be allocated to Food Service storage needs.

Area (SF) and Key Dimensions
- As required by items to be stored. This area is included in the Service Corridor area.

Occupancy
- IBC 2018, Storage occupancy with 300 sq. ft. per person.

Doors, Windows and Movable Partitions
- N/A

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: High performance paint
- BASE: None
- CEILING HT.: N/A
- CEILING: Exposed structure, painted

Structure
- Live Load Capacity = 150 psf. non-reducible
- Concentrated live load: 3,000 pounds

Lighting
- TYPE: LED strip fixtures
- CONTROLS: Occupancy sensor.
- LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning
- . Ensure that all mechanical equipment and ductwork is placed to maximize clearance
- Ventilation

Electrical
- Provide (2) 120V, 20A, 1P (NEMA 5-20) on each wall for convenience
- Power to recharge equipment (if required)

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security
- N/A

Plumbing
- N/A

Graphics
- Striping on the floor to distinguish storage area from egress path

Furniture, Fixtures & Equipment
- N/A

Group:

3. BACK-OF-HOUSE GROUP

Space / Room Name:

3.5 Non-Public Restrooms

Space Function
Men's and Women's restrooms for staff that do not require the staff enters the Kitchen to use.

Area (SF) and Key Dimensions
- Fixture count and restroom size to be determined by occupant load.

Occupancy
- N/A

Doors, Windows and Movable Partitions
- No special provisions

Architectural Finishes
- FLOOR: porcelain tile WALLS: ceramic tile on wet walls
- BASE: porcelain tile
- CEILING HT.: 9'-0" min
- CEILING: Gypsum Board
- OTHER: counters - solid surface
- OTHER: Toilet partitions - painted metal,
- OTHER: Stainless steel toilet accessories
- OTHER: Metal tile trim pieces

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- TYPE: Recessed LED down lighting and strip fixtures with room occupancy sensors
- LEVEL: 20 foot-candles with accent lighting at lavatories

Heating, Ventilation and Air Conditioning
- Exhaust as required by code

Electrical
- (2) 120V, 20A, 1P GFCI (NEMA 5-20) for convenience and housekeeping
- Power to paper towel dispensers, toilet valves and lavatory faucets.

Acoustics
- Minimum STC 55 to surrounding spaces

Audio-Visual
- N/A

Telecom
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area

Security
- N/A

Plumbing
- Fixtures to be high-efficiency, low-water use
- Toilet and urinals will have electronic flushing
- Lavatories and soap dispensers will have electronic operation

Graphics
- ADA compliant room identification signage

Furniture, Fixtures & Equipment
- N/A

Group:

3. BACK-OF-HOUSE GROUP

Space / Room Name:

3.6 Gender Neutral Staff Restrooms

Space Function
Single restrooms for staff that does not require the staff to enter the Kitchen to use.

Area (SF) and Key Dimensions
- 60 sq. ft.

Occupancy
- N/A

Doors, Windows and Movable Partitions
- No special provisions.

Architectural Finishes
- FLOOR: porcelain tile
- WALLS: ceramic tile on wet walls
- BASE: porcelain tile
- CEILING HT.: 9'-0" min
- CEILING: Gypsum Board
- OTHER: counters - solid surface
- OTHER: Toilet partitions - painted metal, ceiling-mounted
- OTHER: Stainless steel toilet accessories
- OTHER: Metal tile trim pieces

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- TYPE: Recessed LED lighting with room occupancy sensors
- LEVEL: 20 foot-candles with accent lighting at lavatories

Heating, Ventilation and Air Conditioning
- Exhaust as required by code

Electrical
- (2) 120V, 20A, 1P GFCI (NEMA 5-20) for convenience and housekeeping
- Power to paper towel dispensers, toilet valves and lavatory faucets.

Acoustics
- Minimum STC 55 to surrounding spaces

Audio-Visual
- N/A

Telecom
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security
- N/A

Plumbing
- Fixtures to be high-efficiency, low-water use
- Toilet and urinals will have electronic flushing
- Lavatories and soap dispensers will have electronic operation

Graphics
- ADA compliant room identification signage

Furniture, Fixtures & Equipment
- N/A

Group:

3. BACK-OF-HOUSE GROUP

Space / Room Name:

3.7 Janitor Closets

Space Function
One closet per each group of men and women's restrooms, and one closet for serving the Service Corridor.

Area (SF) and Key Dimensions
- 60 sq. ft.

Occupancy
- N/A

Doors, Windows and Movable Partitions
- Single door with storage lock

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: Paint; plastic paneling to 48" AFF at wet walls, to structure to encapsulate room
- BASE: Rubber
- CEILING HT.: 9'-0; No ceiling if all walls to structure
- CEILING: Painted gyp board where walls not to structure

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- TYPE: LED strip
- LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning
- Exhaust as required by code

Electrical
- (1) 120V, 20A, 1P GFCI (NEMA 5-20) for convenience and housekeeping
- Power to recharge equipment, if necessary

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- N/A

Security
- Manually lockable

Plumbing
- Floor mop sink with hot and cold water and drain

Graphics
- ADA Room Identification

Furniture, Fixtures & Equipment
- Open shelves to 84" AFF for janitor supplies

Group:

3. BACK-OF-HOUSE GROUP

Space / Room Name:

3.8 Electrical Rooms

Space Function
Main Electrical and Satellite Electrical rooms as required to support the expansion area.

Area (SF) and Key Dimensions
- As required to house all electrical service gear.

Occupancy
- IBC 2018, Storage occupancy with 300 sq. ft. per Person

Doors, Windows and Movable Partitions
- Two remote, out-swinging doors in main electrical room with storage lock.
- Single door with storage lock and satellite electrical room(s)

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: High performance paint; painted plywood telephone board, fire rated as required by code
- BASE: none
- CEILING HT.: N/A
- CEILING: Exposed structure, painted

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- TYPE: LED strip hung or surface mounted
- LEVEL: 20 foot-candles
- Emergency battery back-up on selected fixtures

Heating, Ventilation and Air Conditioning
- Ventilation and or cooled as required for equipment

Electrical
- Convenience outlets on all walls
- Ground buss for panels / transformers / switchboards and telecom cross connect

Acoustics
- Vibration isolation pads for floor-mounted electrical transformers

Audio-Visual
- N/A

Telecom
- Provide Cat6 UTP data cables with RJ45 outlets for Wi-Fi.
- Provide Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area

Security
- Manual storage lock

Plumbing
- N/A

Graphics
- ADA compliant room identification

Furniture, Fixtures & Equipment
- N/A

Group:

3. BACK-OF-HOUSE GROUP

Space / Room Name:

3.9 Telecommunications Rooms

Space Function
Main Telecommunication (MDF) and Satellite (IDF) rooms as required to support the expansion area.

Area (SF) and Key Dimensions
- Remote telecom rooms (IDF) located at approximately 400-feet apart for horizontal data distribution. IDF size will vary from 90-150 sq ft based on horizontal data cable load and equipment placement.

Occupancy
- N/A

Doors, Windows and Movable Partitions
- Single door with storage lock at main and satellite electrical room(s)

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: Paint; painted plywood telephone board, rated wall construction as required by code
- BASE: Rubber
- CEILING HT.: N/A
- CEILING: None

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- TYPE: LED strip hung or surface mounted
- LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning
- Cooled as required for equipment

Electrical
- Power as required for equipment
- Convenience outlets, 120V, 20A on each wall
- Grounding and ground buss as required by equipment

Acoustics
- N/A

Audio-Visual
- AV support equipment (network switching / amplifiers etc.) in equipment racks

Telecom
- Provide dedicated TRs throughout expansion area for supporting all horizontal technology distribution.
- TRs to be located approximately 400-feet on center such that maximum cable lengths do not exceed 295-feet (90m).
- TRs to be connected to existing Main Telecom Room (MTR) using fiber optics and Cat3 backbone cables.
- TR fit-out to include all necessary hardware such as fire-resistant backboard, equipment racks/cabinets, ladder rack, patch panels, telecom ground system, vertical/horizontal wire managers, rack mounted power strips, etc.

Security
- Provide Proximity/Smart Card Reader control at doors, monitored in the Central Security Office.
- Provide CCTV cameras for monitoring room.

Plumbing
- N/A

Graphics
- ADA compliant room identification

Furniture, Fixtures & Equipment
- N/A

Group:

3. BACK-OF-HOUSE GROUP

Space / Room Name:

3.10 Mechanical Rooms

Space Function
Mechanical equipment rooms required to support the expansion area.

Area (SF) and Key Dimensions
- As required by mechanical system design.

Occupancy
- IBC 2018, Storage occupancy with 300 sq. ft. per Person

Doors, Windows and Movable Partitions
- Double doors with storage lock

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: High performance paint
- BASE: N/A
- CEILING HT.: N/A
- CEILING: None

Structure
- Live Load Capacity = 75 psf. plus equipment and pad, 150 psf. minimum
- Concentrated live load: 3000 pounds

Lighting
- TYPE: LEDs strip hung or surface mounted
- LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning
- Ventilation/ heated and cooled modestly for extreme conditions

Electrical
- Convenience outlets, 120V, 20A on each wall
- Power as required by mechanical equipment

Acoustics
- Mechanical equipment on vibration isolation.

Audio-Visual
- N/A

Telecom
- Provide Cat6 UTP data cables with RJ45 outlets for telephone, data, and Wi-Fi.
- Provide (high-density) Wi-Fi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Provide wall telephones throughout area. Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security
- Storage lock

Plumbing
- Water, drain, and gas as required by mechanical equipment.
- Hose bibb for maintenance

Graphics
- ADA Required Signage

Furniture, Fixtures & Equipment
- N/A

Group:

3. BACK-OF-HOUSE GROUP

Space / Room Name:

3.11 Operable Wall Panel Storage

Space Function
Enclosed closets aligned with partition track for operable wall panel storage Where possible, provide one (1) storage pocket for each operable wall and avoid mixing panel sequence.

Area (SF) and Key Dimensions
- As required by room division layout. Space for Operable Wall Panel Storage is included in the Service Corridor area.

Occupancy
- N/A

Doors, Windows and Movable Partitions
- Lockable access door on service side for maintenance if possible

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: Unfinished
- BASE: None
- CEILING HT.: N/A
- CEILING: None

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- Wall-mounted LED in large closets to ensure visibility for manipulating panels

Heating, Ventilation and Air Conditioning
- No special requirements.

Electrical
- (1) convenience outlet, 12V, 20A

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- N/A

Security
- N/A

Plumbing
- N/A

Graphics
- N/A

Furniture, Fixtures & Equipment
- N/A

Group:

4. VERTICAL CONVEYANCE

Space / Room Name:

4.1 Public Elevators

Space Function
Public elevators will provide access from street level to rooftop Multi- Function space level. Four new passenger elevators are planned to serve the new rooftop spaces: Two from the D Lobby and Two from the E Lobby. Provide $25,000 allowance per elevator cab for interior finishes.

Elevator Summary
- D Lobby
  1) New Passenger Elevators: EL-CC1, EL-CC2
     a) Summary: Two (2) new passenger elevators with front and rear openings
     b) Capacity: 3500lbs.
     c) Speed: 350fpm
     d) Serving: Street Level (F), Exhibition (R), Multi-Function Level (R)

- E Lobby
  1) New Passenger Elevators: EL-X1, EL-X2
     a) Summary: Two (2) new passenger elevators with front openings
     b) Capacity: 3500lbs.
     c) Speed: 350fpm
     d) Serving: Street Level (F), Exhibition (F), Multi-Function Level (F)

Architectural Finishes
- FLOOR: Porcelain tile or similar
- WALLS: Hard Durable finishes
- BASE: Metal
- CEILING HT.: 8'-0" min
- CEILING: Metal with integrated lighting and decorative accent lighting.
- OTHER: Decorative metal handrail at back or sides of elevator cab per code.
- OTHER: Make public elevators consistent with existing building.

Structure
- As required by code.

Lighting
- TYPE: LED in pit and machine room or adjacent to and on top of cab, lighting in the hoist way for hi-rise tied to switch in FCC
- LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning
- N/A

Electrical
- Outlets, 120V 20A, GFCI in elevator machine room or adjacent to controller and in pit
- Emergency power, if required by code, to deliver elevator to home floor
- Emergency power, if required by code, to cab lighting

Acoustics
- N/A

Audio-Visual

Telecom
- Provide fiber optic cable with elevator travel cable to support telecom.
- Provide emergency telephone/call button integrated with elevator cab for emergency communications.

Security
- Provide CCTV cameras for monitoring interior elevator cab and occupants

Plumbing
- N/A

Graphics
- Signs shall meet Fire Evacuation code requirements

Furniture, Fixtures & Equipment
- N/A

Group:

4. VERTICAL CONVEYANCE

Space / Room Name:

4.2 Service Elevators

Space Function
Service elevators will convey materials to the Multi-Function Room level. Food service, exhibit, and audio/visual delivery will take place from the Champa Street docks to the level and will require a minimum of two service elevators.

Elevator Summary
- Existing Service Elevator R (to be R1):
  a) Summary: Extend one (1) existing service elevator to serve the new Multi-function Level with a front opening.
  b) Capacity: 8000lbs. Class C3
  c) Speed: 300fpm
  d) Serving: Existing – Lower level, Street Level, Exhibition, Storage Mezzanine, P1; New - Multi-Function Level

- New Service Elevator R2
  a) Summary: One (1) service elevator matching existing configuration for Elevator R1
  b) Capacity: 8000lbs.
  c) Speed: 300fpm
  d) Serving: Lower Level, Street, Storage Mezz, Exhibition, Multi-Function

Architectural Finishes
- FLOOR: checker-plate flooring
- WALLS: painted metal; stainless steel front wall
- BASE: N/A
- CEILING HT.: N/A
- CEILING: None

Structure
- N/A

Lighting
- TYPE: LED
- LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning
- As required by elevator manufacturer

Electrical
- Outlets, 120V 20A, GFCI in elevator machine room or adjacent to controller and in pit
- Normal Power or Emergency power if required by code.
- Normal power or Emergency power fi required by code to cab lighting

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- Provide fiber optic cable with elevator travel cable to support telecom.
- Provide emergency telephone/call button integrated with elevator cab for emergency communications.

Security
- Provide CCTV cameras for monitoring interior elevator cab and occupants
- Provide Proximity/Smart Card Reader control floor selection, monitored in the Central Security Office

Plumbing
- N/A

Graphics
- Signs shall meet Fire Evacuation code requirements

Furniture, Fixtures & Equipment
- N/A

Group:

4. VERTICAL CONVEYANCE

Space / Room Name:

4.3 Freight Elevators

Space Function
Freight elevators will convey materials to the Multi-Function Room level. All materials delivery will take place from the Champa Street docks to the Multi-Function level and will require a minimum of two freight elevators.

Elevator Summary
- New Freight Elevators BB1, BB2
  a) Summary: Two (2) new traction freight elevators
  b) Capacity: 20,000lbs.
  c) Speed: 100fpm
  d) Serving: Exhibition (F/R), Multi-Function (R), Multi-Function Mezzanine (R)
  e) Cab: 12'-0" wide x 20'-0" high x 8'-0" high

Area (SF) and Key Dimensions
- Elevator cab platform minimum 12'-0" wide by 20'-0" (nominal), with a capacity of 20,000 lbs

Occupancy
- N/A

Doors, Windows and Movable Partitions
- N/A

Architectural Finishes
- FLOOR: checker-plate flooring
- WALLS: painted metal; stainless steel front wall
- BASE: N/A
- CEILING HT.: N/A
- CEILING: None

Structure
- N/A

Lighting
- TYPE: LED LEVEL: 20 foot-candles

Heating, Ventilation and Air Conditioning
- As required by elevator manufacturer

Electrical
- Outlets, 120V 20A, GFCI in elevator machine room or adjacent to controller and in pit
- Power as required for elevator operation
- Normal and Emergency if required by code power to cab lighting

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- Provide fiber optic cable with elevator travel cable to support telecom.
- Provide emergency telephone/call button integrated with elevator cab for emergency communications.

Security
- Provide CCTV cameras for monitoring interior elevator cab and occupants
- Provide Proximity/Smart Card Reader control floor selection, monitored in the Central Security Office

Plumbing
- N/A

Graphics
- Signs shall meet Fire Evacuation code requirements

Furniture, Fixtures & Equipment
- N/A

Group:

4. VERTICAL CONVEYANCE

Space / Room Name:

4.4 Escalators

Space Function
Escalators to convey passengers from Lobbies to the Multi-Function Pre-Function area. Existing escalators to be maintained from D and E lobbies; new escalators to connect from Exhibit Hall Level to Multi-Function Level.

Escalator Summary
- D Lobby (Ex Hall to Intermediate landing):
  1. a) Summary: Three (3) new escalators DD2-1, DD2-2, DD2-3
     b) (3) 48" @ 100 fpm
     c) ±30'-0" rise
     d) Continuous skirt lighting

- D Lobby (Intermediate landing to Multi-Function):
  1. a) Summary: Three (3) new escalators DD3-1, DD3-2, DD3-3
     b) (3) 48" @ 100 fpm
     c) ±21'-0" rise
     d) Continuous skirt lighting

- E Lobby:
  1. a) Summary: Three (3) new escalators ES2-1, ES2-2, ES2-3
     b) (3) 48" @ 100 fpm
     c) ±51'-0" rise
     d) Continuous skirt lighting

Architectural Finishes
- FLOOR: N/A
- WALLS: N/A
- BASE: N/A
- CEILING HT.: N/A
- CEILING: None
- OTHER: Stainless steel; glass balustrades

Structure
- N/A

Lighting
- LED skirt lighting

Heating, Ventilation and Air Conditioning
- N/A

Electrical
- Normal power for escalator operation with outlets in pits as required.

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- N/A

Security
- Provide CCTV cameras for monitoring escalators and landings

Plumbing
- N/A

Graphics
- N/A

Furniture, Fixtures & Equipment
- N/A

Group:

4. VERTICAL CONVEYANCE

Space / Room Name:

4.5 Exit Stairs

Space Function
Size and location per code egress requirements.

Area (SF) and Key Dimensions
- Width to be determined by required exit capacity.

Occupancy
- N/A

Doors, Windows and Movable Partitions
- Doors to be rated per occupancy and construction type.

Architectural Finishes
- FLOOR: Sealed concrete
- WALLS: Paint
- BASE: None
- CEILING HT.: N/A
- CEILING: None
- OTHER: Painted handrails, stringers, stair support

Structure
- Live Load Capacity = 100 psf. non-reducible

Lighting
- TYPE: LED
- LEVEL: 10 foot-candles with egress lighting as required by code
- Exit signs to be arranged as required by code, with specific locations and mounting

Heating, Ventilation and Air Conditioning
- Pressurize if required for smoke control

Electrical
- N/A

Acoustics
- N/A

Audio-Visual
- N/A

Telecom
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

Security
- Provide door status monitors at all exterior doors monitored from Central Security Office

Plumbing
- N/A

Graphics
- Fire evacuation plan at exit doors

Furniture, Fixtures & Equipment
- N/A

Group:

5. LOBBY IMPROVEMENTS

Space / Room Name:

5.1 D Lobby Improvements (Multi-Function and Street Level)

Space Function
Improvements to the existing D Lobby will be elevators, escalators, and stairs for connection to the Pre-Function area of the roof expansion. This will serve as one of two major entrances to the new Multi-Function level. The design should enhance the visitor's wayfinding experience, tying them to the new Multi- Function space and Pre-Function area.

Area (SF) and Key Dimensions
- N/A (existing space)

Occupancy
- No cumulative occupancy. People occupying this space are in transit to the Multi-Function Room.

Doors, Windows and Movable Partitions
- None, all existing unless design requires otherwise

Architectural Finishes
- FLOOR: Carpet
- WALLS: Painted abuse resistant gyp board
- BASE: Metal
- CEILING HT.: Varies; match existing heights
- CEILING:, gyp board to blend with existing ceilings

Structure
- N/A (existing space)

Lighting
- Coordinate new/demo work to maintain Existing systems functionality

Heating, Ventilation and Air Conditioning
- No Modifications are required.

Electrical
- Coordinate new/demo work to maintain Existing systems functionality.
- Provide cleaning outlets at escalator intermediate platform, 30ft spacing, 120V, 20A

Acoustics
- Acoustic properties of existing spaces to be evaluated and maintained with any new Lobby work.

Audio-Visual
- Coordinate new/demo work to maintain Existing systems functionality.

Telecom
- Coordinate new/demo work to maintain Existing systems functionality.

Security
- Coordinate new/demo work to maintain Existing systems functionality

Plumbing
- N/A

Graphics
- Provide ADA-required signage Wayfinding
- Modify existing Wayfinding signage as required for directing occupants to the new Multi-Function space.

Furniture, Fixtures & Equipment
- N/A

Group:	*Space / Room Name:*
5. LOBBY IMPROVEMENTS	**5.2 E Lobby Improvements (Multi Function and Street level)**

Space Function
This space will include elevator, escalator, and stair access directly to the Multi-Function level and serve as a major entrance to the new expansion.

Area (SF) and Key Dimensions
- N/A (existing space)

Occupancy
- No cumulative occupancy. People occupying this space are in transit to the Multi-Function Room.

Doors, Windows and Movable Partitions
- N/A (existing space)

Architectural Finishes
- FLOOR: Carpet: utilize attic stock to match existing carpet for patching as required.
- WALLS: Painted abuse resistant gyp board
- BASE: Metal
- CEILING HT.: Varies; match existing heights

Structure
- N/A

Lighting
- Coordinate new/demo work to maintain Existing systems functionality

Heating, Ventilation and Air Conditioning
- No modifications are required.

Electrical
- Coordinate new/demo work to maintain Existing systems functionality.

Acoustics
- Acoustic properties of existing spaces to be evaluated and maintained with any new Lobby work.

Audio-Visual
- Coordinate new/demo work to maintain Existing systems functionality

Telecom
- Coordinate new/demo work to maintain Existing systems functionality

Security
- Coordinate new/demo work to maintain Existing systems functionality

Plumbing
- N/A

Graphics
- Provide ADA-required signage
- Modify existing Wayfinding signage as required for directing occupants to the new Multi-Function space.

Furniture, Fixtures & Equipment
- N/A

END OF DOCUMENT

COLORADO CONVENTION CENTER EXPANSION

Exhibit A – Design-Build Requirements

Attachment 2 – Program Narratives

Rev. 24 Jul 2020

CONTENTS

INTRODUCTION

This document is an adapted version of the Basis of Design Narratives dated May 15, 2019, and includes a combination of background information, project requirements and possible design solutions.

While the Design-Build Team must meet the performance requirements, the background information is provided for reference only.

Similarly, the sections that suggest specific design solutions are provided for reference only and are intended to establish a suggested quality level for materials and finishes without mandating a specific design solution.

The City and the Design-Build Team anticipate discussing the requirements outlined in this document throughout the design process.

A. SUSTAINABILITY

1. Executive Summary

The Colorado Convention Center is a national model of sustainability. The Convention Center holds a LEED v2009 O+M: Existing Buildings Gold level certification through 2018. The Colorado Convention Center Expansion Project will implement new and integrate existing sustainability goals into design and construction.

The construction of the Colorado Convention Center Expansion project will comply with City and County of Denver Executive Order 123. At a minimum, achieve the requirements of the U.S. Green Building Council's (USGBC) LEED® for New Construction, Gold level certification. This aligns with the Existing Buildings certification through operational policies and transportation strategies. By achieving a Gold rating under the LEED® for New Construction rating system the project will comply with the upcoming Denver Green Roof Ordinance. Specific credits are detailed in this report.

The Preliminary Energy Analysis, which evaluates individual energy efficiency measures, recommended that the design focus on window performance, lighting and kitchen equipment to meet the project's energy efficiency goal. The energy model will be updated in Design Development to reflect design progress.

Collectively, these processes, guidelines and analyses will be used to create a high-performing, sustainable gathering space. This will maximize the productivity and enjoyment of visitors and staff while minimizing the impact on the environment and demonstrating fiscal responsibility associated with the operations of the Convention Center.

2. Sustainability Goals

As a building block for the sustainable design process, the team is integrating the Convention Center's Environmental Policies and key performance indicators (KPI) into the Convention Center Expansion project. Updates and goals for a few sustainability categories are shown in the list below.

a. Sustainability Certifications

- Expansion - LEED for New Construction - Gold certification
- Existing Convention Center - LEED O+M: Existing Buildings v4 – Gold certification

b. Water

- Water Use Reduction:
    - Reduce annual water usage from indoor plumbing fixtures and fittings by at least 40% against the baseline Uniform Plumbing Code or International Plumbing Code
    - This is a LEED v4 O+M: Existing Buildings aligned credit
- Water Efficient Landscaping:
    - Reduce water demand for landscaping by at least 50%.

- In order for rainwater harvesting to be pursued the project must comply with a LEED requirement that states:
  - For buildings without vegetation on the grounds, teams can earn points by reducing the use of potable water for watering any roof and courtyard garden space or outdoor planters, provided the planters and garden space cover at 5% of the building site area (including building footprint, hardscape area, parking footprint, etc.)
  - Currently, the landscaping area is less than 50% of the 5% requirement

c. Energy

- Optimize Energy Performance: Design the project to maximize energy cost reduction compared to ASHRAE Standard 90.1-2007 baseline building

d. Materials and Resources

- Certified Wood: Maximize the use of FSC certified wood for new wood purchased

e. Indoor Environmental Quality

- Controllability of Systems, Lighting and Thermal Comfort:
  - Maximize the use of individual lighting controls for the building occupants: ME Engineers has confirmed that a tablet can be used to control both the lighting and temperature in the flex spaces.
- Controllability of Systems, Thermal Comfort: Maximize the use of individual thermal comfort controls for the building occupants

f. Sustainability Process

Figure 1 (below) provides an overview of the sustainability process that will be used to achieve the sustainability goals and LEED certification of the Colorado Convention Center project.

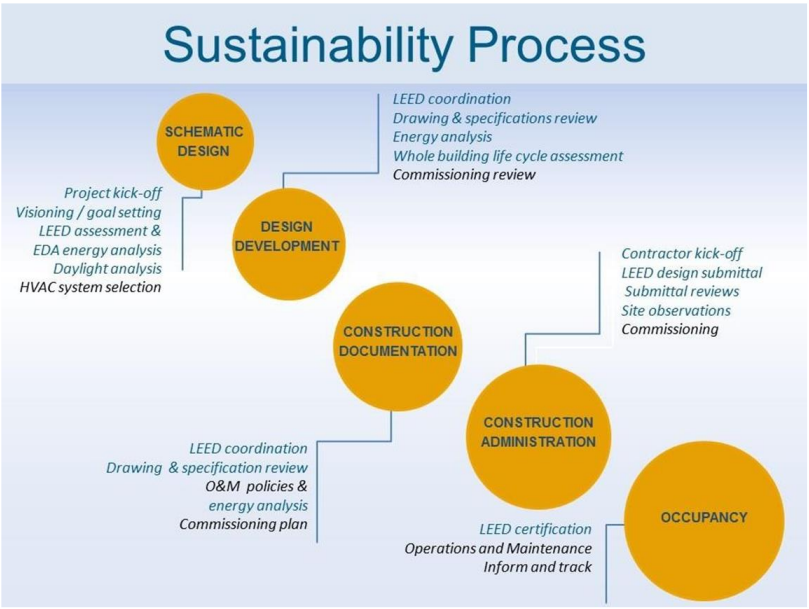


Figure 1: Sustainability Process

The Design-Build Team will guide the project through the LEED certification process as well as energy modeling, daylight modeling and life cycle assessment. The Colorado Convention Center Expansion project is already registered with USGBC's LEED-system under LEED for New Construction. Fig 2 provides an overview of the LEED certification process.

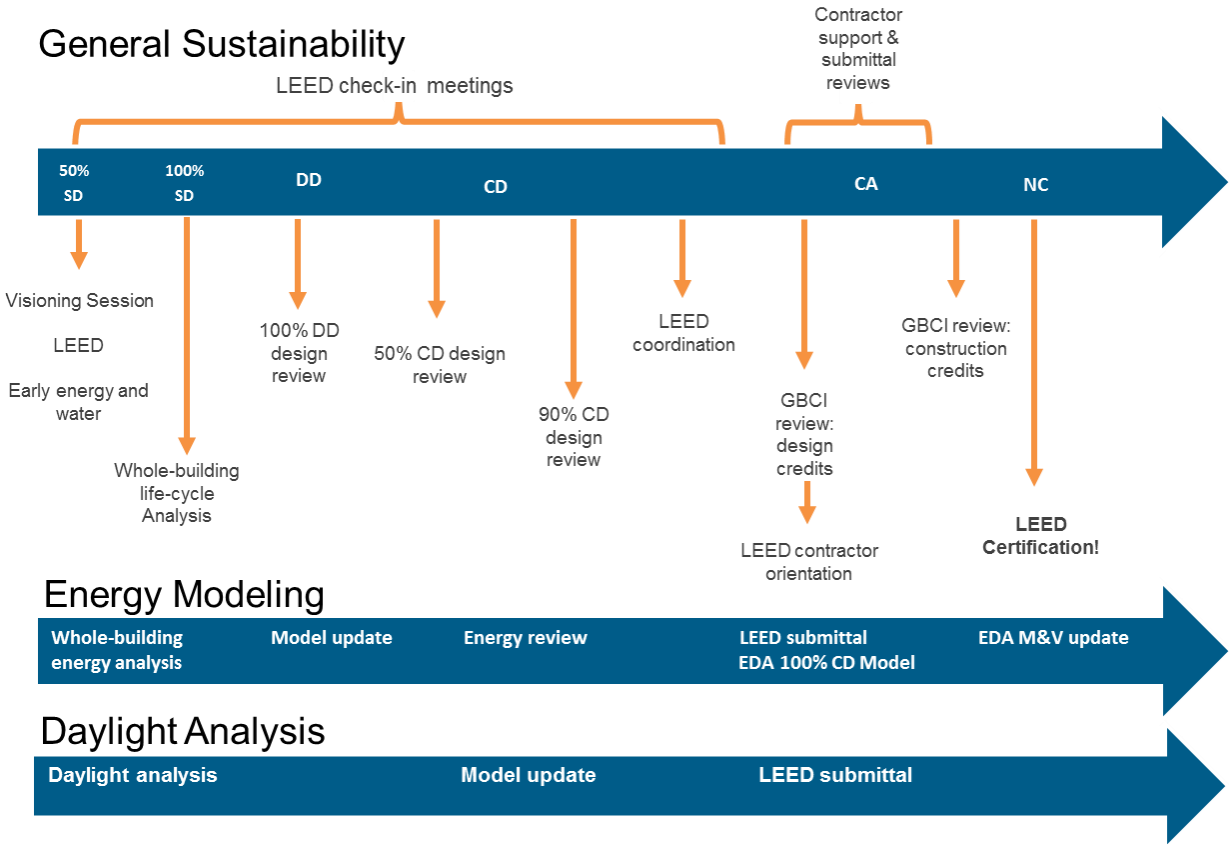


Figure 2: General Sustainability Process Chart

The project's full time equivalent (FTE) occupants will be used to gauge the sustainability of resources that are dependent on occupancy. Sustainable elements affected by FTE values include water use calculations, as well as the quantity of preferred parking, covered bike storage, and showers/changing rooms required. A full time equivalent (FTE) occupant is one who spends 40 hours per week in the project buildings. Part-time occupants such as part- time employees, transients, and visitors have FTE values based on hours per week occupying the project buildings divided by 40. The Design-Build Team and the Colorado Convention Center will update occupancy data for each of the project buildings including estimates for occupancy counts for staff, maintenance staff, and visitors. The estimated occupancy was used for the WEp1 Water Use Reduction preliminary LEED-Online credit forms located in Appendix B.

3. Energy Analysis

Next steps in the Construction Administration phase include:

- Refine energy model based on review of 100% Construction Documents set by Xcel Energy's Measurement and Verification Consultant for the EDA Program
- Schedule on-site inspection of energy efficiency measures by Xcel Energy's Measurement and Verification Consultant for the EDA Program
- Assist with incentive application for Xcel Energy EDA program

B. SIGNAGE AND WAYFINDING

Signage and wayfinding represent a crucial element to the success of the Colorado Convention Center expansion project. As with any large facility, helping users, visitors, staff and emergency personnel successfully, intuitively and quickly navigate through the space is imperative to the overall goals of the Convention Center, Visit Denver, ASM Global and City of Denver for this expansion project.

Signage and wayfinding take many forms and perform many functions, some of which are not readily visible to the average person. This can include wayfinding directional signage that is projecting, wall and/or ceiling mounted (both digital and static), identification signage highlighting amenities, venues and other major destinations (such as restrooms, entrances and exits, exhibition halls etc.), ADA and code compliant signage (tactile and braille room signs, egress signage, fire/life/safety signage and rules signage), as well as informational signage (such as kiosks, maps directories etc.).

While the architectural scope of this project is limited to the, D and E lobbies, as well as the new rooftop terrace and additional multi-purpose level, these architectural changes will have a significant impact on much of the existing signage and wayfinding, especially when it comes to sign messages. A suite of new signage to help identify and direct users to the new spaces will accompany the changes to the existing signage infrastructure. In order to provide a successful signage and wayfinding program, the signage, wayfinding and environmental graphics consultant will determine the overall visual and aesthetic goals for the project. This will be followed by detailed planning and programming to refine the placement, location, needs and messages of the signage and wayfinding, including digital elements.

When it comes to fabricating the signage, wayfinding and graphics package, it is expected that the signage fabricator be able to meet the standards outlined in the specifications provided with this document. Pre- qualification exercises specific to this project should be conducted in order to ensure fabricator competency with the proposed designs, materials, installation needs and other considerations. Signage sub-contractors who are pre-qualified with the design builder will also be required to meet these standards in order to be considered for bidding purposes, as not all sign companies are equally equipped to fabricate custom and one-off signage and wayfinding packages. All signage to comply with applicable city code, IBC, IFC, ADA, SAD and ANSI A117.1-2009.

Signs identifying a permanent room or space (“identification” signs) are required to use Raised Characters and Braille and must be mounted in a consistent location: on the wall, next to the door, on the latch (“strike”) side (with some exceptions). Directional and informational signs are not required to be in a consistent location and require only visual characters.

The following code required sign types will be included in our design package (Quantities TBD):

1.0 ADA Room Identification
2.0 ADA Restroom Indication
3.0 ADA Stair Identification
4.0 Emergency Evacuation Signs
5.0 Elevator Emergency Signs
6.0 Stairwell Egress Signs (Photoluminescent signage TBD)
7.0 Area of Refuge/2-Way Communication Signs
8.0 Fire Extinguisher Signs
9.0 Occupant Load
10.0 Tactile Exit Signs
11.0 Address Numerals (*Address numerals are required by the Denver Fire Department but may be existing. Their inclusion in this list is to accommodate any proposed design revisions to the existing sign(s) and/or inclusion of other, new instances of address numerals per future DFD requests)*
12.0 Assembly Area Signage, Area of Refuge Signage, Two-Way Call Signage (*The signage package will include all project-relevant assembly area related, code- required signage per IBC Section 1111.3)*

The following non-code required sign types will be included in our design package (Quantities TBD):

1.0 Directional Signage
2.0 Orientation Signage (Maps, Plans, Landmarks, etc.)
3.0 Information Signage (Directories, Instructions, Digital Screens, etc.)
4.0 Identification Signs (Floors, Galleries, Departments, Names)

C. CIVIL DESIGN

1. Roadway/Pedestrian Access

The proposed work for this project has minimal impact on the street level of the Convention Center property. An electrical transformer and generator will be added near the Champa parking garage entrance. The existing grades in both areas are relatively flat and should have minimal impact on the Champa Street sidewalk.

Champa Street is a 3-lane one-way street along the west side of the Convention Center. There are existing concrete sidewalks on both sides of Champa Street which are in good condition. Both sidewalks are minimum of 10’ wide and appear to be compliant with the Americans with Disabilities Act (ADA) (based on spot checks and field observations). There are existing pedestrian crossings at Speer Boulevard, 13th Street and 14th Street. Based on the existing conditions along Champa Street no sidewalk or roadway design work will be needed for pedestrian access to the proposed Convention Center stair connection.

2. Storm Water/Drainage

The Convention Center site contains multiple storm water drainage basins and sub-basins which exit the site at multiple locations. The main outlet is a 5’x10’ box culvert that drains out to Cherry Creek on the south side of Speer Boulevard. (Complete information for the existing site drainage and the drainage map are available in the Colorado Convention Center Expansion Final Drainage Report dated May 31, 2002 Revised June 24, 2002.)

The existing drainage report indicates the total detention required for the 100-year developed flows is 84,000 CF. 37,350 CF of detention is provided on the exhibit hall roof and 15,268 CF is provided in a pond near Speer and Champa. The total provided detention is 52,618 CF. This is 63% of the required detention capacity. With the understanding of the space limitations on the site, this undersized detention was approved by the City and County of Denver with the 2002 drainage report. The current expansion of the convention center may include detention on some of the new roof surfaces. Efforts will be made to maintain and possibly increase the percentage of total site detention.

The roof drains on the southwest side of the building (drainage map basin A-6) outlet into a water quality pond for water quality treatment. This small pond then outlets into the 5’x10 box culvert and is conveyed offsite.

The current convention center expansion project will mainly consist of improvements on the roof, over the existing building footprint. The overall imperviousness of the project will not be changed by these improvements. The site is built-out and does not present any known opportunities to add water quality or detention volume on the site.

Groundwater was previously encountered at depths of 10’ to 17’ below grade. Groundwater at the site is not a concern for work at or above street level based on the existing Soil and Foundation Investigation Report.

D. LANDSCAPE DESIGN

The Colorado Convention Center Expansion Program will include a Rooftop Terrace of approximately 20,000 square feet to be used for Convention Center events and programming. The signature design element of the terrace is centered around revealing and framing unparalleled and expansive views to the Colorado Front Range and surrounding urban context.

The terrace is intended to balance permanent landscape features and amenities during non-event times along with flexible event space that can be re-programmed to meet the desired needs of particular Convention Center events. The design is intended to facilitate a comfortable outdoor environment for small gatherings and informal networking while providing the flexibility and infrastructure for larger outdoor events, especially when the terrace is used in conjunction with the adjacent pre-function space.

1. Space Function

The terrace is intended to host light exhibits, receptions, and to be an amenity for the building and serve as additional pre-function and event space. The terrace will provide uninhibited views of the Denver skyline. The edge glass safety railing provides additional transparency to surrounding views. The overlook is bordered by an alpine themed rock garden with two small trickling water fountains as an interpretation of mountain spring water.

2. Edge Condition

- Perimeter safety railing: the parapet railing is set at 48” minimum height from the adjacent finished grades. All railing shall meet safety code compliance.
- A wind study is being conducted to help maximize user comfort on the terrace.

3. Finishes

- Paving & waterproofing: Hot-applied rubberized asphalt waterproofing membrane.

4. Electrical

- Refer to Program Room Data Sheets for electrical equipment and information.

5. Audiovisual

- Provide outdoor-rated loudspeakers
- Provide dedicated audio, video, and AV network jacks in outdoor-rated boxes for video and audio distribution.
- With the exception of integrated speakers, any audio and video equipment will be portable and will be set up as required by the event. This portable equipment will tie into the house systems.

6. Telecom

- Provide (1) Cat6A UTP data cables terminated with RJ45 outlet at each POS terminal at utility boxes, 6 locations.
- Provide Cat6A UTP data cables with RJ45 outlets for WiFi.
- Provide (high-density) WiFi coverage based on the latest IEEE 802.11ac (Wave2) standard.
- Expand existing (or provide new) coverage Responder Emergency System (RES) radios and facility operations radios distributed antenna system (DAS) throughout area.
- Carriers to expand existing (or provide new) coverage cellular telephone distributed antenna system (DAS) throughout area.

7. Security

- Provide exterior grade CCTV cameras for monitoring perimeter doors.

8. Structure

- Live Load Capacity = 150 psf. non-reducible.
- Integral tie-downs for temporary tents and shade structures.
- Design floors for concentrated live loads of 3,000 pounds with a total equipment weight limit of 10,000 pounds for scissor lift, pallet truck or other miscellaneous equipment.

9. Lighting

- LED wall/pole mounted and architectural fixtures to create mood or highlight special building features
- Controls will manage the lighting fixtures on a time clock and provide flexibility in configuration for different events and uses. Refer to lighting section for more information.

10. Plumbing

- Provide water and drain capabilities with lockable cover plates at bar (2) and portable food cart locations (3).
- Provide hose bibs with lockable covers for cleaning.
- Provide gas connections for (2) fire pits.
- Fixed fire pits have been incorporated due to safety concerns and code restrictions of movable fire pits. The gas lines shall have automatic shut-off valves for improved safety.
- Snowmelt system has been incorporated per code.
- Refer to Program Room Data Sheets for more information on these systems.

11. Furniture, Fixtures, & Equipment

- Tables and Chairs
- Outdoor Soft Seating
- Shade (to be determined)
- Trash and recycling receptacles

E. ARCHITECTURE AND INTERIOR DESIGN

To continue leading the convention industry in their specialty, the Colorado Convention Center is planning an expansion. Additional space that is flexible and accommodates a variety of customers is of greatest importance, and the Convention Center plans to satisfy this need with the addition of an 80,000-square foot Multi-Function Room. Landlocked by surrounding streets and businesses, the Convention Center plans to expand on the roof. The foresight of the design team for the 2004 expansion will allow this, as the structure of these exhibit halls was designed for this rooftop expansion.

The new rooftop construction is envisioned to be a unique offering in the convention center industry. The Multi-Function Room, which may be used like a ballroom, will be one of the largest of this type in the country. This expansion will be served by the latest technology, allowing exhibits and receptions to be held with ease. All these spaces will enjoy sweeping views of the Rocky Mountains and spectacular Colorado sunsets.

During the entire construction period, the building will be occupied, and it will be important to minimize disruption to scheduled Convention Center events. The design and construction of the Colorado Convention Center Expansion will be challenging, as the construction will take place above the existing exhibit halls, parking deck, and active light rail tracks and station.

While the parking deck might protect cars on levels other than the top, the exhibit hall roof is simply a metal deck with insulation and roofing, which could not resist the weight of a dropped structural member. Additionally, the design and construction teams will need to devise a means of erection that results in minimal interruption to the traffic lanes on Champa Street.

One of the challenges of the Colorado Convention Center Expansion will be vertical circulation. The expansion is expected to be served by the existing Champa Street elevated truck docks. Exhibitors will have use of new elevators that will travel from the loading dock to the multipurpose level, however, the path to the back-of-house area has not been determined.

Similarly, circulation of visitors will need to be carefully considered. The D Lobby and the E Lobby will receive guests that are moving to the rooftop venues. Both lobbies currently have elevators and escalators to the existing exhibit halls. Areas of rescue assistance complying with the existing codes will be provided with the new elevator configuration.

The existing parking garage is an important piece of the Convention Center expansion. Currently, wayfinding from the garage to the Convention Center is indirect and unclear. Similarly, the RTD's Theater District - Convention Center Rail Station is an asset, and the pathway from the station to the Convention Center entrance and back to the station is unclear to first-time visitors. The station is dark and perceived to be unsafe.

As a part of this project or a future project, the station will be renovated to create an atmosphere of safety and easy circulation. Graphics and signage improvements to support wayfinding is a high priority.

The first Phase of the Convention Center was completed in 1990, and the second phase was finished in 2004. The Convention Center staff and customers value the seamless appearance of the facility – there is no "old" or "new" area. All the work that is planned as a part of this project must support the perception that no part of the Convention Center is "old".

A long-term goal of the Convention Center is the removal of the Denver Fire Station that occupies the corner of Welton and Speer Boulevard. The Fire Department building obscures the view of the Convention Center on a primary approach from Speer Boulevard. The Bellco Theater has enjoyed great success, and with that success, the existing concourse around the theater has become congested. If the Fire Department functions relocate, an expansion onto the Fire Department site offers the opportunity to create another “front door”, and a porte cochere for both theater-goers and other visitors to ceremoniously arrive at the Convention Center.

The Colorado Convention Center expects great success in the coming years and all the items proposed are expected to support the continuing success.

F. ENVIRONMENTAL ASSESSMENT

The First Phase of the Colorado Convention Center was completed in 1990. This date was long past the date on which Asbestos was deemed to be a danger to human health. There is no reason to expect that there are any asbestos-containing materials incorporated into any part of the building, and in particular, in any area of the building that might be disturbed by the construction of this expansion.

Neither are unforeseen soils conditions expected to be encountered. During the excavation for the second phase of the Convention Center, various artifacts, none of which had any symbolic or monetary value, were uncovered, but the depth of the excavation was far below this level, so the artifacts had no bearing on the construction.

Should the Convention Center decide to expand the B Lobby, soils investigation should be performed to determine its suitability for the construction in that area, however, no problems are expected. As the primary construction is on the roof, far above the soils level, and the foundation system is designed for the additional load, no additional work relating to soils is expected.

G. ROOFING DESIGN

1. Existing Conditions

The roofing system on the current Convention Center was installed with 2004 expansion. The roofing has been installed on metal decking with slope built for drainage. The metal decking has a 6-inch layer of polyisocyanurate foam roof insulation with an aged thermal value of R-34.8. The insulation is covered with a 0.5-inch fiberglass-faced gypsum board. The gypsum cover board has a black, 60 mil, fully adhered, reinforced EPDM roof membrane over it. Roofs of this type have a typical service life of 20 years or more.

During February of 2012, a large section of the south “Blade” roof was wind damaged. The adhered EPDM roof membrane was peeled away from 60% of the western roof area. When this occurred some of the snow that was on the roof slid down into the gutter trough further damaging the loose roof membrane. Most of the roof insulation in this area was dry and could be salvaged. The damaged insulation and associated cover board were replaced, and a new 60 mil EPDM roof membrane was installed. This repair covered an area of about 43,000 square feet. Structural snow fences were added to the south “Blade” roof deck to keep snow from sliding down into the gutter trough.

2. Environmental Assessment

Prior to 1981, asbestos-reinforced asphaltic roofing products were common in the United States. Products containing asbestos included felt, mastic, and coating products. The existing Convention Center roofs were installed well after the 1981 ban on asbestos-reinforced roofing products. Furthermore, single-ply EPDM roofing systems such as are currently installed on the Convention Center this never contained asbestos in any of the membranes, glues, or sealants. As such, it is highly unlikely that any roofing products on the facility include any asbestos-containing materials.

3. Design Considerations

The following should be considered. Anticipated waterproofing items are also listed.

- The new roof system must have a minimum thermal insulation value of R-30.
- The wind uplift requirements will meet the requirements of Factory Mutual 1-90.
- The surface of the roofing must meet UL Class A fire resistance criteria.
- Minimum low-slope roofing slope shall be 0.25/12. Minimum waterproofing deck slope shall be 0.125/12.
- The existing drain leader system can be modified to carry the drainage water from the expansion, as no new roof area will be added.
- Any existing low-slope roof decking that is left between the clerestory walls for the “Blade” roof at the north and south ends should be replaced when the new expansion is built.
- If sloped metal roofing is installed, a snow retention system must be installed.
- The new waterproofing system will be buried under a paver or cast concrete wear surface.

4. Proposed New Roofing

The roofing system will be set over 5.5 inches of polyisocyanurate foam roof insulation and a cover board. A 60-mil TPO roof membrane is recommended for the low slope roofing.

The TPO sheets and flashings are easily installed and will provide sufficient durability for the expected rooftop traffic. The system can even be installed in high-slope roof areas.

5. Proposed New Waterproofing

The waterproofing membrane will be installed over concrete decking. This decking will be covered with a hot fluid applied rubberized waterproofing system that has polyester scrim reinforcement. The finished system is 215 mils thick.

The finished assembly is very resistant to leakage, as water can’t run under the fully adhered film. For there to be a leak, there must be a puncture in the waterproofing and a crack in the deck. Waterproofing systems of this type have typical service lives of 30 years or more.

H. ACOUSTICS NARRATIVE

The following narrative presents the acoustical design strategy for the project. It is intended for pricing and for incorporation of these strategies in the project design. Basis of Design information has been provided to establish a basic level of quality and to assist in pricing. K2 will continue to work with the Design Team to refine these concepts, integrate them into the building's design, and coordinate with the work of other trades.

1. Acoustical Design Criteria

a. Noise Criteria

Background noise levels attributable to mechanical and air distribution systems are defined in terms of maximum octave band sound pressure levels in decibels (dB) from 31.5 Hz to 8000 Hz – expressed in terms of Noise Criteria (NC) ratings, as defined below.

Criteria	63Hz	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	8KHz
NC-30	57	48	41	35	31	29	28	27
NC-35	60	52	45	40	36	34	33	32
NC-40	64	56	50	45	41	39	38	37

Acceptable NC ratings for individual spaces are described in the Program Room Data Sheets.

2. Sound Isolation

Acoustical wall types are divided among three basic assemblies; one providing STC-45, one providing STC-50, and one providing STC-55, per laboratory ratings. In situ performance can reduce laboratory ratings by 3 to 5 STC points. These recommendations are based on the Basis of Design document dated August 2017 and can be summarized as follows:

a. STC-45:

- One-layer 5/8" Type X GWB each side of 4" steel studs, glass fiber batt insulation in all stud cavities.
- Provide at BOH areas, Storage to Service Corridor

b. STC-50:

- Two layers 5/8" Type X GWB one side of 4" steel studs, glass fiber batt insulation in all stud cavities.
- Provide between Multi-Purpose Room and Service Corridor, Kitchen to Service Corridor.

c. STC-55:

- Two layers 5/8" Type X GWB each side of 4" – 6" steel studs, glass fiber batt insulation in all stud cavities.
- Provide between Prefunction and Multi-Purpose Room.

All acoustical wall assemblies should have insulation in all stud cavities. Perimeter walls of the Multi-purpose room should extend full height. Insulation can be fiberglass or mineral wool type. Thickness of insulation shall be appropriate for the corresponding stud thickness.

Full perimeter sound gasketing is recommended for all doors entering the Multi-Function Room.

Basis of design: Zero International Model 485 at jamb and head, mortised door bottom Model 350A, and Model 555 for astragals.

Doors should be solid-core or insulated metal doors. Hollow metal frames should be packed with compressible, 1.5 pcf fiberglass insulation and caulked to the surrounding walls.

Bulkheads consisting of two total layers of 5/8” gypsum board with insulation in stud cavities are to be provided above all operable partitions. Bulkheads are to extend to above structure on both sides. Smoke extract and supply/return ductwork is to be coordinated accordingly.

Operable partitions in the Multi-Function Room should meet STC 52.

3. Architectural (Interior) Acoustics

a. Multi-Purpose Level

- It is the intent to refine finishes in cooperation with the design team in subsequent design phases to provide an integrated final product.

b. Prefunction

- Ceiling should have sound absorbent properties, NRC=0.70 minimum.

c. E-Lobby and F-Lobby

- A sound-absorbing finish of NRC 0.75 or higher to control loudness is recommended.

4. New Mechanical Equipment Vibration Isolation

This section describes some general recommendations for equipment locations and proper vibration isolation.

a. Housekeeping Pads

4” minimum thickness concrete pads should be used under each piece of equipment in the mechanical rooms to provide a structure that is sufficiently stiff for the spring vibration isolators and to minimize structure-borne noise and vibration. The structural system comprising the roof under the mechanical equipment should be designed to limit deflection due to the added weight of the HVAC equipment to 0.20” or less.

b. Air Handling Units, Make Up Air Units, Exhaust and Pressurization Fan Units

- All rooftop mounted units should be installed on an external vibration isolation curb or rails with constrained spring isolators having a static deflection of 2” under actual load.

- All units should be located on a stiff structural system. Mid-span of beam is undesirable and tends to create excessive vibration, which can be easily transmitted into the structure and into occupied spaces. If mid-span locations are required, the structural engineer should be consulted to add additional stiffening support to the roof structure.

- Exhaust fans, continuously operating, should be vibration isolated by means of spring and neoprene type hanger isolators or spring type mountings with 2” static deflection under actual load conditions.

- Air handling units located in enclosed areas are to be installed on housekeeping pads and are to be vibration isolated by means of external spring isolators having a static deflection of 2” under actual load conditions. If the unit base is not suitable for this type of isolation, supplemental steel rails shall be provided.

- Piping connections 2” and greater to each isolated unit should be made with twin sphere flexible piping connectors, constructed from neoprene, EPDM, or rubber as required for compatibility with the fluid, temperature, and external conditions. Control cables may be required to prevent axial elongation in the piping (rigid control rods should not be used as they can short-circuit the vibration isolation provided by the connector). Condensate piping may be connected directly to the isolated unit but should not be hard connected to the non-isolated structure.

- Ductwork connections should be made with flexible connectors with sufficient slack to allow freedom of movement to the isolated equipment, even at start-up. Electrical connections should be made with flexible conduit installed with sufficient slack to give the vibration isolators their full range of movement.

- Ductwork (except smoke exhaust ductwork) located in the interstitial space and suspended from the underside of the floor deck of the Multi-Purpose Room or

- Prefunction area shall be vibration isolated by means of neoprene type hangers for their entirety within the interstitial space.

c. Pumps

- End-suction pumps (except fire suppression pumps), if provided, should be mounted directly on steel and concrete inertia bases, supported by steel spring and neoprene isolators with a static deflection of 2” under actual load conditions. The isolated inertia base should sit on top of a 4” thick concrete housekeeping pad large enough for the entire isolated assembly (installed by concrete trade). Basis of Design: Kinetics Noise Control Model CIB bases, Model FLS isolators.

- Inline pumps above 5 HP should be vibration isolated by means of spring isolation hangers or mountings. Spring mountings can be directly installed under equipment stands.

- Basis of Design: Kinetics Noise Control Model FLS isolators, Model SRH hangers.

- All piping connections to the isolated pump assembly should be made with twin sphere flexible piping connections constructed from neoprene, EPDM, rubber or other material compatible with the fluid, temperature and external conditions. Control cables may be required to prevent axial elongation in the connector.

- Electrical connections are to be made with flexible conduit installed in a slack “U-shape” to prevent short circuiting of the isolation.

5. Air Distribution Systems

a. Fans

- Fan selections should be made to minimize sound power levels in the 63 Hz, 125 Hz, and 250 Hz octave bands since low frequency noise is more difficult to attenuate than mid- and high-frequency noise. The manufacturer may have options to reduce sound levels including specialty fans, internal silencers, larger plenums, or thicker internal lining.

b. Duct Materials and Geometry

- Rectangular sheet metal ductwork is preferable to round or oval ductwork for its ability to attenuate fan noise. Round ductwork can be used in exposed areas to satisfy aesthetic requirements; however, rectangular duct should be used until the ductwork enters the space being served.
- Flexible ductwork may be used between branch ducts and diffusers/grilles. To ensure this is executed properly, a detail should be provided on contract drawings, and installation monitored early in the installation.
- Aspect ratios in ducts should be no greater than 4:1 to reduce rumble and breakout noise.

c. Fresh Air Inlet and Exhaust Discharge Locations

- Care must be taken to avoid discharge and intake outlets close to the building property line to avoid environmental noise issues.

d. Acoustical Lining

- All duct sizes shown on drawings should be clear internal dimensions after installation of acoustical liner. Locations of acoustical lining should be clearly indicated on the contractor's design and shop drawings.

e. Duct Silencers

- For certain systems, a duct silencer may be required to meet the noise criteria. Final determination and selection of silencers will be made when the design is further developed.

f. Duct Distribution

- Costs of noise control devices, such as silencers and duct lagging, can be greatly reduced through careful attention to duct distribution and locations of duct penetrations. The following guidelines should be considered as the mechanical system design is developed:
    - Maximize the length of duct between the fan and first terminal unit take-off.
    - Avoid locating transfer ducts between adjacent occupied spaces to prevent crosstalk through the duct system.
    - Provide gradual velocity transitions to reduce turbulence-generated noise.
    - Utilize full-radius elbows or radius turning vanes where possible to reduce turbulence-generated noise.
    - Develop each duct distribution system to be as self-balancing as possible in a "dampers wide open" scenario, meaning symmetrical distribution with branch ducts feeding each supply outlet. Where multiple diffusers feed off a single branch or header duct, utilize static regain methods to equalize downstream air pressure in the duct.

g. Diffusers and Grilles

- Diffusers serving Multi-Purpose and Prefunction areas should be selected to meet an NC rating of 6 dB less than the rated NC criteria.
- Integral dampers cause turbulence-induced noise that cannot be attenuated from the system. Remember to account for the effects of integral dampers when selecting the diffuser. These can increase the NC rating by 5 to 7 points above the published performance ratings. These effects are published or can be obtained from the larger manufacturers.

h. VAV Terminal Units

- All terminal units should be selected to meet the rated NC level of the space it serves, under maximum operating capacity and pressure drop. This should be done using the noise criteria published in manufacturer's catalogs for both radiated and discharge conditions. In general, the radiated levels will be higher than the discharge.
- Fan-powered terminal units generate more radiated and discharge noise and should not be used in areas with a target of NC-35 or less.
- Air velocity transitions in ductwork should be made as gradual as possible, especially closer to the terminal duct and outlet. After an air velocity transition, a duct of length equal to 3-5 equivalent diameters should be used so that the airflow velocity profile can be laminar at the entry to the terminal device.

6. Electrical Systems Noise Control

Noise generated by electrical equipment is particularly concerning because of its pure-tone frequency character. Small and large transformers, relays, and ballasts can generate noise that is annoying and may interfere with speech intelligibility and overall comfort.

a. Vibration Isolation and Location of Transformers

- Transformers should only be located in designated electrical rooms. All floor-mounted transformers should be installed on 4" thick concrete housekeeping pads and vibration isolated as follows:

Size	Mounting method	Isolator	Static Deflection
< 500 VA	All	Neoprene & steel pad	-
500 VA – 50 kVA	Floor	Neoprene mounts	3/8"
	Suspended	Neoprene hanger	
	Wall	NOT RECOMMENDED	-
> 50 kVA	Floor on grade	Spring & neoprene mountings	1"
	Floor above grade		
	Suspended above grade		

- Electrical connections to transformers should be made with flexible conduit installed in a slack “U-shape” in sufficient length to not become taut during normal start up or operation.

b. Elevator Equipment Rooms

- The elevator equipment rooms should not be located adjacent to noise-critical spaces.

c. Emergency Generator

- There will be a new, larger emergency generator serving this facility, and these types of units generate high noise levels. While noise propagation to adjoining properties is not a major concern, the noise impact on interior workspaces while the generator is in operation could be significant if the larger generator cannot be placed in the existing generator vault. An acoustical enclosure or vault must be planned for, including proper sound attenuation of the discharge, inlet, and exhaust.

- At minimum, vibration isolation of the genset and base tank (if supplied), sound attenuation at inlet and discharge, and muffler on exhaust, equivalent to that provided for the existing generator, is to be planned and included in preliminary pricing.

I. AUDIO VIDEO SYSTEMS

It is the intent that the Audio video systems for the Colorado Convention Center (CCC) Expansion Program shall be a natural extension of the existing systems that are currently in place. To this end, the customer facing portion of the system shall be largely similar in functionality with some upgrades for current requirements and technology.

1. Existing AV Systems Summary Overview

The existing AV system is a hybrid of the original audio system installed in 2003 and 2008 additions/upgrades. The current installed AV system topology consists of analog (copper) audio inputs and an RF (CATV) output originating from each space/room division terminating in one of three (3) amplifier/equipment rack rooms: West, East, and South. There is also a central “Technical Services Office Area” that serves as a monitoring station and hosts four configurable background music inputs.

The number and type of existing audio analog inputs vary by room type. The following table outlines the current variations of wall plates by general room type:

Room Type	Mic In	Line In (XLR)	Line In (TRS)	RF
Meeting Room	2	1	1	-
Ballroom – Wall Plate (Type-1)	2	1	1	1
Ballroom – Wall Plate (Type-2)	3	-	-	-
Ballroom – Wall Plate (Type-3)	2	1	1	-
Ballroom – Floor Box	1	-	1	-
Ballroom – Pre-Function	1	-	1	1
Exhibit Hall – A, B, & C (Mic)	1	-	-	-
Exhibit Hall – A, B, & C (Line)	-	1		
Exhibit Hall – D, E, & F	1	-	1	1

The audio and RF cabling for each space/room division is terminated wall plates or floor box plates and, as shown above, is mix of microphone level audio, line level audio, and CATV/broadband video (NOTE: The broadband video is now managed by Comcast). All inputs are run via conduit stubs through the walls of the room and then to cable tray which runs throughout the facility to the various local amp rooms. All audio cables are then terminated on ¼” long frame patch bays. Audio signals are then “normalled” through the audio patch bays and sent to Biamp AudiaFlex digital signal processors (DSP) for audio processing (mixing, EQ, room combine, etc.).

There are thirty- one (31) DSPs implemented in the current system. The system consists of twenty-eight (28) 16x8 DSPs, one (1) 4x10 DSP, and six (6) 8-channel output chassis as well as two (2) 20 channel logic boxes (for fire alarm contacts). This configuration reflects a total of 452 physical inputs and 282 physical outputs.

Common signals for the systems such as background music and loudspeaker monitoring signals are shared between DSP processors using a CobraNet 100Base-T digital audio network with single mode fiber linking the amp rooms and the AV Office. The Bellco Theater audio systems adds two (2) additional DSPs configured as a 12x12 and a 4x20 respectfully for back of house (BOH), Bellco Lobby, and the previously installed house sound system which is being currently used for fill and emergency paging.

The previous house sound system that consisted of Renkus-Heinz and EAW loudspeakers has been supplanted with a new standalone L'Acoustics dv- DOSC line array system with associated subwoofers. Other audio devices such as the main audio mixing console have been replaced as well.

The primary analog outputs from the DSPs are directly connected to 70V audio amplifiers and sent to the ceiling speaker zones throughout the Convention Center. The current audio amplifiers are from the 2008 audio system remodel and are largely QSC CX302V and a few QSC CX602V and CX1202V amplifiers for larger connected loads.

The existing audio systems are also connected to the fire alarm system for the muting of local audio and passing of emergency pre-recorded/live messages from the main Fire Command Center. The supplied system documentation regarding how the audio system is connected to the fire alarm system is somewhat vague, but it currently shows the fire alarm panel supplies 24 dry contact closures and an analog audio feed from the fire alarm panel to the AV Central Control Room. In the supplied documentation the audio feed is commonly labeled as an "Announcement Control System" or "ACS".

The dry contact closures from the fire alarm panel are connected to two (2) Biamp Logic Boxes and the audio signal is connected to a Biamp AudiaFlex DSP. When the pre- recorded /live message area initiated the signals are passed to the appropriate area based on the zone(s) selected on the fire alarm panel and the supplied audio. Pre-recorded/Live messages are passed between all existing DSP units via the CobraNet audio network (over fiber optic backbone between all AV Amplifier/Rack Rooms.

In one of the AV Amplifier/Rack Rooms there also appears to be a relay-based signal interrupt or backup switch system in place. The system consists of multiple board mounted relays. It is unclear whether this is a simple holdover from the original 2003 audio system or is still in use as parts of the fire alarm emergency paging system. K2 is hypothesizing that the relays switch between the standard line level audio signal between the audio DSP outputs and the audio amplifiers and the emergency page feed/message repeater (derived from the Fire Command Center). K2 believe that this may need to be reviewed in more detail to ensure that the system is within code as outlined in NFPA 27 2010 Edition.

The existing audio system for the Convention Center is capable of assistive listening in the Bellco Theater only. The Bellco Theater is equipped with a single Listen LT-800-216 (216MHz) RF transmitter and twenty-four (24) portable RF receivers. No other areas in the Convention Center utilize hearing assist currently unless brought in on a per-show/event basis by external AV vendors. Any expansion of the current audio system shall require an evaluation for code compliance with ADA.

The video capabilities of the existing systems are predominantly limited to the Bellco Theater and distributed CATV signals as noted previously. As part of the original 2003 design the video system in the Bellco Theater was a full video presentation/production system that included camera, video switching/routing, analog VGA, and projection. This video production system is standalone from the rest of the convention center, and its current technology and operational condition is unknown. If this system has been left alone since the original install it is likely seriously outdated and likely in need of replacement. Replacing or upgrading the video systems in the Bellco Theater is not included in the project scope of work.

There are some outdated Communication Specialties 4-channel audio/video multiplexers located in the AV Control Room for the sending/receiving of analog of composite video (NTSC 480i) and stereo audio signals between the AV Control Room, the Bellco Theater, and South AV Amplifier/Rack Room. Based on the supplied documentation is it unclear how these multiplexers are currently being used.

The broadband CATV distribution system was originally designed in the 2003 remodel and consisted of distributed cable TV video signals with the ability to insert local modulated video signals on unused CATV channels. CATV signals are distributed throughout the facility and are terminated on existing AV wall plates and floor box plates in the various meeting and ballrooms. Portions of the CATV system have been compromised (no longer working) and Comcast has taken over the management of the CATV system and associated distribution equipment internally.

The expansion of the current CATV system falls within the IT and structured cabling design discipline (others) and shall require coordination with Comcast. It is recommended that the distribution of AV-originated video signals in this manner be reviewed and possibly abandoned in favor of newer AV over IP distribution technologies.

The current AV systems utilizes limited Crestron controls in the Bellco Theater as well as a centrally located computer-based audio system control. In the original 2003 design there were distributed Crestron controls, but it appears that these were removed as part of the 2008 expansion/upgrade in favor of the computer-based control. The existing audio system used a Biamp daVinci audio control application to control the source selection and volume in the Exhibit Hall, Meeting Rooms, Mile High and Four Seasons Ballrooms, pre-function areas, and general concourse areas. It also controls all room combining functions in the Exhibit Halls and Ballrooms.

The equipment racks and associated infrastructure located in the existing three amplifier rooms and central control room consists of older multi-bay equipment racks as well as a few newer Middle Atlantic equipment racks.

2. Existing AV Systems Functional Analysis

The following are observations made during the review of the existing AV systems.

Within the project RFP the stated intent is to expand the existing audio system into the new Convention Center areas. K2 feels this approach may be unattainable since the existing equipment technology is over 10 years old and substantially outdated. Although it is currently possible to purchase additional units of the existing DSP hardware, it is unclear whether this equipment will still be available during the project completion timeframe. This approach may also prove impractical and technically undesirable since the underlying technology of the existing system is currently considered “legacy” and vastly underpowered by current standards. The processing capabilities of the existing Convention Center audio system DSP units is a fraction of current standards. By comparison, it would require over ninety-five (95) of the existing DSP units to equal one (1) current model DSP unit. Currently available DSP technology is almost 100 times more powerful than the existing Convention Center audio systems.

In addition to the age of the current hardware technology, the networking technology that connects the existing DSPs together for basic audio distribution and control, CobraNet, is also outdated and for the most part no longer unsupported. CobraNet has been almost completely phased-out by current audio manufacturers. This means that the existing system also have no interoperability with any current digital audio standards (Dante or AES67) or with common AV equipment that use these standards (mixing consoles, I/O devices, network amplifiers, etc.).

These multiple issues may present a significant limitation on the audio system’s expandability and overall capabilities. K2 believes a more thorough and detailed analysis may need to be undertaken to assess the viability of expanding the existing outdated system. Current systems in addition to being more powerful, flexible, and feature-rich also have more options for control and monitoring. Current technology also allows for a much greater level of network-based monitoring and control using custom user interfaces on touch panels, iOS devices, and IP-based user controls. This provides for a level of control and monitoring not available when the current system was constructed.

It should be noted that during the review of the existing systems K2 uncovered several potential issues that call into question the way the current systems are designed and installed (as part of the 2008 remodel). First, it appears that in several spaces—such as the Mile-High Ballroom, Exhibit Halls D, E, & F, Meeting Room 300s, 400s, and 500s, as well as possibly other circulation areas that the ceiling loudspeakers may be underpowered and exceed the minimum safe load on the audio amplifiers.

For example, in the Exhibit Halls each loudspeaker home run (based on the drawings provided and input from the SMG Tech Services Staff) appears to have an attached load of 560 Watts at 70V, but the amplifiers currently installed are only rated to provide 200W of power at 70V. A properly matched amplifier for these loudspeakers would supply a minimum of 600W at 70V—basically the wattage of the connected load plus a minimum amount of overhead/head room. This is likely resulting in low output volume and a high level of distortion from the loudspeakers in these areas.

The second issue K2 has observed is that it appears from the drawings that many of the analog outputs from audio the DSPs going into the Exhibit Hall and Ballroom audio amplifiers are mechanically split multiple times. Although it is technically possible to mechanically split a low impedance output in this manner, the result is a 1.5dB loss in signal level. It is generally acceptable to make four (4) or fewer splits in this manner since 6dB of loss is considered minimal. However, beyond four splits it is best practice to employ a distribution amplifier (or multiple distribution amplifiers) to maintain the audio signal level and the integrity of the distribution chain as well as the overall signal-to-noise ratio. In the current system drawings/installation (see Figure 1 highlighted area in red) there are several instances where the output signal has been split five or more times and in two instances the signal has been split 10 times—causing -15dB loss of signal level. This represents too great of a loss in signal level and requires that either the output of the DSP be raised (which can cause distortion/clipping on the output) and/or the amplifier volume be raised (which significantly increases the background noise.

3. AV Expansion Requirements by Project Area and Space

It is the intent that the AV scope include all the necessary equipment and materials for the successful completion of the recommendations described herein. This may include, but not be limited to, all required DSP processing, audio amplification, AV networking equipment, AV controls, DSP/Control System programming, video distribution equipment, AV cabling (fiber and copper), equipment racks, installation, etc. Additional AV requirements may also be identified on a space-by-space basis below. This may include, but not be limited to, existing locations AV systems upgrades, general AV network drops, wireless microphone antenna distribution, video displays, digital signage players, ceiling loudspeaker speakers, AV tie lines for broadcast trucks, and public displays for digital signage.

a. <u>New AV Amplifier/Rack (TR) Rooms</u>

Consistent to the existing Amplifier/Rack Rooms recommendations, K2 is recommending that a new AV Amplifier/Rack Rooms be created for the Rooftop Expansion portion of the project. The intent is that this/these amplifier/rack rooms support the AV equipment required for the new meeting and public spaces in the expansion. The proposed approach is to mimic (as appropriate) the existing rack rooms installation. This would include new equipment racks, landing all field wiring (microphone, line, video, and AV category and fiber cabling from meeting rooms) on patch panels, installing new DSP, I/O hardware, audio amplifiers, and AV networking/control equipment.

K2 recommending that each new AV Amplifier/Rack Room be equipped with one (1) QSC Core 510i and multiple QSC I/O-8 Flex units as needed to meet the required audio input count. This approach shall provide as many as 256 input channels locally and provide for some future expansion. New QSC CXD-Q 4 and 8-channel network audio amplifiers be supplied as well. The number of amplifiers shall be commensurate with the final number of zones required for the expansion.

The AV Amplifier/Rack room shall also be provided with a rack mount audio monitor for the monitoring of remote audio sources.

K2 is recommending that the video systems in the new AV Amplifier/Rack Rooms also be designed to reflect the current requirements of the Convention Center management group and current technology standards. New video distribution that is fully digital 12G-SDI compliant is suggested. This shall include 12G-SDI patch bays and ST fiber optic patch bays for the patching of portable broadcast equipment.

New dedicated AV network switches shall also be included. The switches shall be identical to the recommended Existing AV Amplifier/Rack Rooms AV network switches and shall be a QSC Q-Sys compliant AV network switch that shall at a minimum be a 24-port gigabit L2/L3 switch with PoE, SFP+ (10G) uplink ports, and stacking capabilities. It is also recommended that the AV network switches be connected in a fully redundant manner (ring) such that the loss of any one rack room or network switch does not affect the entire AV network. It is recommended that the network switch(es) be QSC Q-SYS NS Series Network Switches.

New multi-bay equipment racks, cable management, and associated power distribution infrastructure shall be provided in the new AV Amplifier/Rack Room(s).

b. Multi-Function Room

The new expansion Multi-Function Room is a large 80,000 sq./ft multi-purpose space that shall be capable of being. Adjacent rooms shall be capable of being combined to create larger blocks of flexible rooms to accommodate different sized meeting requirements. Identical to current existing Ballrooms and Exhibit Hall spaces, each Multi-Function Room shall have a basic set of built-in audio/video capabilities.

As described in room data sheets. Each room shall also have high-quality ceiling loudspeakers that allow for both sound reinforcement and background music. All AV input connections shall be cabled to the new AV Amplifier/Rack Room and terminated on rack mount patch panels. The microphone and line level inputs shall be then thru-wired (“normalled”) to the DSP systems and shall be automatically mixed and sent to the amplifier(s) that serve each room loudspeaker zone. Video, AV Network, and Fiber tie-lines shall be terminated on patch panels and shall allow for the cross-patching of signals within the Multi- Function Room as well as connecting to outside sources such as the Pre-function Areas or Broadcast Truck Dock pedestal.

The Multi-Function Room shall be equipped with an assignable multi-channel wireless microphone and RF antenna array system that shall allow for wireless microphone channels/systems to be allocated and assigned to a specific loudspeaker zone. This system shall consist of multiple channels (minimum of one microphone per zone) of wireless systems, a large area microphone array, and RF distribution hardware.

The system shall be designed in such a manner that allows for any microphone to be used in any divisible room (zone) without regard for coverage limitations. The routing of the microphone channels shall be done in the DSP control interface and shall permit the routing of up to four (4) wireless systems to each room division/combined zone. K2 recommends using no more than four (4) systems per room before using a portable audio mixing console and an operator.

K2 recommends six (6) Shure QLX-D 4-channel digital wireless systems (with hand held microphones, belt packs, lavaliere or head-worn Countryman microphones, rechargeable batteries, charging stations, etc.), forty-eight (48) Shure UA834 inline RF amplifiers, forty-eight (48) RF Venue ceiling tile antennae, six (6) Professional Wireless Systems (PWS) UX-8 Eight Channel Transmit Combiner, and one (1) PWS Alpha Series Multi-Zone Filtered Distribution unit. To connect the wireless systems seamlessly to the DSP, one (1) QSC Dante audio card shall be provided and installed in the new audio system DSP Core. It is recommended that all antenna cabling be low loss RG-8/U.

A RF-based assistive listening system for each Multi-Function Room with receiver chargers located outside of each in the service corridor (or other TBD location) shall be provided. Given the number of rooms and possible simultaneous systems, K2 recommends a WiFi based assistive listening system be provided. A WiFi-based assisted listening system would exist on a dedicated AV wireless network throughout the Multi-Function Room (and Pre-function area) and would allow for simultaneous channels to be broadcast. This approach also allows participants to download a free iOS or Android app directly to their phone for use with their own ear buds/headphones. For participants whose choose to opt out of using their personal device, the system shall include dedicated WiFi receivers as well.

Overall, this approach future-proofs the hearing assist system, meets the simultaneous channel requirements, and reduces the burden on Technical Services Staff to maintain the number of assistive listening devices typically required. The hearing assist system shall use standard WiFi wireless access points and network connectivity (installed as part of the dedicated AV system network).

The WiFi server is installed in the AV Rack/Amplifier Room and would be connected to the DSP over the AV network using Dante/AES67 digital audio protocol for audio transport, control, and monitoring. The system also has in-app links that offers the option of customizable advertising banners, participant surveys, PDF documents and ticker scrolls across bottom of screen. The recommended WiFi system is the Williams Sound HHS 132 D Hearing Hotspot Server with additional 110 WiFi Hotspot Receivers (including 12-bay charging station(s), ear speakers, telecoil neck loops, and batteries). Note: the number of receivers meets the ADA requirements for the 7,000-person maximum event capacity.

As appropriate each exterior divisible room shall have a wall-mount 4.7” touch screen controller for volume control, background source select, and shade control integration. QSC TSC- 55w-G2 5” wall mount touch screen controllers are recommended. K2 is also recommending that the new system be compatible with portable touch screen tablets for control as well (IOS and Android). It is the intent that the DSP systems network monitoring and control features be extended to wireless tablets allowing for AV technicians to control advanced systems features and monitor the systems outside of the AV Control Room.

Other identified features shall include

- Network audio control and processing.
- Ability of mass notification system to mute system via dry contact closures and send audio messages/live pages from fire alarm command center.
- Ability to utilize portable audio and video equipment. Within limitations, portable equipment shall be cable of tying into the house systems.
- Cable TV outlets.

c. Pre-Function Space

The new expansion Pre-Function Space and circulation space will be adjacent to the Multi-Function Room. The Pre-Function Space have a basic set of built-in audio/video capabilities. It is the intent that in at least two locations in the Pre-Function Space there is an AV wall plate with two (2) microphone inputs, two (2) line level, one (1) 12G-SDI video tie-line, one (1) CAT6A AV Network tie-line, and two (2) ST fiber tie-line connection. The area shall also have high- quality ceiling or wall mount (to be architecturally integrated) loudspeakers that allow for both sound reinforcement and background music. All AV input connections shall be cabled to the new AV Amplifier/Rack Room and terminated on rack mount patch panels.

The microphone and line level inputs shall be then thru-wired (“normalled”) to the DSP systems and shall be automatically mixed and sent to the amplifier(s) that serve each room loudspeaker zone. Video, AV Network, and Fiber tie-lines shall be terminated on patch panels and shall allow for the cross-patching of signals within the Pre-Function Space as well as connecting to outside sources such as the Multi-Function Room or Broadcast Truck Dock pedestal.

The Pre-Function Space shall be equipped with an assignable multi-channel wireless microphone and RF antenna array system that shall allow for wireless microphone channels/systems to be allocated and assigned to a specific loudspeaker zone. This system shall consist of 4 channels (minimum of one microphone per zone) of wireless systems and shall be an extension of the Multi-Function Room a large area microphone array as defined previously. K2 recommends one (1) Shure QLX-D 4-channel digital wireless systems (with hand held microphones, belt packs, lavaliere or head-worn Countryman microphones, rechargeable batteries, charging stations, etc.), Shure UA834 inline RF amplifiers,) RF Venue Diversity Fin antennae, and Professional Wireless Systems (PWS) UX-8 Eight Channel Transmit Combiner. To connect the wireless systems seamlessly to the DSP, similar to the Multi-Function Room, the wireless receiver shall be connected via Dante to the DSP Core. It is recommended that all antenna cabling be low loss RG-8/U.

A RF-based assistive listening system shall be provided. The Pre-Function Space shall be an extension of the WiFi-based assisted listening system for the Multi-Function Space would exist on a dedicated AV wireless network throughout the Pre-Function Space. The Pre-Function area shall utilize the proposed WiFi Hotspot Receivers specified for the Multi-Function room.

Other identified features shall include

- Network audio control and processing.
- Ability of mass notification system to mute system via dry contact closures and send audio messages/live pages from fire alarm command center.
- Ability to utilize portable audio and video equipment. Within limitations, portable equipment shall be cable of tying into the house systems.
- Cable TV outlets.

d. Outdoor Terrace

The new expansion Outdoor Terrace space adjacent to the Pre-Function Space. The Outdoor Terrace shall support light events and receptions The Outdoor Terrace as such shall have a basic set of built-in audio/video capabilities. It is the intent that in at least three locations in the Pre-Function Space there is an outdoor rated box with an AV wall plate with microphone inputs, line level, one (1) 12G-SDI video tie- line, one (1) CAT6A AV Network tie-line, and ST fiber tie-line connection. The area shall also have high-quality outdoor loudspeakers. The loudspeakers shall be architecturally integrated into the exterior of the building or incorporated in the landscaping

All AV input connections shall be cabled to the new AV Amplifier/Rack Room and terminated on rack mount patch panels. The microphone and line level inputs shall be then thru-wired (“normalled”) to the DSP systems and shall be automatically mixed and sent to the amplifier(s) that serve each room loudspeaker zone. Video, AV Network, and Fiber tie-lines shall be terminated on patch panels and shall allow for the cross-patching of signals within the Outdoor Terrace as well as connecting to outside sources such as the Pre-Function Space or Broadcast Truck Dock pedestal.

Other identified features shall include

- Network audio control and processing.
- Ability of mass notification system to mute system via dry contact closures and send audio messages/live pages from fire alarm command center.
- Ability to utilize portable audio and video equipment. Within limitations, portable equipment shall be cable of tying into the house systems.
- Cable TV outlets.

e. Tasting Room

The new Tasting Room is a 350 sq. ft. elegant conference room space. The Tasting Room shall support the Chef for tastings with potential customers. The Tasting Room as such shall have a basic set of built-in audio/video capabilities.

Identified features shall include

- 75” 4K UHD LED Screen with CATV (ATSC) tuner for presentations and TV.
- Wired HDMI input for portable laptop computer.
- Ceiling loudspeaker for BGM and Voice Evacuation.
- Wall-mount Bluetooth/portable music input plate for local audio source (iPhone, MP3 player, etc.).
- Local wall-mount digital volume control for music selection and volume control.
- Ability of mass notification system to mute system via dry contact closures and send audio messages/live pages from fire alarm command center.
- Cable TV to television.

f. Break Room – Kitchen Staff

The break room for kitchen staff. The primary use of this room is as a conference room for planning and briefing food service staff. Identified features shall include accommodations for future video monitor.

g. Back-Of-House Service Corridors

Corridor to wrap around Multi-Function room. Identified features shall include AV equipment storage areas in corridor and loudspeakers for voice evacuation.

h. Other Spaces Identified as within the Basis of Design but having NO Audio Video Requirements

- Restroom – Public*
- Kitchen*
- Dressing Rooms*
- Kitchen Dry Storage
- Liquor Storage
- Coffee/Condiment Storage
- Kitchen/Walk-in Cooler and Freezer
- Dishwashing/Pot Washing

- China/Flatware/Prop Storage
- Linen Storage
- Kitchen Storage
- Restrooms/Dressing Rooms – Kitchen Staff*
- Janitor Closets
- Can Wash
- Trash/Compost/Recycling Storage
- Storage – Enclosed
- Storage – Open
- Non-Public Restrooms
- Gender Neutral Staff Restrooms
- Janitor Closets
- Electrical Rooms
- Mechanical Rooms
- Operable Wall Panel Storage
- Service Elevators
- Freight Elevators
- Escalators
- Exit Stairs

*Some of these areas may require loudspeakers for voice evacuation compliance.

i. D Lobby Improvements (Upper and Lower)

Improvements to the existing D Lobby will be elevators, escalators, and stairs for connection to the Pre-Function area of the roof expansion. The D Lobby Improvements will also provide a new connection to the west end of the Parking Garage. This will serve as one of two major entrances to the upper level Pre-Function. The design should enhance the visitor's wayfinding experience and update the finishes, tying them to the new Multi-Function space and Pre-Function area.

j. E Lobby Improvements

This space will include elevator, escalator, and stair access directly to the upper levels and serve as a major entrance to the new expansion.

J. ELECTRONIC SECURITY SYSTEMS

The purpose of this schematic design report is to articulate security standards and integrated electronic security disciplines. This reports also details the future areas to be constructed and provided with electronic security systems. In addition to the areas requested by the Colorado Convention Center Leadership, K2 may recommend securing and or monitoring additional areas based on best practices and current industry standards.

The Colorado Convention Center expansion will be equipped with Electronic Safety and Security Systems comprised of Access Control, Intrusion Detection and Video Management devices. All electronic security devices will be compatible and fully integrated with the existing electronic security systems currently deployed and utilized by the CCC. The CCC electronic security system device standards will be incorporated into all expansion phases to include installation and integration of devices by CCC's integrator of choice.

1. Electronic Security Systems Standards

a. Electronic Security Cable Infrastructure Standards.

- CAT6A is CCC's standard security data cable.
- All CAT6A POE cables are to be installed point to point and the length is not to exceed 300' (of cable).
- "Patching" or extending is not authorized and will not be approved.
- All CAT6A cables will terminate in a patch panel within the designated IDF.
- CCC IT utilizes 10GB multimode fiber optic cables.
- All fiber will be installed within "Dura-Line" low end conduit.
- Each data switch is to be supported by (1) x 110VAC electrical power and (2) multimode fibers.
- Cisco Layer 2 switches are the CCC standard.
- Cabling will be bundled with self-grip or cinch straps.
- The jackets of Security data cable will be green in color.
- All cable is to be labeled.
- Security cable infrastructure is not to be located within 5' of electrical cabling.
- Cable runs are to be supported by J-hooks.

b. Electronic Security Access Control Standards.

- Salto Systems, wireless credential readers and locks are one of two current standards.
- Salto "nodes" and "gateways" are to be located within the manufacturer's recommended distance to access portals.
- Salto "gateways" will serve as controllers for security device distribution and will be incorporated into the individual area designs.
- Integrated Control Technology (ICT), a hardwire access control system, is CCC's second standard. CCC selected doors will be supported by ICT.
- All new construction doors are required to be supported by access control.
- Intrusion detection devices (alarm switches or REX devices) to activate forced open alarms, held open alarms and request-to-exit are not required at the access points.

- Rough-in standards:
    - Conduit from all access portals shall be extended to the nearest access node or J-Hook supporting data.
    - Transfer hinges are not required for “Salto” equipped wireless access points.
    - Transfer hinges are required for all hardwired access points with electrified panic hardware.

c. Video Management System Standards.

- Avigilon Surveillance Systems is the CCC standard.
- All access portals and emergency exits are to be equipped with surveillance.
- For consistency, Avigilon cameras are the preferred camera manufacturer.
- As a new standard, all cameras are to be fixed-position devices.
- The CCC standard camera shall be a 3MP device with a readable image able to support forensic quality images up to 100’.
- 18MP cameras are to be detailed within the design for viewing ranges greater than 100’.
- Cameras with less than 3MP are not authorized or approved for the CCC expansion.
- Rough-in standards:
    - Exterior camera cable is to be installed in conduit with supporting J-boxes. Conduit is to be extended to the nearest J-hook supporting data.
    - Conduit to cameras mounted on ceilings (accessible and non-accessible) is not necessary. Free hanging CAT6A supported by a J-hook above the camera is acceptable.
    - Wall-mounted cameras require conduit and a J-box. Conduit is to be extended to the nearest J-hook supporting data.

2. Security Devices and Recommended Locations

a. Access Control Equipment

Access Control equipment (system controllers, credential readers, alarm switches, request to exit detectors, field control modules to include nodes and gateways, electronic door hardware, network equipment and power supplies) will be provided for circulation control as predetermined by the building administrators. All cable and wires will meet or exceed the individual device manufacturer’s recommendations. Head end gateways, nodes, network equipment, associated control modules and required supporting devices are to be located within a secured IDF or MDF. Selected power supplies and controllers will be in the field to support selected access control points. In the event of an emergency, the Access Control equipment should also have the capability to secure all portals. Specifically,

- Salto RFID access control locks will be included at all new construction doors.
- Hardwire access control locations and devices will be determined and approved by CCC during the design development phase of the project.
- All device locations will be coordinated with CCC and the project management team as needed.

b. Security Equipment

Security equipment located within secure IDF or MDF rooms will require wall space. A minimum of 4' X 8' wall space to accommodate wireless access control gateways and nodes, hardwire controllers and associated security power supplies plus room for future growth. See Figure 3 for typical layout.

Fail-safe fire alarm interface devices shall be in the IDF or MDF rooms. Video management system network switches shall be in racks within secure IDF or MDF rooms. The number of network switches will be determined during the design development phase. Power supplied to security devices within the IDF or MDF rooms shall be provided from a dedicated circuit located within the room. The number of dedicated electrical circuits will be determined during the design development phase of this project.

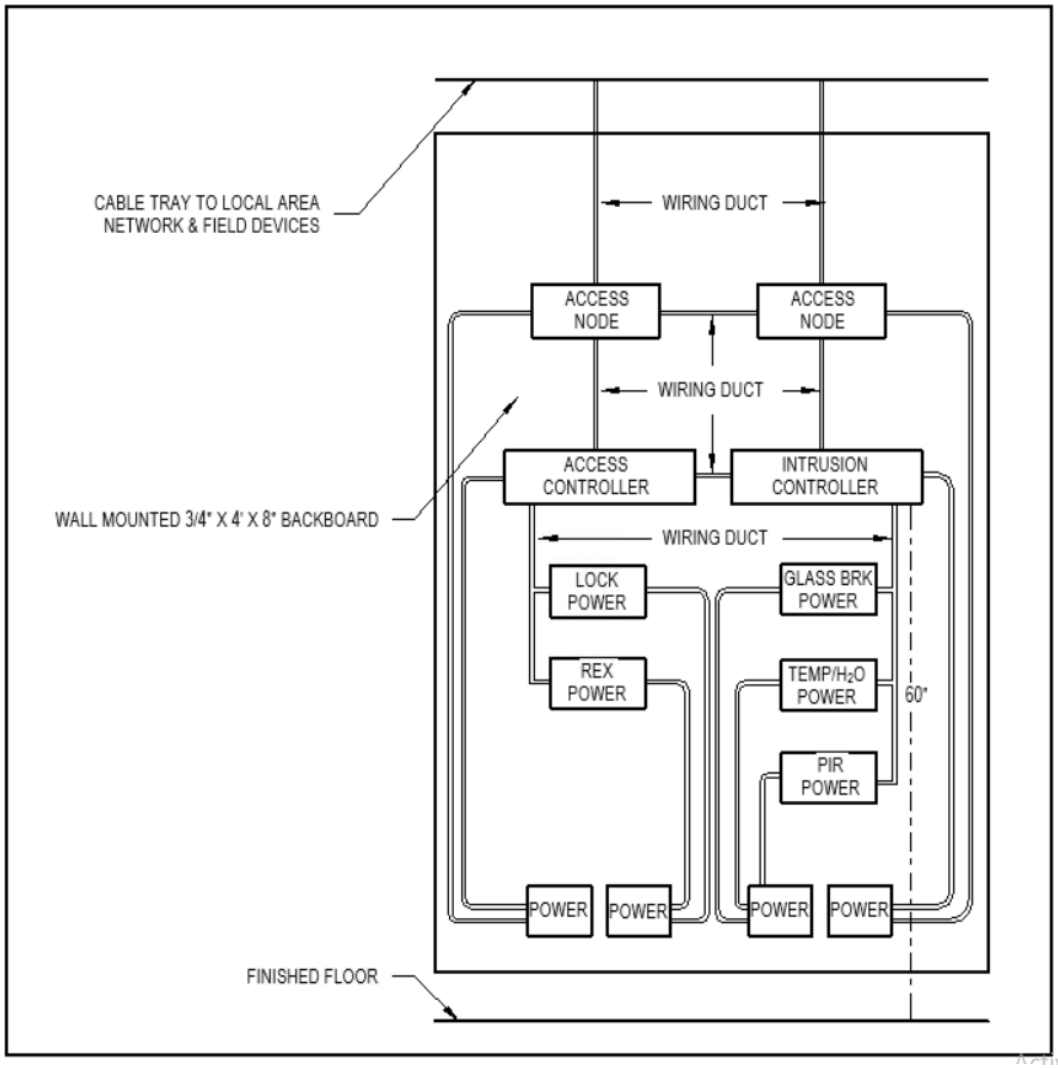


Figure 3

c. Video Management Equipment

Video Management equipment (servers and or local field storage, IP dome and bullet cameras, associated control modules and mounts, power supplies, network devices and switches) will be provided. All head-end nodes and or network equipment will be installed within a secured IDF/MDF room. All cable and wires will meet or exceed the individual device manufacturer's recommendations. Cable runs will not exceed device manufacturer's recommendations and will terminate in a security IDF or MDF. Exterior devices will be equipped with surge suppression and be capable of functioning within the extremes of the local environment.

Emergency call stations with the capability of video shall be included within the electronic security systems design. The locations of the call stations will be determined and approved by CCC during the design development phase of the project.

Video intercoms with the capability of unlocking perimeter access doors shall be included within the electronic security systems design. The locations of the video intercoms will be determined and approved by CCC during the design development phase of the project.

All camera locations will require a single CAT6A cable and be powered over Ethernet. The locations of all cameras will be determined and approved by CCC during the design development phase of the project.

All device locations will be coordinated with CCC and the project management team as needed.

d. Intrusion Detection Equipment

Intrusion Detection equipment (glass break detectors, door contacts, water detectors, high temperature detectors, panic devices and duel technology passive infrared & microwave detectors) will be provided. In the event of detected intrusion at access points, emergency exits, or within the interior of the building, the system will initiate emergency response notification to a predetermined monitored location.

- Panic alarms should be available in spaces as coordinated with CCC as needed.
- Water Detection should recognize a change in the physical state of the mechanical rooms
- Heat Detection should recognize a change in the physical state of the IDF/MDF
- All other locations will be coordinated with CCC as needed.

3. Space-by-Space Electronic Security Systems

a. Multi-Function Flexible Space

- Proximity/Smart card readers/access control to be provided at all main entry doors and monitored in the Central Security Office.
- Video Surveillance to be provided for all perimeter doors.

b. Multi-Function Support Space

- Security not required at this time.

c. Pre-Function Space

- Proximity/Smart card readers/access control to be provided at all exterior doors and monitored in the Central Security Office.

- Video Surveillance to be provided to monitor the general area, all vertical transportation and all exterior doors.

d. Rooftop Terrace

- Exterior environmental grade Video Surveillance to be provided to monitor all perimeter doors.

e. Food Service Group

- Staging Pantry: Video Surveillance to be provided to monitor the general work areas and Multi-Function doors.
- Kitchen: Proximity/Smart card reader/access control at main entry, cash counting, vault, and liquor storage doors, monitored in the Central Security Office; video surveillance to be provided to monitor perimeter doors and vault.
- Liquor Storage: Proximity/Smart card readers/access control to be provided and monitored in the Central Security Office.
- Security not required at this time for the following areas.
    - Kitchen Dry Storage
    - Coffee/Condiment Storage
    - Kitchen Walk-In Cooler and Freezer
    - Dishwashing/Pot Washing
    - China/Flatware/Prop Storage
    - Linen Storage
    - Break room – Kitchen Staff
    - Rest Rooms/dressing Rooms – Kitchen Staff
    - Can Wash
    - Trash/Compost/Recycling Storage
- Kitchen Offices: Manual locking by others.
- Tasting Room: Manual locking by others.
- Janitor Closets: Manual locking by others.

f. Back-Of-House Group

- Back-Of-House Service Corridors: Video Surveillance to be provided to monitor perimeter doors.
- Enclosed Storage: Manual locking by others.
- Dressing Rooms: Proximity/Smart card readers/access control to be provided and monitored in the Central Security Office.
- Janitor Closets: Manual locking by others.
- Electrical rooms: Manual locking by others.
- Telecommunications Rooms: Proximity/Smart card readers/access control to be provided at doors and monitored in the Central Security Office; Video Surveillance to be provided for interior monitoring.
- Mechanical Rooms: Storage locks by others.

- Security not required at this time for the following areas.
    - Operable Wall Panel Storage
    - Storage-Open
    - Non-Public restrooms
    - Gender Neutral Staff Restrooms

g. Vertical Conveyance

- Public Elevators: Video Surveillance to be provided for interior cab and occupant monitoring.
- Service Elevators: Video Surveillance to be provided for interior cab and occupant monitoring.
- Proximity/Smart card readers/access control to control floor selection and monitored in the Central Security Office.

h. Freight Elevators

- Video Surveillance to be provided for interior cab and occupant monitoring.
- Proximity/Smart card readers/access control to control floor selection and monitored in the Central Security Office.

i. Escalators

- Video Surveillance to be provided to monitor all escalators and common area landings.

j. Exit Stairs

- Door status alarm switches to be provided and monitored from the Central Security Office.

K. TELECOMMUNICATIONS SYSTEMS

It is the intent that the telecommunication infrastructure and backbone cabling for the Colorado Convention Center Expansion project is an extension of the existing systems that are currently in place.

The expansion at the roof level of the existing D, E, and F exhibit halls will include a Multi-Function space, a Pre-Function area, and a Rooftop Terrace. All of these new areas will require new telecommunications cabling (both copper and fiber) and new telecommunication rooms to support these areas functional requirements.

This section presents a schematic design narrative of the structured cabling and telecommunications systems for this project. The design concepts and recommendations described in this section are based on a walk-through of the telecommunication areas with the Convention Center on 05/10/2018, best practices, and preliminary plans developed by the architectural team. It is intended that this report be used to inform the schematic design cost estimates and to guide the future detailed design development phase for the structured cabling systems.

There is a requirement to provide highly accessible and versatile connectivity to exhibitors throughout the convention center.

All structured cabling work shall be performed by a licensed and bonded low voltage cabling contractor who has been in business under the present firm name for a minimum of five (5) years and has equivalent project experience to the scope of work described herein. Firm shall have at least one (1) RCDD qualified person assigned to the project and involved in the day-to-day work of the installation.

1. Telecommunication Demolition

There are large existing floor boxes and columns that have obsolete fiber and other cable run to them in the Convention Center spaces. For any area where these floor boxes will be modified or removed as part of this project, also remove all unused cabling back to headend.

2. Telecommunications Spaces

Telecommunications spaces will be used to house telecommunications equipment and associated cabling. Current building conditions have DAS equipment collocated within Telecom Rooms. We anticipate Security, Audio Visual, Broadcast Infrastructure VoIP, Colorado Convention Center IT, and SmartCity equipment will cohabitate in the telecom spaces described for the expansion. We anticipate telecom spaces will have a standard floor and that raised floors are NOT required. We further expect that audiovisual equipment is able to be collocated in the telecom rooms.

a. Entrance Facility

The Entrance Facility (EF) is the point where the outside plant (OSP) cabling from the rest of the campus or street connects with the building's backbone cabling. Both public and private network services come into the building at this point and space is allocated for each Access Provider (ex. Comcast, Verizon). This area is currently already part of the existing building and shall be maintained in its current location and configuration. Care will need to be taken for any work performed in or near this space to maintain building operations.

b. Equipment Room

The Equipment Room/Main Distribution Frame (ER/MDF) is in the lower level of the building and will continue to serve as the headend for the telecom systems as well as the distribution point for horizontal cabling on that level. Care will need to be taken for any work performed in or near this space to maintain building operations. New Telecom Rooms will need to tie into this existing MDF, and consideration shall be taken to account for additional requirements to support the expansion.

c. Telecommunications Enclosures

In areas where there is insufficient space, or a small number of data cables, a Telecommunications Enclosure (TE) may be utilized to distribute horizontal cabling to nearby workstation outlets. It is unclear whether there will be any TE's required for this project at this time. The most likely need for TE's would be to accommodate telecommunications drops required in the ceiling areas of the Multipurpose Rooms for wireless access points and other equipment. These will either be served from an additional TR, a TE, or an extender solution such as the Berk-Tek OneReach or Veracity Outreach Max.

d. Telecommunications Rooms

We anticipate Telecommunications Rooms/Intermediate Distribution Frame (TR/IDF) Rooms. These rooms will distribute the horizontal cabling to the nearby areas. TRs to be located approximately 400-ft on center such that cable lengths do not exceed 295 feet (90 meters). Precise size of telecom rooms is still in the development phase, but we anticipate each TR to be approximately 90-150 sq. ft. in size. An example layout of requirements for the TR spaces is shown in Figure 4.

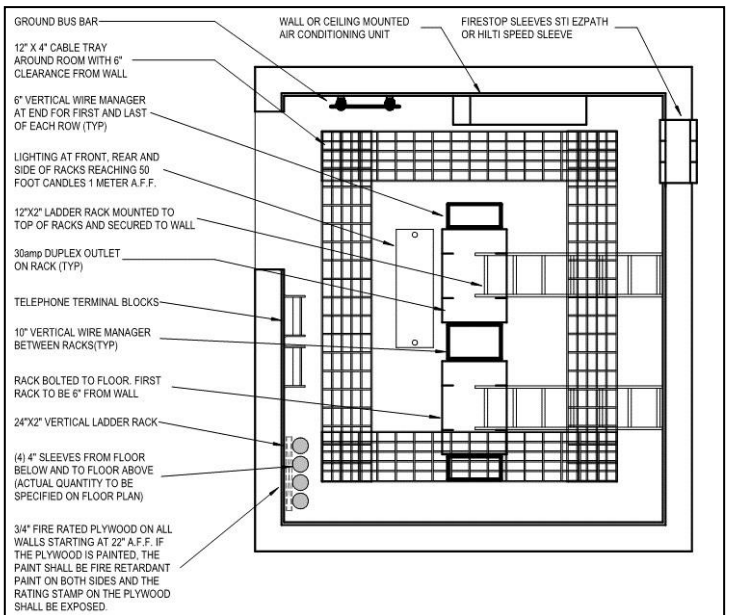


Figure 4 Typical Telecommunications Room Detail

New telecom spaces for the expansion shall be stacked vertically where possible to existing telecom spaces. Each TR/IDF shall be connected to nearest Telecommunication Space by a minimum of 6 (6) 4" EMT conduits with six (6) x 4" re- enterable fire-stopped sleeves (STI EZ Path or Hilti Speed Sleeve) to enter/exit the room.

The TR/IDF shall all be built-out adhering to current BICSI best practices and the following considerations:

e. Architectural

- Concrete walls and floors shall be sealed
- Carpet flooring must be avoided
- Finished walls along all four sides that extend to building structure
- Tile floors should be non-wax and installed with a ground grid connected to the nearest electrical ground
- Avoid dropped tile or dust producing ACT ceiling tiles
- Ceiling height shall not be lower than 8'-6" - consideration should be given for 10'-0" high ceilings
- Ceiling finish should be light colored to enhance room lighting
- Doors to be a minimum of 36" wide x 80" tall and should be removable
- Where permissible by code, doors that open outward are desired as this provides additional usable space
- Avoid placement on exterior walls where possible
- Entrance to room shall not be through a non-circulation space (i.e. storage or restroom)

f. Electrical/Lighting

- Minimum of one (1) dedicated, non-switched alternating current (AC) 30A receptacle and one (1) dedicated, non-switched AC 20A receptacle for equipment power, each on individual branch circuits mounted above each equipment rack to prevent tripping hazards.
- Minimum of one (1) standard 20A quad convenience outlet located near the door and additional convenience outlets placed at 6' intervals around perimeter walls at standard outlet height.
- Assume the following electrical loads:
- 3.5KW for the first 2 racks, plus 1.5KW for each additional rack. For the main equipment room (MER/MDF/ER), assume an additional 1KW for wall mounted equipment, along with an additional 1.5-3.5KW for each rack that will house servers or core network equipment.
- Lighting a minimum of 50 foot-candles (538 lux) measured at 3 feet (1 meter) from the floor in front of, behind, and to the sides of the equipment racks.
- Provide one light fixture with emergency power or battery pack.
- Lighting layout shall be coordinated with equipment layout to ensure lighting is not obstructed.
- If an electrical panel is to be provided inside the room:
- Panel(s) shall be dedicated to serving only the equipment in the telecom room.
- Assume minimum of one (1) 120/208 3-phase panel sized at no less than 100A per room.
- Locate panel on short wall opposite the end of the row of the racks.
- Panel shall NOT be used to power HVAC, lights or convenience receptacles within the telecom room.
- Ladder rack for cable routing above equipment racks.

g. Mechanical

- Maintain continuous and dedicated environmental control, separately cooled from rest of building on dedicated stand-alone system.
- If emergency power is available, consider connecting it to the HVAC system that serves the telecommunication space.
- Temperature shall be maintained between 64° and 80° Fahrenheit.
- One air change per hour is required.
- Expected heat load for each ER/TR is yet to be determined. For SD-level assume 1 ton of cooling for every 2 racks. Assume an additional 1 ton of cooling for the Main TR (MDF).
- Provide monitoring of:
    - Room temperature and humidity
    - Discharge temperature and humidity
    - Fan motor status
    - Overall unity status

h. Fire Protection

- Walls shall be lined with 3/4" fire rated plywood backboards or painted on all sides with 2 coats of fire retardant white (or other light-colored) paint.
- Wherever fire-rated architectural structures and assemblies are penetrated by cables, pathways (e.g. conduit or cable tray), or other elements appropriate fire-stopping shall be installed – penetrations through walls of equipment rooms shall be STI EZ Path or equivalent.
- Provide wire cages to prevent accidental operation of sprinkler heads.
- Telecom Room walls to have a minimum 1-HR fire rating, with a recommended 2-HR rating.

i. Plumbing

- Avoid locations below or adjacent to areas of potential water hazard (e.g. restrooms, kitchens)
- Liquid carrying pipes (e.g. water, waste, steam) shall not be routed through, above, or in the walls enclosing the telecommunications space.

j. Security

- Each telecom room shall be secured with a card access reader. Confirmation about this requirement will be required in subsequent phases.

k. Equipment Racks:

- Racks: Standard EIA 2-post 19” W x 84” High with 10” vertical cable management on each side and between racks. (Qty. 3-4)
- Power Units per Rack:
    - horizontal 2.9kW 120V 30A (NEMA L5-30P) metered power distribution unit (PDU) (1RU size) with (24) 120V 20A (NEMA 5-20) outlets.
    - horizontal 5.0kW 208V 30A (NEMA L6-30P) metered power distribution unit (PDU) (1RU size) with (4) 208V 19A (NEMA C19) and (6) 208V (NEMA C13) outlets.

3. GROUNDING & BONDING

All telecommunications equipment and rooms will be bonded to the electrical system ground per TIA-607-C standard.

4. PREMISES CABLING

The premises, or inside plant (ISP), cabling for this building will consist of optical fiber and balanced twisted-pair copper. Cables and connecting hardware will be from the same manufacturer or manufacturer partners and have at minimum 15-year warranty. The warranty shall include all labor and materials for the installation and an applications assurance clause.

Acceptable manufacturers are: Commscope, Systimax

5. BACKBONE DISTRIBUTION SYSTEMS

We anticipate a minimum 50µm/125µm 24-strand multimode (OM3) and 24-strand single mode (OS2) backbone cable connecting each new TR with the MDF. In addition to fiber backbone distribution there will be a small amount of premise (intra-building) copper cabling (Category 3) for analog lines required to support the life safety systems, elevators, and any other analog line needs. We anticipate a 48-pair copper backbone cable between each TR/IDF and the ER/MDF. All fiber and copper backbone cables shall be homerun directly from the ER/MDF. All fiber strands shall be terminated and housed in a fiber optic patch panel. These panels shall be sized based on the number of terminated strands plus 25% growth. Final quantities and size to be updated to new design.

Backbone pathways: New telecom rooms will require pathways homerun to the MDF for backbone cabling connectivity.

Initial design to account for a spare capacity in all cabling pathways to accommodate design changes to program both during design and for expansion after project is complete.

6. HORIZONTAL DISTRIBUTION SYSTEMS

The horizontal cabling for this project will be a combination of copper Category 6, copper Category 6A (two cables to each Wireless Access Point), and fiber (both single-mode and multimode).

a. Fiber

- Shall be air-blown and run through Dura-Line FuturePath innerduct pathway.
- Strands 1 through 6 shall be single mode (OS2), strands 7-12 shall be multimode (OM3).
- Manufacturer shall be Corning.
- Minimum of two-strand SM and 2-strand MM to each partitionable area in showroom area of Convention Center Expansion.

b. Copper

- Current building standard is Category 6 cabling to workstation outlets. We anticipate this will be the same for this project except for wireless access point locations that will be served by Category 6A cabling.

- Where required, provide plenum and shielded cabling. All cabling shall be run in cable tray through main corridors and conduit/j-hooks in other areas. All horizontal cabling shall be star-wired from the nearest ER/MDF or TR/IDF. Intermediate connections, splices, and taps will not be permitted. Adequate slack shall be provided between the Category 6 jack and the wall surface of the outlet box for repeat termination in addition to a 6-foot service loop neatly coiled in the nearest accessible ceiling space above. All outlet faceplates will match electrical outlets and labeled according to Owner standards.

c. Typical Configurations/Telecom Requirements by Space

- Telecommunications outlet: Two (2) Category 6 cables
- Multi-Function Flexible Space: per updated Room Data Sheets
- Prefunction Space: per updated Room Data Sheets
- Rooftop Terrace: one outlet per Point-of-Sale station (each outlet with Two (2) Category 6A cables). Six (6) locations.
- Staging Pantry:
    - One (1) Category 6A cable for each wall telephone.
    - One outlet per Point-of-Sale station and printer location (each outlet with Two (2) Category 6A cables).
- Kitchen:
    - One (1) Category 6A cable for each wall telephone.
    - One outlet per workstation location (each outlet with Two (2) Category 6A cables).
- Kitchen Offices:
    - One (1) Category 6A cable for each wall telephone.
    - One outlet per workstation location (each outlet with Two (2) Category 6A cables).
- Tasting Room:
    - One outlet at conference table location (each outlet with four (4) Category 6A cables).
- Break Room:
    - One (1) Category 6A cable for each wall telephone.
    - One outlet per workstation location (each outlet with Two (2) Category 6A cables).
- Restrooms/Dressing Rooms – Kitchen Staff
    - One (1) Category 6A cable for each wall telephone.
- Back of House Service Corridors:
    - One (1) Category 6A cable for each wall telephone.
    - One outlet per workstation location (each outlet with Two (2) Category 6A cables).
- Mechanical Rooms
    - One (1) Category 6A cable for each wall telephone.
    - One outlet per BAS location (each outlet with Two (2) Category 6A cables).

We do not yet have an estimated number of data cables for this project. Further development of the plans is required to focus in on this quantity.

7. WIRELESS LOCAL AREA NETWORK (WIFI)

This project will require ubiquitous and robust wireless access throughout the occupied indoor areas of the space adhering to latest IEEE 802.11ac (Wave2) standard. Back of house areas should also be equipped with robust wireless coverage. Wireless access points will be provided by the Colorado Convention Center's IT department but cabling to the WAPs will be performed by this construction contract. Each WAP location shall have two (2) Category 6A cables homerun to nearest telecommunication room (TR/IDF or ER/MDF). Provide 10' additional cable slack at each WAP location.

We do not yet have an estimated number of Wireless Access Point locations for this project Anticipate every attendee is utilizing the WiFi on 2-3 devices simultaneously. Further development of the plans is required to focus in on this quantity.

8. CABLE TV (CATV) & INTERNET BASED IPTV

We have not yet discussed any requirement for cable TV or IPTV in the Colorado Convention Center. Further discussion is required to determine the requirements.

9. ACTIVE NETWORK ELECTRONICS

Extend and expand active networking equipment including network switches, wireless access points, VoIP telephones, networked printers, etc. to support renovation and expansion areas. Coordination should occur between the IT department and the design team to delineate the specifics of this active networking equipment that will be incorporated into the project budget.

- Current building standard is for networking equipment to be Cisco.
- VoIP system in building is connected to the City of Denver's fiber network loop.
- Smart City is the current communications network provider.

10. OUTSIDE PLANT CABLING – NOT IN SCOPE

We do not anticipate any requirement for additional outside plant cabling to be run to the Colorado Convention Center. This work is outside of the current design scope and budget.

11. DISTRIBUTED ANTENNA SYSTEMS (DAS)

Carrier's to extend their cellular distributed antenna systems throughout the new expansion areas of this project.

Provide a new first responder (life safety) DAS system as there is currently not a known existing Responder Emergency System (RES) for police/fire radios and facility operations radios. We anticipate this system will be a design-build based on performance criteria established by the local Authority Having Jurisdiction.

12. Wireless Carrier Equipment Rooms

Maintain existing wireless carrier equipment rooms, one per carrier, on P3 level of Parking Garage.

L. STRUCTURAL ENGINEERING

1. Description of the Existing Building

The Colorado Convention Center is a multi-purpose convention center located in Denver, Colorado. The Convention Center originally opened in June 1990 and was expanded in 2004 to include new meeting rooms, a ballroom, a lecture hall with new glass facades, and an iconic cantilevered roof that unified the entire complex.

The existing structural system consists of a deep foundation system that supports cast-in-place concrete foundation elements and primarily, precast concrete and steel framed floor and roof structures. The parking garages and loading docks are typically constructed of precast concrete. The existing foundations are cast- in-place concrete drilled piers that extend into bedrock.

There are four levels within the Convention Center: Ballroom Level, Street Level, Exhibition Level, and Roof Level. Grade level floors are typically framed with concrete slabs placed directly on granular fill over compacted soil. Elevated floors are typically framed with precast concrete or composite structural steel.

The existing superstructure of the parking garages and loading docks consist of precast double tees, with approximately 60-foot spans that are supported by precast inverted tee beams, precast L beams, and precast columns. The parking garage entry ramps (helix), are primarily constructed of cast-in-place concrete slab and beam systems.

The existing superstructure at the Street Level is a combination of concrete slabs placed on-grade, precast concrete framing and steel framing. The Exhibition Level superstructure is a combination of precast framing systems and steel framing systems. The precast framing systems are generally double tee beams, supported by inverted tee beams or spandrel beams. The steel framing system consists of long span trusses that support the Exhibition Hall floor above the lower level ballrooms.

The Roof Level framing consists of steel joist girders, beams, and joists that are supported by steel pipe columns. The columns are spaced on a 90-foot grid that extends from the Exhibition Level floor. The high roof structure (the blade) that bounds the Convention Center on the east and west sides is framed with steel beams, and trusses. The exterior columns are generally steel pipe or wide flange shapes that support the high roof framing and provide lateral support for the glass facades. The exterior wall columns are braced by light steel rod X-bracing. Horizontal girts between the exterior wall columns provide gravity and lateral support for the exterior glazing walls.

The auditorium/theater structure generally consists of slabs-on-grade at the Street Level and sloped seating levels with the interstitial spaces and high roof framing consisting of steel roof beams supported by long span radial trusses.

The original 1990 structure was separated into six independent structures. There is an expansion joint running east/west at the parking structure and two expansion joints in the north/south direction. The 2004 expansion followed the original expansion joint locations in the north/south direction and added east/west expansion joints at the existing building line between the 1990 structure and 2004 expansion, and at the new parking garage. The auditorium/theater and the exterior “blade” roofs were tied into the new and existing structures. The lateral system for the building is generally comprised of moment frames and shear walls, with the exception of X- bracing used at the perimeter of the high roof framing and parking garage.

2. Condition of the Existing Structure

Based on site observations, related to the Basis of Design Scope of Work, and other projects within the Convention Center since the completion of the 2004 expansion, there is reason to expect that structural elements are in good condition and are performing well. Significant deterioration of the structural systems and components is not expected to be discovered during the proposed expansion.

a. 2004 Structural Design Considerations for the Future Expansion

The Colorado Convention Center expansion that was completed in 2004 included planning for a future expansion. The original Design Team studied several expansion scenarios, each of which dictated that the structure would have future loads. The 2004 contract documents indicate that portions of the structure were designed for added loading. The foundations, columns, and lateral resisting systems were designed for a future rooftop meeting level and roof. The 2004 contract document load plans indicate the following Phase 3 future floor and roof loads:

- Future Floor Above Parking Garage:
  - Structural dead load ..... 101 psf
  - Superimposed dead load, ceiling/lighting/mechanical ..... 10 psf
  - Live loads..... 100 psf (Not Reducible)
  - CMU partitions ..... 50 psf (Not Reducible)
  - Concentrated loads ..... 3500 pounds at any location
  - Exterior Walls ..... 2100 plf

- Future Roof Above Parking Garage:
  - Structural dead load ..... 14 psf
  - Superimposed dead loads, Ceiling/Lighting/Mechanical/Insulation ..... 21 psf
  - Live loads..... 30 psf of snow load
  - Rigging / partition load ..... 20 psf

- Future Floor Above Exhibition Hall:
  - Structural dead load ..... 115 psf
  - Superimposed dead loads, Ceiling / lighting / mechanical ..... 5 psf
  - Live loads..... 100 psf (Not Reducible)
  - CMU partitions ..... 50 psf (Not Reducible)
  - Concentrated loads ..... 3500 pounds at any location
  - Exterior Walls = ... 2100 plf

- Future Roof Above Exhibition Hall:
  - Structural dead load ..... 14 psf
  - Superimposed dead loads, Ceiling / lighting / mechanical / insulation ..... 21 psf
  - Live loads ..... 30 psf of snow load
  - Rigging/Partition Load ..... 20 psf

b. Structural Design Criteria

- Building Code
  - SCE/SEI 41-13 Seismic Evaluation and Retrofit of Existing Buildings
  - Risk Category III

- Live Loads:
  - Meeting Rooms/Ballroom ..... 150 psf (Not Reducible)
  - Pre-function ..... 150 psf (Not Reducible)
  - Outdoor Terrace ..... 100 psf (Reducible)
  - Parking garage ..... 40 psf (Reducible)
  - Corridors ..... 100 psf (Reducible)
  - Catwalks for maintenance access ..... 40 psf (Reducible)
  - Storage Rooms ..... 125 psf (Not Reducible)
  - Commercial Kitchen ..... 150 psf (Not Reducible)
  - Mechanical Areas ..... 150 psf or actual equipment weight plus 75 psf (Not Reducible)
  - Exits ..... 100 psf (Not Reducible)
  - Stairs ..... 100 psf (Not Reducible)
  - Locker Rooms..... 100 psf (Reducible)
  - Electrical Rooms..... 100 psf (Reducible)
  - Water Detention Areas on Roof ..... 40 psf (Not Reducible)
    (all new roof areas, except for the new blade roof)

- Concentrated Live Loads:
  - Meeting room floors 3,500 pounds
  - Meeting room ceiling rigging capacity, ... 2000 pounds per hanging point with hung from roof structure ..... hanging points at 30'-0" oc each way
  - Moving walls hung from roof structure ..... Per Manufacturer

- Snow Loads:
  - Snow Risk Category III
  - Ground Snow Load ..... 35 psf
  - Snow Exposure Factor 1.0
  - Snow Load Importance Factor 1.2
  - Thermal Factor 1.0

- Wind Criteria for Building Structure Design:
  - Wind Risk Category III
  - Basic Ultimate Wind Speed ..... 120 mph
  - Exposure Category ..... B
  - Internal Pressure Coefficient 0.18

- Seismic Criteria for Building Structure Design:

  The Expansion will be designed with steel moment frames, steel braced frames, and reinforced concrete shear walls.

  - The existing building has the following lateral systems in place:
    - The building above the Exhibition Level is a “Moment Resisting Frame System”, with “Steel Ordinary Moment Resisting Frames.”
    - Below the Exhibition Level is a “Building Frame System”, with “Ordinary Reinforced Concrete Shear Walls.”
    - Existing Blade Structure is a “Building Frame System”, with “Steel Ordinary Concentrically Braced Frames.”
    - The parking structure is a “Building Frame System”, with “Ordinary Reinforced Concrete Shear Walls” and “Steel Ordinary Concentrically Braced Frames.”

  - The following criteria will be used for the Expansion. Values for R, Omega, and Cd are based on “Steel System Not Specifically Designed for Seismic Resistance”:
    - Seismic Response Modification Factor, R 3
    - Seismic Over-Strength Factor, Omega 3
    - Deflection Amplification Factor, Cd 3
    - Risk Category III
    - Soil Site Class C
    - Seismic Design Category ..... B
    - Ss 18.2%g
    - S1 ..... 5.9%g
    - SDs 0.146
    - SD1 ..... 0.067
    - Earthquake Importance Factor 1.25
    - Seismic Response Coefficient Cs (IBC 2015) 0.029
    - Seismic Response Coefficient Cs (ASCE/SEI 41-13) 0.0196

c. Compliance Method to Meet the International Existing Building Code

The Convention Center Phase III Expansion will meet the Prescriptive Compliance Method noted within the International Existing Building Code (IEBC). This method of compliance will dictate the design of the expansion and the code compliance of the existing structural elements. Although the 2004 structure was designed for future loading, the structure shall be reviewed and analyzed, as outlined in the IEBC, to meet this specific compliance method.

It is anticipated that, at a minimum, some elements such as foundations, columns, beams, trusses, and lateral systems will require reinforcing to meet the current building code. Additionally, analysis of the entire building's gravity and lateral systems will be required to demonstrate code compliance. The Design Team will take the following approach to demonstrate compliance:

- IEBC Definitions Section 202:
  - Addition: An extension or increase in floor area, number of stories, or height of a building or structure.
  - Alteration: Any construction or renovation to an existing structure other than a repair or addition.

  The "Prescriptive Compliance Method" outlined in Chapter 4 of the International Existing Building Code (IEBC) will be the basis by which changes in demand or capacities of existing gravity and lateral load carrying elements will be compared to allowable Demand Capacity Ratios. Additions and Alterations to the existing structure will comply with Section 402 and 403 of the IEBC.

  Additions, IEBC Section 402.1. "Additions to any building or structure shall comply with the requirements of the IBC for new construction."

- Section 402.3 Existing Structural Elements Carrying Gravity Load:

  Section 402.3 states that "Any existing gravity load-carrying structural element for which an addition and its related alteration cause an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the IBC for new structures." The existing Colorado Convention Center was designed to support additional gravity load associated with a future addition. In most cases, the loads associated with the Expansion will cause load increases on existing columns and foundations of more than 5%. In these cases, we will check the existing elements to determine if the elements meet allowable IBC Demand Capacity Ratios. In cases where Demand Capacity ratios show overstress, we will then strengthen existing elements so that they meet the requirements of the IBC for new construction.

- Section 402.4 Existing Structural Elements Carrying Lateral Load:

  Section 402.4 states that "where the addition is not structurally independent of the existing structure, the existing structure and its addition acting together as a single structure shall be shown to meet the requirement of Section 1609 and 1613 of the IBC using full seismic forces." It also states that "any existing lateral load carrying structural element whose demand capacity ratio with the addition considered is not more than 10% greater than its demand capacity ratio with the addition ignored shall be permitted to remain unaltered."

  The existing Colorado Convention Center was designed to support additional lateral loads associated with a future addition. Lateral elements in the existing building include columns, roof trusses, shear walls, x-braces, and foundations. In most cases, the loads associated with the Expansion will cause a load increase on existing lateral elements of more than 10%. In these cases, we will check the existing elements to determine if the elements meet allowable IBC Demand Capacity ratios. In cases where Demand Capacity ratios show overstress, we will then

strengthen existing elements so that they meet the requirements of the IBC for new construction and ASCE/SEI 41 Seismic Evaluation and Retrofit of Existing Buildings.

Alterations, IEBC Section 403.1. Alterations to any building or structure shall comply with the IBC for new construction.

- Section 403.3 Existing Structural Elements Carrying Gravity Load:

  Section 403.3 states that “Any existing gravity load-carrying structural element for which an alteration causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the IBC for new structures.” Alterations to the existing building will occur within the existing structure as the design develops. For example, the need to provide access to the Expansion will likely affect existing structural elements. All structural elements which are impacted by building alterations will be checked to meet the 5% load exception noted above. In cases where we do not meet the 5% load exception, the impacted members Design Capacity Ratio will be checked. In cases where Demand Capacity ratios show overstress, the existing elements will be strengthened to meet the requirements of the IBC for new construction.

- Section 403.4 Existing Structural Elements Carrying Lateral Load:

  Section 403.4 states that “any existing lateral load carrying structural element whose demand capacity ratio with the alteration considered is not more than 10% greater than its demand capacity ratio with the alteration ignored shall be permitted to remain unaltered.” All structural elements which are impacted by building alterations will be checked to meet the 10% load exception noted above. In cases where we do not meet the 10% load exception, the impacted members Design Capacity Ratio will be checked. In cases where Demand Capacity ratios show overstress, the existing elements will be strengthened to meet the requirements of the IBC for new construction and ASCE/SEI 41 Seismic Evaluation and Retrofit of Existing Buildings.

- Codes Used for Generation of Earthquake Loads:

  The International Building Code will be used to generate the earthquake loads on all new framing located above the existing roof structure.

  ASCE/SEI 41 will be used to generate the earthquake loads on the existing structure, which is all structure located at the existing roof level and below. IEBC Section 402.4 states “Where the addition is not structurally independent of the existing structure, the existing structure and its addition acting together as a single structure shall be shown to meet the requirement of ASCE/SEI 41 for earthquake loads.”

d. Materials

- Normal Weight Concrete:

  The following 28-day concrete strengths may be used, will be developed in design, and will be subject to approval by the City and County of Denver:

  - Slab-on metal deck ..... 3,500 psi
  - Exterior topping slabs ..... 5,000 psi
  - Concrete fill within existing pipe columns ..... 8,000 to 12,000 psi
  - Concrete shear walls ..... 5,000 psi

- CMU Walls:
  - F'M 28 DAY STRENGTH ..... 2,000 PSI

- Reinforcing Steel:
  - Reinforcing ..... ASTM A615, grade 60 deformed
  - Welded and field bent reinforcing ..... ASTM A706 grade 60 deformed
  - Welded wire fabric ..... ASTM 185 plain, 70 ksi

- Structural Steel:
  - Wide Flange Sections..... ASTM A992, Grade 50
  - Wide Flange Sections, W14x193 and heavier W14's ..... ASTM A913, Grade 65
  - Angles, Channels ..... ASTM A3C, Fy = 36 ksi
  - Hollow Structural Sections ..... ASTM A500, Fy = 46 ksi
  - Large Diameter Steel Pipe Columns .....Fy = 52 ksi

e. Phase III Expansion Structural System Description

- Existing Roof Framing Level:

  - General Discussion: The Expansion will be constructed above existing Exhibition Halls D and E, and above Parking Level 3. Columns from the Expansion will stack directly on top of the existing columns in these areas. Gravity and lateral loads from the Expansion will be delivered to the top of the existing columns. The existing columns, building foundations, and lateral systems were originally designed for future loads associated with an expansion.

    New columns above the Exhibition Halls will be pipe column shapes to match the existing columns shapes below. New columns above Parking Level 3 will be a combination of pipe shapes and wide flange shapes that will bolt down to the existing concrete columns.

  - Existing Columns: The existing columns at Exhibition Halls D and E are 36" diameter pipe columns. The contract documents for the 2004 expansion (Detail A/S6.0.21) show an access hole in the top of the column cap plate for placement of concrete in the future. It will be necessary to add concrete to all pipe columns located beneath the new Expansion. We will remove the existing cap plate to add concrete and reinforcing within the columns. Concrete placed within the columns will vary from 8,000 psi to 12,000 psi compressive strength.

    The concrete will extend from the Exhibition Level to a distance above the existing Roof Level. Reinforcing steel placed within the columns will vary from 2% to 8% by volume. A steel assembly will be embedded within the concrete portion of the column at the transition from new column to existing column. The steel assembly will ensure that the loads from the Expansion are delivered directly into the concrete section of the columns. A bolted steel collar to aid in new column erection will be welded to the outside of the columns at the transition from new column to existing column.

    New columns above the existing concrete columns at Parking Level 3 will be bolted down with post-installed anchors.

- Existing Joist Girders and Joists: The existing roof structure on the south and east side of the Expansion will experience increased loading when compared to present day loading. This increased loading will occur because snow drifts will accumulate adjacent to the Expansion. We are considering different options to address the increased loading. The options will be discussed with the project's General Contractor, and we will move forward with the most economical solution based on General Contractor feedback. We recommended that a snow study be performed for this project. Results from the study could lessen the load impact of drifted snow on the existing roof structure when compared to the drifting snow loads derived directly from the IBC.

  - South side of Expansion: Strengthening of joist girders, joists, and roof deck will be required along the southern portion of the Expansion between grid lines 14.5 and 17. Increased loading between these grid lines will occur because snow from the roof south of the Expansion can blow north and accumulate against the wall on grid line 14.5.

    Strengthening of joist girders, joists, and roof deck will be required along the southern portion of the Expansion between grid lines 18 and 20.5. Increased loading between these grid lines will occur as snow blows off of the Expansion roof and accumulates near grid line 18. As an alternative to roof strengthening, we may consider snow fences on the Expansion roof, or some alternate approach to keep snow build up off of the existing roof south of grid line 18.

    Roof strengthening as noted above in "a" and "b" can be defined as follows: Remove the existing roofing membrane within 20 feet of the maximum snow buildup location. Add a second layer of 1.5B-16 gage roof deck to nest over the existing roof deck for strengthening. The first 4 existing joists which run parallel to the new exterior wall of the Expansion shall be strengthened. All existing joists which are oriented at 90 degrees to the exterior wall of the Expansion shall be strengthened. Joist girders within the above region shall be strengthened. Strengthening shall include welding steel to top chords, bottom chords, and web members of existing joists and joist girders.

    Alternate approaches to strengthening can be considered and will be discussed with the project's General Contractor

  - East side of the Expansion: Two options have been presented to address the potential buildup of snowdrift on the east side of the Expansion.

    Option #1 Construct a shelf to shield the existing roof from snowdrift loads: Construct a steel shelf that cantilevers off of the Expansion to shield the existing roof from drifting snow. The shelf extends along grid line P, from 1 to 18. The shelf will be approximately 20 feet wide and will be covered with 3N-16 gage galvanized metal roof deck. The structural steel within the shelf will weigh approximately 35 psf + the weight of the roof deck.

    Option #2 Strengthen existing roof members to support snowdrift loads: See above note "1.c" for an approach to strengthen the existing joist girders, joists, and roof deck on the east side of the Expansion between grid lines P and S.

  Access to the Expansion will bring escalators and freight elevators through the existing roof structure. A large escalator opening is planned just south of grid line 5. Joist reconfiguration and the addition of headers will be required to frame these opening.

- Existing shear walls above at Parking Level 3: Existing shear walls at Parking Level 3 will be extended up to connect into the new Multipurpose Level slab. The 2004 existing drawings indicate that rebar couplers were installed in the top of the existing shear walls in anticipation of the Expansion.

- Interstitial Level:
  - The new Interstitial Level occurs south of the expansion joint along grid line 5.

- Multipurpose Level:
  - General Discussion: Uses at this level are primarily meeting rooms, pre-function, outdoor terrace, and back-of-house storage areas.

    Floor Vibration; Walking Excitation Design Criteria: Vibration criteria will be in accordance the recommendations of AISC Design Guide 11, “Floor Vibrations due to Human Activity,” and ATC Design Guide 1, “Minimizing Floor Vibration.” These two documents represent the current industry standard with respect to floor vibration.

    Floor structures will be sized to satisfy walking excitation accelerations for the following acceleration limits:

    - Meeting rooms ..... 0.5%g-1.0%g, to be confirmed
    - Pre-function ..... 1.5%g-2.5%g, to be confirmed
    - Outdoor terrace ..... 1.5%g-2.5%g, to be confirmed

    Floor structures will be sized to satisfy rhythmic excitation accelerations for the following acceleration limits:

    - Dining areas .....1.5%g to 2.5%g, to be confirmed
    - Areas subjected to rhythmic activity only .....4.0%g to 7.0%g, to be confirmed
  - Columns: The Multipurpose Level will be supported by columns which stack on top of the existing columns. Columns will extend up to either the Multipurpose Level or to the Roof Level depending on column alignment.

  - Floor Slab: The new Multipurpose Level floor slab throughout the Expansion will be 4 1/2” of normal weight concrete placed over 2” composite metal deck. The top of the slab will be at finished floor elevation in all areas except for at the rooftop terrace.

  - Infill Floor Framing: The Design Team has studied various framing options for the Multipurpose Level floor. All options considered make use of composite beams or composite joists, and the composite framing spans between floor trusses. The Design Team will work with the chosen General Contractor to pick a floor framing system that is the most cost effective when considering steel tonnage, slab performance, and steel erection issues

  - Floor Trusses South of Grid Line 5: All framing schemes utilize primary trusses which span between the columns located on grid. Some options consider infill trusses, where the infill trusses span to the primary truss framing located on grid.

  - Expansion Joint: An expansion joint will be located within the Multipurpose floor slab. Slide bearing assemblies will be used at columns to ensure that the Multipurpose Level is connected to the appropriate existing building below.

- Roof Level:
    - Columns: With some exceptions, the Roof Level will be supported by columns along the north exterior curtain wall the transition line between pre-function and meeting room the south wall of the meeting rooms and the south wall of the back-of-house
    - Meeting Room Trusses: The meeting room trusses span 210 feet Trusses will be spaced at 90 feet oc. in the east/west direction. Bridging trusses will frame between the trusses at approximately 30 feet oc. Rigging points will be located and connected directly to wide flange steel members located in the same plane as the bottom chord of the trusses. Supplemental steel framing will be used to support the air walls.
    - Back of house trusses: The back of house trusses span 90. Bridging trusses will frame between the trusses at approximately 30 feet oc.
    - Ceiling within the meeting room area are planned as follows:
        - Gypsum board ceilings will have metal studs framed up to roof structure or horizontal framing to nearby primary structure.
        - Full height gypsum board acoustical separation partitions will be framed up to the roof level.
        - Suspended panel ceiling and feature ceiling GFRP will have wire hangers hung from the roof deck.
    - Expansion Joints: The Expansion roof structure will be designed to accommodate these movements without an expansion joint.
    - Lateral System: Modifications to the Existing Structure for Vertical Transportation:

M. HVAC AND PLUMBING

1. Applicable Criteria

This narrative is intended to represent a schematic design level of information to confirm the cost and direction of the HVAC and plumbing systems.

The entire building HVAC and plumbing systems shall be designed in accordance with the following:

- Plans.
- ASHRAE 111-2008 Standard entitled "Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems".
- ASHRAE 62.1-2010 Standard entitled "Ventilation for Acceptable Indoor Air Quality".
- ASHRAE 55-2004 Standard entitled "Thermal Environmental Conditions for Human Occupancy".
- ASHRAE 90.1-2007 Standard entitled "Energy Standard for Buildings Except Low-Rise Residential Buildings".
- LEED Scorecard.
- Other ASHRAE Standards as are reasonably applicable to the project.
- Applicable plumbing, gas, energy, building, and other codes.
- National Fire Protection Association criteria latest version.
- SMACNA Sheet Metal Contractors Association Standards for Duct Construction.
- ASME - American Society of Mechanical Engineers.
- ASTM - American Society of Testing and Materials.
- AWWA - American Water Works Association.
- ULC - Underwriters Laboratories.
- Denver Code with Amendments.

2. HVAC Criteria

Design Conditions:

- Elevation: ..... 6000 ft.
- Summer:
    - Outdoor Design Temperature: ..... 91.4F dry bulb
      ..... 59.9F wet bulb
    - Indoor Design Temperature: 72F
- Winter:
    - Outdoor Design Temperature: 10F
    - Indoor Design Temperature: 68F
- Relative Humidity: ..... Not Directly Controlled

3. Mechanical System Summary

The existing Convention Center underwent a major remodel in 2004 which doubled the size to its current size of 2.2 million gross square footage. The addition extended the original building to the North and was planned for a future multi-use flex space to be placed on the roof as now shown on the plans. This area is to be heated using heating hot water unit heaters. The southernmost portion of the expansion floor will extend over the existing main air handlers that serve the existing Convention Center 2004 remodel.

The existing equipment and systems currently installed on the existing roof that will be covered and walled off must accommodate the new expansion. Here, the mechanical and plumbing equipment, (e.g. ductwork, piping, etc.) connected to the existing equipment must also extend to the new roof to the new equipment.

The interstitial space is to be heated for freeze protection. Piping subject to freezing outside any treated areas are to be heat traced using a self- regulating system.

New exhaust and make-up air systems are to be installed to service the new hoods in the new kitchen). Each make up air system is to have cooling, via swamp coolers, as well heating capability. Modulating dampers shall be installed at all new kitchen hood exhaust connections. Exhaust fans and corresponding make up air systems shall be equipped with variable speed drives and modulating control systems.

Defined in the architectural and mechanical plans are existing areas inside the existing Convention Center which are to be remodeled. The existing Convention Center including the existing kitchen is to remain open during construction. Measures shall be in place as to not interrupt or alter conditions in the existing Convention Center throughout construction.

Chilled and steam is generated by Xcel in the original central plant, now owned by Xcel, on the far side of the roof. Steam and chilled water supply and return lines are to connect into Xcel's central plant and are to extend to the new mechanical room located in the interstitial space to new heat exchangers. A new chilled water pumping system shall distribute chilled water from the chilled water heat exchanger to new 10 row chilled water coils in each new air handler. A new heating hot water pumping system shall distribute heating hot water from the new steam-heating hot water heat exchanger to new 2 row heating hot water coils in each air handler and to each VAV box. ALL VAV boxes are to have a two-row heating hot water coil. Condensate shall be cooled in a holding tank and discharged. All work, including connecting into Xcel's central plant, extending steam and chilled water lines, returning condensate, and distribution, etc. shall be included in this scope of work.

The HVAC and plumbing systems are design build. The 50% schematic design narrative and drawings are complementary and are incomplete. The contractor must include all relative work with the architectural, food service and structural drawings and visit the site to fully understand the scope of work and is to include all necessary material and labor to complete a working system. This contractor must include all relative work associated with the food surface schematic design, including but not limited to multiple hoods, dishwasher exhaust etc. Modulating dampers are to be installed at each new hood connection. These dampers are to be used as isolation dampers when the hood is not in service or during room smoke control. Damper is to remain open during local hood fire and Ansul release.

The successful contractor shall be the engineer of record.

By contract this project is to achieve LEED Gold. The HVAC and plumbing contractor shall include necessary equipment and material defined in the LEED scorecard to achieve LEED Gold.

4. Life Safety Systems Summary

All new elevators and elevators being extended exceeding 75 feet in travel distance are to be pressurized. All enclosed areas on the main level are to have smoke control. All make up air is to be sized at 80% of exhaust and is to be induced into the space using make up air fans at an elevation at floor level or within six feet of floor level at no more than 200 fpm.

There are to be no changes to the existing smoke control systems serving the existing Convention Center.

The existing Convention Center's 2004 expansion and original building life safety system including smoke control is currently served from the existing Building Management Control System. Coordination with the fire department and building owner is a must.

5. Plumbing System Summary

a. Domestic Water System

- A new water pumping system shall be installed at the lower level near the existing water meter serving the 2004 expansion and shall connect into the existing domestic water riser. The new pump(s) shall supply 60 psi water pressure to the expansion and shall augment the existing event level and exhibit hall space.
- Extend the existing domestic water line throughout. Refer to new food service drawings for new kitchen requirements.
- Hot water will be provided by new point of use electric water heaters for the new food service areas and restrooms. Long runs of hot water will utilize recirculation systems
- Existing Convention Center is to remain operational throughout construction. Make provisions to maintain operation of existing services. Connection into mains is to be scheduled off hours.

b. Sanitary Sewer System

- Install a new sanitary system in accordance to architectural and food service drawings. Extend a new grease waste from the new kitchen to a new grease interceptor located near the existing loading dock and discharge from the new grease interceptor to the existing 7'-0 diameter, 15-foot-deep sump. Grease waste from the expansion to the interceptor shall be heat traced.
- Each new elevator hoist way and the hoist way serving an existing elevator being extended shall have a new sump pump and piping system.
- The upper most parking structure is currently open to daylight and piped to storm. Approximately half of the upper parking deck will be covered by the expansion. The drainage system serving the now covered parking deck must be now piped to sanitary.
- Extend all existing vents that terminate at the existing roof below the footprint of the new addition up to above the new addition roof line.
- All new escalator pits shall have a drain routed to a point of use oil interceptor and will then connect indirect to the sanitary.

c. Storm Sewer System

- The existing storm system has a controlled drain system consisting of a controlled drain, a primary drain and an overflow drain and is to be maintained throughout construction. The new roof drainage system serving the new blades and expansion roof(s) are also to have a controlled drainage system consisting of controlled, primary and overflow drains to match the existing.
- The existing primary and overflow drainage system near the southern edge of the expansion which will be in the interstitial space and covered by the floor of the expansion is to be extended past the new demising walls.
- The existing blade roof drainage that currently spills to the existing roof will be rerouted in to hard connect to the existing storm system.
- Split slab dual body primary and overflow drains serving the terrace shall be used.

d. Natural Gas System

- There is an existing 8” low-pressure gas line currently on the roof near the expansion site. Based upon the new kitchen requirements, additional mechanical gas loads, BBQ grille connections and new fire pits

e. Fuel Oil System

- Install a new remote fill oil system to serve the new generator. Fuel oil system shall be installed with overfill, alarms and indicators as required by local jurisdiction. All piping shall be double wall, suitable and in accordance with fuel oil requirements.

f. Miscellaneous plumbing items

- Provide one hose bibb and drain at 3 points along the Service Corridor wall of the Multi- Function Room.
- Provide 3 hose bibbs for the new terrace area

6. Specifications

a. Hydronic Piping

- Piping to be Schedule 40 black steel with screwed joints on sizes 2" and smaller and welded on sizes 2½" and larger.
- Grade and valve all heating water piping with 3/4-inch hose end valves to permit complete drainage of the system. Vent all high points and equipment rooms as necessary with automatic air vents piped to convenient drain. All high points in system outside of equipment rooms with combination automatic/manual air vents are to be installed as required to relieve air in the system.
- May be Type "K" copper for all buried lines using wrought copper fittings and 1100 solder. For non-buried piping use Type "L" copper, wrought copper fittings, and 95-5 solder.
- For drain pan piping, not buried, use Type "M" copper, wrought copper fittings and 95-5 solder. For buried drain pan piping, use Type "L" copper, wrought copper fittings, and 95-5 solder. All buried pipe shall be surrounded with four inches of clean sand.
- Provide isolation valves in all pressurized piping at each riser and each piece of equipment. Provide balancing valves at each piece of equipment.

b. Air Distribution

- Materials and Equipment: All ductwork shall be constructed of sheet-metal, furnished and installed in accordance with SMACNA.
- Install low velocity flexible ducts, consisting of inner core of perforated one-ply corrugated duct, one-inch thick insulation and vapor barrier cover at each supply register.
- Round duct connectors to be factory fabricated galvanized for insulated ducts, steel adapter plate on glass fiber ducts, butterfly damper and quadrant operator on all applications (except variable air volume systems upstream of variable air volume box).
- Flexible connections to be 24 oz. per yard, UL approved material.
- Provide turning vanes on all rectangular elbows.
- Opposed blade dampers for duct splits and where shown to be steel or aluminum construction with worm drive operator. Screwdriver slotted shaft, factory assembled.
- Fire dampers, UL label, to have 1-1/2 hour fire rating, with sleeve where construction fire rating requires. To meet NFPA 90 A requirements. Shutter, curtain type blades and replaceable fusible link. Use Type "B" dampers at all locations where space permits or Type "C" dampers for round or oval ducts. Use Type "A" dampers only where space will not allow Type "B".
- Smoke dampers, UL label UL555S class II and meet pressure requirements for the smoke exhaust systems.

c. Insulation

- All insulation thicknesses shall at least meet the minimum ASHRAE Standards.
- Domestic Cold-Water Pipe, Valves, and Fittings: Insulate with UL approved, flame resistant, white, vapor barrier jacketed, glass fiber Snap-On Insulation ½ inch thick. Insulate valves and fittings with glass fiber blanket insulation and premolded PVC cover.
- Domestic Hot Water Pipe and Fittings: Insulate all domestic hot water supply lines and circulating water lines with UL approved, flame resistant, white, all service jacketed, glass fiber snap- on pipe insulation ½ inch thick on pipes up through ¾". Provide 1" insulation on 1" to 2" pipe and 1 ½" on all pipe over 2". Insulate fittings with glass fiber blanket insulation and pre-molded PVC covers or other material approved by EOR.
- Roof Drain Leaders: Insulate all lines and fittings, which are not buried, same as domestic cold-water piping. No insulation required on buried lines.
- Heating Piping, Pipe, Valves, and Fittings: Insulate with UL approved, flame resistant, white, all service jacketed, glass fiber blanket, insulation and pre-molded PVC covers (covers to be UL 25/50 rated).

d. Plumbing Piping

- Water Piping Materials
  - Water Service: Provide in accordance with Water Department; All pipe outside the building four inches and larger to be Class 250, cement-lined, cast iron or ductile iron of manufacturer's recommended thickness class, mechanical joint or push-on joint; three inches and smaller to be Type "K" copper with wrought copper fittings and hard solder with a minimum melting point of 1,100°F or other material approved by EOR.
  - Piping (Inside Building): Buried lines, Type "K: copper tube, wrought copper fittings, and 1,100°F solder.

- Soil, Waste, Vent, and Storm Piping Materials
  - Materials: Soil, Waste, and Vent Piping (Inside Building)
    - Lines buried below ground to be standard weight, C.I. soil pipe and fittings, Class 50 ductile iron pipe and fittings, or hubless C.I. with C.I. couplings for below grade.
    - Waste lines above ground to be standard weight C.I. soil pipe and fittings or hubless C.I. soil pipe and fittings. Up through 2-1/2 inches may be standard weight with black C.I. drainage fittings or other material approved by EOR.
    - Vent lines above ground to be standard weight C.I. soil pipe and fittings or standard weight galvanized steel pipe with 150 pound galvanized malleable iron fittings for lines two inches and over and black C.I. 125 pound SWP fittings for lines 1-1/2 inches and less or other material approved by EOR.
    - Waste lines at concessions maybe PVC with plenum rated insulation for corrosion control or other material approved by EOR.
    - Provide trap primers at each floor drain and floor sink. Primers may be connected to flush fixtures or be stand alone.
  - Storm Drain Piping Materials - Inside A: Drainage pipe and fittings above ground to be standard weight galvanized steel pipe with black (C.I. drainage fittings, DWV copper drainage pipe and fittings with 50-50 solder or standard weight C.I. soil pipe and fittings. All drains within the Convention Center, when underground, shall be standard weight C.I. soil pipe and fittings, Class 50 ductile iron pipe and fittings, or hubless C.I. with C.I. couplings for below grade or other material approved by EOR.
- Gas Piping
  - Piping: Schedule 40 black steel pipe, 150 pound malleable iron screwed fittings on above ground pipe, welded fittings on concealed pipe and pipe located in return air plenums, and welded fittings with all piping coated and wrapped on buried pipe or other material approved by EOR.
  - Provide regulators to reduce to equipment pressure at each piece of equipment or area. Vent regulators to outside.
- Fixtures and Equipment
  - Secure fixtures to walls and floors or countertops in accordance with manufacturer's rough-in requirements and form a rigid installation.
  - Stop valves shall be furnished and installed at all fixtures, for all equipment, and at rough-in locations.
  - Vacuum breakers shall be provided at all outlets with hose connections.

e. Test and Balance

- Testing
  - Test all drain and waste lines with standing water test of twelve feet of head, held long enough to inspect each joint.
  - Test all water piping, before connecting to units, at 150 psig hydrostatic pressure.
  - All tests required by code must be done before covering to the satisfaction of the local authorities having jurisdiction.
  - Test smoke management system.

- Balancing
    - At the completion of the installation, the mechanical systems shall be adjusted and balanced by an independent balancing firm specializing in this work, with a Registered Professional Engineer in charge of the work.
    - Furnish and install such items as thermometer wells, pressure test clocks, access doors, etc., as required to allow tests and adjustments to be made.
    - Adjust and balance all air and water systems. Check, adjust, and balance all systems to meet the design conditions, and tabulate all information on acceptable forms. All systems shall be checked for proper performance during design conditions, both heating and cooling.

f. Building Management System/Temperature Controls

- The existing building management system is a Honeywell Niagara direct electronic control DDC system and it is to remain in complete service during construction.
- The system shall consist of programmable control modules at the equipment, building control modules as needed and a PC computer front end with the ability to communicate over a local area network. All air handlers will have 2-way control valves.
- The building management systems will be easily programmable to provide flexibility for intermittent use of the facility. Programming will be incorporated to maximize energy efficiency within the facility. The system shall control the major pieces of equipment, fan coil units, VAV boxes, snowmelt, thermostats, CO sensors and RH sensors. Plumbing sumps and pumps, emergency generator(s), associated fuel fill and the interstitial space shall be monitored and controlled. Individual rooms conditioned with baseboard heater, or unit ventilator having local thermostats shall not be monitored or controlled by the BMS. Heat trace shall be self-regulated and monitored by the new BMS system.
- Provide a smoke control panel with appropriate graphics adjacent to the fire alarm panel. This system shall provide the Fire Department with the capability to determine what portion of the system is in automatic mode and allow them to control the system manually.
- Lighting and temperature shall be controlled by remote Ipad.
- BMS to monitor each electrical panel per LEED enhanced metering requirements. Each electrical panel has one meter for BMS connection.

N. ELECTRICAL SYSTEMS

The electrical work will be coordinated with architectural, civil, structural, mechanical, plumbing, lighting, food service, vertical transportation, audiovisual, telecommunication, security and other division requirements. Coordinate electrical requirements with all information included in schematic design document.

The sizes, capacities and quantities of the equipment listed are for budget estimating purposes and are to be considered preliminary and not complete. All distribution, devices, wiring, etc. are not fully defined but should be anticipated and included in costs as required for a fully operational system.

This Colorado Convention Center is currently certified LEED Gold under the Existing Building Operation and Maintenance (EBOM) rating system. The expansion is seeking LEED-NC Gold. The project is currently registered under LEED for New Construction and Major Renovation v2009.

1. Existing Electrical Service

The existing facility is fed from (10) existing Xcel Energy transformer vaults. Each existing transformer vault contains (3) Xcel Energy service transformers. (6) transformer vaults are rated 480V3PH and (4) are rated 208VPH. (5) of the existing transformer vaults are located on the original east side of the building and (5) are located on the 2004 expansion west side of the building. Main electrical rooms are located adjacent to or above each Xcel Energy transformer vault. Power is distributed from the main electrical rooms to electrical rooms containing distribution boards and panelboards.

2. Electrical Service

- Service feeders to meet NEC 230 will be routed from the street level transformer vault to the new normal power main electrical room. Required separation between service feeders will be provided.
- The service entrance equipment will be low voltage draw-out metal clad switchgear with Digitrip RMS trip units and IQ Analyzer to match existing. Each will be provided with a 100% rated main circuit breaker, 100% rated feeder circuit breakers and an integral surge protective device.
- A new emergency power main electrical room a new service feeder to meet NEC 230 will be routed from the street level transformer vault, to the new emergency power main electrical room. Required separation between service feeders will be provided.
- The service entrance equipment will be low voltage draw-out metal clad or bolt-on switchgear with Digitrip RMS trip units and IQ Analyzer to match existing. Each will be provided with a 100% rated main circuit breaker, 100% rated feeder circuit breakers and an integral surge protective device.
- Power is distributed from these new main electrical room electrical rooms (north, south and emergency) containing distribution boards, panelboards and transformers.
- Minimum interrupting and withstand ratings based on an available fault current of 150,000A RMS from the utility vaults will be provided.
- The electrical system will be designed with space and capacity for future additional circuit breakers and switches.
- Provide metering to meet LEED EAc5 Measurement and Verification (v4 path) requirements. Refer to sustainability narrative for information.

3. Existing Emergency Electrical Service

- The existing facility is fed from (2) existing 1500kW diesel generators. One existing generator is located on the roof of the original east side of the building and includes an integral day tank. Its fuel tank is located at grade level. The second existing generator is located at grade level in the 2004 expansion west parking garage helix. It includes an integral day tank and remote fuel tank. Each generator feeds a main emergency distribution board.

4. Emergency Electrical Service

- A new generator will be located in a new generator room on street level along Champa Street. It will comply with the IFC and City of Denver amendments. An integral day tank and a new fuel storage tank to meet required run time requirements in a 2-hour rated enclosure will be provided. Nosie will be reduced to 88dB maximum at the property line.
- The new generator will be provided with (2) 100% rated output circuit breakers 3".
- A new UPS with 15 minutes of battery backup and distribution will be provided for the Fire Command Center (FCC) equipment and 4 hours of battery backup for the Radio Enhancement System (RES) head end and antennas.
- UPS units with 15 minute of battery backup to be utilized to feed smoke control, lighting control and associated communications equipment in IDF closets or as located in mechanical or electrical spaces.
- Emergency power will be provided for mechanical equipment, elevators, a life safety lighting, fire alarm, security, etc. as required.
- Provide metering to meet LEED EAc5 Measurement and Verification requirements. Refer to sustainability narrative for information.

5. Electrical Distribution

- All panelboards will be fully rated to handle available fault current. Series rating of breakers and panels is not acceptable.
- Panelboards will be pre-assembled, bolt-on circuit breaker type with door-in-door hinged covers.
- Life safety panelboards will include an integral surge protective device.
- Provide metering to meet LEED EAc5 Measurement and Verification requirements. Refer to sustainability narrative for information.

6. Building Wire and Cable

- All feeders and conductors will be copper, minimum size #12 AWG, unless otherwise approved by City.
- All 120V, 20A circuits longer than 75' will be #10 AWG. All 277V, 20A circuits longer than 150' will be #10 AWG. Or as required for voltage drop. or other material approved by EOR
- #10 AWG and smaller wire will be solid conductor except for motor circuit feeders. #8 AWG and larger and motor circuit feeders will be stranded conductors. Building wire will be insulated with THHN/THWN or XHHW insulation, rated 600 volts.
- Factory applied insulation for color coding will be utilized for appropriate system voltages and phase identification.

- Terminations will be hydraulic compression type, with two-hole lugs. Mechanical lugs are not acceptable except at breakers where compression fittings are not possible.
- UL rated fire seals will be provided when passing through fire and smoke rated partitions.

7. Grounding and Bonding

- All service equipment, conduit systems, supports, cabinets, equipment, fixtures, etc., and the grounded circuit conductor will be properly grounded in accordance with the latest issue of the NEC and local electrical code. Bonding jumpers, grounding bussings, clamps, etc., will be provided for complete grounding.
- A separate grounding conductor, securely grounded on each side of all raceways containing sections of plastic, fiber or flexible raceway will be provided. It will be sized in accordance with the latest issue of the NEC.
- A green grounding jumper from the ground screw to a box grounding screw or clip will be provided for all grounding type devices. Insulated wire will be used.
- A minimum 20”L x 4”H x 1/4”D ground bar will be provided in all new electrical and technology rooms. They will connect back to the existing grounding system via copper wiring.
- All grounding will be in accordance with NEC Article 250.

8. Conduit

- Conduits will be of size required by the NEC and will be installed according to the NEC. Conduit will not be routed in slabs.
- Rigid Conduit, Intermediate Metal Conduit or Electrical Metal Tubing
- Rigid galvanized steel conduit will be provided where exposed to physical damage.
- EMT conduit will be provided for other indoor, dry locations. Steel set-screw fittings will be provided. Compression fittings will be provided for wet areas.
- Flexible metal conduit will be provided for final connections to equipment with maximum length of 6 feet, where vibration is encountered or as required. All flexible connections exposed to wet or weather will be made with liquid tight flexible metal conduit.
- Schedule 40 PVC conduit may be used underground.
- Steel conduits in contact with earth or a vapor barrier will be PVC coated.
- Conduit systems will be concealed in areas (other than mechanical and/or electrical rooms) where studs and drywall are provided. Conduit will be concealed in stairways and other similar spaces. Exposed conduit in finished areas will not be allowed. All proposed exposed conduit must be coordinated and approved by architect and engineer prior to installation.

9. Boxes

- Boxes will be installed and supported in accordance with the NEC.
- Four-inch square or octagonal, zinc coated sheet steel boxes.
- 3/8 inch no-bolt fixture studs will be provided for fixture outlets.
- Covers will be set to come flush with finished walls.
- Utility or sectional switch boxes will not be used.

- Mounting heights and locations of all receptacles will be verified prior to installation. Receptacles will be located to clear counters, benches, baseboards or fin tube heaters, etc. or as required to service equipment.
- All outlet boxes and exposed conduit will be corrosion protected.
- Pull boxes and junction boxes will be installed above accessible ceiling and will be exposed in unfinished areas only.

10. Identification

- Engraved plastic laminate nameplates will be provided for all switchgear, switchboards, disconnect switches, circuit breakers, push buttons, pilot lights, panelboards and system equipment cabinets. Background color of plates will be: Normal Power – Black/White Letters,
- Emergency Power – Red/White Letters
- Tape labels will be provided for identification of individual receptacles and switches. They will indicate associated source panel board and circuit number.
- Identification labels will be installed on exposed and concealed accessible conduits and on concealed inaccessible conduits within three feet of becoming accessible.
- Each conductor will be labeled with source, voltage, circuit number and phase where installed with multiple other power or lighting conductors in the same enclosure.

11. Transformers (600V or Less)

- Transformers will be two winding type for each phase, with silicon steel cores, aluminum windings in compliance with NEMA ST-20. All transformers will be DOE 2016 rated. or other material approved by CCD
- Transformers will have 150°C class insulation with four taps at 2 ½ percent rated at full capacity of the high side winding.
- Site or manufacturer insulation resistance testing will be provided specific for each transformer.
- Step-down transformers will be mounted on concrete pads or suspended from structure. They will be installed so that removal can be facilitated without removing any other conduit or equipment in the room.
- Electrical rooms containing dry type transformers will be properly ventilated.

12. Distribution Equipment

- Distribution switchboards will be self-supporting structures with aluminum bussing, AIC ratings, equipped with 100% rated insulated case type circuit breakers. Full size neutral and ground buses are required. Units will be dead front with all terminations front accessible.
- Panelboards will be provided with full size neutral and ground bars, all aluminum bus of 97% conductivity, with 100% rated thermal magnetic type molded case main and branch breakers.
- All switchboards will be installed on a 4” housekeeping pad.

13. Wiring Devices

- All receptacles will be color as selected by architect. Device plates will be stainless steel.
- All 120V, 20A receptacles will be specification grade, Hubbell #HBL-5362 or equivalent.
- All receptacles will be specification grade.

14. Diesel Generator

- Generator will be located as noted with vertical discharge, fuel tanks capacities as required and integral day tanks and code compliant fuel transfer stations.
- In an emergency power capacity, the unit will be capable of continuous service at rated output for the duration of fuel capacity. The engine and generator will be the product of a single manufacturer; and that manufacturer and its authorized dealer will have the responsibility to provide the diesel engine/generator set and its accessories which will meet the specified output at the required altitude and ambient temperature. It will be a new factory assembled and tested set. It is the intent and purpose of these specifications to also secure for the Owner, the necessary controls and accessories to the extent that this equipment, in conjunction with the diesel/engine/generator set, will comprise a complete operating package unit.
- The generators will be rated for continuous emergency service at 0.8 power factor, 277/480 volts, three phase, four wire, 60 hertz, 1800 RPM. The unit will be capable of 100% block load per NFPA 110.
- Automatic Transfer Switches will be provided with 4 poles for a normal and emergency source of 480 volts, 3 phase, 4 wire, 60Hz with neutral bus. The transfer switch will have a withstand rating of 100K AIC. The transfer switches will be listed per UL Standard 1008 as a recognized component for emergency systems and rated for total system load. Pending final design from EOR.
- The automatic transfer switches will be mechanically held, electrically operated type and suitable for continuous duty in an unventilated sheet metal enclosure without derating (NEMA Type A IEC Type PC). The transfer switches will be inherently double throw so both sets of contacts move simultaneously when the switch is transferring. The switches will be delayed isolation transition type. Relay modules will be provided as required for status monitoring by building automation system and for interface with each elevator controller.

15. Branch Power, Receptacle Outlets and Connections

- 120V, 20A GFCI duplex receptacles will be provided per code as follows: adjacent to lavatory in toilet rooms, within 6’ of sinks, all receptacles in break rooms, all receptacles in mechanical rooms, all receptacle in kitchens, all rooftop receptacles, etc. GFCI devices will be installed in locations where the device is accessible after the equipment is installed or remote monitoring devices will be provided in accessible locations.
- Exterior 120V, 20A, GFCI duplex receptacles will be provided with weatherproof “in-use” covers.
- Power and control wiring will be supplied to overhead doors and powered man doors.
- A minimum of four (4) duplex receptacles will be provided in each lobby, corridor, hallway, etc. or as otherwise noted.
- A 120V, 20A dedicated emergency electrical connection will be provided at each new stairwell door for security door control and override from Fire Command Center.
- 120V, 20A dedicated emergency power will be prov to the NAC boxes for fire alarm device amplification and control.
- Disconnect switches (heavy duty, HP rated, quick-make, quick-break, fusible or non-fusible) and/or thermal overload switches will be provided as required. Disconnects located on the roof or where exposed to wet or weather will be “weatherproof”.
- Power for mechanical, plumbing, lighting, technology, audio-visual, security, vertical transportation, food service, signage, fire alarm, fire suppression, etc. equipment will be provided as required.

- Motor starters for all packaged equipment, such as air handling units, exhaust fans, etc., will be provided by the mechanical contractor. All new VFDs for the smoke exhaust fans will be provided by the mechanical contractor and will be installed in rated and conditioned rooms per code and with dedicated UPS controls. 120V1PH power will be provided for mechanical controls. Power will be provided for Building Automation System (BAS) revisions.

16. Space-by-Space Power Requirements

a. Multi-Function Space

- Recessed floor utility boxes will be provided per updated Room data Sheets provided in Exhibit A. Each floor utility box will contain technology devices, refer to technology sections in narrative.
- Conduit between floor boxes shall be provided per updated Room data Sheets provided in Exhibit A.
- A pair of receptacles will be provided in the service corridor provided per updated Room data Sheets provided in Exhibit A.
- 400A services to be provided per updated Room data Sheets provided in Exhibit A. Each disconnect will be provided with load side double lugs and cam locs mounted and wired below. An architectural panel will be provided to hide the four sets of disconnects. Disconnects will be similar to what is currently installed in the Mile High Ballroom.
- 4” sleeves through the wall into the service corridor with caps on each end will be provided at each possible room division. Sleeves will match existing in the facility.
- 20A, 120V duplex receptacles for convenience and housekeeping will be provided.

b. Public Restrooms

- (2) 20A, 120V duplex receptacles for convenience and housekeeping will be provided in each restroom. Duplex receptacle will be GFCI type where required.
- 20A, 120V electrical connections will be provided for restroom equipment as required. Equipment may include hand dryers (dedicated), paper towel dispensers, automatic flush toilets, faucets, soap dispensers, etc.

c. Pre-Function and Registration

- Pre-Function rated floor utility boxes will be provided per updated Room data Sheets provided in Exhibit A. Lid of floor utility box will be capable of receiving a carpet (or other) inset to match adjacent carpet or other floor finish. Floor utility boxes along
- 20A, 120V duplex receptacles for convenience and housekeeping will be provided.

d. Rooftop Terrace

- Recessed floor utility boxes will be located on the Rooftop Terrace per updated Room data Sheets provided in Exhibit A. Each floor utility box will contain technology devices, refer to technology sections in narrative.
- 20A, 120V, GFCI, WP duplex convenience receptacles will be provided 40 to 50 feet on center along interior curtainwall and perimeter. Duplex receptacles will be provided with weatherproof while in use covers. Duplex receptacles along glass wall will be recessed in floor utility boxes. Drains in floor utility boxes will be provided.
- Exterior 120V, 20A, GFCI duplex receptacles will be provided, as required, for heaters.
- Power will be provided, as required, for snowmelt system.

e. Food Service – Staging Pantry

- Power will be provided, as required, for food service equipment. Refer to food service section of narrative.
- 20A, 120V duplex receptacles for convenience will be provided. Duplex receptacle will be GFCI type where required.
- Power will be provided from the ceiling (drop cords), as required, at staging pantry work areas.

f. Food Service – Kitchen

- Power will be provided, as required, for food service equipment. Refer to food service section of narrative.
- 20A, 120V, GFCI duplex receptacles for convenience will be provided.
- All 120V, 20A outlets shall be GFCI type.
- Power will be provided from the ceiling (drop cords), as required, at kitchen work tables that are centered between cooking areas.

g. Food Service – Kitchen Dry Storage

- Power will be provided, as required, for food service equipment. Refer to food service section of narrative.
- 20A, 120V duplex receptacles for convenience will be provided on each wall. Duplex receptacle will be GFCI type where required.

h. Food Service – Liquor Storage

- Power will be provided, as required, for food service equipment. Refer to food service section of narrative.
- 20A, 120V duplex receptacles for convenience will be provided on each wall. Duplex receptacle will be GFCI type where required.

i. Food Service – Coffee/Condiment Storage

- Power will be provided, as required, for food service equipment. Refer to food service section of narrative.
- 20A, 120V duplex receptacles for convenience will be provided on each wall. Duplex receptacle will be GFCI type where required.

j. Food Service – Kitchen Walk-In Cooler and Freezer

- Power will be provided, as required, for food service equipment. Refer to food service section of narrative.
- Power and fused disconnects will be provided for all components of walk-in units and connections to junction boxes for interior 120V lighting. Refer to food service section of narrative.

k. Food Service – Dishwashing/Pot Washing

- Power will be provided, as required, for food service equipment. Refer to food service section of narrative.
- 20A, 120V duplex receptacles for convenience will be provided. Duplex receptacle will be GFCI type where required.
- Power and fused disconnects will be provided for all components of dishwashing units.

l. Food Service – China/Flatware/Prop Storage

- Power will be provided, as required, for food service equipment. Refer to food service section of narrative.
- 20A, 120V duplex receptacles for convenience will be provided on each wall. Duplex receptacle will be GFCI type where required.

m. Food Service – Linen Storage

- Power will be provided, as required, for food service equipment. Refer to food service section of narrative.
- 20A, 120V duplex receptacles for convenience will be provided on each wall. Duplex receptacle will be GFCI type where required.

n. Food Service – Kitchen Offices

- (1) 20A, 120V duplex receptacle will be provided on each wall.
- (1) 20A, 120V quad receptacle will be provided at each desk.

o. Food Service – Tasting Room

- Power will be provided, as required, for food service equipment. Refer to food service section of narrative.
- 20A, 120V duplex receptacles for convenience will be provided. Duplex receptacle will be GFCI type where required.

p. Food Service – Break Room – Kitchen Staff

- 20A, 120V duplex receptacles for convenience will be provided. Duplex receptacle will be GFCI type where required.
- Power will be provided for appliances and vending machines.

q. Food Service – Restrooms/Dressing Rooms – Kitchen Staff

- (2) 20A, 120V duplex receptacles for convenience and housekeeping will be provided in each restroom. Duplex receptacle will be GFCI type where required.
- 20A, 120V GFCI duplex receptacles will be provided at sink counters in dressing rooms.
- 20A, 120V electrical connections will be provided for restroom equipment as required. Equipment may include hand dryers (dedicated), paper towel dispensers, automatic flush toilets, faucets, soap dispensers, etc.

r. Food Service – Janitor Closet

- (2) 20A, 120V duplex receptacles for convenience and housekeeping will be provided in each restroom. Duplex receptacle will be GFCI type where required.

s. Food Service – Can Wash

- Power will be provided, as required, for food service equipment. Refer to food service section of narrative.
- 20A, 120V GFCI duplex receptacles for convenience will be provided.

t. Back-of-House Service Corridors

- 20A, 120V duplex convenience receptacles will be provided 10 feet on center.

- 20A, 120V electrical connections for charging equipment will be provided as required by owner.

u. Back-of-House – Storage – Enclosed

- 20A, 120V duplex convenience receptacles will be provided on each wall.
- 20A, 120V electrical connections for charging equipment will be provided as required by owner.

v. Back-of-House – Dressing Rooms

- (2) 20A, 120V duplex convenience receptacles will be provided on each wall.

w. Back-of-House – Storage – Open

- 20A, 120V duplex convenience receptacles will be provided on each wall.
- 20A, 120V electrical connections for charging equipment will be provided as required by owner.

x. Back-of-House – Non-Public Restrooms

- (2) 20A, 120V duplex receptacles for convenience and housekeeping will be provided in each restroom. Duplex receptacle will be GFCI type where required.
- 20A, 120V electrical connections will be provided for restroom equipment as required. Equipment may include hand dryers (dedicated), paper towel dispensers, automatic flush toilets, faucets, soap dispensers, etc.

y. Back-of-House – Gender Neutral Staff Restrooms

- (2) 20A, 120V duplex receptacles for convenience and housekeeping will be provided in each restroom. Duplex receptacle will be GFCI type where required.
- 20A, 120V electrical connections will be provided for restroom equipment as required. Equipment may include hand dryers (dedicated), paper towel dispensers, automatic flush toilets, faucets, soap dispensers, etc.

z. Back-of-House – Janitor Closets

- (1) 20A, 120V, GFCI duplex receptacle for convenience and housekeeping will be provided in each janitor closet.

aa. Back-of-House – Electrical Rooms

- 20A, 120V duplex convenience receptacles will be provided on each wall.
- Ground bus for panelboards, transformers, switchboards and telecommunication cross connect will be provided.
- ADD ALTERNATE: Each duplex convenience receptacle will be connected to a dedicated 20A circuit.

bb. Back-of-House – Telecommunication Rooms (TR)

- Power will be provided for equipment as required.
- 20A, 120V duplex convenience receptacles will be provided on each wall.
- Grounding and ground bus will be provided as required for equipment.

cc. Back-of-House – Operable Wall Panel Storage

- (1) 20A, 120V duplex convenience receptacle will be provided.
- Interior and Exterior Graphics and Signage
- Power will be provided for signage illumination and display monitors as required.

dd. Interior and Exterior Graphics and Signage

- Power will be provided for signage illumination and display monitors as required.

17. Mechanical and Plumbing

Power will be provided for mechanical and plumbing equipment as required including all loose starters, local disconnect switches and thermal overload switches. Refer to the mechanical and plumbing documents for equipment requirements included and in addition to what is described in this narrative.

- Starters and VFDs for all packaged equipment, such as air-handling units, exhaust fans, etc., will be provided by the mechanical contractor.
- 20A, 120V, GFCI duplex convenience receptacles will be provided on each wall of all mechanical rooms.
- 120V, 20A duplex maintenance receptacles will be provided within 25 feet of all mechanical equipment. Receptacle will be GFCI type with weatherproof “in-use” cover as required.
- 120V, 1PH electrical connections will be provided for controls in each mechanical room.
- Power for dedicated exhaust fans for private restrooms, janitor closets, trash rooms, etc.
- Power for CRAC units in IT/server rooms, etc.
- Power for snowmelt will be provided at terrace. (Emergency power will be provided if this is part of a path of emergency egress.) Refer to mechanical and plumbing documents for full description of snowmelt equipment electrical requirements and locations.
- Power for heat trace for all drains located on exterior terraces, on exterior roof piping or as directed by mechanical contractor will be provided. Provide 30mA GFCI circuit breakers for all heat trace loads.
- Power for electric water coolers, garbage disposals and electric trap primers as required.
- Power for a 100HP, 480V, 3PH fire pump and associated equipment will be provided, if required by the City. Connected to emergency power.
- Refer to mechanical and plumbing documents for existing equipment being relocated. Extend existing feeder or provide new to new equipment location as required. Provide new disconnecting means and maintenance receptacle at new location as required. Refer to mechanical and plumbing documents for full description of equipment electrical requirements and locations.
- Refer to mechanical and plumbing documents for existing equipment being removed with new similar equipment being provided in a new location. Extend existing feeder or provide new to new equipment location as required. Provide new disconnecting means and maintenance receptacle at new location as required. Refer to mechanical and plumbing documents for full description of equipment electrical requirements and locations.
- All line voltage power for mechanical equipment motors and motor starters furnished under the mechanical and plumbing narrative sections will be provided.
- Feeder circuits to mechanical equipment and motor starter will be provided. Final connection will be made to equipment.

- Disconnect switches (heavy duty, HP rated, quick-make, quick-break, fusible, or non-fusible) and/or thermal overload switches will be provided, as required. Disconnects for equipment located on the roof or where exposed to weather will be “weatherproof”.
- Flexible metallic conduit will be used for connections to motors and other equipment where vibration is encountered or as required. All flexible connections exposed to the weather will be made with liquid tight flexible metal conduit.
- The following schedules include a summary of mechanical and plumbing equipment coordination and electrical requirements. Refer to mechanical and plumbing documents for a full description of equipment electrical requirements and locations. Size, quantities, designation, and power will be modified based on updated design.
    - Unit Heaters: Hot Water, ~ 120V, 1P, 1/4HP each
    - Exhaust Fans: ~ 480V, 3PH, 40HP each
    - Domestic Water Booster Pump (DWBP-01): 36A, 480V, 3PH, 60/3 Disconnect
    - Electric Wat.er Heater (EWH-1): Lavatories, 6kW, 480V, 3PH, 30/3 Disconnect
    - Electric Water Heater (EWH-2): Kitchen, 36kW, 480V, 3PH, 60/3 Disconnect

18. Food Service

Food service electrical requirements will be coordinated with food service consultant. Refer to the food service documents for equipment requirements included and in addition to what is described in this narrative.

- All 120V, 20A, 1P receptacles located in the kitchen will have integral ground fault protection per NEC.
- All disconnects will be mounted in locations where they will be readily accessible after equipment is installed.
- Walk-in coolers/freezers will be furnished by the food service equipment contractor complete with splice boxes, lights, light switches and door heaters. Electrical contractor will install interconnecting conduit, wiring, stainless steel fasteners, seal-offs, sealant, heat tape and make all final connections.
- All conduit and conductors for the walk-in coolers/freezers will be run on the exterior of the unit. All penetrations will be made through the ceiling insulation and will be vapor tight. Seal- offs will be provided in all conduits penetrating unit.
- All necessary connections between control panel, fire suppression system and shunt trip circuit breakers will be provided for all exhaust hoods.
- Mounting locations and heights of all electrical devices in the kitchen will be coordinated with the architectural and food service elevations and shop drawings prior to rough-in. All GFCI devices will be installed in locations where the device is accessible after the equipment is installed or remote monitoring devices will be provided at accessible locations.
- Final connections to all kitchen equipment will be provided.
- The following schedules include a summary of food service equipment coordination and electrical requirements. Refer to food service documents for a full description of equipment electrical requirements and locations.

19. Elevators

Elevator electrical requirements will be coordinated with vertical transportation consultant. Refer to the vertical transportation documents for equipment requirements included and in addition to what is described in this narrative.

- A 120V, 20A, 1P, GFCI receptacle will be provided in each elevator machine room or adjacent to each elevator controller connected to emergency power.
- A 120V, 20A, 1P, GFCI receptacle will be provided in each elevator pit connected to emergency power.
- Emergency power will be provided to elevator cab lighting, elevator machine room receptacle(s) and lighting, elevator machine room cooling and lighting.
- Electrical modifications will be made to elevators being extended to serve additional floors or that are being modernized as required.
- New elevators will be 277/480V, 3P and will have shunt trip fusible switches adjacent to elevator controller.
- Interface with fire alarm system and all automatic transfer switches will be provided.
- Emergency power will be provided, as required, for elevators with a travel distance over 75 feet or for elevators that will be used as part of the emergency path of egress.

20. Escalators

Escalator electrical requirements will be coordinated with vertical transportation consultant. Refer to the vertical transportation documents for equipment requirements included and in addition to what is described in this narrative.

- A 120V, 20A, 1P, GFCI receptacle will be provided in each escalator pit (top and bottom).
- Emergency power will be provided for escalator pit receptacle(s) and lighting.
- Normal power will be provided for escalator operation unless the escalator will be used as part of the path of egress. If escalator is part of the emergency path of egress it will be connected to emergency power.

21. Testing

The Contractor will perform routine insulation resistance, continuity, infra-red scans, and rotation tests for all new distribution and utilization equipment prior to and in addition to any acceptance testing.

- The Contractor will test all low voltage relays and circuits to ensure proper operating conditions prior to acceptance testing.
- The Contractor will perform visual and mechanical inspections, verifying that the equipment nameplate information meets the intent of the specification.
- The Contractor will be responsible for all final settings and adjustments on protective devices and tap changes.
- The Contractor will be responsible for load bank testing in accordance with NFPA 110, minimum 8 hours at 100% resistive full load.
- The Contractor will be responsible for current injection testing of all main and sub-feed breakers on the new main switchboards.

- The Contractor will provide a complete protective device coordination study, short circuit study and arc flash analysis with labels for the electrical distribution system described. This study will be submitted with electrical equipment submission and electrical room layouts.
- Third party testing will be provided for generator, automatic transfer switches, switchboards, grounding, etc.

22. Operation and Maintenance Manuals

Electronic O&M Manuals will be provided by the Contractor including:

- Alphabetical listing of all system components with Name, Address & Phone Number of Company responsible for first year service and source of replacement parts.
- Electronic copies of all Shop Drawings.
- Operating Instructions:
  - Normal starting, operating and shut-down.
  - Emergency procedures.
- Maintenance Instructions.
- Cleaning, Replacement or Adjustment Schedule
- Manufacturers Data for each piece of equipment:
  - Web Site Access.
  - Installation instructions.
  - Drawings and Specifications.
  - Parts List, including recommended spares.
  - Complete Wiring Diagrams.
- Marked prints showing all concealed parts and variations from the original system.

23. Special Conditions

Contractor to visit site and review existing site conditions. Existing electrical distribution equipment, devices, junction boxes, conduit, etc. will need to be relocated, as required, for addition and remodel work. Review areas of remodel, vertical transportation additions, etc. Carefully coordinate work in these areas to keep existing systems operational.

- Contractor to coordinate structural work being performed above and inside Roof Southwest Electrical Room (RSWER). Carefully coordinate work in this room to keep existing systems operational.
- Construction phasing is fully the responsibility of the constructor, but the following list of outages should be considered for pricing purposes and includes but is not limited to Xcel Energy Utility: Anticipate building wide outage for Xcel Energy to energize the new transformer vault. Temporary power will be provided, as required.
- Interface to existing systems is anticipated for elevator monitoring and controls may re-use wiring and raceways where possible. The new elevators will require tie-in to the existing transfer switches for the associated generator.

O. LIGHTING

1. General

The following lighting scope narrative is intended to be used only for developing budget pricing levels for the remodel and expansion of the Colorado Convention Center. The narrative is not intended for inclusion in the final bridging documents and all noted sizing and quantities of equipment are for this pricing activity only and are not to be used for the design/build contractor final construction documents.

a. Work Included

- Based on Updated design
- The work will be installed in compliance with all local, state and national codes as appropriate for work within Denver, Colorado.
- Materials, equipment and installation will be to code and generally accepted good practice.

b. System Scope

- The following list of systems and components are included within this narrative: Lighting and Lighting Control

2. Description of Work

- All interior areas will be provided with a lighting system to maintained illumination levels recommend by IES/ASHRAE, NEC, NFPA.
- All light fixtures will be commercial quality grade fixtures. The lighting system will be complete with panelboards, feeders, branch circuits, and controls all as specified herein. Circuiting will generally be 277 volts for LED lighting.
- LED fixtures will generally incorporate electronic energy efficient drivers. Lenses/louvers where specified.
- LED light fixtures will incorporate integral or remote drivers appropriate for all conditions-switching, dimming, or DMX interface as required.
- Provide LED exit signs along all paths of egress exits. An exit sign shall be no further than 100 feet apart in any egress corridor or path. An exit sign shall be provided at every egress door and stairway.
- All lighting shall be controlled by a networkable lighting control system with a built-in time clock and local overrides. Lighting control system to be connected to existing building control system. The lighting control system shall be a stand- alone low voltage system for controlling lighting and interfacing with building automation system to control certain zones.
- Provide separate lighting control system for the emergency fixtures.
- For LED Sources, provide additional quantity of light fixtures, to be delivered to owner’s attic stock. Additional quantity to be defined as a complete light fixture, with a quantity of 0.25% of total quantity, and a minimum quantity of 2 fixtures for each type. Decorative type light fixtures are to be excluded.
- The interior lighting concepts will be developed with the architectural team during the design development phase. Lighting design intent is as follows.

3. Design Intent

- All light fixtures shall utilize LED sources.
- Daylight Harvesting will be required for all areas adjacent to glazing and comply with current ASHRAE 90.1 requirements for daylight harvesting.
- LED drivers shall be coordinated with each control system.
- Meeting and ballrooms will be controlled by an architectural dimming system to control single or multiple rooms separated by a partitioning wall system.

P. TECHNOLOGY ENGINEERING

1. General Information

a. Scope of Work

This portion of the technology systems scope of work generally covers the following infrastructure systems noted below.

- Telecommunications Infrastructure
  - Telecommunications Rooms (TRs)
  - Telecom Bonding and Grounding
  - Raceways
  - Backbone Distribution
  - Horizontal Distribution
- IT Systems:
  - Telephone System
  - Data Network System (LAN/WAN)
  - Wireless Data Network System (WLAN/WiFi)
- Distributed Antenna System (DAS)
  - Emergency Responder Radio System (ERRS)
  - Facility Operations Radio System
  - Cellular Telephone
- Security Systems
  - Electronic Access Control
  - Intrusion Detection
  - Video Surveillance

Additionally, refer to the Electrical Systems Narrative and Mechanical Systems Narrative for additional requirements.

b. Standards and Codes

The technology systems planned for this venue shall be provided and installed to meet the National Electric Code (NEC), ANSI/EIA/TIA Standards, BICSI, NEMA, IEEE Standards, Owner standards, Denver Building Codes including Amendments to adopted ICC codes and other applicable codes/standards determined by Authority Having Jurisdiction (AHJ).

Provided below is a list of applicable standards and codes. Note there may be other applicable standards and codes.

- ANSI/TIA-526: Standard Test Procedures for Fiber Optic Systems.
- ANSI/TIA-568-C.0: Generic Communications Cabling for Customer Premises.
- ANSI/TIA-568-C.1: Commercial Building Communications Cabling Standards, Part 1: General Requirements.

- ANSI/TIA-568-C.2: Balanced Twisted-Pair Communications Cabling and Components Standard.
- ANSI/TIA-568-C.3: Optical Fiber Cabling Components Standard.
- ANSI/TIA-569-A: Commercial Building Standard for Telecommunications Pathways and Spaces.
- ANSI/TIA-606A: Administrative Standard for Commercial Telecommunications.
- ANSI/TIA-607: Commercial Building Grounding and Bonding Requirements for Telecommunications.
- BICSI CO-OSP Design Manual (current edition): Customer-Owned Outside-Plant Design Manual.
- BICSI Network Design Reference Manual (current edition).
- BICSI TDM Telecommunications Distribution Methods Manual (current edition).
- BICSI Wireless Design Reference Manual (current).
- EIA/TIA TSB67: Transmission Performance Specifications for Field Testing of Unshielded Twisted-Pair Cabling.
- IEEE-802.11 a, b, g, n, ac: Wireless Local Area Networks
- IEEE-802.3: 10Mb/s, 100Mb/s, 1Gb/s, and 10Gb/s Ethernet Standards as applicable based on media types (twisted pair copper, fiber optics, etc.)
- IEEE-802.3ak: 10Gb/s Ethernet (evolving copper standard).
- IEEE-802.3af: Power-over-Ethernet (PoE).
- IEEE 1100-1999: Recommended Practice for Powering and Grounding Sensitive Electronic Equipment.
- ISO/IEC 11801: International Standard on Information Technology – Generic Cabling of Customer Premises.
- NEMA Std 250: Enclosures for Electrical Equipment (1000 Volts Maximum).
- NFPA-70/NEC: National Electrical Code 2014 with Denver Amendments.
- USDA Bulletin 1751F-643: Underground Plant Design.
- Other applicable codes, standards, and installation procedures consistent with recognized industry trends and generally accepted procedures.

2. COMMUNICATIONS INFRASTRUCTURE

a. General

The communications infrastructure system shall support voice and data applications/systems operated over a multi-media cabling plant including fiber optics and twisted pair copper.

This telecommunications infrastructure shall be supported by dedicated telecommunication rooms and raceways. Telecom rooms can also serve as a co-location for other technology and low voltage systems including AV, security, distributed antenna systems (DAS), and broadcast infrastructure. Additional coordination required as part of design and construction process.

Communications infrastructure including cabling and raceways shall provide longevity to ensure future proofing. Cabling plant shall be the latest product available in the market, which meets latest standards with enhanced bandwidth capabilities and overhead. Raceways shall be provisioned to allow for a minimum of spare physical capacity upon completion of facility.

b. Telecommunications Rooms

Dedicated telecommunications rooms shall be provided as necessary to specifically support technology and other low voltage specific systems in this venue including a Telecom Demarc Rooms (TDR), Main Telecom Room (MTR), Telecom Rooms (TR), Telecom Cabinets (TC), Server Rooms, and Wireless Equipment Room (WER). Low voltage systems typically include voice, data, wireless, access control, video surveillance, DAS, audio/visual (AV), and sound systems.

Communication Rooms shall be planned and fitted-out as follows:

- Telecom Demarc Rooms (TDR): Existing TDRs will be maintained and equipment within expanded as necessary to support renovation and expansion associated with project. Existing demarcation room shall remain fully operational during and after construction.
- Main Telecom Room (MTR) – "PBX" Room: Existing PBX Room will be maintained and equipment within expanded as necessary to support renovation and expansion associated with project. Existing PBX Room shall remain fully operational during and after construction.
- Existing Telecom Rooms (TRs): Existing telecom rooms will be maintained and equipment within expanded as necessary to support renovation and expansion associated with project. Existing telecommunications rooms shall remain fully operational during and after construction.
- Telecom Rooms (TRs): TRs will be used for backbone and horizontal distribution. Rooms shall be provided on all levels and areas requiring telecommunications infrastructure and other technology equipment and interfaces. TRs shall be approximately 90-150ft2 (8.5-14m2) in size and will be the structured cabling intermediate cross-connect (IC) for backbone cable and the horizontal cross-connect (HC) for local horizontal distribution. TRs shall be located to maintain industry standard for horizontal cable length limits of 295-feet (90m). Generally, planned horizontal distribution coverage requirements typically should not exceed 200- feet (61m) radii to account for vertical and horizontal traversing of cable to reach the communication device. TRs used on multiple levels shall be vertically aligned to form risers. TRs will also be used as technology co-location rooms for distribution and equipment such as audio video, distributed antenna systems (DAS), distributed television, door hardware power supplies, security systems, and sound system amps, etc.
- Anticipated New TR Placement: Quantity and location will be modified based on new design
    - Quantity: (4)
    - Location: (4) TRs @ Rooftop Expansion
    - Rating: 1HR minimum fire rating. (2HR recommended)
- TRs shall be located based on horizontal cable length limitations of 295 feet (90m). TRs shall be fitted out with the following systems, equipment, and hardware components:
    - Flooring: Concrete floors shall be sealed to prevent dust build up and ease cleaning.
    - Backboard: ¾-inch (19mm) AC-grade fire resistant plywood with white fire resistant paint on all sides and mounted at 6 to 102-inches (150-2550mm) above finished floor (AFF) on all walls.
    - Grounding System: Telecom ground bus (TGB) connected to the telecom grounding backbone.
    - Cable Tray: (2) 12-inch (300mm) wide wire (basket) type cable tray mounted around room perimeter and sections above equipment racks at 90-inches (2150mm) and 114-inches (2750mm) AFF. Trays shall be offset 6-inches (150mm) from wall.

- Equipment Racks:
  - Racks: (3-4) 2-post 19-inch EIA equipment rack in 84-inch (2100mm) height with vertical cable/patch cord managers on each side.
  - Power Units: (1) 1U Horizontal 2.9kW 120V 30A (NEMA L5-30P) metered PDU with (24) 120V 20A (NEMA 5-20) outlets and (1) 1U Horizontal 5.0kW 208V/30A (NEMA L6-30P) metered PDU with (4) 208V 19A (C19) and (6) 208V (C13) outlets for each rack.
- Equipment Cabinets: None.
- Electrical Power:
  - Telecom Load: 80 W/SF (8-12kW Total excluding HVAC, Lighting, UPS)
  - Redundancy: None.
  - Distribution, Normal Power: Non-critical components and non-code components shall be served from normal power.
  - Distribution, Generator Power: Mission critical components and Life Safety/Code components shall be served from generator power and UPS system.
  - Uninterruptible Power Supply (UPS): Refer to Electrical narrative for UPS units to be mounted in Telecom Rack.
  - Circuits:
    - HVAC Equipment: As required on generator power.
    - Lighting: As required on generator power.
    - Equipment Racks: (1) 120V 30A (NEMA L5-30R), (1) 208V/30A (NEMA L6-30R), and (1) 208V 20A (NEMA L6-20R) receptacles on generator power at each rack.
    - UPS Connection: (1) 120/208V 50A (4-wire) hardwire from J-box.
    - Distributed Antenna System (DAS): (2) 208V 30A (NEMA L6-30R) receptacles on generator power mounted on wall.
    - Fire Alarm Panels: TBD
    - Security System Power Supply: (2) 120V 20A (3-wire) hardwire from J-box on generator power mounted on wall.
    - Door Hardware Power Supply: (2) 120V 20A (3-wire) hardwire from J- box on generator power mounted on wall.
    - Distributed TV: (2) 120V 20A (NEMA 5-20R) quad-plex receptacles on normal power mounted on wall.
    - AV System: (2) 120V 20A (NEMA 5-20R) quad-plex receptacles mounted on normal power.
    - Sound System: TBD
    - Misc. Equipment: (10) 120V 20A (NEMA 5-20R) quad-plex receptacles mounted on wall equally spaced.
- Lighting: Fixtures as required for 50fc illumination with dedicated light switch.

- Cooling/Heating:
  - Telecom Load: 80 W/SF (8-12kW Total excluding HVAC, Lighting, UPS)
  - Redundancy: None.
  - System Type: Dedicated HVAC system HVAC systems (DX or Fan-Coil Units). A dedicated thermostat shall be provided within the room.
  - Operation Schedule: Un-interruptible operation (24-hours per day and 365 days per year).
  - Environment:
    - Temperature: 68O F (20o C).
    - Temp. Range: 66 to 72O F (18.8 to 22.2O C).
    - Humidity: 30 to 50% RH,
    - Air Changes: 1 ACH.
- Plumbing: Under no conditions shall any pressurized water piping be routed through this room. Additionally, any gravity piping such as waste lines and roof drain lines should not be routed through this room, however; if it is not possible to meet this condition then drip pans with drain lines shall be provided below all piping or a waterproof membrane installed above entire room complete with perimeter drain system.
- Fire Protection: Necessary smoke detectors and sprinkler systems that meet all applicable codes established by the AHJ. Sprinkler system shall be wet type with a high temperature heads.

- Telecom Cabinet (TC):

  TCs will be used at locations requiring backbone and horizontal distribution but without a dedicated TR. TCs shall be fitted out with the following systems, equipment, and hardware components:

  - Grounding System: Telecom ground bus (TGB) connected to the telecom grounding backbone.
  - Equipment Cabinet:
    - (1) 4-post 19-inch EIA racks with enclosed equipment cabinets with outside dimensions of 24-inch wide by 42-inch depth by 84-inch height (600mm X 1020mm X 2100mm) with internal vertical cable/patch cord managers on each side.
    - Power Units: (1) 1U Horizontal 2.9kW 120V 30A (NEMA L5-30P) metered PDU with (24) 120V 20A (NEMA 5-20) outlets and (1) 1U Horizontal 5.0kW 208V/30A (NEMA L6-30P) metered PDU with (4) 208V 19A (C19) and (6) 208V (C13) outlets for each rack.
  - Electrical Power:
    - Telecom Load: 8 kW Total
    - Normal Power: Non-critical components and non-code components shall be served from normal power.
    - Generator Power: Mission critical components and Life Safety/Code components shall be served from generator power and UPS system.
    - Uninterruptible Power Supply (UPS): Refer to Electrical narrative for UPS units to be mounted in Telecom Equipment Cabinet.

        - Circuits, Equipment Cabinet: (1) 120V 30A (NEMA L5-30R), (1) 208V/30A (NEMA L6-30R), and (1) 208V 20A (NEMA L6-20R) receptacles on generator power at each rack.
        - Circuits, UPS Connection: (1) 120/208V 50A (4-wire) hardwire from J-box.
    - Lighting: None.
    - Cooling/Heating: None dedicated. Use ambient air.
    - Plumbing: None.
    - Fire Protection: None.
- Wireless Equipment Room (WER): Existing Wireless Equipment Rooms, one for each carrier, located on the P3 of the Parking Garage will be maintained and equipment within expanded as necessary to support renovation and expansion associated with project.

c. Telecommunications Grounding System

Extend existing telecommunications ground system into new TRs and TCs including insulated bonding backbones (TBB), equalizing conductors (TEC), and pre-drilled tinned copper buses (TMGB and TGB) System shall be based on and compliant with ANSI/TIA-607 Standard requirements.

Provided below are general components and associated requirements:

- Telecom Ground Bus (TGB): (1) 20-inch x 4-inch x ¼-inch (500mm x 100mm x 6mm) tinned copper bus pre-drilled) mounted on wall with isolated stand-offs at 18-inches (450mm) at each TR, TC and Server Rooms. The TGB shall be connected to the telecommunications bonding backbone (TBB), to the nearest electrical ground bus at electrical room providing distribution to TR, TC and Server Room, and connected to building steel if existing within room using an insulated #3/0 (120mm2) stranded grounding conductor installed in continuous conduits.
- Telecommunications Bonding Backbone (TBB): All TGBs on the lowest level of the facility shall be connected to the existing TMGB with insulated #3/0 (120mm2) stranded grounding conductor installed in continuous conduits or cable tray. TGBs located in TR riser rooms shall be vertically connected using a single insulated #3/0 (120mm2) stranded grounding conductor installed in continuous conduits up through riser and connected to each TGB using a #3/0 tap conductor bonded to the backbone using an irreversible, high compression fitting.
- Equalizing Conductors: All TGBs on the lowest level, the highest level, and every third level in between shall be horizontally connected in loop type topology using an insulated #3/0 (120mm2) stranded grounding conductor installed in continuous conduits.
- Equipment Grounding: All metallic technology components and infrastructure shall be bonded to nearest telecom ground bus (TGB) as per building code, industry standard, manufacturer's requirements, and accepted industry practices. Components typically include but not limited to cable tray, ladder racks, equipment racks/cabinets, metallic cable sheaths, conduits, conduit sleeves, raised floor support system, and modular equipment chassis, etc.

d. Building Infrastructure

This building shall be installed with dedicated raceway and cable systems specifically for technology and low voltages systems. Quantities and locations will be modified based on new design.

- Backbone Raceways: TRs shall be vertically interconnected with a minimum of (10) 4-inch (100mm) conduits and/or sleeves (or provisions for equivalent vertically mounted cable tray with slab block- outs through floors using pre-manufactured fire-rated sleeves.

- Horizontal Raceway: Conduits and/or cable trays shall be routed horizontally out of all telecommunication rooms and closets to allow horizontal or workstation distribution to enter room. Conduits shall be a minimum of (12) 4-inch conduits routed continuously to reach corridors or concourses. All conduits routed through electrical rooms shall be continuous to minimize risk of interference on low voltage systems. Additionally, continuous conduits shall be extended above all concourses and other exposed public areas without ceilings.
- Cable Tray: Cable trays shall be aluminum ladder type or wire type (basket). Solid bottom tray shall be provided at all locations with open ceilings exposed to public view. Enclosed tray shall be used for segments routed through electrical rooms or other areas posing electrical or radio interference. Cable trays will be routed horizontally on various levels in corridors and concourses to interconnect Telecom Rooms for routing horizontal technology systems infrastructure including AV, data, fire alarm, POS, security, sound, telephone, TV, and wireless cables, etc. where feasible and as dictated by cable quantity.
- Telecom Device/Outlet Raceway: Each telecom device/outlet location to have a minimum 2-gang (double-deep) back-box with single gang mounting plate (mud ring) and 1-inch (25mm) for 3-cables or more minimum conduits originating from accessible ceiling area or cable tray. Provide continuous conduits segments through all inaccessible areas, areas exposed to public view such as concourses and other sensitive architectural areas without ceilings. Use j- hooks mounted at 48-inch (1200mm) spacing not served by conduit or cable tray.

  Conduit sleeves and/or continuous segments shall be provided through walls for unimpeded pathway to cable origin or cable tray. All conduit penetrations and opening through fire rated walls shall be sealed with appropriate fire and smoke stop material. All raceway and cable routing shall be located to minimize cable length.

  Certain telecom devices/outlets may require multiple conduits, larger conduits, and/or larger enclosures based on cable fill. Additionally, devices that require enclosures (as noted below) shall have a 22-inch x 22-inch x 8-inch (550mm x 550mm x 200mm) stainless steel enclosure with (1) 2-inch minimum conduits routed to the nearest cable tray or communications room.
- Structured Cabling System: The telecommunications infrastructure shall consist of an industry standard structured cabling system using physical hierarchical star cable topology comprised of backbone/riser and horizontal distribution segments.

  - Backbone Segment, Telecommunications Copper: Minimum (1) 100-pair Cat. 3 cable (to support conventional analog/digital telecommunications) routed to each new TR (or TC) from the MTR/PBX. Cable shall be terminated using wall mounted 110-Blocks. Wall filed cable management shall be by d-rings and cable guides. Actual backbone cable sizes to be confirmed during design. The building standard is currently Belden plenum rated cable.

  - Backbone Segment, Fiber Optics-Primary: Minimum (1) 6-strand OM4 multi-mode, (1) 6-strand OS2 single-mode and (1) 12-strand single-mode fiber optic backbone cable routed to each new TR (or TC) from the MTR/PBX. Cable shall be terminated using duplex LC connectors with rack mounted 144-port fiber enclosures. Actual backbone cable sizes to be confirmed during design. The building standard is currently Corning plenum rated fiber.

  - Horizontal Segment: Distribution from end point telecom device/outlets shall use 4-pair UTP as noted below originating from nearest TR. Cable shall not exceed total cable length of 295-feet (90m). Cable shall terminate using equivalent RJ45 jacks in modular stainless faceplates at end points and rack mounted 48-port RJ45 patch panels at TR. Patch panels to be provided as necessary with horizontal patch cord managers above and below each panel. Anticipated quantities of certain devices and cables are shown below. Exact requirements to be finalized. The building standard is currently Belden plenum rated cable.
    - (8) Automatic Teller Machine: (1) Cat6A, (ATM)
    - AV Device: (6) Cat6A, (AV)

- Data Comm/LAN: (2) Cat6A, (DATA2)
- Convention/Pre-Function Floor Data: (12) Cat6A, (DATA12)
- Elevator Cabs: (6) OS2 or (4) Cat6A for telephone, TV, security cam, and WiFi, (ELEV)
- Elevator Machine Rooms: (6) Cat6A for control, telephone, TV, security cam, and WiFi, (ELEVMACH)
- Escalator Pits: (2) Cat6A for control, (ESC)
- Remote Media Hub: (12) OM4, (12) OS2, (12) Cat6A, (MEDIA)
- IP Television: (1) Cat6A, (IPTV)
- IP Digital Menu Boards: (1) Cat6A, (IPTV)
- IP Digital Signage: (1) Cat6A, (IPTV)
- Point-of-Sale(POS): (3) Cat6A, (POS)
- Security Camera: (1) Cat6A, (CAM)
- Tele/Data: (2) Cat6A (DATA2)
- Time Clock: (1) Cat6A, (TIME)
- Wall Mounted Telephone: (1) Cat6A, (TELE)
- Wireless LAN/WiFi: (2) Cat6A, (WLAN2)

- Comm Device Power: Comm devices shall each be installed with 120V, 20A (NEMA 5-20R) quad-plex receptacle with exception Wall Tele, WLAN, Security Cam, etc. Each POS device shall be installed with isolated ground type duplex outlet. Public Tele require a junction-box with hardwired 120V 20A circuit.

e. Program Requirements

- Refer to Architectural Room Data Sheets and Program documents for requirements.

3. IT SYSTEMS

a. General

- This work and design to be developed in conjunction with Owner.
- IT Systems include existing Avaya Analog Telephone, Cisco Wireless Data Network, and Cisco Converged Data Network.
- Verification required with Owner how this work will be procured and implemented.

b. Telephone System

- Expand and extend existing Analog Telephone System to support renovation and expansion areas including Telephone Sets.

c. Wireless Data Network (Wlan/WiFi)

- Expand and extend existing Wireless Data Network to support renovation and expansion areas.
- Wireless Data Network to be Enterprise grade system based on industry best practices.
- Wireless Data Network shall comply with IEEE 802.11ac (Wave2) or higher using 2.4 and 5.0GHz frequencies.

- The Wireless Data Network shall be a converged network that provides a single wireless data and backbone connectivity for all building systems, applications, tenants, and user. Virtual local area networks (VLANs) shall be integrated into the system to virtually secure and segment the network.
- The Wireless Data Network will use the converged data network for Ethernet/IP connectivity throughout facility.
- Wireless Data Network shall provide ubiquitous coverage of renovation and expansion areas.
- Wireless Data Network shall use a high-density layout and configuration in public areas including entrance portals, concourses, convention areas, pre-function areas, and meeting/conference rooms.

d. Converged Data Network

- Extend and expand existing data network to support renovation and expansion areas including access switches.
- Extend access switches in support of additional required WiFi access points described under Wireless Data Network.
- Provide necessary network expansions within the core-switches within the MTR/PBX to facilitate the additional TRs (and TCs).
- Provide necessary network access switches within existing TRs in support of new cabling to existing communications rooms to support renovation and expansion areas.

e. Program Requirements

- Refer to Architectural Room Data Sheets and Program documents for requirements.

4. Distributed Antenna System (Das)

a. Cellular

Currently there are four cellular distributed antenna systems (AT&T, Verizon, T-Mobile and Sprint) installed in parallel within the existing venue. The carriers currently own, operate and maintain the existing individual DAS systems. Within the expansion areas, the Owner, Architect and Engineers shall work with the individual wireless carriers to have them expand and extend the existing DAS systems to support renovation and expansion areas as needed. Pathways, power and space will be coordinated with the Architecture of the building to facilitate the individual extension designs within the expansion.

b. Responder Emergency System (RES)

Currently there is an 800 MHz City Radio distributed antenna system installed within the existing venue. The venue currently owns and is responsible for maintenance for the existing RES DAS systems. Within the existing building and expansion areas, the Owner, Architect and Engineers shall coordinate pathways, power and space with the Architecture of the building to facilitate a full replacement design. The RES system is a specific 800 MHz City Radio [emergency responder radio systems (police, fire, ambulance) and facility operations radios] system and is separate from the cellular telephones system from the four carriers.

The system shall be designed and tested in accordance with the City Standards (Section 510 of the Denver Building and Fire Code). Additionally, building coverage shall be evaluated in accordance with the current City Standards (Section 510.1.1).

5. Security System

a. General

Expand and extend existing ICT Access Control and Avigilon CCTV Security systems and Security Command Center to support renovation and expansion areas. The existing IP based systems will leverage the existing and physically separate Security Data Network. This will be accomplished by utilizing new security fiber backbone cabling to new TRs and TCs from the MTR.

The systems shall be interfaced to the facility LAN using Ethernet and Internet Protocol (IP) based technology.

b. Equipment and Components

System equipment and components shall be provided as necessary and include the following major components as noted below. Preliminary device quantities are shown in parenthesis for certain equipment and devices. Exact requirements and quantities to be finalized based on updated design.

- Infrastructure
  - Cable
  - Raceway
  - Power
  - Battery Backup
- Servers
  - Expand existing as necessary including licensing as necessary.
  - Network Video Recorders
  - Video Archive SAN Servers
  - Video Tape Backup and Servers
  - Access Control System Servers
- Software
  - Expand existing as necessary including licensing as necessary.
  - Access Control System
  - Video Surveillance System
  - Integrated Graphical User Interface (GUI) System
  - Video Analytics - motion detection and facial recognition
  - Archive and Backup Systems
  - UPS Monitoring
- Security Equipment and Devices
  - Two-Way Intercom Systems (INTERCOM)
  - Code Blue Telephones (BLUE TELE)
  - Access Control System, Server and UPS, (ACS)
  - Video Surveillance System, Servers, Video Archive Server/Tape, and UPS (CCTV)
  - Network Video Recorders and UPS, (NVRs)
  - Security Control Panel and UPS, (SCP)

  - New SCP and DIN Rail Cards in support expansion and renovation areas
  - Smart Card/Proximity Readers, (CR)
  - Door Status Monitors, (M)
  - Duress Button, (PANIC)
  - Fixed Megapixel Cameras (solid state), (CAM-F)
  - 360 Fixed Megapixel Cameras (solid state), (CAM-360)
  - HD Fixed Cameras (solid state), (CAM-HD)
  - PTZ Cameras, (CAM-PTZ)
- Security Device Raceways:
  - Each location to have 2-gang (double-deep) back-box with single gang mounting plate (mud ring) and 1-inch (25mm) (1) 1-1/4 inch (32mm) minimum diameter conduit originating from accessible ceiling area or cable tray.
  - Provide continuous conduits segments through all inaccessible areas, areas exposed to public view such as concourses and other sensitive architectural areas.
  - Use j-hooks mounted at 48-inch (1200mm) spacing not served by conduit or cable tray.
  - Conduit sleeves and/or continuous segments shall be provided through walls for unimpeded pathway to cable origin or cable tray.
  - All conduit penetrations and opening through fire rated walls shall be sealed with appropriate fire and smoke stop material. All raceway and cable routing shall be located to minimize cable length.

c. Program Requirements

- Refer to Architectural Room Data Sheets and Program documents for requirements.

Q. CODE COMPLIANCE

The existing Colorado Convention Center underwent a major remodel in 2002 which doubled the size to its current size of 2.4 million gross square feet. The addition in 2002 extended the original building to the north and was planned for a future multi-use flex space to be placed on the roof. This planned expansion of multi-use flex space is a major part of this current project. The new rooftop expansion will affect existing fire protection, fire alarm and smoke control systems that serve areas outside the expansion and construction area.

This Schematic Design Narrative will be addressing each fire protection system type and what will be expanded to connect into the existing systems serving the convention center. The existing Convention Center is to remain open throughout the scheduled construction. Measures shall be in place to not interrupt or alter conditions of the existing facility throughout construction. The contractor will need to develop a Construction and Phased Occupancy Plan to coordinate the installation of the new fire protection systems and modification of existing fire protection and life safety systems during construction.

The Colorado Convention Center is currently a low-rise building. The proposed rooftop Multi-Purpose Room and related support spaces will be added above the roof of the existing building. The floor level of this expansion will be per updated design above the lowest level of the fire department vehicle access, possibly making the expansion a high-rise building. Preliminary design development identified that as a result of this rooftop expansion. This classification would have required significant changes to the existing fire protection, smoke control and fire alarm systems.

In meetings with the City and County of Denver Building Department and Fire Department the design team presented the existing fire protection systems. It was determined that only the ‘Expansion’ of the Convention Center would need to comply with the high-rise provisions of the Denver Building Code. The high-rise requirement will be reviewed with DFD based on updated design. Compliance with these provisions is currently being documented with an Administrative Modification that identifies the currently approved applicable Administrative Modifications. This Administrative Modification will also document the approach taken related to egress, fire protection, fire alarm, smoke control systems and other signification fire protection features of the building.

1. Applicable Codes

- 2018 Denver Building Code
- City and County of Denver Building and Fire Department Policies and Guidelines
- 2018 Administrative Modification (Currently in Development) will document fire protection requirements and meetings with Building and Fire
- Previously approved and identified administrative modification
- 2018 International Building Code with City and County of Denver Amendments
- 2018 International Building Code with City and County of Denver Amendments
- 2018 International Mechanical Code with City and County of Denver Amendments
- 2018 International Plumbing Code with City and County of Denver Amendments
- 2018 International Fuel Gas Code with City and County of Denver Amendments
- 2017 National Electrical Code
- Underwriters Laboratories (U.L.).
- National Electrical Manufacturer’s Assoc. (NEMA).

- Applicable NFPA Codes and Standards. (Dates to be updated to current City req.)
  - NFPA 13 Standard for Installation of Sprinkler Systems, 2016 edition
  - NFPA 14 Standard for Installation of Standpipe and Hose Systems, 2016 edition
  - NFPA 20 Standard for Installation of Stationary Pumps for Fire Protection, 2016 edition
  - NFPA 72 National Fire Alarm Signaling Code, 2013 edition
  - NFPA 92 Standard for Smoke Control Systems, 2017 edition
  - NFPA 110 Standard for Emergency and Standby, 2016 edition

2. Life Safety Requirements

a. Occupancy Classification (This May Be Updated Based on Revised Design)

- Multi-Purpose Meeting Room(s), Pre-function and Terrace ..... A-3 (Assembly)
- Commercial Kitchen ..... F-1 (Kitchen)
- Storage ..... S-1 (Storage)
- Office – Staff Support ..... B (Business/Office)

b. Occupancy Separation

- A-3 (Assembly) to A-3 (Assembly) ..... No Requirement
- A-3 (Assembly) to B (Business) ..... 1 hour Separation
- A-3 (Assembly) to F-1 (Commercial Kitchen) ..... 1 hour Separation
- A-3 (Assembly) to S-1 (Storage) ..... 1 hour Separation
- F-1 (Commercial Kitchen) to S-1 (Storage) ..... No Requirement
- Mechanical, Emergency Power Equipment Rooms ..... 1 hour or Sprinklered
- Fire Pump Room ..... 2 hour separation
- Trash Chute Rooms ..... 2 hour room and shaft

c. Construction Type

- Primary Structural Frame ..... 3 hour
- Exterior Nonbearing Walls ..... 0 hour non-combustible
- Roof Construction and Secondary Members ..... 1 ½ hour *

  ** Fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below.*
- Nonbearing Interior Partitions ..... 0 hour non-combustible
- Public Corridors ..... 0 hour non-combustible
- Folding Partitions ..... 0 hour
- Floor Construction ..... 2 hour
- Exit Stair Enclosures and Elevator Hoist-ways ..... 2 hour
- Horizontal Exit ..... 2 hour

3. Means of Egress (this may be updated based on revised design)

a. Occupant Load Factors

- Multipurpose Room (functions as Meeting and Exhibit) .....OLF 10 sf/person *

  ** The Occupant Load for the Convention Center Expansion Level shall be limited by the Convention Center Operator to a maximum of 8,000 occupants. This is a similar approach to that taken in other assembly areas in the Convention Center.*

- Terrace (Exterior Rooftop) ..... OLF 7 sf/person
- Office (Staff Support) ..... OLF 100 sf/person
- Commercial Kitchen ..... OLF 200 sf/person
- Storage..... OLF 300 sf/person
- Horizontal Exit (occupant load availability) ..... OLF 3 sf/person
- Egress Width has been calculated based on the approved egress width factors used throughout the remainder of the Convention Center. Those factors are:
  - 0.2 x total occupants on stairs
  - 0.15 x total occupants on other egress components
- Protected Assembly Seating: As permitted by IBC Section 1029.6.3 the new Egress Stairs serving the Outdoor Terrace have utilized an Occupant Load Factor of .08 where egress is provided by aisles and stairs. The occupant load factor for stairs is .08 and .06 on other egress components.
- Horizontal Exit: As permitted by the IBC, the use of a Horizontal Exit will be utilized in the Corridor servicing the Multi-Purpose Room. The Occupant Load Factor used for calculating the occupants staged in the Horizontal Exit is 3 sf/person.
- Maximum Travel Distance: 250 feet
- Egress Zones: Due to the size of the facility the concept of egress zones is utilized so that a full building evacuation would not be done on an initial alarm zone activation. This concept will be utilized in this Convention Center Expansion.

  Maintain Current Egress Zones:

  - Lower Level Ballrooms
  - Meeting Room Level
  - Exhibit Hall Level (Exhibit Halls A-F are separate Zones)
  - Upper Level
  - NEW MULTI-PURPOSE/PREFUNCTION/TERRACE LEVEL WILL BE A SINGLE EVACUATION ZONE

4. Elevator Lobbies/Areas of Refuge (this may be updated based on revised design)

Elevator lobbies or areas of rescue assistance maybe required. The expansion area includes a Pre-function Areas just outside the Multi-purpose Area. Currently we are pursuing a request for consideration to allow elevators to open into the Pre-function Area without enclosed elevator lobbies. With the building protected throughout with an automatic sprinkler system, smoke exhaust system, emergency evacuation plan and fire watches help ensure the safe evacuation of physically challenged individuals.

The existing Convention Center does not have Elevator Lobby Areas of Rescue Assistance. Existing and Expansion Area Elevator Lobbies will have 2-way communication at all elevator lobbies throughout the facility.

The Convention Center Emergency Evacuation Plan includes provisions for evacuation of the physically challenged individual. Large assembly functions include fire watch to ensure safety of occupants during these events.

5. Fire Protection Systems / Fire Suppression

a. Fire Suppression (this may be updated based on revised design)

- The existing sprinkler system (quick response) will remain as permitted by the City and County of Denver. The 1999 edition of NFPA 13 permitted the use of smoke detectors and no automatic sprinkler protection. This was also allowed by previous approved by Administrative Modification and include: transformer, electrical switchgear, and telephone equipment rooms. U
- The new automatic sprinkler system for the Convention Center Expansion will be a hydraulically designed and installed system in accordance with currently adopted codes and standards, including new transformer, electrical switchgear, telephone equipment and elevator equipment rooms.
- The expansion will be served from the existing Sprinkler Valve Room East on the Champa Street side of the building. The Valve Room has a manifold with the expandability of adding a Standpipe and Sprinkler Riser.
- During the 2002 expansion, a 6” and a 4” connection into the sprinkler valve manifold was provided in the “Sprinkler Valve Room East” at street level. It was intended that a new riser from these points of connections would be extended to the new roof expansion.
- Branches to individual sprinkler zones will be provided with monitored control valves and water flow switches as well as a system drain/test connection. All control valves and water flow switches will be annunciated by the fire alarm system at the life safety control panel.
- All isolating and sectionalizing valves on the fire protection system will be provided with tamper switches that will be annunciated by the fire alarm system at the life safety control panel.
- Design the sprinkler system for ballroom or exhibit hall spaces, whichever is greater and other Hazard Classifications for other areas in conformance with approved Administrative Modifications, NFPA 13 and FM Insurance Underwriter requirements.
- Design Densities
    - Multi-purpose Room .3/6000 square feet Other Assembly Areas Light Hazard
    - Maintenance and Repair Extra Hazard Group 2 Storage Areas Ordinary Hazard Group 2
    - Commercial Food Preparation/Kitchens Ordinary Hazard Group 1
    - Install new Dry Sprinkler System at Interstitial Space or other areas where temperatures could be less than 40 degrees F. The Dry System shall be a Nitrogen Air System.

- Sprinkler Zones
  - 52,000 square feet as permitted by code.
  - Smoke Control Zones (anticipating 2-3 Smoke Control Zones in the Multi-Purpose Room Expansion) coordinate sprinkler zones with Mechanical Design Narrative.
  - Horizontal Exit is a separate sprinkler zone and Smoke Control Zone, coordinate with Mechanical Design Narrative.
- Special Fire Sprinkler Protection
  - Escalator Openings are to be protected with non-combustible draft curtains and sprinkler heads spaced 6 ft on center and within 12 inches of the escalator opening as guided by the IBC and NFPA 13.
  - At Exterior Stairs 204, 205, 206 and 207 provide ICC ESR-2397 - 2 hour sprinkler protection at the glazing of the new exterior stair enclosure. The sprinkler protection shall be in accordance with the Evaluation Report or an approved alternate.
- Acceptance Testing
  - The fire sprinkler, fire pump, fire alarm, smoke control and radio enhancement systems will be tested in accordance with the Denver Building/Fire Code and national standards upon completion of installation by the responsible sub-contractor.

b. Fire Pumps

- The existing Convention Center is served by two fire pumps in the original building. Both fire pumps work in series and are interconnected. Since the rooftop terrace will be a separate fire zone from the existing fire zones, it is anticipated that the existing water flows will not vary and if so, not enough to change the incoming water size serving the existing fire pumps.
- The existing pumps may be sized to provide adequate pressure to the new rooftop expansion. It is to be investigated by the sprinkler contractor. At this stage of design development, we're anticipating the need for a new fire pump to be installed to provide the required flow and pressure to the new roof. New pump may not be required if agreed upon by DFD and EOR Discussions with the Convention Center and Denver Fire Department support the continued use of the existing fire pumps as currently configured.
- Sprinklers, Standpipes and existing Fire Pumps must be active during construction it is intended that the two existing fire pumps will be active during construction and installation of the new fire pump.
- Maintain existing pumps (2 – 2000 gpm) with one new fire pump (soft start, VFD, flat curve) sized to provide 5 gpm and 100 psi at the roof of the Convention Center Expansion. New pump may not be required if agreed upon by DFD and EOR Provide redundant water supply, valving, fire department connections and a new fire hydrant on Champa Street if required.
- Acceptance Testing: The fire sprinkler, fire pump, fire alarm, smoke control and radio enhancement systems will be tested in accordance with the Denver Building/Fire Code and national standards upon completion of installation by the responsible sub-contractor.

c. Standpipes

- Current standpipe systems may accommodate the flow and additional pressure required for the proposed expansion rooftop (500gpm/100psi). This is to be confirmed by the fire sprinkler contractor with the design of fire protection system.

- Standpipes shall conform to the Denver Building Code and NFPA 14. These requirements include but are not limited to:
    - Class I Standpipes and hose outlets located at intermediate levels inside the stairwell at each intermediate floor landing or locations approved by the Denver Fire Department.
    - At exits from the multi-purpose room (with travel distance to a standpipe no more than 100 feet)
    - Each side of the horizontal exit.
    - The new roof.
    - Top of most remote standpipe for testing.
    - Drain lines.
- Provide pressure reducing valves where required by Denver Fire Department. Standpipe System is to be designed to maintain the flow and maximum pressure (100 psig) requirements per NFPA.
- Acceptance Testing: The fire sprinkler, fire pump, fire alarm, smoke control and radio enhancement systems will be tested in accordance with the Denver Building/Fire Code and national standards upon completion of installation by the responsible sub-contractor.

6. Fire Detection, Alarm and Communication Systems (may be updated based on revised design)

- The existing fire alarm systems shall be maintained and upgraded to accommodate Convention Center Expansion. The expansion (except as noted) shall be designed and installed in accordance with the requirements of the Denver Building Code, NFPA 72 and the City and County of Denver Fire Department requirements. All equipment shall be U.L. approved.
- The existing smoke control/smoke exhaust system controls are currently controlled by the Building Management System (BMS)... A new Smoke Control System is to be provided for the new spaces on the roof-top expansion and combined into the existing panel with the revised system.
- Install a new addressable fire alarm system for the expansion and interface with the existing fire alarm detection system wiring and devices (including pull stations, detectors, relay interfaces for flow switches, dampers, etc.) Wiring may be re-used and remain, however additional devices for the expansion is required.
- Provide new firefighter warden phones in the new main electrical, fire pump, generator rooms and other rooms required by the Fire Code.
- Interface via Fire Alarm control modules with new elevator and escalator controls as necessary to comply with re-call operations escalator operation during egress.
- The existing Public Address System will be utilized as currently permitted for Voice Evacuation. The Expansion shall have a new Public Address System connected to the existing and new Fire Alarm System. The existing fire alarm control panel shall be upgraded or modified to accommodate the new system and all new wiring and rated speakers shall be installed in the expansion and extended into the new spaces.
- The new expansion area will be monitored and alarmed from the existing building system and existing Fire Command Center.
- The Fire Alarm System will be comprised but not be limited to the following new components (requirements may be revised based on high rise classification and new design):
    - Interface with new Mechanical, Sprinkler, HVAC and Security Systems. Area of refuge 2-way communication system for public emergency use. Two-way communication system with warden phones for firefighter use.

- New Smoke Control panel, wiring and controls. BMS AND UUKL APPROVED FIRE ALARM CONTROL FOR NEW SMOKE CONTROL SYSTEM
- Provide Class B supervised strobe circuits for the new Fire Alarm System in the expansion. Provide survivability requirements for the new Fire Alarm System in accordance with NFPA 72. Provide Manual fire alarm boxes at all new exit stairs
- Coordinate new PA system with the new Fire Alarm System. This is provided in lieu of fire alarm speakers
- Existing smoke control system will be unchanged and will be directly controlled by the FA system. Fire alarm control panel and equipment will be upgraded as needed to accommodate the direct interface with the smoke control system/equipment. Smoke control panel will be replaced.
- Where smoke detection is not provided at entry doors to stairways, smoke detection will be provided
- The new rooftop Multi-purpose Room will be subdivided with separate sprinkler flow switch areas per smoke zones.
- Smoke Control System (including Exhaust, Make-up Air Activation, Stair Enclosure and Elevator Hoist-way Pressurization) in the new assembly hall will be activated by a sprinkler flow switch in the affected zone or as directed by the Denver Fire Department.
- Smoke detection will be provided within 5’ of entry doors, top of stairs, and elevator hoist ways for the expansion.
- Fire Alarm Zones will match smoke control and sprinkler zones in the expansion. Monitoring and control of new fire pump status and operation, if new pump is required
- Monitoring and control of existing and new Smoke Control System. (Remove existing Smoke Control Panels and provide new Smoke Control Graphic Panels)
- Manual Station shall be located as required by the Fire Code and the Fire Department. Fire alarm speakers with ADA strobes to be located as required by the Fire Code.
- All strobes shall be synchronized as required by local jurisdictional authorities. Provide speakers located such that the signal strength complies with all codes.
- Addressable monitor modules will be provided to interface non-addressable devices with addressable system data bus. Non-addressable devices include sprinkler flow and tamper switches, door releases, concession cooking suppression system, etc.
- Sprinkler systems shall have flow switch alarms and tamper switches on all new valves. Flow switch shall create an "alarm" in the building F.A. system. Tamper switch shall create a "Supervisory" indication in the system.
- Fire alarm speakers and strobes shall be wired separately.
- Fire alarm system wiring shall be in conduit in exposed and hard gypsum ceiling areas, conduit may not be needed if approved by DFD and EOR. This conduit system to be dedicated to the fire alarm system. Conduit system installation shall meet NFPA, State and local code requirements.
- Additional replacement and upgraded fire alarm wiring shall be Class A for high-rise use. Fire alarm wiring shall have a continuous (red) color coding throughout the system.
- Junction and pull boxes in the fire alarm conduit system shall be identified by red covers with F.A. stenciled in black.
- Fire alarm trunk cable shall be 2 hour rated cable.

- The new Fire Alarm System may be able to re-use existing initiating and strobe devices where possible and tie-in new devices including firefighter call stations (fire pump rooms, generator rooms, etc.) for expanded 2-way fire fighter communication, new sprinkler tamper and flow switches, smoke and heat detectors, new pull stations/speakers/strobes in the new spaces. A new Voice Evacuation and Public Address System will be required to be designed and installed in the Convention Center Expansion.
- Elevator monitoring and controls may re-use wiring and raceways where possible however the existing elevators will require upgrades to the controllers to meet high-rise recall and communication requirements, if required by DFD based on new design. The new elevators will require tie-in to the existing transfer switches for the associated Emergency Generator.
- Rescue Assistance Stations to be added at all elevator lobbies and selected stairwells at each floor in the existing rescue areas as well as in the new Areas of Refuge. Refer to Architectural Specifications for further description of rescue area locations and requirements.
- Existing raceways for the smoke control system may be re-used
- Acceptance Testing: The fire sprinkler, fire pump, fire alarm, smoke control and radio enhancement systems will be tested in accordance with the Denver Building/Fire Code and national standards upon completion of installation by the responsible sub-contractor.

7. Smoke Control System this will be updated based on revised design

- The existing Smoke Control System will not be modified (with the exception of providing UUKL control of the existing Smoke Control System by the Fire Alarm System) The rooftop expansion may exceed the 75- foot high rise requirements. The new expansion of the Convention Center must meet current high-rise requirements for smoke control or alternate methods based upon updated design and DFD/EOR approval.
- General Smoke Control System Requirements for the New Smoke Control System in the Expansion. See Mechanical Design Narrative for Detail.
  - New System must be capable of exhausting approximately 3 air changes per hour. Provide make-up air requirements in accordance with the Denver Building Code. The Multi-Purpose Room shall be zoned so that all fans operate together.
  - Due to the expansion, some existing fans will be replaced with new fans and be relocated from existing locations due the new rooftop expansion. This will require ducting from the fans new location to the exhibit hall served.
  - All new Stair Enclosures serving the high-rise expansion are to be provided with Stairwell Pressurization in accordance with the Denver Building Code. Alternate method may be proposed to DFD
  - We believe all existing Stair Enclosures are protected with Stairwell Pressurization. Any existing Stair Enclosures serving levels greater than 75 feet above the fire department access level not provided with Stairwell Pressurization will be provided with Stairwell Pressurization.
  - All existing and new Elevator Hoist-ways serving levels greater than 75 feet above the fire department access level will be provided with Hoist-way Pressurization in accordance with the Denver Building Code.
- Acceptance Testing: The fire sprinkler, fire pump, fire alarm, smoke control and radio enhancement systems will be tested in accordance with the Denver Building/Fire Code and national standards upon completion of installation by the responsible sub-contractor.

8. Emergency Generator

- The existing Emergency Generators and fuel tanks will be permitted to remain in their current location and configuration.
- A new Emergency Generator is to be added on the east side of the Convention Center. Install new day tanks and generator fuel lines from day tanks to generators as required. See Electrical and Mechanical Design Narrative for details.
- The new Emergency Generator will be provided with an integral day tank and connections to a new fuel storage tank. Provide a new day tank and 3,500-gal fuel storage tank in a 2-hour rated enclosure for the new Emergency Generator.
- The new Emergency Generator will have sufficient capacity to operate the emergency equipment as required by the Denver Building and Fire Code related to high-rise provisions including but not limited to the smoke control exhaust systems, make up air, new fire pump, elevators, escalators and other emergency equipment. The Emergency Generator will be capable of serving all this equipment in the expansion for simultaneous operation.
- Acceptance Testing: The fire sprinkler, fire pump, fire alarm, smoke control and radio enhancement systems will be tested in accordance with the Denver Building/Fire Code and national standards upon completion of installation by the responsible sub-contractor.

9. Fire Command Center this may be updated based on revised design

- Fire Command Center will be modified as necessary based on EOR and DFD for new design. It will include provisions to accommodate requirements for the expansion and new fire protection systems.
    - New elevator monitoring/control system for monitoring and control of the new elevators, Monitoring and control of new Emergency Generator
    - Remove existing Fire Alarm Graphic Panels and install a new Graphic Annunciator Panels. These new panels will provide monitoring of alarms and indication for the new and existing spaces.
    - Install a New Fire Fighter Smoke Control Panel, including wiring and controls.
- Acceptance Testing: The fire sprinkler, fire pump, fire alarm, smoke control and radio enhancement systems will be tested in accordance with the Denver Building/Fire Code and national standards upon completion of installation by the responsible sub-contractor.

10. Responder Emergency System (RES)

- Currently there is an 800 MHz City Radio distributed antenna system installed within the existing Convention Center. The venue currently owns and is responsible for maintenance for the existing RES DAS systems. Within the existing building and expansion areas, the contractor shall coordinate pathways, power and space with the Architecture of the building to facilitate a full replacement design. The RES system is a specific 800 MHz City Radio. This provides emergency responder radio systems (police, fire, ambulance) and facility operations radios. This system is separate from the cellular telephones system currently in the facility.
- The system shall be designed and tested in accordance with the City Standards of the Denver Building and Fire Code. Additionally, building coverage shall be evaluated in accordance with the current City Standards.

- Under the classification of a High-Rise installation, the expansion system riser installation shall be in compliance with City Standards to include a 1-HR rated riser/enclosure.
- Acceptance Testing: The fire sprinkler, fire pump, fire alarm, smoke control and radio enhancement systems will be tested in accordance with the Denver Building/Fire Code and national standards upon completion of installation by the responsible sub-contractor.

R. VERTICAL TRANSPORTATION

The vertical circulation plan includes the addition of new escalators and elevators serving between the Exhibition Level and the new Multi-purpose Level. escalators in each of the D and E Lobbies () will be the primary mode of vertical transportation to the new space. Reference updated design in Exhibit A and note that elevator locations and quantities have been updated in the revised design.

In addition to the indoor circulation, the new Multi-purpose Level Outdoor Terrace Space will be served by the extension of the existing two car group along Champa Street. This circulation path provides a direct route to the Light Rail Station.

This Section includes vertical transportation analyses and a summary of the proposed solutions.

a. Analysis

- Vertical transportation analysis begins with the estimated population occupying the Multi- purpose Room(s), the anticipated peak traffic period, and the percentages of the population that must be moved during the peak traffic period. Once these variables are established, analysis calculations are completed to determine if proposed systems will meet the established design criteria.
- The peak traffic period will be the 30 to 45-minute exiting period following the end of an event. Vertical transportation analysis breaks this exiting period into five-minute periods. A five-minute period is a long enough time frame to provide meaningful, measurable information, but not so long as to allow peak activity to be disguised by average activity levels.
- The design criteria for the vertical transportation within the five-minute peak is as follows:
    - Elevator Handling Capacity: As developed for each scenario considered, where:
        - Handling Capacity is the percentage of population that must be transported by the vertical transportation system during a peak five minute period.
        - This population will be served by a combination of elevators and escalators.
    - Elevator Average Interval: ≤50-60 seconds, where the average Interval is the average time between elevator departures from the main terminal loading floor, in seconds, during the peak five minute period; calculated by dividing the round-trip time of a single elevator by the number of elevators proposed for the group.
- A single, 48” wide (40” step) escalator has a five-minute nominal Handling Capacity of 565 persons, and a five-minute maximum Handling Capacity of 752 persons. The maximum is based on two persons on every step. For analysis purposes, the nominal, or 75% of maximum, Handling Capacity is used to reflect a more realistic load.
- The elevator group Handling Capacities will be as developed below. Again, a nominal approach to loading, rather than code maximum capacity, is considered.

b. Maximum Population (may be adjusted based on updated design)

- The given maximum population in the Multi-purpose spaces is 8,190 persons.
- The worst-case scenario is one event where all attendees collectively begin to exit; therefore, the design window for the exiting period is 30 minutes.
- During the peak exiting period, an even distribution of the exiting population is 1,392 persons (8,190 / (6) five-minute periods).
- During the 30-minute period there will be surge demand that is ±1.3 times the average demand, or 1,810 persons.
- The population will utilize either elevators or escalators to leave the venue.

- With any vertical transportation arrangement where more than one group of escalators or elevators serve the same floor, each group (elevators + escalators) must have about 20% excess capacity to compensate for unequal demand. Consequently, the total five-minute Handling Capacity requirement is 2,172 persons (1,810 + 20%).
- In this type of crowded exiting persons will elect for the always available escalators as opposed to wait for elevator service.
- The escalator arrangement includes three units between each floor; they will operate with two units serving in the direction of the traffic flow with one serving any reverse traffic. Two escalators have a nominal Handling Capacity of 1,130 persons. The combined D and E Lobby escalators have a nominal Handling Capacity of 2,260 persons per five-minutes. This combined Handling Capacity exceeds the 2,172 person requirement. Reference updated design
- The elevator groups (D and E Lobby) should have sufficient capacity to serve the ADA population, their companions, and ambulatory persons that elect for elevators over escalators. Collectively termed the ADA+ population, FS2 utilizes 3% to estimate this population, or ±65 persons per five-minutes. Reference updated design
- The D Lobby group, (2) 3500lbs. capacity elevators traveling at 350fpm, will serve up to 124 persons in a five-minute period with a 39 second Average Interval. The modified E Lobby group of (2) 4000lbs. capacity elevators traveling at 350fpm, will serve up to 136 persons in a five-minute period with a 40 second Average Interval. Consequently, the combined groups will have sufficient capacity to meet the minimum ADA+ exiting demand. Reference updated design

c. Typical Populations (this section to be updated with updated design)

- Within any arrangement, the setup will include area reserved for aisles, staging, catering stations, audio-visual equipment, and other logistic requirements.
- To account for the logistic requirements, the total available area is reduced based on the event type.
- For a general session event with theater type seating or stand up reception, the logistics area is included within a 10sqft per person calculation (76,990sqft / 10sqft = 7,680 persons)
- Consequently, the typical or average population would be 5,765 persons ((3,850 + 7,680) / 2).
- Events in a multiple room configuration will not conclude at the same time. Therefore, the design window for the exiting period extends to 45 minutes.
- During the exiting period, an even distribution of the exiting population is 640 persons (5,765 / (9) five-minute periods).
- A surge in the exiting is minimal if at all given the staggered event endings.
- Again, when there are multiple vertical transportation options serving the same floor, each group (elevators + escalators) must have about 20% excess capacity to compensate for unequal demand. Consequently, the total five-minute Handling Capacity requirement is 768 persons (640 + 20%).
- Banquet or receptions include persons who are more inclined to seek elevator service over escalators. Attendee attire, including footwear, may be slightly dressier resulting in this preference.
- Consequently, the population distribution (elevators vs escalators) is becomes more dependent upon the number of floors traveled. The population will have to travel three floors from the Multi-purpose Level to the Exhibition Level. In a three floor transfer condition, studies have shown that, assuming the elevators provide reasonably good service, the population distribution would be closer to a 50/50 distribution between elevators and escalators.

- Therefore, the 768 persons are distributed equally amongst all four groups of elevators and escalators, or 192 persons (768 / 4 groups) in five minutes.
- The nominal escalator Handling Capacity of 565 persons per five-minutes exceeds the 192 person five-minute requirement; two escalators in either the D or E Lobby will sufficiently accommodate exiting population.
- In a five-minute period, the D Lobby elevator group of (2) 3500lbs. capacity elevators traveling at 350fpm can serve up to:
    - 16 person comfortable car load: 124 persons with a 39 second Average Interval.
    - 18 person maximum car load: 131 persons with a 41 second Average Interval.
    - In either loading condition, the resultant Handling Capacity is below the 192 person requirement. However, the Average Interval is well below the 50-60 second expectation. Consequently, persons will either wait for an empty car to return or elect to use the escalators.
- In a five-minute period, the E Lobby elevator group of (2) 4000lbs. capacity elevators traveling at 350fpm can serve up to:
    - 18 person comfortable car load: 136 persons with a 40 second Average Interval.
    - 22 person maximum car load: 149 persons with a 45 second Average Interval.
    - As with the D Lobby, the resultant Handling Capacity is below the 192 person requirement, but the Average Interval is well below the 50-60 second expectation. Again, persons will either wait for an empty car to return or elect to use the escalators.
- All analysis calculations have assumed a ±20% variation in the arrival/departure patterns from the D and E Lobby. If the pattern is biased towards one lobby entrance then the escalator usage will increase. Two escalators have the capacity to serve 6,780 persons in a 30-minute period. During the maximum population exiting condition, this equates to 83% of the total population. It is unlikely that the exiting pattern will be biased to this degree towards either exit.

Legend The X's in this table identify the responsible parties for the various activities		**CFCI** Contractor Furnished, Contractor Installed	**OFCI** Owner Furnished, Contractor Installed	**OFOI** Owner Furnished, Owner Installed	**VFVI** Vendor Furnished, Vendor Installed (outside DB Contract)
1.0	**PBX - Telecommunications (Cisco VOIP)**				
1.1	Conduit	X			
1.2	Cabling	X			
1.3	Terminations	X			
1.4	Equipment Racks / Patch Panels	X			
1.5	Expansion of Network Switches, Gateways			X	
1.6	DID number assignment, expansion as needed			X	
1.7	Patch cables, accessories, miscellaneous			X	
1.8	All other work required for functional system	X			
2.0	**Network Equipment – Administration**				
2.1	Conduit	X			
2.2	Cabling	X			
2.3	Terminations	X			
2.4	Equipment Racks	X			
2.5	Core and edge switches				X
2.6	Patch cables, network accessories				X
2.7	All other work required for functional system	X			
3.0	**Network Equipment – Event Services**				
3.1	Conduit	X			
3.2	Cabling	X			
3.3	Terminations	X			
3.4	Equipment Racks	X			
3.5	Core and edge switches				X
3.6	Patch cables, network accessories				X
3.7	All other work required for functional system	X			

	Legend The X's in this table identify the responsible parties for the various activities	**CFCI** Contractor Furnished, Contractor Installed	**OFCI** Owner Furnished, Contractor Installed	**OFOI** Owner Furnished, Owner Installed	**VFVI** Vendor Furnished, Vendor Installed (outside DB Contract)
4.0	**Network Equipment – Wi-Fi**				
4.1	Conduit	X			
4.2	Cabling	X			
4.3	Terminations	X			
4.4	Equipment Racks	X			
4.5	Wireless access points				X
4.6	Network switches & accessories				X
4.7	WAP Layout and all other work required for functional system	X			
5.0	**Audio System**				
5.1	Conduit	X			
5.2	Cabling	X			
5.3	Terminations	X			
5.4	Equipment Racks	X			
5.5	Amplifiers - Serving Expansion Project	X			
5.6	Amplifiers - Serving Existing Facility			X	
5.7	Control Software / Interface to Existing Audio System	X			
5.8	Portable equipment - microphones, mixers, stands, RF assisted listening system, wireless translation equipment, etc.			X	
5.9	Assistive listening (portable by vendor per event)	X			
5.10	All other work required for functional system	X			
6.0	**Video Signal Distribution (CATV)**				
6.1	Conduit	X			
6.2	Cabling	X			
6.3	Terminations	X			
6.4	Equipment Racks	X			
6.5	Amplifiers	X			
6.6	Control Software / Interface to Existing Video System	X			
6.7	All other work required for functional system	X			

	Legend The X's in this table identify the responsible parties for the various activities	**CFCI** Contractor Furnished, Contractor Installed	**OFCI** Owner Furnished, Contractor Installed	**OFOI** Owner Furnished, Owner Installed	**VFVI** Vendor Furnished, Vendor Installed (outside DB Contract)
7.0	**Cellular DAS**				
7.1	Conduit				X
7.2	Cabling				X
7.3	Terminations				X
7.4	Equipment Racks				X
7.5	Antennas and controllers				X
7.6	Relocation of demarc (if required)				X
7.7	Construction of rooms, room separation, backboards, and other support infrastructure for the systems	X			
8.0	**Radio/Emergency Management Services (police, fire)**				
8.1	Conduit	X			
8.2	Cabling	X			
8.3	Terminations	X			
8.4	Amplifiers and Related Hardware	X			
8.5	Antennas and controllers	X			
8.6	Control Software / Interface to Existing System	X			
8.7	Testing and adjustment	X			
8.8	All other work required for functional system	X			
9.0	**Lighting Controls**				
9.1	Full system	X			
10.0	**Building Management System**				
10.1	Conduit	X			
10.2	Cabling	X			
10.3	Terminations	X			
10.4	Equipment Racks	X			
10.5	Devices	X			
10.6	Control Software / Interface to Existing BMS	X			
10.7	All other work required for functional system	X			

	Legend The X's in this table identify the responsible parties for the various activities	**CFCI** Contractor Furnished, Contractor Installed	**OFCI** Owner Furnished, Contractor Installed	**OFOI** Owner Furnished, Owner Installed	**VFVI** Vendor Furnished, Vendor Installed (outside DB Contract)
11.0	**Security System (CCTV and access control)**				
11.1	Conduit	X			
11.2	Cabling	X			
11.3	Terminations	X			
11.4	Equipment Racks	X			
11.5	Devices - cameras	X			
11.6	Devices - card readers, access control	X			
11.7	Control Software / Interface to Existing Security System	X			
11.8	All other work required for functional system	X			
12.0	**Fire Alarm**				
12.1	Conduit	X			
12.2	Cabling	X			
12.3	Terminations	X			
12.4	Equipment Racks	X			
12.5	Devices	X			
12.6	Control Software / Interface to Existing Fire Alarm System	X			
12.7	All other work required for functional system	X			
13.0	**Digital Signage (Fixed Room Identification and Directories)**				
13.1	Conduit	X			
13.2	Cabling	X			
13.3	Terminations	X			
13.4	Equipment Racks	X			
13.5	Sign cabinets	X			
13.6	Displays, mounts and accessories	X			
13.7	Media players	X			
13.8	Control Software Licenses			X	
13.9	Content development and management			X	
13.10	All other work required for functional system	X			

	Legend The X's in this table identify the responsible parties for the various activities	**CFCI** Contractor Furnished, Contractor Installed	**OFCI** Owner Furnished, Contractor Installed	**OFOI** Owner Furnished, Owner Installed	**VFVI** Vendor Furnished, Vendor Installed (outside DB Contract)
14.0	**Advertising and Promotional Video Displays**				
14.1	Conduit			X	
14.2	Cabling			X	
14.3	Terminations			X	
14.4	Equipment Racks			X	
14.5	Displays, mounts and accessories			X	
14.6	Media players			X	
14.7	Control Software Licenses				X
14.8	Content development and management				X
14.9	All other work required for functional system			X	
15.0	**Furniture and Equipment**				
15.1	Event folding tables and transport carts			X	
15.2	Event stacking chairs and transport carts			X	
15.3	Staging and accessories			X	
15.4	Lecterns / podiums			X	
15.5	Material handling equipment (forklift, scissor lift, etc.)			X	
15.6	Pre-Function lounge furniture, tables and chairs	X			
15.7	Rooftop Terrace tables, chairs and design elements	X			
15.8	Trash / recycling containers and transport carts			X	
15.9	Cleaning and housekeeping equipment and supplies			X	
15.10	All Kitchen and Food Prep Equipment, Fixtures, and Furnishings for a fully functional kitchen, unless explicitly listed as owner furnished, including but not limited to Class I and Class II equipment.	X			
15.11	All other FF&E listed in Revised Program Area Summary	X			
15.12	Telephones			X	

	Legend The X's in this table identify the responsible parties for the various activities	**CFCI** Contractor Furnished, Contractor Installed	**OFCI** Owner Furnished, Contractor Installed	**OFOI** Owner Furnished, Owner Installed	**VFVI** Vendor Furnished, Vendor Installed (outside DB Contract)
16.0	**Food Service Equipment (Class III smallwares)**				
16.1	Plates, glasses and flatware				X
16.2	Serving dishes				X
16.3	Décor elements				X
16.4	Linens with related storage and accessories				X
16.5	Cooking supplies (knives, spatulas, etc.)				X
16.6	Point-of-Sale equipment				X

Notes:

1) The necessary building space, rooms, backboards, partitions, lighting, HVAC, and other building infrastructure required to support the systems on this document are the responsibility of the Design-Builder.

2) If the existing systems require upgrading as a result of the expansion, the systems upgrades are the responsibility of the Design-Builder unless specified otherwise in this document.

3) The Design-Builder's scope of work includes costs to design, furnish and install all items listed throughout the Program Room Data Sheets under "Furniture, Fixtures, & Equipment" within the scope of the Project, and within the Lump Sum Price, unless listed as Owner Furnished in this Differentiation Document.

4) The Design-Builder’s scope includes coordinating with convention center service partners, other vendors and City agencies to for delivery and receiving of items on site listed above as OFOI and VFVI, as necessary.

5) For line item 15.6 and 15.7 Pre-Function and Terrace tables, chairs and lounge furniture, the Design Builder' scope shall include the selection of the furniture for these areas, and Design Builder shall carry an allowance of $50,000 to furnish and install this furniture.

COLORADO CONVENTION CENTER EXPANSION

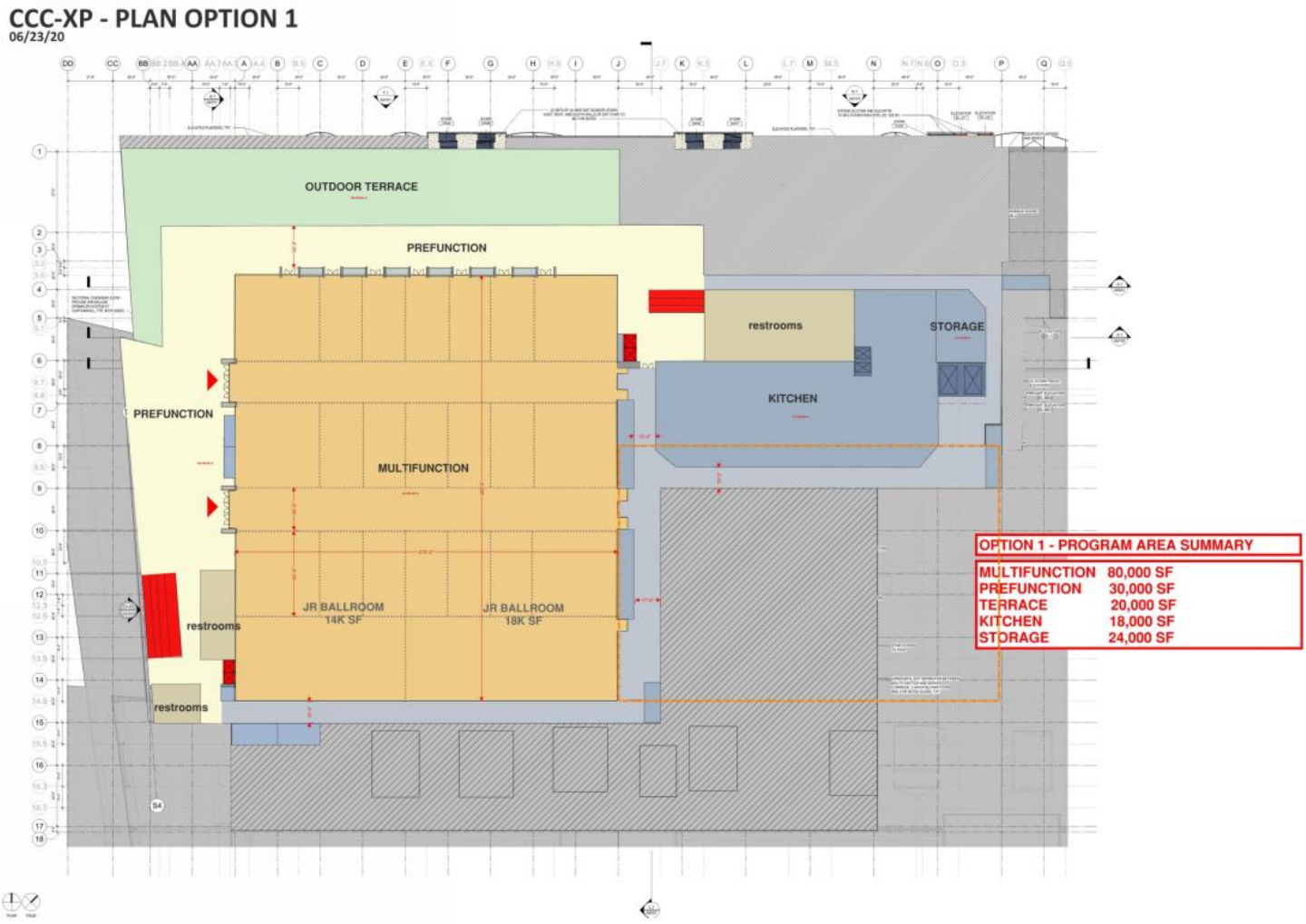
PRELIMINARY PROGRAM AREA SUMMARY - VE REVISION OPTION

MULTI-FUNCTION LEVEL	AREA (SF)
MULTI-FUNCTION SPACE	81,440
PRE-FUNCTION	30,790
ROOFTOP TERRACE	20,758
KITCHEN	19,360
STORAGE - ENCLOSED	1,780
STORAGE - OPEN	773
STAGING PANTRIES	1,042
RESTROOMS	6,514
BOH SERVICE CORRIDOR	17,107
TELECOM	311
ELECTRICAL	1,245
MECHANICAL	194
MULTI-FUNCTION TOTAL	**181,314**

MEZZANINE LEVEL	AREA
STORAGE - ENCLOSED	21,940
BOH SERVICE CORRIDOR	3,240
ELECTRICAL	782
MECHANICAL	9,042
LOCKER ROOMS	1,464
MEZZANINE TOTAL	**36,468**

STREET LEVEL	AREA
EMERGENCY ELECTRICAL	188
EMERGENCY GENERATOR	849
ELECTRICAL	257
TRANSFORMER VAULT	726
STREET LEVEL TOTAL	**1832**

TOTAL AREA **219,614**



Notes:

1) **P3 Parking Level**: The new Multifunction Level will be located at an elevation that will not allow access to Parking Level 3 from the existing spiral ramp, and will result in the permanent elimination of the spaces on Parking Level 3. The Design Build Team will collaborate with the City to seek potential solutions to provide vehicular access to the portion of Parking Level 3 that remains and evaluate the viability of such solutions with the project's cost constraints. Vehicular access to P3 is not currently included in the scope of work.

2) **Interstitial Space**: An interstitial space will be created between the existing Parking Level 3 slab and the new Multifunction/Terrace Level above. This interstitial space will be designed for only limited access for the purpose of maintenance, inspections and some limited egress pathways to connect exit stairs.

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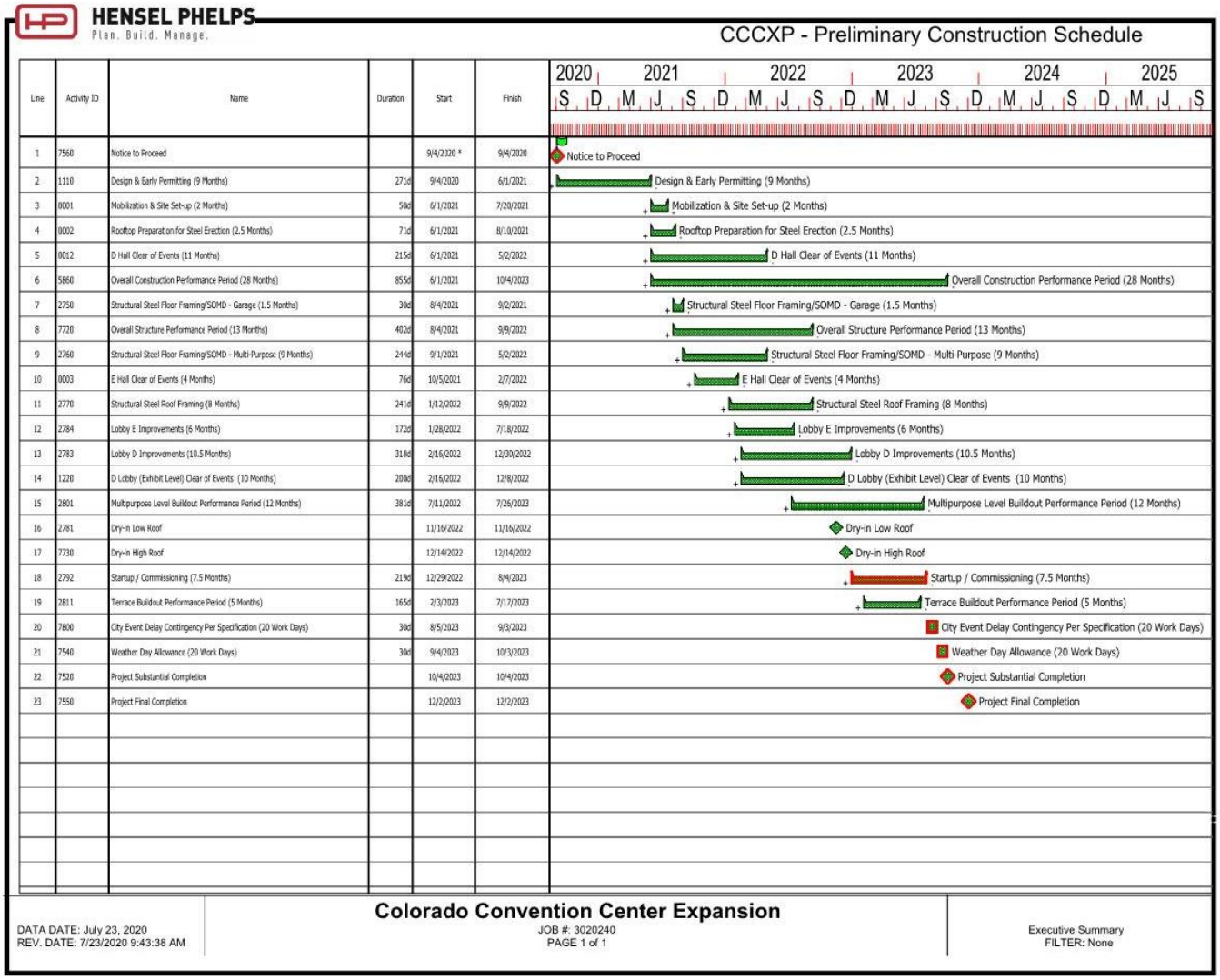
CCCXP - Preliminary Construction Schedule

Line	Activity ID	Name	Duration	Start	Finish
1	7560	Notice to Proceed		9/4/2020 *	9/4/2020
2	1110	Design & Early Permitting (9 Months)	271d	9/4/2020	6/1/2021
3	0001	Mobilization & Site Set-up (2 Months)	50d	6/1/2021	7/20/2021
4	0002	Rooftop Preparation for Steel Erection (2.5 Months)	71d	6/1/2021	8/10/2021
5	0012	D Hall Clear of Events (11 Months)	215d	6/1/2021	5/2/2022
6	5860	Overall Construction Performance Period (28 Months)	855d	6/1/2021	10/4/2023
7	2750	Structural Steel Floor Framing/SOMD - Garage (1.5 Months)	30d	8/4/2021	9/2/2021
8	7720	Overall Structure Performance Period (13 Months)	402d	8/4/2021	9/9/2022
9	2760	Structural Steel Floor Framing/SOMD - Multi-Purpose (9 Months)	244d	9/1/2021	5/2/2022
10	0003	E Hall Clear of Events (4 Months)	76d	10/5/2021	2/7/2022
11	2770	Structural Steel Roof Framing (8 Months)	241d	1/12/2022	9/9/2022
12	2784	Lobby E Improvements (6 Months)	172d	1/28/2022	7/18/2022
13	2783	Lobby D Improvements (10.5 Months)	318d	2/16/2022	12/30/2022
14	1220	D Lobby (Exhibit Level) Clear of Events (10 Months)	200d	2/16/2022	12/8/2022
15	2801	Multipurpose Level Buildout Performance Period (12 Months)	381d	7/11/2022	7/26/2023
16	2781	Dry-in Low Roof		11/16/2022	11/16/2022
17	7730	Dry-in High Roof		12/14/2022	12/14/2022
18	2792	Startup / Commissioning (7.5 Months)	219d	12/29/2022	8/4/2023
19	2811	Terrace Buildout Performance Period (5 Months)	165d	2/3/2023	7/17/2023
20	7800	City Event Delay Contingency Per Specification (20 Work Days)	30d	8/5/2023	9/3/2023
21	7540	Weather Day Allowance (20 Work Days)	30d	9/4/2023	10/3/2023
22	7520	Project Substantial Completion		10/4/2023	10/4/2023
23	7550	Project Final Completion		12/2/2023	12/2/2023



DATA DATE: July 23, 2020
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Colorado Convention Center Expansion
JOB #: 3020240
PAGE 1 of 1

Executive Summary
FILTER: None

Notes:

1) **CCC Exhibit Halls**: Exhibit Halls D and E will not be occupied by CCC staff or clients for a designated period of time during construction of the new rooftop expansion. A precise closure schedule and duration will be included in the final CMP schedule, exhibit hall closures are currently anticipated to occur at the following times:
   Exhibit Hall D - 11 months (6/1/21 - 5/2/22)
   Exhibit Hall E - 4 months (10/5/21 - 2/7/22)

Exhibit B

General Requirements

City and County of Denver

Colorado Convention Center Expansion Project

General Requirements

Exhibit B to the Design Build Contract

July 2020

Table of Contents

1.0 GENERAL

1.1 PROJECT DESCRIPTION

The purpose of this Project is to expand the Colorado Convention Center (CCC) to include features that highlight the quality and character of the facility and experience: flexible and unique spaces, connectivity and technology. This will keep the CCC vibrant and attractive for years to come.

1.2 PUBLIC INFORMATION

All project communication to potentially impacted residents, businesses, and other entities is to be provided by the City and its Project Management team with the assistance of the Design-Build Team. The City, at its sole discretion, may give permission on a case-by-case basis for the Design-Build Team to directly communicate with residents, businesses, and the traveling public. All communications are to be submitted for review and comment no less than 14 calendar days prior to its anticipated release or publication. These communiques include, but are not limited to, flyers, website and social media postings, and meetings with the public.

1.3 ENVIRONMENTAL

All environmental requirements are outlined in Section 5 Environmental Requirements. The Design-Build Team shall comply with all requirements of applicable environmental laws, regulation, and requirements of Section 5 Environmental Requirements for construction Work activities impacting noise, air quality, historic preservation, vegetation, tree removal/preservation, irrigation, groundwater, hazardous materials, sustainability, erosion control and stormwater runoff water quality, and all permits, approvals, and City policies required for the Work.

1.4 MAINTENANCE OF TRAFFIC

No construction Work or operations are to have any impact to the efficient flow of traffic, except as allowed by right-of-way permits issued by the City to the Design-Build Team. All maintenance of traffic operations, traffic control devices, and traffic control plans are to comply with *Part VI Standards & Guidelines for Traffic Controls for Street & Highway Construction, Maintenance, Utility and Incident Management Operation* of the United States Department of Transportation Federal Highway Administration 1988 Edition of the *Manual of Uniform Traffic Control Devices* ("MUTCD") Revision 3, 1998, as well as all other relevant City requirements.

2.0 PROJECT MANAGEMENT

2.1 ADMINISTRATION

The Design-Build Team shall be solely responsible for the management and administration of the Work, coordinating all activities necessary to perform the Work, and reporting and documenting all Work.

2.2 PROJECT MANAGEMENT PLAN

2.2.1. GENERAL REQUIREMENTS

The Design-Build Team shall submit a Project Management Plan (PMP) that encompasses the term of the Contract, for review and comment by the City, within 60 calendar days following the issuance of Notice to Proceed (NTP). The PMP shall provide clear detail of the Design-Build Team's overall approach to its team organization, structure, and management processes and shall describe the scope, goals, and objectives of Project approach and intended results and be fully compliant with all provisions of the Contract. The PMP shall identify by signature page and date, the title of the qualified professionals who are responsible for planning, reviewing, approving, reporting, monitoring, controlling, implementing, revising, and issuing the PMP, including revisions. The City, at is sole discretion, may reject any or all portions of the PMP. The Design-Build Team will be required to correct, revise and re-submit its PMP within 14 calendar days after receiving the City's rejection. At a minimum, the PMP shall include the following (where applicable relating to both the Design-Build Team and its subcontractors-s but also, where applicable, clearly identifying the division of roles and responsibilities between the Design-Build Team and its subcontractors-s):

- An organizational chart and description, indicating the Design-Build Team's overall team structure including all Key Personnel and management staff and their reporting relationships for all Work;
- A design organizational chart and description, indicating the roles, responsibilities, and structure of the Design-Build Team's design staff including discipline leads;
- A construction organizational chart and description, indicating the roles, responsibilities, and structure of the Design-Build Team's construction staff including field superintendents;
- A quality management organizational chart and description, indicating the roles, responsibilities and structure of the respective quality management;
- A design management process, including a description of how design personnel shall interface with the City, construction, and quality management, in accordance with Section 3 Quality Management;
- A construction management process, including the Design-Build Team's coordination plan, the Design-Build Team's management approach, the construction management structure, identification of advanced Work, detailed delineation of work zones with identification of design and construction packages, summary of major Project phases, and how the construction personnel will interface with the City's staff;

- Process for addressing constructability, maintainability and environmental compliance in the Work;
- Description of key processes for control of the Final Project Plans, including making changes to the design during construction and ensuring engineering review of the new design and compliance with the Contract. Processes shall demonstrate how the City and the Design-Build Team's design team are involved in the review and comment of deviations from the Final Project Plans;
- Process for construction closeout including the Design-Build Team's approach to satisfaction of Contractual Milestone conditions, Substantial Completion conditions, Final Acceptance conditions, As-Builts including verification of detention and water quality volumes, and management of punch lists;
- The Design-Build Team shall be responsible for the establishment, control, direction, and implementation of a comprehensive safety plan that protects the safety of its personnel and the general public affected by the Project and develop a site-specific Safety Management Plan (SMP) as part of the PMP. The SMP shall fully describe the Design-Build Team's policies, plans, training programs, site controls, and incident response plans to ensure the health and safety of personnel involved in the Project and the general public affected by the Project. The SMP shall be submitted to the City no less than 60 days prior to mobilization. The Design-Build Team shall endeavor to engineer safety in its designs for construction related activities as well as the end user through the identification and control of hazards.
- The SMP shall include Work performed by any subcontractors-. The Design-Build Team shall ensure that all operations, including work performed by any subcontractor-, are in accordance with all applicable regulations and requirements of Local, State and Federal laws, which include regulations of the Occupational Safety and Health Act;
- The Design-Build Team's Project staff, including subcontractors- and the City, must be trained on the elements of the SMP prior to commencement of construction Work;
- Description of key processes, and their reference location within the Design-Build Team's Traffic Management Plan (TMP), in accordance with Section 16 Maintenance of Traffic requirements, including interface with the City;
- Description of key processes, and their reference location within the Design-Build Team's Public Information Plan (PIP), in accordance with the Section 4 Public Information requirements, including interface with the City, Regional Transportation District (RTD), other governmental authorities, regulatory agencies, Utility Owners, other Stakeholders and the public during the Work, inclusive of the following activities: design development; progress of design and construction, workshops, partnering and Utility coordination meetings; construction engineering and inspection; construction impacts; and public involvement;
- Description of key processes, and their reference location within the Design-Build Team's Environmental Compliance Work Plan (ECWP), in accordance with the Section 5 Environmental Requirements, including interface with the City and any other governmental authority;

- Description of key processes for the demolition of facilities and structures on the Project, including processes for the security, hazardous materials assessment, demolition, debris removal, site clearing, storm water management improvements, and clean-up of building structures, including interface with the City and any other governmental authority;
- Description of key processes for managing the project's Workforce platform, WORKNOW, program and their reference location within their respective plans, in accordance with the Contract Documents;
- Description of key processes for managing the Project's Minority Business Enterprise (MBE) and Women Business Enterprise (WBE) program and their reference location within their respective plans, in accordance with the Contract Documents;
- Description of the Design-Build Team's key processes and approach to the Project Schedules, in accordance with this Section 2;
- Description of the Design-Build Team's key processes and approach to City and third-party permitting, including coordination of on-site permitting office with Denver Public Works and
- Design-Build Team's approach to non-compliance reporting, evaluation, and resolution with each of its subcontractors-s and methodology on how this information shall be reported to the City.
- Design-Build Team coordination with commissioning agent to complete commissioning process.

2.2.2. PROJECT MANAGEMENT PLAN UPDATES

The Design-Build Team shall monitor and improve the effectiveness of its PMP and resubmit the PMP, for review and comment by the City, should any of the following conditions exist:

- A plan or procedure no longer adequately addresses the matters it was originally intended to address;
- A plan or procedure does not conform with the Contract Documents;
- An audit by the Design-Build Team or the City identifies a deficiency in the PMP requiring an update;
- Organizational structure changes require revision to the PMP;
- The Design-Build Team is undertaking, or about to undertake, activities that are not covered within the current PMP; or
- The City requires the PMP to be updated at its request.

The Design-Build Team shall clearly identify in a cover sheet what changes were made in a PMP update to expedite the City's review. Additionally, a redline copy and a final clean copy shall be submitted to the City.

If any such condition, as mentioned above, is met, the PMP shall be resubmitted within 10 working days.

2.3 WORK BREAKDOWN STRUCTURE

The Design-Build Team shall submit to the City, concurrent with its Preliminary Schedule as called out in 2.5 Scheduling and Time Performance Reporting, a detailed Work Breakdown Structure (WBS) for review and comment. The WBS shall be the basis for organizing all Work under the Contract and shall be used as a basis for the Project Schedules and other cost control systems.

2.4 COST MANAGEMENT

2.4.1. PAY APPLICATION SUBMITTALS

The Design-Build Team shall submit monthly pay applications to the City each month. The Design-Build Team shall submit draft pay applications for the preceding month on or before the 25th of the month for work completed to the pay application date via Microsoft Excel. The data file for the Project Schedule and any other monthly deliverables shall be submitted with the draft monthly pay application.

The Design-Build Team shall submit to the City for review and comment each final monthly pay application within five calendar days of a progress status meeting via Microsoft Excel. Final pay application submittals shall be done electronically through the Textura Payment Management Software format. Textura pay applications shall be broken down to show all first-tier subcontractors plus all M/WBE subcontractors at a minimum. The Design-Build Team must also submit a Contractor's Certification of Payment (CCP) form in Excel format with each pay application.

2.4.2. PAY APPLICATION DOCUMENT CONTENT

The requirements for the supporting documents to be included with the pay application form shall be finalized by the Design-Build Team in consultation with the City within 30 calendar days following the issuance of NTP and defined in the PMP. The pay application shall incorporate an item description that relates to the Schedule of Values. After the pay application format has been reviewed by the City, the format shall not change unless subsequently reviewed by the City.

The pay application documents shall include:

- Pay application Cover Sheet

  The Cover Sheet shall indicate the following information:

  - Project number and title
  - Pay application number (numbered consecutively starting with "1")
  - Period covered by the pay application (specific calendar dates)
  - Total earned to date for the Project as a whole and for each WBS activity
  - Identification of Nonconforming Work and amount withheld
  - Authorized signature and title of signatory
  - Date on which pay application was signed
- Monthly Progress Report

The Monthly Progress Report shall include the following items as appropriate for the previous month's activities:

- Brief narrative description of WBS activity and progress for the Project as a whole, including maintenance, design, and construction; identify start dates and completion dates
- Update of progress with respect to Utilities
- Identification of whether any Completion Deadlines are achieved or revised during the period
- Summary of Quality Assurance (QA)/Quality Control (QC) efforts, including result of design reviews, in accordance with Section 3 Quality Management
- Summary of resolution of problems/issues raised in previous monthly progress reports or resolved during the period
- Summary of Nonconforming Work correction status
- Summary of Project accidents (frequency and severity) and corrective actions taken
- Identification of critical schedule issues and proposed resolution
- Summary of public information during the period
- Progress photographs, as required
- Progress Schedule Update - refer to Section 2.5.8 for requirements relating to the development and submission of the Progress Schedule Update.
- Certification by Design-Build Team's Quality Manager: The Design-Build Team shall submit a letter signed by its PQM accompanying each pay application request certifying that:
  - All Contract Work—including that of designers, Sub-Design-Build Teams, suppliers, and fabricators—has been checked and/or inspected by the Design-Build Team's quality management staff, and all Work, except as specifically noted in the certification, conforms to the requirements of the Contract Documents.
  - The QMP, and measures and procedures provided therein, are functioning properly and are being followed.
  - All safety-critical Work, in conformance with the SMP has been reviewed.

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2.4.3. PROGRESS STATUS MEETINGS

A monthly progress status meeting shall be conducted each time a draft pay application submittal is made. The meeting shall be used to verify, address, and finalize the following:

- Actual start dates

- Actual and planned Completion Deadlines
- Earned value of Work that has been reviewed and reported in-place, based on installed quantities and material on hand (stockpiled Materials)
- Activity percent complete
- Incorporation of executed Change Orders
- Status of outstanding Nonconforming Work
- Work performance
- Project Schedule, including changes from previous month's schedule
- Critical Path(s)

2.5 SCHEDULING AND TIME PERFORMANCE REPORTING

2.5.1 GENERAL REQUIREMENTS

1. This specification establishes the criteria and requirements for the preparation and maintenance of schedules as well as the reporting of the Design-Build Team's time performance. Those schedules and reports include, but are not limited to:
    A. Baseline Schedule
    B. Progress Schedule Updates
    C. Time Impact Analysis and Time Extension Requests
    D. Re-baseline Schedules
    E. Short Interval Schedules
    F. As-built Schedule
    G. Daily Construction Reports
2. The Design-Build Team will develop schedules for the scope of Work defined by the Contract. The schedules will be used to:
    A. Assure adequate planning, scheduling, and reporting during execution of the construction and related activities so that the Work may be prosecuted in an orderly and expeditious manner, within the Contract time and milestones as stipulated by the Contract.
    B. Assure coordination of the Design-Build Team's own resources, their various subcontractors, vendors, and other individuals or entities in performing or furnishing any aspect of the Design-Build Team's scope of Work.
    C. Monitor the progress of the Project and evaluate potential schedule impacts of proposed changes to the Contract or other delay events.

D. Assist in detecting problems for the purpose of taking corrective action and to provide a mechanism or tool for determining and monitoring such corrective actions.

E. Assure coordination of the Design-Build Team's own resources and efforts so as not to delay, interfere or adversely impact other subcontractors working nearby.

3. All schedule submissions are to be an accurate reflection and model of the Design-Build Team's contractual responsibilities for completing the Project. These responsibilities include not only timely performance and completion of the Project, but also those requirements listed throughout the technical specifications and all other parts of the Contract.

4. It is solely and entirely the Design-Build Team's responsibility to ensure that subcontractors and vendors performed Work at all tiers, as well as the Design-Build Team's own self-performed scopes, is included in the schedule and is well coordinated in a logical and reasonable plan to satisfy the time performance requirements defined within the Contract.

5. Failure to include an activity required for the execution of the Work does not excuse the Design-Build Team from completing the Work or portion thereof within the specified time and at the price specified within the Contract. The Contract requirements are not waived by failure of the Design-Build Team to include any required schedule or Project constraint, sequence, activity, portion of scope, or milestones in the schedule. The Contract requirements are not waived by the City's review of the schedule. In the event there is a conflict between the reviewed schedule and Contract requirements, the terms and conditions of the Contract always govern and take precedence, unless the City has explicitly waived said requirements in writing.

6. City review of any schedule submission does not constitute a general agreement or acceptance of the Design-Build Team's execution plan, sequencing of the work, means and methods, reasonableness, manpower requirements, cost of completion, or activity durations. City review of any Design-Build Team's schedule does not relieve the Design-Build Team of any responsibility whatsoever for the accuracy or feasibility of the schedule, nor does it constitute concurrence or validation of the Design-Build Team's ability to meet the Contract completion requirements. The City's review is acknowledgement that schedule submission complies with this specification and other applicable Contract requirements. The City will prepare and issue written response for each schedule submission within fourteen (14) calendar days after the schedule's submission. The Design-Build Team is to revise and resubmit their schedule, if directed by the City, in accordance with the City's comments within seven (7) calendar days after receipt of City's comments.

7. The Design-Build Team must keep itself and subcontractors advised while the Work is progressing regarding delivery status of City-furnished equipment and material and of the progress of construction work being performed under separate contracts.

8. The City has determined that the scope of Work will be organized into four (4) distinct opportunities. These Opportunities are consistent with the Request for Qualification's (RFQ) and Request for Proposals (RFP) documents, as well as any amendments to those

documents. These Phases also form as the basis of the required Work Breakdown Structure (WBS). These Phases are to be then further decomposed in a manner that is consistent and matches the subcategories and line items shown within the RFP pricing structure. The Design-Build Team may also elect to provide additional decomposition within what is shown below; however, its proposed sub-Phasing is not to conflict with the City's prescribed Phasing and pricing structure. The distinct Phases are as follows;

A. Multi-Function Room and Support Spaces

B. D Lobby Improvements

C. E Lobby Improvements

D. Interior and Exterior Wayfinding

2.5.2. SCHEDULER'S QUALIFICATIONS

1. The Design-Build Team is to designate a Lead Scheduler that is responsible for the preparation, maintenance, updating and revision of all schedules. This designation is to be done in writing and be submitted to the City within thirty (30) working days after the Notice to Proceed is issued.
2. The Design-Build Team is to satisfy or meet the following minimum requirements;
    A. The designated Lead Scheduler has the authority to act on behalf of the Design-Build Team.
    B. The designated Lead Scheduler is to hold at least a Bachelor of Science in engineering, architecture, construction management, or other related field of study from an accredited institution. A graduate degree in a similar field may be used in lieu of the bachelor's degree requirement.
    C. The designated Lead Scheduler must have at least 8 years of verifiable experience for projects of similar value, size and complexity.
    D. The designated Lead Scheduler has knowledge of the critical path method (CPM) of scheduling, pull planning, schedule narrative writing, reporting time performance utilizing the P6 Professional schedule software platform.
    E. Exhibits shall be submitted to demonstrate the proposed Lead Scheduler has substantial knowledge of industry published best practices for planning and scheduling.
    F. The Design-Build Team must submit, along with the written designation as described previously, the Lead Scheduler's resume demonstrating that the designee satisfies these minimum requirements.
3. Along with the written designation described above, the Design-Build Team must provide at least 2 references from prior clients who have firsthand, professional experience with the designated Lead Scheduler and can attest to the person's technical abilities. The references must include the name of the person, title, address, work and cell phone numbers, project name, project description, and project cost.

4. The Lead Scheduler must be dedicated full time to the Project and must be located on-site, along with all software and hardware necessary to satisfy those requirements delineated within this specification.
5. The City reserves the right to reject the designated Lead Scheduler for lack of performance or failing to satisfy the requirements listed within the Contract. If the designated Lead Scheduler is rejected or removed by the City for good cause, the Design-Build Team must designate a new Lead Scheduler, consistent with the terms of this Specification within 10 calendar days at no cost to the City.

2.5.3. SCHEDULING PLATFORMS AND SOFTWARE

1. Project team will utilize the Critical Path Method (CPM) for the development and maintaining of all schedules created on the Project.
2. Schedules will be prepared and maintained utilizing Primavera P6 for the preparation and maintenance of short interval schedules.
3. The Design-Build Team is to provide the native electronic file (i.e. .xer files for schedules created in Primavera P6 Professional) for each schedule that is submitted to the City. Portable Document Format (PDF) electronic submissions do not satisfy this requirement.

2.5.4. PRECONSTRUCTION SCHEDULING SPECIFIC MEETING

1. The Design-Build Team will coordinate and host a Preconstruction Scheduling Meeting. This meeting, which is not to be confused with any other preconstruction or kickoff meeting, is solely intended to cover only those subjects relating to scheduling and time performance reporting. This meeting is to occur thirty (30) calendar days after issuance of an NTP. The Design-Build Team's submission for the designated Lead Scheduler must be made prior to holding the meeting.
2. The Design-Build Team's Project Manager, Lead Designer, General Superintendent, and designated Lead Scheduler are required to attend this meeting.
3. The Design-Build Team will present a written plan for review and comment as to how it intends to satisfy the requirements delineated within this and other related/relevant specifications. This includes, but is not limited to, activity coding, work breakdown structure (WBS), business process for preparing and submitting schedules, accounting for weather, and sample deliverables.
4. The Design-Build Team will also provide a detailed plan to outline its methodology for completing the Project. This plan is to include, but is not limited to, discussion of critical mandatory and discretionary logic, identification and planning for key resources (i.e. equipment and manpower), and discussion of critical schedule risks and plausible mitigation efforts for those risks.

2.5.5. TECHNICAL SCHEDULING REQUIREMENTS

1. The preparation and submission of any schedule represents the Design-Build Team's intended plan to execute the Work within the specified time performance requirements and plausible constraints.
2. The Design-Build Team's cost proposal must cover all expenses associated with the execution of the Work in accordance within the Contract, as well as the preparation and maintenance of all Project schedules as contemplated by this specification.
3. Schedules are to contain all Contract milestones as well as other relevant milestones necessary to communicate important start and finish dates of major scopes of work. Float sequestration tactics intended to prevent the need for such a type of amendment will be cause for rejection of the schedule. The City is under no obligation to accelerate Work items it is responsible for to ensure that the early completion is met nor is it required to modify funding (if applicable) for the Project to meet the Design-Build Team's accelerated work for planned early completion of the Project.
4. Any and all float is for the mutual benefit of both the City and the Design-Build Team. Changes to the Project that can be accomplished within the available period of float may be made by the City without executing an amendment to the Contract. No time extensions for excusable delays will be granted or any delay damages will be owed until the Work extends beyond the currently acknowledged Substantial completion date unless a mutually agreeable Fragnet in logic demonstrates that the delay is forecasted to extend the work beyond the contract completion date. Likewise, the Design-Build Team may utilize float to offset delays that are within their control. Mutual use of float can continue until all available float shown within the schedule has been utilized either by the City or the Design-Build Team, or both. At that time, extensions of the Contract time will be granted in accordance with the contract.
5. Pursuant to the float sharing requirements of the Contract, schedule submissions and deliverables may be rejected by the City if the Design-Build Team has utilized float suppression techniques in order to amplify the effects of alleged delay events, manipulate forecasted milestone dates, present an unrealistic demand and/or supply of resources, or take unproportionate and unwarranted control of available float.
6. The schedule is to include all consideration and aspects of the Design-Build Team's scope of Work, including design, material and sub Design-Build Team procurement, construction and close out. It is also to include all other stakeholder responsible scopes, including but not limited to design reviews by the City and permit reviews by government agencies.
7. The schedule will contain milestones, at the minimum, for the following important events, shown below. Only Overall Project Substantial Completion and Final Acceptance milestones can have milestones assigned to them.
    A. Overall Project Notice to Proceed
    B. Start and finish of procurement for each Stage
    C. Start and finish of construction for each Stage

D. Start and finish of each design phase for each Phase

E. Start and finish for the permit application and agency review for each Phase

F. Start and finish of procurement for each Phase

G. Start of construction for each Phase

H. Substantial and final completion for each Phase

I. Overall Project Substantial Completion, Project Final Completion, and Final Acceptance milestones

J. Temporary certificate of occupancy and certificate of occupancy for each Phase

8. All schedule submissions must utilize activity durations in terms of workdays for construction activities. Submittal, permitting, procurement, cure times, moratoriums on design and/or construction, and other similar activities may utilize activity durations in terms of calendar days.

9. If a holiday occurs on a Saturday, the prior Friday will be recognized as a non-working day if the holiday is to be observed by the Design-Builder and its subcontractors. If a holiday occurs on a Sunday, the following Monday will be recognized as a non-working day if the holiday is to be observed by the Design-Builder and its subcontractors. Holidays are to be incorporated into the schedule as non-working days. The following holidays are recognized by the City:

   A. New Year's Day

   B. Veterans' Day – Design-Builder workday

   C. Martin Luther King Jr. Day – Design-Builder workday

   D. Presidents Day – Design-Builder workday

   E. Cesar Chavez Day Design-Builder workday

   F. Memorial Day

   G. Independence Day

   H. Labor Day

   I. Thanksgiving

   J. Christmas Day

10. The Design-Builder's schedule is to accurately reflect and take into consideration the City's annually occurring holiday moratorium. This moratorium typically starts at the end of the 2nd week of November and continues through the end of the first week of January. The City will not issue any new permits to close right-of-way access during the moratorium. This includes, but is not limited to, sidewalk, alley, street or parking closures. This applies to temporary, partial and complete closures. Permits issued prior to the start of the moratorium will continue to be valid, allowing the Design-Build Team to work within the confines of the permit limits and requirements. The only exceptions that the City may consider are new permits for emergency utility and roadway repairs.

The City will notify the Design-Builder the exact dates and durations of the moratorium at least 30 calendar days in advance of moratorium's start.

11. Typical and anticipated weather is to be reflected within the schedule. The Design-Build Team may choose to either include a separate task dependent activity or to assign non-working days within a calendar and then assign that calendar to weather susceptible activities.

    A. If utilizing the weather activity contingency technique, the activity is to reside on the longest critical path and is to be the driving predecessor activity to substantial completion milestone. This method is preferred by the Design-Builder.

    B. If utilizing the weather calendar technique, the non-working days are to be assigned to what otherwise would be typical working days. Weather non-working days are not be assigned on the same dates as holidays or other typical non-working days. The Design-Build Team is to clearly identify which dates in the calendar were designated as anticipated weather days within its Baseline Schedule narrative.

    C. The number of anticipated weather days to be included in the schedule are to be calculated in a manner consistent with General Condition 1105.3 of *Standard Specifications for Construction*, GENERAL CONTRACT CONDITIONS, 2011 Edition. The Design-Build Team is to submit a copy of all historical data used to determine the number of weather days to be incorporated within the schedule. This shall be a mutually agreed upon set number of days applied month-by-month and carried as a total duration. The proportionate number of days shall expire monthly representing that period regardless of the impact of weather. Weather disruptions shall be communicated in the daily reports and in the monthly narrative. Delays encountered beyond the agreed number of days shall entitle the contractor to a non-compensable time extension.

12. The Design-Build Team is to assign construction activities that may cause disruption to events at the facility. The Design-Build Team is to also include a contingency activity of 20 calendar days that allows the City to shut down construction work to accommodate events at the facility. The duration will be reduced when the Owner utilizes this appropriation and will be a day-for-day adjustment. This contingency activity is to be sequenced in such a way that occurs just before substantial completion and is on the schedule's longest critical path. *FURTHER DISCUSSION RELATED TO CCC EVENT SCHEDULE IS ONGOING AND WILL BE ADDED ACCORDINLY.*

13. The list below shows the schedule options to be used in the development and maintenance of schedules:

    A. Duration types is to be set to "fixed duration and units."

    B. Percent complete type is to be based upon physical percent complete.

    C. The schedule is to ignore relationships to and from other projects.

    D. The schedule is not to use expected finish dates.

    E. Scheduling progressed activities are to use retained logic.

F. Start-to-start lags are to be calculated off actual start dates.

G. Critical activities are defined as 0 Days.

H. Total float is calculated off finish float.

I. Relationship lags is based off predecessor activity calendars.

J. The Design-Build Team may utilize an alternative methodology in lieu of revenue loading that is developed and maintained outside of the schedule itself in order to satisfy the intent and purpose of the General Requirements. The alternative methodology will correspond and be substantially consistent with contemporaneous CPM schedule submissions. The alternative methodology will allow the City to filter, group, roll up, decompose and/or sort for specific costs categories, such as trades, levels, phases, and subcontractors, with minimal effort. The alternative methodology will also provide accurate cost forecasts for each month of the project. Design Builder will provide native file and format mutually agreed upon.

14. The use of constraints is solely limited to those milestones that are listed within the Contract. Only the use of soft constraints, such as "finish on or before" or "start on or after," will be allowed. The use of "expected finish dates" or "as late as possible "constraints" will not be allowed.

15. The schedule is not to contain "start-to-finish" relationships, "finish-to-start relationships" with positive lags, and any relationship with negative lags. Each activity within the schedule is to include as least one predecessor with a "finish-to-start" relationship and at least one successor with a "finish-to-start" relationship. Any "start to start" relationships are to be accompanied with a corresponding "finish-to-finish" relationship. Lags in "start-to-start" or "finish-to-finish" relationships must not exceed the duration of the predecessor or successor activity, respectively. The Design-Build Team is to make every practical effort to minimize the number of logic ties and any apparent attempt to sequester float by assigning superfluous activity relationships will be cause for rejecting the submitted schedule, as solely determined by the City.

16. No construction, punch list or commissioning activity may exceed 40 working days, except for cure times. Any scope of Work which is expected to take more than 40 working days is to be decomposed, subdivided by location, station or other sub-element of the Work.

17. Only one (1) activity is to be missing a predecessor activity and one (1) activity is to be missing a successor activity.

18. All concrete slab on metal deck activities will include a cure time activity in the schedule.

19. Activity descriptions are to be precise descriptions of what Work is to be completed.

20. Construction activity durations are to be calculated using estimates that are reflective of the scope complexity, quantity, anticipated production and efficiency rates, resources intended to be used, and anticipated means and methods.

21. All calendars used in the development and maintenance of the schedule are to be Project specific and are not to incorporate any holidays or non-working days from global calendars.
22. The entire procurement cycle for the installation of permanent materials with long lead times is to be incorporated into the schedule and each incremental element within the cycle is to have its own unique activity. A long lead item is defined as any permanent material with has fabrication duration that takes more than 60 calendar days to complete. This duration is determined by finding the difference between the date in which the submittal was reviewed to the date in which the material or device arrives on site. Additional activities for additional submittals and additional reviews may be necessary for critical materials, as well time for delivery inspections, field measurements, and agency review of submittals, if applicable.
23. The request for City supplied materials and its delivery is to be modeled within the schedule. A unique fragment is to be created for each City material. The fragment is to include a City responsible task dependent activity to deliver the material. This task dependent activity is to be at least 120 calendar days in duration. No constraints are to be assigned to any of these milestones.
24. The schedule is to model Design-Build Team buy out process for each bid package.
25. Submittals for critical long lead items, mockups, and design package reviews are to be included within the schedule. Definition of "long lead" items are defined elsewhere in this Section 2.5. Activity modeling the Design-Build Team's effort to prepare and deliver the submittal and an activity modeling the City's review of the submittal are to be included. The duration of the City's review activity is to be consistent with other Contract requirements as it relates to submittal review times. The Design-Build Team's submittal deliveries are to be staggered and prioritized so as not to cause a significant backlog of submittals to be reviewed by the City and/or other agencies. Mockups are also to be modeled within the schedule. Close out related submittal activities, such as as-built drawings, are to be included within the schedule and, at the bare minimum, are to include time to prepare close out related submittals and City review. The review of close out submittals are not to be have a forecasted date beyond the final completion milestone date
26. Permits necessary for the start and completion of construction are to be included within the schedule, including but not limited to, the time needed to prepare the submittal, agency review time of the submittal, and the time that is necessary to close out the submittal at the completion of the Project.
27. Commissioning related scope of Work is to be modeled in the schedule and is to be consistent with the overall commissioning plan for each Phase. This may require separate activities for commissioning select systems and may even be further decomposed by physical Work area. Commissioning activities are to also comply with activity duration limits that are discussed elsewhere in this Technical Scheduling Requirements Section.

28. The Design-Build Team is to assign Responsibility Codes and the WBS to activities to assist in organizing, sorting and filtering the schedule. The responsibility coding is to include the following elements:

    A. Responsible Party: Each activity is to be assigned an activity code that communicates the predominate party responsible for completing the Work that is being modeled, down to and including the first- and second-tier vendors, consultants and subcontractors. This applies to all activities in the schedule.

    B. General Location: Each activity is to be assigned an activity code that communicates the general location of where the Work is being completed. This applies to all activities in the schedule.

    C. Room and/or Area: When applicable to construction activities, the activity is to be assigned an activity code that communicates which room or area in which the Work is being completed. This applies only to construction activities.

    D. Project Period: Each activity is to be assigned an activity code that communicates the period in which the Work will be completed. Examples of Project periods includes, but are not limited to, design, permitting, procurement, construction, commissioning, and close-out. This applies to all activities in the schedule.

    E. Contract Amendment: Each activity that models Work that is the subject of Contract Amendment or any other equitable adjustment is to include an activity code that collates to the amendment's identification. This applies only to activities modeling scopes associated with Contract amendments.

29. Definitions for Substantial Completion, and Final Acceptance are defined by the *Standard Specifications for Construction*, GENERAL CONTRACT CONDITIONS, 2011 Edition and any applicable Special Contract Conditions ("Yellow Book").

2.5.7. BASELINE SCHEDULE SUBMISSIONS

1. The Design-Build Team is to submit their Baseline Schedule within 90 calendar days after the Design-Build Team's Notice to Proceed.

2. The Baseline Schedule illustrates the Design-Build Team's plan and methodology for completing the Project within the time performance requirements as defined within the Contract. The Baseline Schedule is to cover the entire time frame from NTP up to and including final completion. The Baseline Schedule also accurately represents the Design-Build Team's understanding of the Project at the time of NTP as well as its contractual obligations and scope of Work. The Baseline Schedule is to accurately model risks, opportunities, and known constraints associated with the Project known at the time of NTP. These constraints include, but are not limited to, permitting requirements, City furnished material deliveries, design package releases, and anticipated weather and holidays. The Baseline Schedule is not to include any consideration or activities for potential changes in upcoming work. Finally, the Baseline Schedule will serve as the basis for future Progress Schedule updates and the primary schedule in which future progress will be measured against.

3. The Baseline Schedule submission is to satisfy all the requirements listed within the Technical Schedule Requirements defined earlier in Section 5 of this specification and those listed in this Section 7.
4. The Baseline Schedule submission is to include a detailed narrative that is both technical in nature and is an effective communication and project management tool intended to communicate how the Design-Build Team prepared their schedule and demonstrate how the schedule accurately models the Design-Build Team's execution plan. The narrative is to include, at a minimum, the following items:
    A. Introduction explaining the Project and general time performance requirements as delineated within the Contract.
    B. Milestone report that details the schedule's forecasted Contract milestone dates against what is required by the Contract. Variances, in calendar days, are to be included within the milestone table and write up.
    C. A detailed write up and explanation that communicates the general set up of the schedule and software settings. This section must explain how Project stakeholders will be able to read the schedule so that they can extract pertinent information from it. This includes, at a minimum, the following:
        1. WBS dictionary and naming convention;
        2. Activity coding dictionary and naming convention;
        3. Activity ID convention, if applicable;
        4. Calendar definitions and detailed listing of non-working days;
    D. List of constraints used, including the constraint date, type, and activity ID.
    E. The Design-Build Team is to include visualizations, such as markups on drawings, diagrams, tables, or sketches, to help illustrate its plan for completing the Project.
        1. An organization chart that shows the Design-Build Team's overall planned staffing that is intended to be on site. The organization chart is to include the expected first day on-site for the position and the expected date to leave the site;
    F. The Design-Build Team is to include the following attachments along with its narrative submission;
        1. A copy of the native schedule file, in .xer format;
        2. 11x17 plot (PDF) of all schedule activities, banded by WBS and sorted by start date;
        3. 11x17 plot (PDF) of all activities on the longest path to completion, un-banded by WBS and sorted by start date;
        4. 11x17 plot (PDF) that captures a cumulative and monthly totals of the schedule's cost loading

2.5.8. PROGRESS SCHEDULE UPDATES

1. The Design-Build Team will prepare a progress schedule update each month that will be submitted in conjunction with and on the same date as its payment application and will include projected progress through the end of the month. The progress schedule update is to accurately capture what Work was started, completed, and progressed since the last schedule submission. The data date for the update is to be the same date as shown as the "progressed through" date on the payment application.
2. The progress schedule submission is to satisfy all the requirements listed within the Technical Schedule Requirements defined earlier in this specification and those listed in this Section.
3. In the event an activity is no longer necessary, it is not to be deleted from the schedule. Its original and remaining duration are to be changed to zero, its activity name is to reflect that it is no longer required, its resource and activity code assignments are to be removed, and its logic is to be revised in such a way that it is no longer a driving activity. It is to be shown as a completed activity. All activities that are no longer required are to be included exclusively in a WBS only intended for these types of activities.
4. The original and remaining duration to the weather contingency activity is to be reduced each month by the number of the anticipated weather days associated with the month being covered in the update. One single duration shall be incorporated into the critical path and be reduced monthly as the weather days expire regardless if the weather delay was experienced.
5. The progress schedule update submission is to include a detailed narrative that is both technical in nature and is an effective communication and project management tool intended to demonstrate what was achieved during the update period, what are the immediate upcoming tasks, how the schedule has varied from the baseline and the prior progress update, and identification of any unresolved risks. The narrative is to include, at a minimum, the following items.
    A. Milestone report that details the schedule's forecasted Contract milestone dates against what is required by the Contract, the Baseline Schedule, and the most recently submitted progress schedule update. Variances, in calendar days, are to be included within the milestone table and write up.
    B. A detailed explanation of the current longest, critical path and full substantiation of any changes to it when compared to the previously submitted progress schedule update.
    C. The Design-Build Team is also to provide a general overview for what changes were made in the schedule and substantiation as to why the changes are necessary. The Design-Build Team is to attach the narrative report in tabular form that provides granular level of detail as to what changes were made in the progress update.
    D. Include a narrative write up providing further context and explanation of current unresolved constraints and proposed mitigation efforts to those constraints. The

narrative is to include explanation of any new risks realized during the update period.

E. The Design-Build Team is to include the following attachments along with its narrative submission:

1. A copy of the native schedule file, in .xer format;
2. Tabular identifying every change made within the schedule;
3. 11x17 plot (PDF) of all schedule activities, banded by WBS and sorted by start date;
4. 11x17 plot (PDF) of all activities on the longest path to completion, un-banded by WBS and sorted by start date;
5. 11x17 plot (PDF) that captures actual and planned cumulative and monthly totals of the schedule's cost loading.

2.5.9. TIME IMPACT ANALYSIS & REQUESTS FOR TIME EXTENSIONS

1. If the Design-Build Team believes a change to the Contract and/or that a delay event has occurred that is above and beyond its control, it is to submit a time extension supported and demonstrated by a Time Impact Analysis (TIA). It is the City's goal to review alleged delay events and impacts in a contemporaneous manner, identify potential impacts to the overall Project Completion Date, allow for sufficient time to develop and implement mitigation efforts, and if the impact cannot be avoided, to reach an agreement for compensable and/or non-compensable time extensions in a timely manner. The Design-Build Team agrees that the cost to perform any and all delay analyses and time extension requests have been included within its current Contract value and therefore, the Design-Build Team acknowledges it is not entitled to a change order or an amendment to the Contract in order to recover the cost to prepare any schedule deliverable within this section or any other section of this specification

2. TIA submissions must satisfy the requirements listed within the Technical Schedule Requirements defined earlier in this specification and those listed in this Section.

3. No time extension will be granted unless the alleged delay event impacts the longest critical path, consumes all available total float on the longest critical path, and extends the remaining performance period beyond the substantial completion date. No time extensions for weather events or City stoppages to eliminate event disruption will be granted unless the contingency activity's durations have reached zero (0) days.

4. The Design-Build Team agrees and acknowledges that the results of as built and forward looking TIAs only reflect the number of potential excusable delays and does not determine the number of compensable days it may be entitled. The TIAs will form the basis of the mutually agreed upon delay days caused by excusable delay events. The number of excusable delays days that are compensable will be determined by deducting the summation of the total number of concurrent delays and the total number of delay days caused by other excusable but non-compensable delay events from the total number of mutually agreed upon excusable delays. The Design-Build Team will not be entitled to an increase in the overall Contract value if the summation of the number of concurrent

delays and the number of delay days caused by other excusable but non-compensable delay events is equal to or greater than the total number of mutually agreed upon days caused by excusable delays.

5. A concurrent delay occurs when two or more independent actions, occurring at similar times, sufficiently cause a delay to the longest critical path, consume all available Project float, and result in a substantial completion date that is beyond the Contract requirements, and one of those actions is within the control of the Design-Build Team. The magnitude and effects of each of the actions do not have to be equal in order to be considered a concurrent delay. The total duration of concurrent delays is equal to the number of days the schedule has elongated due to Design-Build Team-caused delay events.

6. If the Design-Build Team is requesting a compensable time extension, it is required to demonstrate lack of culpability with other non-excusable delays. To establish entitlement for compensable time extensions, all activity paths and respective float must be examined. The Design-Build Team must demonstrate that but-for the City caused delays, the Design-Build Team would have finished the Work in accordance with the Contract time and required completion milestone dates. Pacing, or the deliberate decision to slow down planned progress of unimpacted Work, is not valid justification for demonstrating entitlement for a compensable time extension or lack of culpability of potential Design-Build Team caused delays, unless the Design-Build Team has previously informed the City of the planned pacing efforts prior to the actual start of pacing.

6. The City is not responsible or liable to the Design-Build Team for any constructive acceleration related costs in the event the Design-Build Team has failed to substantially comply with the requirements delineated within Section 2.5.9.

7. If mutually agreed upon, the impact fragnets will become a permanent part of the schedule and will be included in the next occurring progress schedule update

8. The City may prepare alternative delay analyses that do not utilize the TIA methodology for quantifying the impact of alleged excusable delay events. The City and Design-Build Team may agree to utilize an alternative methodology in the event the TIA methodology is not deemed to be the most appropriate methodology for a specific circumstance or subject.

9. The following are instructions for preparing the retrospective TIA:

    A. The Design-Build Team will model all alleged excused delay events or Contract changes with impact fragnets. The impact fragnet is to include important and pertinent elements of the delay event, such as when it was first discovered and when the City was notified. The forecasted completion date of the impact fragnet cannot be greater than the data date of the progress schedule update that is being submitted in conjunction with the as-built TIA.

    B. The fragnet is to be inserted into the prior progress schedule update (or another schedule mutually agreed upon). Only those changes that are necessary for the inclusion of the impact fragnet will be allowed. Any other schedule, logic, and/or activity changes that are not directly related to the creation of the impact fragnet and its inclusion will not be allowed and will be cause for rejection.

C. The Design-Build Team will make every reasonable effort to mitigate the potential delay by either isolating its impact or planning "work around" approaches to the Work. The Design-Build Team will remove any float suppression techniques within the TIA, as determined by the City.

D. The difference of the substantial completion dates between the as-built TIA and the schedule hosting the impact fragnet is the maximum number of days the Design-Build Team can request for those delay events occurring in the update period. This difference represents the number of excusable days. This analysis does not identify whether all or any or the excusable days are compensable.

E. Retrospective TIA submissions are to be developed in a manner that is substantially consistent with Method Implementation Protocols 3.6 and 3.7 of AACE International Recommended Practice 29R-03 "Forensic Schedule Analysis," dated 25 April 2011. The contract requirements take precedence over the aforementioned recommend practice.

F. The Design-Build Team will submit to the City the following items with its as-built TIA submission:

1. A copy of the native schedule file, in .xer format;
2. Tabular identifying every change made within the schedule;
3. 11x17 plot (PDF) of all schedule activities, banded by WBS and sorted by start date;
4. 11x17 plot (PDF) of all activities on the longest path to completion, un-banded by WBS and sorted by start date;
5. A brief narrative that describes and justifies the impact fragnet(s) and description of the alleged excusable delay events. The Design-Build Team is to also include discussion of plausible scenarios and forecasts as to when it believes the delay event will cease impacting existing scopes of Work;
6. Copies of documentation supporting and substantiating the Design-Build Team's proposed impact fragnets and as-built TIA. The Design-Build Team also agrees to provide any requested documentation that City deems necessary to investigate and review the alleged delay event.

10. The following are instructions for preparing the prospective TIA:

A. The Design-Build Team will use its most recently submitted as-built TIA in order to create the forward-looking TIA. The Design-Build Team is to forecast the completion date of the impact fragnet in question. This forecast completion date is to reflect when the Design-Build Team believes the actual delay event will be completed and no longer impacts or impedes any future, existing Work. The forecasted date will be based upon information available to the Design-Build Team at the time the TIA is being developed.

B. The Design-Build Team will re-calculate the schedule after the inclusion of the impact fragnet.

The Design-Build Team will make every reasonable effort to mitigate the potential delay by either isolating its impact or planning "work around" approaches to the Work. The Design-Build Team will remove any float suppression techniques within the TIA.

C. Prospective TIA submissions are to be developed in a manner that is substantially consistent with AACE International Recommended Practice 52R-06 "Prospective Time Impact Analysis – As Applied in Construction," dated 04 May 2017. The contract requirements take precedence over the aforementioned recommend practice.

D. The Design-Build Team will submit to the City the following items with its forward-looking TIA submission:

1. A copy of the native schedule file, in .xer format;
2. Tabular identifying every change made within the schedule;
3. 11x17 plot (PDF) of all schedule activities, banded by WBS and sorted by start date;
4. 11x17 plot (PDF) of all activities on the longest path to completion, un-banded by WBS and sorted by start date;
5. A brief narrative that describes and fully justifies the impact fragnet(s) and description of the alleged excusable delay events. The Design-Build Team must also include a list of assumptions it relied upon when developing the TIA, as well any inclusions or exclusions with its submission;
6. Copies of documentation supporting and substantiating the Design-Build Team's proposed impact fragnets and forward-looking TIA. The Design-Build Team also agrees to provide any requested documentation that City deems necessary to investigate and review the alleged delay.

11. In the event the City's final determination does not approve the time extension submission, the Design-Build Team is to provide its Notice of Intent to Claim in accordance with Title 12 of *Standard Specifications for Construction*, GENERAL CONTRACT CONDITIONS, 2011 Edition.

2.5.10. RE-BASELINE SCHEDULES

1. The Design-Build Team may propose to make substantial and material changes to its execution plan and schedule. The City may direct the Design-Build Team in writing to revise its execution plan and schedule, and the Design-Build Team is to comply with the written direction within seven (7) calendar days. Submissions as a result of either cause are referred to as a re-baselined schedule and this Section defines the requirements of those submissions. Re-Baseline Schedules are also often referred to as recovery schedules or mitigation schedule.
2. The City may direct the Design-Build Team to submit a re-baselined schedule to recover or mitigate loss time due to excusable delay events. The Design-Build Team may be entitled to be reimbursed for the cost to recover or mitigate this lost time. The Design-

Build Team is to provide the re-baselined schedule within seven (7) calendar days after receiving the written request from the City along with a complete cost breakdown and supporting documentation. The Design-Build Team agrees that is bound to the revised Substantial Completion Final Completion and Final Acceptance milestone dates forecasted in the re-Baseline Schedule. The City, at its sole discretion, may issue a zero-cost change order to memorialize these newly forecasted dates.

3. Re-Baseline Schedule submissions are to satisfy all the requirements listed within the Technical Schedule Requirements defined earlier in this specification and those listed in this Section 2.
4. The re-Baseline Schedule submission is to include a detailed narrative that is both technical in nature and is an effective communication and project management tool intended to demonstrate how the schedule models the Design-Build Team's execution plan. The narrative is to include, at a minimum, the following items:
    A. Introduction explaining the Project and general time performance requirements as delineated within the Contract;
    B. Milestone report that details the schedule's forecasted Contract milestone dates against what is required by the Contract, the baseline, and prior progress schedule update. Variances, in calendar days, are to be included within the milestone table and write up including

        Explanation of the Design-Build Team's execution plan for completing the Work in accordance with the time performance requirements defined within the Contract. The Design-Build Team is strongly encouraged to include visualizations, as markups on drawings or sketches, to help illustrate its plan for completing the Project.

        An organization chart that shows the Design-Build Team's overall planned staffing that is intended to be on site. The organization chart is to include the expected first day on-site for the position and the expected date to leave the site.

    C. The Design-Build Team is to include the following attachments along with its narrative submission:
        1. A copy of the native schedule file, in .xer format;
        2. Tabular identifying every change made within the schedule;
        3. 11x17 plot (PDF) of all schedule activities, banded by WBS and sorted by start date;
        4. 11x17 plot (PDF) of all activities on the longest path to completion, un-banded by WBS and sorted by start date;
        5. 11x17 plot (PDF) of that captures a cumulative and monthly totals of the schedule's cost loading.

2.5.11. SHORT INTERVAL SCHEDULE

1. The Design-Build Team is to prepare and submit a short interval schedule (SIS) in between progress schedule update submissions on a weekly basis. SIS will be reviewed at the weekly City Architect Design-Build Team (OAC) meetings.
2. The Design-Build Team is to submit its SIS each week at least one (1) working day before the OAC meeting. The Design-Build Team may elect to use any commonly used scheduling software to prepare its SIS.
3. The SIS is to forecast Work that is to be completed in the next four (4) weeks. The SIS is to be a derivative of the progress schedule update. The SIS decomposes individual parent level activities within the progress schedule update into granular detail, child level tasks. No task within the SIS is to be longer than three (3) working days, except for non-construction related activities. If a conflict exists between the SIS and the most recently reviewed progress schedule update, the progress schedule update is to take precedence.
4. The SIS is to also include all major upcoming milestones and other important events, such as inspections by the City or other government agencies. The SIS is to include delivery dates for critical materials and need by dates for City furnished materials.
5. Tasks within the SIS are to be given a unique identification number.
6. The Design-Build Team is to provide reasoning at the weekly OAC meeting if the SIS and the most recently submitted progress schedule update are showing large variances between the two (2) schedules.
7. The City will review SIS for informational purposes. The City may provide comments and corrections to the SIS. The Design-Build Team is to provide corrected SIS within seven (7) calendar days after receiving comments from the City. Lack of City comments or response to SIS submissions is not to be construed as acceptance or agreement of the SIS.

2.5.12. AS-BUILT SCHEDULE

1. The final progress schedule update will be recorded as the As-Built Schedule. All activities within the schedule are to have actualized start and finish dates and are to have a physical percent complete equal to 100%.
2. The As-Built Schedule submission is to satisfy all the requirements listed within the Technical Schedule Requirements defined earlier in this specification and those listed in this Section 12.
3. The As-Built Schedule reflects the way the Project was constructed by reflecting actual start and finish dates for all activities.
4. The Design-Build Team is to include the following attachments along with its submission:
    A. Tabular identifying every change made within the schedule;
    B. 11x17 plot (PDF) of all schedule activities, banded by WBS and sorted by start date.

2.5.13. DAILY CONSTRUCTION REPORTS

1. The Design-Build Team must prepare and submit to the City a daily construction report, recording the following information concerning events at the site. This report is to be submitted to the City by 11 a.m. the next working day. Daily reports are to be completed for each day of the project. The daily construction report is to include the following, at a minimum:
    A. List of activities started, finished and progressed.
    B. List of subcontractors, vendors and other parties under agreement with the Design-Build Team on site;
    C. Count of personnel per trade at the site;
    D. List of major materials delivered to site;
    E. High and low temperatures, general weather conditions;
    F. Accidents and unusual events;
    G. Meetings and significant decisions;
    H. Stoppages, delays, and impacts or losses to planned productivities;
    I. Safety/Emergency Incidents;
    J. Orders and requests of governing authorities;
    K. Discovery of differing site conditions;
    L. Services connected and/or disconnected;
    M. Substantial Completion authorized;

2.6 MEETINGS

2.6.1. AGENDAS AND MEETING MINUTES

Unless notified otherwise by the City, the Design-Build Team shall be responsible for developing meeting agendas for all Project related meetings between the Design-Build Team and the City. All meeting agendas shall be provided to the City no less than one (1) working day prior to the scheduled meeting.

Unless notified otherwise by the City, the Design-Build Team shall be responsible for developing meeting minutes for all Project related meetings between the Design-Build Team and the City, between the Design-Build Team and counterparties to third-party agreements, and between the Design-Build Team and other governmental agencies and Stakeholders. All meeting minutes shall be submitted to the City within three (3) working days after each meeting.

2.6.2. TASK FORCE MEETINGS

The Design-Build Team shall conduct weekly task force meetings to coordinate the design development within the Design-Build Team's organizations and with the City and other affected agencies. At a minimum, the Design-Build Team shall prepare an agenda and conduct each

meeting to discuss the status of the design, coordinate the design development between design disciplines, discuss constructability issues, and identify any questions associated with design requirements.

Task force meetings shall be held—in person—in the Webb Building, at 201 West Colfax Ave, Denver, Colorado 80202, unless otherwise Approved by the City.

2.6.3. SAFETY MEETINGS

Site safety is the primary responsibility of the Design-Build Team. It shall conduct regularly scheduled Project safety meetings, toolbox talks, etc., as specified in its SMP.

2.6.4. QUALITY MEETINGS

The Design-Build Team shall conduct regularly scheduled quality meetings as specified in its QMP.

2.6.5. DESIGN REVIEW MEETINGS

The Design-Build Team shall hold design review meetings, as required in Section 3 Quality Management or as required to properly communicate and collaborate the design progression with the City, stakeholders and other agencies.

Design review meetings shall be held—in person—in the Webb Building, at 201 West Colfax Ave, Denver, Colorado 80202, unless otherwise Approved by the City.

2.6.5. PRECONSTRUCTION SCHEDULING MEETING

The Design-Build Team is to coordinate and facilitate the Preconstruction Scheduling Meeting. Refer to Section 2.5.4 for additional information and requirements for this meeting. The City will provide a list of attendees that are to be invited to the meeting.

This meeting will be held, in person, in the Webb Building, at 201 West Colfax Ave, Denver, Colorado 80202, unless otherwise approved by the City

2.7 PHOTOGRAPHS AND VIDEOS

The Design-Build Team shall take a sufficient number of pre-construction photographs and a 1080p HD resolution, or greater, video of the defined Project areas and all areas necessary and/or anticipated to be impacted by the Work to establish a Baseline Conditions Report to resolve any disputes which may arise regarding the conditions prior to and subsequent to construction. Such preconstruction photos and video survey shall be submitted to the City within 90 calendar days following issuance of NTP. If a dispute arises where no or insufficient photographic or video evidence of its existing condition is available, the disputed area shall be restored to the extent directed by the City at no additional cost to the City.

At a minimum, the Design-Build Team shall submit eight-megapixel resolution or greater, aerial photographs of the Work and Project within 30 calendar days following issuance of NTP, every month (once mobilization into the area occurs), and at Final Acceptance. Aerial photographs shall include all areas under construction, whether temporary or permanent, and all other areas impacted, each time they are taken.

The Design-Build Team shall provide the City one complete set of high-quality aerial photographs on a medium agreed to by the City. The file format shall be .jpg, .gif, or .tiff.

The Design-Build Team shall provide a web streaming feed of the construction site at all times during construction. This system shall also produce a time-lapse video of the construction progress which shall be provided to the City upon project completion. The camera shall also allow the City team to view the construction site via a website or online portal at any time during construction. The City shall approve of the location of mounting of this camera prior to installation.

2.8 FACILITIES PROVIDED BY THE DESIGN-BUILD TEAM

The Design-Build Team shall make available its proposed facilities for inspection by the City prior to the City occupying any Design-Build Team-provided facilities not later than 60 calendar days prior to commencement of construction Work. The Design-Build Team shall be required to furnish the City's staff with offices that are in good and serviceable condition (condition comparable to the Design-Build Team's office space) on, or near the Project site. Both parties shall participate in a facility condition inspection prior to and at the completion of occupancy. The City shall return possession of Design-Build Team-provided facilities to the Design-Build Team in essentially the same condition as when the City initially occupied the facilities, except for reasonable wear and tear.

The Design-Build Team shall secure sites; obtain all site permits; install, set up, and provide Utility services; and maintain the facilities as part of the Work. The Design-Build Team may consult with the City about availability of suitable local sites and office facilities.

In the event that office spaces or appurtenant facilities are stolen, destroyed, or damaged during the Work, the Design-Build Team shall at its expense repair or replace those items provided to their original condition within five working days, or as Approved by the City, except for any loss or damage caused as a direct result of willful misconduct of the City personnel, which the actual, reasonable, and documented costs of the repair, replacement, and/or restoration will be reimbursed by the City.

The Design-Build Team shall maintain the City offices until at least 30 calendar days following the Substantial Completion of the Project, unless otherwise agreed to by the City. The City may, at its discretion, vary the number of its staff throughout the duration of the Project. However, the Design-Build Team shall maintain the initial number and size of the City office facilities, conference rooms, reception area, break room, and filing area. The Design-Build Team shall be responsible for disposal or removal of all the City office facilities and any site restoration Work required.

The Design-Build Team shall provide office space and equipment for four (two full-time employees and two floating employees) City personnel as specified herein:

- A speaker phone shall be provided for the conference room that provides sufficient audio quality for large meetings.
- High-speed internet connection (50 megabyte/second or greater, synchronous transfer rate business class Ethernet system) and networking for all offices and conference rooms.
- Overhead lighting meeting Occupational Health and Safety Administration (OSHA) and code requirements for office space.
- One color laser printer/copiers/scanners capable of 45 ppm input and output at 600 x 600 dpi and at least two paper drawers accepting 8-1/2 x 11 inch up to 11 x 17-inch paper and paper weights from 16 to 24 lb. bond, including paper, toner, service and repairs. The unit shall be capable of scanning documents to 11 x 17-inch size and transmitting the scanned file to multiple email addresses.
- Office space not less than the size indicated below:
- Six offices (with door): 120 square feet of enclosed office space per office.
- One enclosed conference room with doors capable of accommodating a 20-person meeting, with a 15-person seating capacity at the conference table; this can be a shared conference room between the Design-Build Team and the City.
- Break room: sink, counter, microwave, 20-cubic foot refrigerator, and drinking water and dispenser.
- Filing space: enclosed, with lockable door and five steel five-drawer, locking, lateral file cabinets (approximate size = 18 x 42 inches); the file room also shall have two 30 x 72-inch utility tables with two chairs each; this space shall be of sufficient size to accommodate the requested equipment and accommodate two staff members (to typical industry standards); this space shall not be shared with any other room.
- Storage room: 120 square feet, enclosed, with lockable door

- Furnishings, as follows:
  - Conference Room
    - Conference table and chairs
    - Wastebasket
    - Eight hanging and erasable white boards that are six feet wide, at a minimum
    - Projector and screen or Digital “Smart TV” 64-inch or larger, wi-fi capable
  - Offices
    - Desk that is minimum size 60 x 36 inches with locking drawers
    - Computer workstation desk capable of holding a desktop printer, monitor, keyboard, and any accessories
    - Ergonomically correct, OSHA-approved chairs

- Hanging, erasable white board, four feet (4') wide at a minimum
- Bookshelf
- Wastebasket

- Indoor restrooms suitable to accommodate the office staff (separate men's and women's)
- Weekly janitorial service (except weekends and Holidays), including paper towels, toilet paper, hand soap, etc.
- Maintenance of the exterior area of office, including access and snow removal
- Heating, ventilation, and air conditioning/cooling systems adequate for office use
- Access 24 hours a day, seven days a week

2.9 PROJECT DIRECTORY

The Design-Build Team shall maintain and furnish to the City a Project Directory, listing the names, addresses, and telephone numbers (office, home, cellular, etc.) of the Key Personnel and critical support staff of the Design-Build Team and each Sub-Design-Build Team. The Project Directory shall be submitted to the City no later than 30 calendar days following issuance of NTP. The Design-Build Team shall update the Project Directory quarterly for the duration of the Work and within any Key Personnel changes.

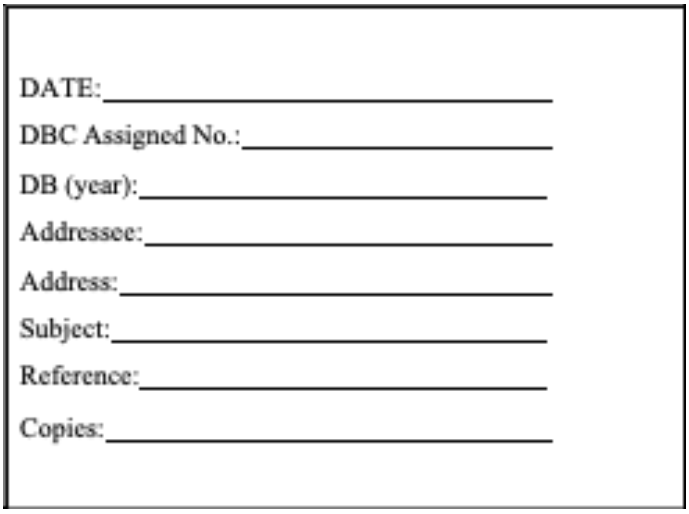
2.10 DOCUMENT MANAGEMENT

The Design-Build Team shall establish and maintain its own Document Control System (DCS) to store and record all correspondence, drawings, progress reports, technical reports, specifications, Contract Documents, deliverables, calculations, and administrative documents generated under the Contract Documents. Document control, storage, and retrieval methods shall include the use of both hard copies and electronic records. The Design-Build Team's DCS shall handle all Project documents. Data shall be backed up every 24 hours.

The City shall have access to the DCS with sharing capabilities. The Design-Build Team shall have the Document Management System available for us within 30 days after NTP.

All correspondence of the Design-Build Team to and from the City and its representatives with respect to the Contract Documents shall be serialized, and the Design-Build Team shall maintain separate incoming and outgoing correspondence logs. At a minimum, a serialization similar to the following is required:

Figure 2-1 Example Document Serialization



All correspondence shall include the Project name, Contract name and number, along with the specific subject of the letter. All replies shall refer specifically to prior correspondence to which it relates.

The Design-Build Team shall make available, within 24 hours when requested by the City, copies of its logs indicating the City's outstanding items and a copy of any document requested. The Design-Build Team shall comply with Colorado Open Records Act (CORA) requests and supply information as requested by the City.

2.11 PUBLIC ART

The project will have a public art component. The public art will be funded outside of the Design/Build contract. However, the Design-Build Team shall coordinate with the public art process and the selected artist(s) to allow for fully integrated art pieces. This will include attendance at various meetings and coordination of design drawings and logistics. The cost associated with this coordination are included in the Design/Build Contract.

2.12 TEAM CHARTER

The project will establish a Team Charter to align the City's and Design-Build Team's goals for the project. The Team Charter will establish agreement on leadership coordination between the parties, transparency of cost information throughout the project and address risk management strategies. After conducting a series of teaming meetings, the Design Build Team shall submit for City review and comment the Team Charter no later than 30 days following NTP.

2.13 DELIVERABLES

At a minimum, the Design-Build Team shall submit the following to the City:

Table 2-1 Deliverables

Deliverable	Information or Review	Schedule
Project Management Plan (PMP)	Review and comment	60 calendar days following issuance of NTP
Draft monthly pay applications	Review and	25th of the month end
Final monthly pay applications	Review and comment	Within five calendar days following the progress status meeting
Monthly pay application format	Review and comment	30 calendar days following issuance of NTP
Baseline Schedule	Review and comment	60 calendar days following issuance of Notice to Proceed. Refer to Section 2.5.7 for additional information.
Revised Baseline Schedule	Review and comment	As required. Refer to Section 2.5.10 for additional information.
Progress Schedule Update	Review and comment	Concurrent with the monthly pay applications. Refer to Section 2.5.8 for additional information.
As-Built Schedule	Review and comment	Prior to Final Acceptance. Refer to Section 2.5.12 for additional information.
Recovery Schedule	Review and comment	As required. Refer to Section 2.5.10 for additional information.
Short Interval Schedules	Information	At least 1 calendar days prior to OAC meetings. Refer to Section 2.5.11 for additional information.
Daily Construction Reports	Information	Daily. Refer to Section 2.5.13 for additional information.
Work Breakdown Structure (WBS)	Approval	Concurrent with Baseline Schedule
Office Facilities	Approval	60 calendar days prior to commencement of construction Work
Project Directory	Information	30 calendar days following issuance of NTP
Updates to the Project Directory	Information	Quarterly and with changes to Key Personnel

Deliverable	Information or Review	Schedule
Preconstruction Photography and Video Survey (Baseline Condition Report)	Review and comment	90 calendar days following issuance of NTP
Meeting Minutes	Information	Three working days after each meeting
Team Charter	Review and comment	30 calendar days following issuance of NTP

3.0 QUALITY MANAGEMENT

3.1 QUALITY MANAGEMENT REQUIREMENTS

The Design-Build Team shall prepare and submit for the City and County of Denver (City) review and comment, a Quality Management Plan (QMP) for the Work, including but not limited to, the oversight of all Sub-Design-Build Teams and operations control operations. The QMP will include the Design Quality Management Plan (DQMP) and the Construction Quality Management Plan (CQMP), consisting of construction quality control (QC), and construction quality assurance (QA). While the City expects that Sub-Design-Build Teams will each have a QC program, and that Sub-Design-Build Teams will perform QC activities, the final responsibility for overall quality management rests with the Design-Build Team.

The QMP shall be submitted in the format recommended by the International Organization for Standardization (ISO 9001 series) and shall contain complete procedures for the implementation of the QMP.

The QMP shall include as a minimum:

- A statement of the Design-Build Team's commitment to quality and provide a clear definition of the scope of activities and detail the methods to ensure the Work meets the requirements of the Contract.
- A discussion on how the Design-Build Team will ensure that all disciplines, aspects, and elements of the Work shall comply with the requirements of the Contract Documents, including commitments made in the Design-Build Team's Proposal.
- A discussion on how the Design-Build Team will ensure that all subcontractors and subconsultants comply with the requirements of the QMP.
- A description of the quality management organization, including an organization chart showing relationships among the parties including the City, additional agencies (as needed) and other company organizational elements.
- The name, qualifications, resumes, duties, responsibilities, and authorities of each person assigned a quality management function or a QC or QA function. Provide a RACI matrix to identify roles and responsibilities of the team.
- A detailed list of all quality related deliverables to the City including expected timeframe or milestones for delivering. This list will help the Quality Management Team execute the final QMP.
- Procedures for preparing and presenting submittals, including those of subcontractors and subconsultants, vendors, offsite fabricators, suppliers and purchasing agents, for assuring they conform to contract requirements. Design Build Team will identify critical submittals requiring the City's review and include sufficient review periods of submittals by the city, up to and including final review and comment of each submittal.

- Creation of a Mockup Register that defines the scope to be mocked up along with the dates for inspection and review of each item.
- Procedures for the Requests for Information (RFI) process, including sufficient review periods by the City, up to and including final resolution of each RFI.
- The requirement for individual Material Testing and Inspection Plans (MTIP) for each individual construction package. Specific tests required, minimum frequency of tests, and test procedures shall be in accordance with the City Minimum Frequency of Materials Sampling and Testing Standard
- Procedures that address all elements of design, including but not limited to wet and dry Utilities, architectural, civil, structural, geotechnical, survey, convention center design, landscaping, aesthetics, environmental, safety, and temporary Work. The Design-Build Team shall identify all applicable computer programs to develop and check designs.
- Requirements for both temporary and permanent components of the Work.
- Procedures for a Nonconformance Report (NCR) closeout including who needs to approve the final recommended disposition of the report.
- All elements constructed that are not in conformance with the Contract plans and specifications shall be documented with an NCR within two (2) working days of occurrence.
- Resolution of an NCR must be completed within four (4) working days of the occurrence unless otherwise agreed upon by the City and the Design-Build Team.
- QC/QA staffing requirements, including traffic control oversight, inspectors and material testers, need to thoroughly monitor the Work in progress at all times. The Design-Build Team shall provide enough QC/QA staffing to adequately monitor the Work according to the demands of the construction schedule. If quality standards or schedules are not being met, the Design-Build Team will provide additional QC/QA staff as requested by the City.
- The minimum quality management staff required is the Project Quality Manager (PQM), Design Quality Assurance Manager (DQAM), Construction Quality Control Manager (CQCM), Construction Quality Assurance Manager (CQAM), and a quality administration/document control clerk.
- Identification of third-party design peer reviews that will occur and the expected timing of such reviews.
- List of all entitlements identified that are required to deliver the Project and milestones or timeframes for applying for them.
- Quality Audits: The frequency and process that the Design-Build Team will perform internal quality audits and the delivery of documentation of them to the City.
- Milestones at which Constructability Reviews will occur.

- Damage Prevention Plan including Water Intrusion Prevention. Given the location of the work to be performed, explain how the existing facility will be protected from weather, water, fire, and other damage
- Details for the plan to ensure compliance with Accessibility standards including definition of third-party accessibility specialty consultant who will perform the review, milestones where the review will take place, and confirmation that the plan includes a punch walk of the work.

The Design-Build Team shall update and submit to the City for Review and comment its QMP when its own quality management organization detects systemic deficiencies in the manner the Work is inspected or tested, including breaches or deficiencies that have caused or that may cause Nonconforming Work to be performed, or when the City advises the Design-Build Team of such a problem. The Design-Build Team shall also revise the QMP should any of the following conditions exist:

- QMP or procedure within the QMP no longer adequately addresses the matters it was originally intended to address;
- QMP or procedure within the QMP does not conform with the Design-Build Team;
- An audit by the Design-Build Team or the City identifies a deficiency in the QMP requiring an update;
- Organizational structure changes require revision to the QMP;
- The Design-Build Team is undertaking, or about to undertake, activities that are not covered within the current QMP; or
- The City requires the QMP to be updated, at its request.

3.2 PROJECT QUALITY MANAGER

The Design-Build Team shall employ a PQM as needed to complete the Work. The PQM shall be responsible for the Design-Build Team's quality program, including both QA and QC, overall design, construction, and life-cycle quality of the Project, quality personnel, quality planning, quality training, quality control activities independent of production, quality system procedures enforcement, development and implementation of the quality program objectives, total system quality and management, quality records and documentation, and review and approval of the QMP prior to submittal to the City. This position shall be independent of the Design-Build Team’s and designer’s project management staff, reporting directly to senior principals or officers of each entity. The PQM shall be involved throughout the design and construction phases.

3.3 DESIGN QUALITY MANAGEMENT REQUIREMENTS

The Design-Build Team shall prepare and submit, to the City for review and comment, a DQMP for the design Work. The DQMP shall contain complete procedures for the implementation of design QC and QA

Design submittals (listed below) shall include QC and QA submittal documents, documenting the QC and QA process that the Design-Build team has undergone. Submittals will be defined in the Design-Build Team's DQMP but shall include at a minimum: red-lined review sets showing internal QC reviews including inter-disciplinary reviews, 3rd party peer review reports and comments, and other QC and QA deliverables defined in the final DQMP.

3.3.1 DESIGN QUALITY ASSURANCE MANAGER

The lead design firm in the Design-Build Team's organization shall employ a Design Quality Assurance Manager (DQAM) as needed to complete the Work. The DQAM's responsibilities shall be limited to administering contracts with the independent firms, managing and ensuring Design-Build Team compliance with the DQMP, and resolution of quality related issues. Design QC is required at the design manager level, whether for the lead designer or design subconsultants.

3.3.2 DESIGN PACKAGING AND SCHEDULING

3.3.2.1 DESIGN SUBMITTAL AND REVIEW SCHEDULE

No later than 30 calendar days following issuance of NTP, the Design-Build Team shall submit to the City for review and comment, the Design Submittal and Review Schedule incorporating each submittal/deliverable of the design phase. Each submittal/deliverable package shall be identified, and the Design-Build Team shall provide information including:

- Activity number as defined within the Baseline Schedule submission or most recently submitted Progress Schedule Update
- Explanation of plan set naming/numbering system to be used
- Technical Design City Coordination (as needed)
- Submittal and/or review meeting dates
- Description of the package, its physical location and limits of activity
- Listing of engineering and architecture disciplines used in design
- Required permits
- Required approvals
- Risk & Opportunities

The City and the Design-Build Team shall meet bi-monthly to evaluate and determine the progress status of the scheduled activities. The Design-Build Team shall provide an updated Design Submittal and Review Schedule including a tabular listing of all design submittals sorted by activity, start date and float to the City at each progress meeting. The Design-Build Team shall provide the City notice of any changes to the Design Submittal and Review Schedule per scheduling specifications called out in 2.4.

Any submittals to third parties, other City agencies for building permits, utility design and relocation approvals, or other miscellaneous permits shall be the responsibility of the Design-Build Team. The Design-Build Team will be responsible for coordinating these submittals and adjusting the Project Schedule accordingly based on the time frame required for review and approval of any necessary submittals for permits.

3.3.2.2 DOCUMENT SUBMISSION

The Design-Build Team shall submit all design submittals to the City for review, as required in this Section 3 and as more specifically outlined in other Sections. The City will target completion of the design reviews (not including third parties other City agencies for building permits, Utility design and relocation approvals, or other miscellaneous permits) within 21 calendar days. The review period will begin the Working Day following the submission of the design submittal. Design review meetings shall be held, at a minimum, following each design submittal to discuss comments and responses.

3.3.3 REPORTING FUNCTIONS

The DQAM shall furnish a monthly design quality report. The monthly design quality report shall be submitted each month as part of the draft monthly payment application. This monthly report shall include, as a minimum:

- Summary of design quality management activities during the month
- Design quality problems and resolutions
- Process to identify, evaluate, and implement preventative solutions to improve upon the identified quality problem
- City Open Design Questions
- City Design Responses to Questions within the past month

3.3.4 DESIGN DOCUMENTATION

The Design-Build Team shall maintain records of all independent checking of calculations and independent drawing checking performed. These records shall be under the physical control of the DQAM in a form reviewed by the City.

3.3.5 DESIGN SUBMITTALS

The Design-Build Team shall submit design packages in accordance with this Section 3 unless otherwise agreed by the City.

Comments on a submittal, by the City, shall be responded to the City's satisfaction prior to advancing future submittals. Responses to City's comments shall be provided to the city within 21 calendar days after receipt of the City's comments. The comments and their resolution shall be recorded on the final version of the Review Comment Summary and Resolution (RCSR) form

by the Design-Build Team. These comments and their reviewed responses shall be incorporated in the subsequent submittal.

All design submittals shall incorporate the most up to date design and existing information. The Design-Build Team may separate the design packages into separate package at their discretion but must clearly convey the separation to the City prior to submitting.

The Design-Build Team may, at the Approval of the City, submit separate early construction Work packages.

3.3.5.1 INITIAL DESIGN SUBMITTAL – 20% REVIEW

When beginning design, the Design-Build Team shall participate in Task Force Meetings to review and discuss the Design-Build Team's proposed design that was the basis for their Proposal. It is the intent of the initial Task Force Meetings that the City will provide an "over-the-shoulder" review and comments related to the Project design and programming.

After the Task Force Meetings, the Design-Build Team shall submit an Initial Design Submittal to the City.

The Design-Build Team shall participate in a presentation of the Initial Design as part of the first design meeting to the Design Work Group (DWG) to provide Project information in accordance with Section 4 – Public Information.

The Initial Design Submittal shall be submitted at least five (5) calendar days prior to a scheduled review date. The review date shall be agreed upon by the Design-Build Team and the City. The Design-Build Team shall submit a minimum of six sets of half-size hard copy plans and an electronic copy in PDF format.

After review of the Initial Design Submittal by the City, the Design-Build Team shall participate in a presentation of the Initial Design for the first design meeting for concept confirmation in accordance with Section 4 Public Information.

3.3.5.2 PRELIMINARY DESIGN SUBMITTAL – 40% REVIEW

After the first design meeting and concept confirmation of the Initial Design, the Initial Design (along with any required revisions as an outcome of the first design meeting) shall be the basis of the Preliminary Design Submittal. It is the Design-Build Team's responsibility to verify all elements of the Preliminary Design comply with the Contract Documents. The Design-Build Team shall prepare a Preliminary Design Submittal for the entire Project, excluding any early construction Work packages submitted as described in this Section 3. The Preliminary Design Submittal shall be comprehensive enough such that the City can review if the Project can be designed and constructed in accordance with the Contract Documents.

The Design-Build Team shall participate in a presentation of the Preliminary Design as part of the second design meeting to provide Project information in accordance with Section 4 Public Information.

The Preliminary Design Submittal shall be submitted at least five (5) calendar days prior to a scheduled review date. The review date shall be agreed upon by the Design-Build Team and the City. The Design-Build Team shall submit a minimum of six sets of half-size hard copy plans and an electronic copy in PDF format.

After Review and comment of the Preliminary Design Submittal by the City, the Design-Build Team shall participate in a presentation of the Preliminary Design Submittal for the second design public meeting in accordance with Section 4 Public Information.

3.3.5.3 PROGRESS DESIGN SUBMITTAL – 60% REVIEW

After the Preliminary Design Submittal, it is the Design-Build Team's responsibility to verify all elements of the Progress Design comply with the Contract Documents. The Design-Build Team shall prepare a Progress Design Submittal for the entire Project, excluding any early construction Work packages submitted as described in this Section 3. The Progress Design Submittal shall be comprehensive enough such that the City can verify that the Project can be constructed in accordance with the Contract Documents.

The Preliminary Design Submittal shall be submitted at least fourteen (14) calendar days prior to a scheduled review date. The review date shall be agreed upon by the Design-Build Team and the City. The Design-Build Team shall submit a minimum of six sets of half-size hard copy plans and an electronic copy in PDF format.

After review of the Progress Design Submittal by the City, the Design-Build Team shall participate in a presentation of the Progress Design Submittal for the third design public meeting in accordance with Section 4 Public Information.

3.3.5.4 FINAL DESIGN SUBMITTAL – 90% REVIEW

The Design-Build Team shall submit a Final Design Submittal for review by the City. The Final Design Submittal may be broken down into separate packages. Evidence of review by all required persons and proof that all necessary governmental and third-party approvals have been obtained shall be attached, except for submittals which require the City review.

The Final Design Submittal shall be submitted at least fourteen (14) calendar days prior to a scheduled review date. The review date shall be agreed upon by the Design-Build Team and the City. The Design-Build Team shall submit a minimum of six sets of half-size hard copy plans and an electronic copy in PDF format.

The Final Design Submittal and any resubmittal required shall include drawings, details, specifications, and supporting data to establish fully the intent of all construction Work to be accomplished. All material shall be prepared under the supervision of and certified by a Professional Engineer or Architect, as appropriate, licensed in the State of Colorado.

The Final Design may be required to be resubmitted if the City has numerous comments that require being addressed by the Design-Build Team and reviewed by the City, prior to submission of the Release For Construction (RFC) packages.

3.3.5.5 RELEASE FOR CONSTRUCTION SUBMITTALS

Following the incorporation of the City comments from the Final Design Submittal, the Design-Build Team shall prepare RFC packages to the City for final review and "Statement of No Objection" stamp. Two half-size sets of drawings, two full size reproducible sets of drawings, two sets of the appropriate specifications, two sets of all reports and quantities for construction Work shall be submitted. The Design-Build Team shall have a Professional Engineer or Architect, as appropriate, licensed in the State of Colorado, stamp and sign each sheet of the full-size plans. The City shall either stamp the plans and specifications:

"Does Not Object" and return two sets to the Design-Build Team; or

Return the submittal with comments and stamp the submittal with a "Does Object"; or

Return the submittal with comments and stamp the submittal with a "Does Not Object" but conditioned as noted".

The Design-Build Team shall submit RFC packages four (4) working days prior to the scheduled review meetings. The City will coordinate the review meeting schedule date with the Design-Build Team. Request for Revision (RFR) and emergency packages (one or two drawings) will be handled on a case-by-case basis.

Construction shall not proceed on any element of Work until the relevant submittal is stamped, "Does Not Object" or "Does Not Object but conditioned as noted" by the City and all required government and third-party approvals have been obtained by the Design-Build Team, including construction permits. The City's act of "not objecting" does not substantiate the adequacy or acceptability of the design or relieve the Design-Build Team of its obligation to comply with all provisions of the Contract Documents. Six half-size plan sheets and specifications with the City's "Statement of No Objection" shall be provided to the City by the Design-Build Team within five days of receipt of the City's determination. The signed "Statement of No Objection" does not necessarily provide the Design-Build Team clearance to begin construction Work in the plans.

3.3.6 REQUEST FOR REVISION PROCESS

Any major revisions to the drawings and specifications desired by the Design-Build Team after the RFC Plans have been stamped will require an RFR. These revisions may involve changes to dimensions and layout, material changes to conform to Contract requirements and/or to computational deficiencies that necessitate adjustments to the Work. These revisions shall be resubmitted to the City for Review and comment and processed according to this Section 3.

All RFRs shall include the following: justification narrative, copies of pertinent correspondence, jurisdictional sign-off as necessary, any additional governmental or private approvals, index of impacted agencies with review comments and/or acknowledgements, drawings, engineering calculations and specifications, as necessary.

The City may object or not object to any RFR. If the City does not object to an RFR, the Design-Build Team shall finalize all pertinent documentation, including final design drawings and specifications for final review.

This process shall be followed for unanticipated field conditions. If an unanticipated field condition is discovered during construction Work, the Design-Build Team shall notify the City, upon discovery. If the condition is considered a minor change by the City, the Design-Build Team may document the alteration in the As-Built Plans, after documenting the revision through the RFI process.

In no event shall the RFR process be used to change the Contract Price, any Guaranteed Dates, Contractual Milestones, or the Contract Scope of Work.

3.3.6.1 FIELD INVESTIGATIONS

Concurrently with design for an element of construction, Design-Build Team shall conduct field investigations to resolve design issues and to ensure that design submittal(s) reflect existing conditions.

3.3.7 DESIGN REVIEW MEETINGS

The Design-Build Team shall provide the agendas, lead the meetings, record, and publish the minutes. The Design Review Meetings are required following the Initial Design Submittal, Preliminary Design, Progress Design Submittal, and Final Design Submittal to review the review comments and provide comment resolution. City review comments will be provided to the Design-Build Team on the RCSR Form as shown in Appendix A of this Section 3. The Design-Build Team shall provide initial disposition codes and responses during the Design Review Meetings. After the Design Review Meeting the Design-Build Team shall provide the City with one copy and one electronic Excel format copy of all review comments with revised responses and final disposition codes agreed to at the Design Review Meeting.

3.3.8 FINAL PROJECT PLANS

The Final Project Plans shall be organized according to the standard City format. As the Project progresses and individual packages are under construction, the Design-Build Team shall merge the sealed plans into a single set of Final Project Plans. A current electronic copy shall be provided to the City, available at all times.

3.3.9 AS-BUILT PLANS

As-Built Plans, including documented minor field changes in computer-aided design and drafting (CADD or Revit), shall be submitted with the final Project documentation. The As-Built Plans shall be an edited version of the Final Project Plans. As-Built Plans shall be completed as the construction Work progresses and shall be submitted prior to Final Acceptance.

3.3.10 BUILDING ENVELOPE REVIEW

The Design-Build Team shall include a building envelope specialist to perform detailed reviews of design documents. Review comments shall be provided to the City as documentation of the reviews and comments shall be resolved and incorporated into the Final Design Submittal.

The Building Envelope Specialist shall also perform site visits during construction and provide written reports confirming acceptance of the finished building's performance in relation to building envelope performance.

3.3.11 ACCESSIBILITY (ADA) COMPLIANCE REVIEW SPECIALIST

The Design-Build Team shall include an accessibility (ADA) specialist 3rd party to review the design drawings to confirm compliance with ADA and other accessibility codes and requirements. Review comments shall be provided to the City as documentation of the reviews and comments shall be resolved and incorporated into the Final Design Submittal.

The accessibility specialist shall perform site visits during construction at the discretion of the Design-Build Team. The accessibility specialist shall perform a punch walk of the entire project prior to the Design-Build Team requesting Substantial Completion. This punch list shall be provided to the City and all items on the list shall be resolved and corrected by the Design-Builder.

3.4 CONSTRUCTION QUALITY MANAGEMENT REQUIREMENTS

The Design-Build Team shall prepare and submit for the City Approval, a Construction Quality Management Plan (CQMP) for the Work. The CQMP shall contain complete procedures for the implementation of the CQMP. The CQMP shall be submitted 60 calendar days before the first construction package is scheduled. No construction Work shall commence until the applicable sections of the CQMP have been reviewed by the City and comments have been resolved.

The Design-Build Team shall establish and maintain procedures for inspection and material testing to assess the quality of Work and to ensure the quality of the Work meets the minimum quality levels required by these Requirements and the Contract. The procedures shall apply to all facets of procurement and construction. The procedures shall be implemented by the Design-Build Team as CQMP procedures. The procedures shall completely describe all quality management functions and shall contain information as specified herein or required by the City.

3.4.1 CONSTRUCTION QUALITY ASSURANCE MANAGER.

The Design-Build Team's organization shall employ a Construction Quality Assurance Manager (CQAM) as needed to complete the Work, who reports directly to executive management and shall be responsible for all construction QA activities for the Project. The CQAM cannot be the same individual as the CQCM. The CQAM shall be responsible for verifying and providing confidence that the construction Work meets or will meet the contractual requirements, managing the Design-Build Team's workmanship inspections, implementing quality planning, overseeing QA testing and inspections. Additionally, the CQAM shall ensure design intent is consistent with completed construction, which may require additional oversight and staffing of separate individuals for these associated QA activities for the Project.. The Design-Builder shall submit the resume of the CQAM to the City for review and comment.

3.4.2 CONSTRUCTION QUALITY CONTROL MANAGER

The Design-Build Team's organization shall employ a Construction Quality Control Manager (CQCM) for the Work, to be assigned full time on-site during the Work. The CQCM shall be responsible for verifying and providing confidence that the construction Work meets or will meet the contractual requirements, managing the Design-Build Team's workmanship inspections, implementing quality planning, overseeing QA testing and inspections.

3.4.3 CONSTRUCTION QUALITY CONTROL PERSONNEL

QC is the system used by the Design-Build Team, subcontractors and subconsultants, suppliers, and vendors to monitor, assess, and adjust their production or placement processes to ensure that the final product will meet the specified level of quality. QC includes sampling, testing, inspection, and corrective actions (where required) to maintain continuous control over a production and placement process (and to fulfill contract requirements).

3.4.4 CONSTRUCTION QUALITY CONTROL – DOCUMENTATION

3.4.4.1 DAILY RECORDS

The Design-Build Team shall maintain current daily records of all QC operations performed. These records shall be in a form acceptable to the City and include a description of Sub-Design-Build Teams and vendors working on the Project, the number of personnel working, the weather conditions encountered, any delays encountered, identification of Nonconforming Work, and corrective action taken on current and previous Nonconforming Work. In addition, these records shall include factual evidence that required QC activities including material testing and inspection have been performed, including but not limited to the following:

- Type and number of QC tests performed
- Results of QC tests
- Inspections performed and findings
- Nonconforming Work identified

- Corrective actions taken

Such records shall address both conforming and Nonconforming Work and shall include a signed statement that all supplies and materials incorporated into the Work fully comply will all requirements of the construction documents and the Contract Documents unless identified as Nonconforming Work. Complete, legible copies of such records shall be furnished in full to the City within three working days of the date of the daily record, upon request. Nonconforming Work shall be brought to the attention of the City upon discovery of the Nonconforming Work.

These daily records are to be submitted simultaneously with the Daily Construction Reports. Refer to Section 2.5.13 for additional information and requirements relating to Daily Construction Reports.

3.4.4.2 MONTHLY QUALITY REPORTS

In addition to the daily reports required and furnished, the Design-Build Team shall furnish a monthly construction quality report. The monthly construction quality report shall be submitted with the draft monthly payment application. This monthly report shall include as a minimum:

- Summary of construction QC staff on site during the month, including current adequacy of quality staff resources
- Summary of construction QC activities during the month
- Detailed summary of all tests performed by category
- Trend analysis of QC test results
- Log of all outstanding unresolved failing tests
- Nonconforming Work status
- Construction quality problems and resolutions
- Summary of Certificates of Compliance
- Process to identify, evaluate, and implement preventative solutions to improve upon the identified quality problem

3.4.5 MATERIALS TESTING AND INSPECTION PLAN (MTIP)

The QMP will include an MTIP describing the proposed inspections and test procedures, including products provided by suppliers during the manufacturing, receiving, and installation process, to ensure the requirements of the Contract Documents are met. The MTIP will identify all inspections and tests required including, at a minimum, reference to the requirements of the Contract Documents, frequency of the inspections and tests, and the Design-Build Team-developed QA processes. Where no inspections or test standard exists in any of the City Standards or Specifications, the MTIP will develop criteria based on the best-available industry standard information and technology.

The MTIP will include procedures for delivery, handling, and storage of finished products ensuring they are properly handled and stored to prevent damage, deterioration, or theft. It also will document procedures for stored items and materials consistent with the expected duration and type of storage, and procedures for monitoring special processes utilized in fabrication, assembly, and testing of specified products. Special processes are those requiring

qualified/certified production, inspection, and test personnel to perform highly skilled Work, such as welding, brazing, soldering, non-destructive testing, machining, coating, or plating.

The MTIP will describe all QA inspection and test activities to be carried out, including QA hold-points, and establish authority within the Design-Build Team's organization for releasing Work beyond the hold-point. While the Design-Build Team shall notify the City when Work has progressed to a hold-point, it will be the responsibility of the Design-Build Team's CQCM to verify that all requirements have been met prior to allowing the Work to progress.

The MTIP will include a summary of activity-specific material quantities to document that the minimum sampling, testing, and inspection requirements have been met. This summary will be performed and provided to the City monthly.

3.4.6 NONCONFORMING WORK

The Design-Build Team shall include in the QMP procedures to develop and maintain a system to identify, control, remedy, and report Nonconforming Work, including Nonconforming Work identified by the City. The QMP will include procedures to identify Nonconforming Work and to withhold progress payment requests on the monthly invoice until the Nonconforming Work is remedied. The Design-Build Team shall remedy Nonconforming Work in accordance with the QMP. The responsibility for review and disposition of Nonconforming Work will be established in the QMP. The Design-Build Team shall identify Nonconforming Work by completing a Non-Conformance Report (NCR). An NCR shall include:

- Identification of Nonconforming Work, including tagging Work products
- Evaluation of the Nonconforming Work
- Recommendation for "repair" or "use as is" dispositions
- Cause of Nonconforming Work
- Proposed corrective action to prevent recurrence
- Responsibility for accomplishing corrective action
- Schedule of Work with a date of remedy completion
- Signature lines for the QC manager and the City verifying the Nonconforming Work recommended remedy has been completed in accordance with the reviewed disposition.

The Design-Build Team's Engineer or Architect shall approve the recommended remedy for the Nonconforming Work prior to its submittal to the City. The Contactor shall not perform the recommended remedy prior to its submittal to the City for "repair" and "use as is" dispositions.

The Design-Build Team shall develop and maintain a Nonconforming Work log to track and identify the status of Nonconforming Work. An updated log will be submitted to the City weekly and will be used by the Design-Build Team to look for Nonconforming Work trends to determine if corrective actions are needed.

All NCRs will be recorded by the Design-Build Team and provided to the City.

The Design-Build Team shall include in the QMP procedures for controlling the use of Nonconforming Work, including the tagging of Nonconforming Work products. Nonconforming

Work product tags will only be removed by the originator of the NCR or the originator's supervisor, and only when the Design-Build Team demonstrates to the City that the Nonconforming Work product meets the requirements of the Contract.

The City reserves the right to withhold payments related to the Nonconforming Work until such Nonconforming Work is corrected to the satisfaction of the City.

3.4.7 CORRECTIVE AND PREVENTATIVE ACTION

The QMP will describe corrective and preventative action procedures that the Design-Build Team will use to identify and improve processes that produce, or may produce, systemic Nonconforming Work identified by the Design-Build Team or by the City. The Design-Build Team's corrective and preventative action procedures will include:

- Methods to investigate the cause of systemic Nonconforming Work and to determine what corrective action is needed to prevent recurrence.
- Methods to analyze all processes, Work operations, quality records, service reports, and the City assessments/testing to detect and eliminate the possibility of systemic Nonconforming Work from occurring.
- Methods to prioritize corrective and preventive action efforts based on the level of risk to the quality of the Work.
- Controls to ensure that effective corrective and preventative actions are taken when the need is identified.
- Methods to implement and record changes in procedures resulting from corrective and preventative actions.

3.4.8 COORDINATION OF MINOR FIELD ADJUSTMENTS

The Design-Build Team and City shall be expected to coordinate and facilitate minor field adjustments, which is typical for convention construction.

3.4.9 PUNCH LIST WORK

The Design-Build Team shall develop a punch list and punch list log, as required in the Contract Documents. The City will be invited by the Design-Build Team to attend walks of the Work to include items on the punch list. The Design-Build Team punch list and punch list log shall be provided to the City as a pre-requisite to requesting Substantial Completion. The Design-Build Team shall perform a Pre-punch list prior to creating the Punch List. The pre-punch list is an internal process performed by the Design-Build Team to build a list of deficiencies and repair them prior to building the Punch List

3.5 INDEPENDENT ASSURANCE TESTING AND INSPECTION OVERSIGHT

Independent Assurance Testing (IAT) and inspection oversight will be performed by the City. The CQAM shall monitor the progress of the placement of materials and inform the City about an upcoming need for an IAT consistent with the IAT schedule in the City Minimum Frequency of Materials Sampling and Testing Standard. The City reserves the right to perform IAT and inspection oversight at any time with or without the Design-Build Team's knowledge. The City may deviate from the IAT schedule at any time. The Design-Build Team shall coordinate with the testing agency to schedule tests as necessary. The City will contract directly with a 3rd party Materials Testing and Inspections company to perform testing and inspections as required by code and as frequently as desired by the City. The Design-Build Team is free to contract with their own 3rd party materials testing company to perform additional testing and inspections at their discretion.

3.6 ADDITIONAL TESTING

The City retains the right, but not the obligation, to direct the location and timing of additional testing to be performed at the Design-Build Team's expense. This additional testing shall be recorded as Owner Directed Testing (ODT) and such testing shall be in addition of that required by the QA schedules detailed in the final Quality Management Plan. Such additional testing shall not be used by the Design-Build Team to meet the minimum frequencies required by the CQMP or subsequent MTIPs. ODT shall be performed as soon as practical after direction by the City. ODT tests shall be included in the Design-Build Team's quality evaluation and acceptance of the Work. However, in no case shall such testing be performed later than two hours after requested by the City. If after the City request for an ODT, the Design-Build Team performs Work which makes the ODT more difficult or expensive; removal and subsequent replacement of Work to allow for testing where directed shall be solely at the Design-Build Team's expense.

3.7 DISCLAIMER

No review, implied acceptance or implied Approval, or "Statement of No Objection" by the City, of any report or document or other aspects of Design-Build Team's acts or omissions with respect to the quality of construction shall relieve the Design-Build Team of its obligations to complete the Work in accordance with all requirements of the Contract or its obligations of warranty.

3.8 QUALITY MANAGEMENT SUBMITTALS

At a minimum, the Design-Build Team shall submit the following to the City:

Deliverable	Information or Review	Schedule

Quality Management Plan (QMP)	Review and comment	For DQMP, sixty (60) Working Days following issuance of NTP or 30 days prior to start of design work whichever is earlier. For CQMP, 60 Calendar Days prior to the first RFC package.
Design Submittal and Review Schedule	Review and comment	30 Calendar Days following issuance of NTP
Material Testing and Inspection Plans (MTIP)	Review and comment	Submitted with CQMP
Monthly Design Quality Report	Review and comment	Monthly
Monthly Construction Quality Report	Review and comment	Monthly
Nonconforming Work log	Review and comment	Weekly
Mockup Register	Review and comment	30 Days prior to Start of Construction

3.9 APPENDICES

Appendix A - Review Comment Summary and Resolution (RCSR) Form

REVIEW COMMENT SUMMARY AND RESOLUTION SHEET			
Submittal:		**Designer:**	**Date:**
Plan / Design:	**Agency/Company:**	**Reviewer:**	**Page:** 1 of 1

CODE

1. Accept comment - correct, add, clarify
2. Delete Comment
3. Conflicts with previous direction
4. Clarify or discuss
5. Disagree with comment
6. Resolution of comment in next phase of design

Item No.	(1)Dwg No. or Page No.	Comments	(2)Code	(3)Response	(4)Final Disposition	
					Code	Date

If no comment, write "NO COMMENT"	Signature of Reviewer	Agency/Company Sign-off

(1) Indicate Drawing No. or Page No., or use "G" for General Comment
(2) To be filled out at Review Meeting
(3) To be filled out by DBC
(4) To be determined in subsequent meeting/discussion

4.0 PUBLIC INFORMATION

The City and County of Denver (City) shall be the lead agency to handle communications with the media, public, City staff, and other Stakeholders identified by the City. The Design-Build Team shall provide project information to the Project Management team.

The City seeks the design and construction of the Project in such a manner that protects public safety, reasonably minimizes the inconveniences of construction Work activities, and keeps the public informed of the specifics of Work while reminding them of the benefits and purpose of the Project.

The Design-Build Team shall provide updates as necessary for the City project team to be used to communicate information to Stakeholders and Public.

4.1 PUBLIC INFORMATION OFFICER

The Design-Build Team shall identify a qualified Public Information Officer (PIO) for the Project, who will provide accurate and timely information on Project issues to the City Project Management team. The PIO and/or designated representative of the PIO shall be accessible between 8:00 am to 5:00 pm on weekdays and Saturdays, for activities associated with public information for the duration of the Project (both design and construction Work). The PIO shall also be accessible outside of these hours for special circumstances like meetings/presentations, events as described in this Section 4, etc. The PIO shall adhere to protocols in the Crisis Communication Plan and respond quickly, if circumstances warrant (e.g. a public safety issue, emergencies, unintended/unanticipated major disruption to businesses, a pressing media demand, or other important time-sensitive matters).

4.2 PUBLIC CONTACT TRACKING

The Design-Build Team shall track all public contacts made from residents, businesses, and government offices, etc. At a minimum, this shall include and document (as available) the names, organizations, addresses, email addresses, fax and phone numbers, as well as the questions, comments, concerns, date of contact, and the response provided, date provided and individual that provided it. A public contact log detailing public contacts shall be submitted to the City on a monthly basis and upon request.

4.3 CRISIS COMMUNICATION PLAN

The design-Build Team shall submit a Crisis Communication Plan for review and comment by the City. This plan shall identify the contact information and actions required to respond to different types of crises that may arise during the course of the project.

4.4 DELIVERABLES

At a minimum, the Design-Build Team shall submit the following to the City:

Table 4-1 Deliverables

Deliverable	Information or Review	Schedule
Crisis Communications Plan	Review and comment	Concurrent with SMP

5.0 ENVIRONMENTAL REQUIREMENTS

The Design-Build Team shall comply with all requirements of all applicable environmental laws and regulations issued thereunder, whether a permit is obtained by the City, or the Design-Build Team. The Design-Build Team shall prepare an Environmental Compliance Work Plan (ECWP) for the Project. All post-construction monitoring requirements shall be identified.

At a minimum, the ECWP shall include or describe:

- Roles, responsibilities and communication
- All permits and approvals required to complete the Work.
- Procedures, protocols and schedule for achieving environmental compliance, including Design-Build Team design reviews, and compliance with Applicable Law.

The ECWP shall be submitted to the City for review and comment no later than 30 calendar days prior to commencement of any construction Work. The ECWP shall include a plan to complete a Structure Survey for City review and comment for any structures to be demolished. The survey will define the Contractors' approach and methodology for identifying the presence of asbestos containing building materials, lead-based paint, lead containing paint, and any other regulated materials. The plan shall be consistent with applicable State and City regulations regarding demolition.

5.1 ENVIRONMENTAL RESOURCES REQUIREMENTS

5.1.1 NOISE AND DUST CONTROL

The Design-Build Team shall develop and submit to the City, concurrent with Preliminary Schedule, a Noise and Dust Control Plan that outlines allowable daytime and nighttime construction, Project noise levels, and locations and types of noise abatement measures required to meet specific noise limits for the associated construction Work. Plan shall outline all dust the plan to contain, filter, and mitigate dust from travelling within the occupied portions of the Colorado Convention Center and outside the limits of construction.

All work must comply with the City and County of Denver Noise Ordinance (Section 36 of the Denver Revised Municipal Code). If construction Work will be out of compliance with these requirements, the Design-Build Team shall secure any necessary construction noise variance permits from the Denver Department of Health and Environment (DDPHE) prior to commencement of construction Work.

5.1.2. WASTE MANAGEMENT

The Design-Build Team shall provide a Waste Management Plan submittal to the City no later than 30 days prior to the commencement of construction activities. Prior to submitting this plan for review and comment, it is recommended that the Design-Build Team schedule a meeting with the City project team and the Denver Department of Public Health and Environment (DDPHE) to discuss the contents of the plan.

The Waste Management Plan shall include information on the Recycling Plan for materials generated as part of the project.

Executive Order No. 115 requires non-hazardous waste generated by this project to be disposed at the Denver Arapahoe Disposal Site (DADS). The Design-Build Team shall comply with Executive Order 115 including hauling non-hazardous waste to DADS for disposal. Disposal tickets for DADS will be obtained and paid for by the City but disposal and transportation of waste is the responsibility of the Design-Build Team. Recycling disposal is the responsibility of the Design-Build Team.

5.1.3. CONSTRUCTION DEWATERING

The Design-Build Team shall obtain a Construction Dewatering Permit from CDPHE for any dewatering of groundwater during construction in accordance with CDPHE-WQCD requirements. The Design-Build Team shall apply for this permit at least 90 Calendar Days prior to the start of discharge. In addition, authorization to discharge to the City storm sewer system shall be obtained prior to any dewatering discharge. The Design-Build Team shall provide all information needed to assist CDPHE – WQCD in their evaluation and setting of a water quality standard for this permit, which may include treatment and monitoring of the discharged water. The Design-Build Team shall monitor roadways and structures for any settlement caused by dewatering. The Design-Build Team shall survey any private property or buildings that may be affected by dewatering to establish existing conditions. The Design-Build Team shall repair any damage to roadways, or private property or buildings caused by dewatering operations.

5.1.4. TREE PROTECTION AND MONITORING

Appropriate tree pruning and/or removal permits must be secured prior to beginning work.

Contractor to notify Project Manager and City Forester at least two (2) weeks prior to critical work within the root zone of an existing tree. If it appears that the completion of the construction may cause damage to the branches of any tree, the Contractor shall contact the Project Manager and the City Forester's Office. The Project Manager and City Forester will decide as to whether such damage is imminent.

To prevent or minimize soil compaction, designated routes for equipment and foot traffic by work crews shall be determined prior to commencing construction activities and shall be indicated in the tree protection plan to be submitted by Design-Build Team to the Project Manager. These routes shall be marked at the site, prior to commencement of construction, with tree protection fencing and signage as specified in this section. A Tree Protection Plan shall be submitted to the Project Manager for review and comment by the City Forester.

Motorized equipment and trailers, including tractors, bobcats, bulldozers, rubber-tired excavators, tracked excavators, trucks, cars, and carts shall not be allowed access within tree protection areas. Should access be necessary within designated tree protection areas, the existing grade shall be covered with twelve inches (12") of wood mulch with overlapping three quarter inch (3/4") thick plywood on top to help distribute the weight of equipment and to minimize soil compaction and rutting. Plywood and/or mulch are not acceptable bridging materials for driving over exposed tree roots. Exposed tree roots shall not be driven over. The City Forester or

Project Consulting Arborist shall be notified and shall approve of the access and driving surface prior to its use.

Materials and supplies shall not be stockpiled or stored within the tree protection area unless otherwise approved by the City Forester. Should temporary storage be necessary within designated tree protection areas, the existing grade shall be covered with twelve inches (12") of wood mulch with overlapping three quarter inch (3/4") thick plywood on top to help distribute the weight of equipment and to minimize soil compaction and rutting. Plywood and/or mulch are not acceptable bridging materials for driving over exposed tree roots.

Under no circumstances shall any objects or materials be leaned against or supported by a tree's trunk, branches, or exposed roots. The attachment or installation to trees of any sign, cable, wire, nail, swing, or any other material that is not needed to help support the natural structure of the tree is prohibited. Standard arboricultural techniques such as bracing or cabling that are performed by professional arborists are acceptable upon review by the City Forester or Project Consulting Arborist.

5.1.5. DEFINITIONS

Critical Root Zone (CRZ): The CRZ shall be the area below ground and the space above ground, equal to one foot (1') radius from the base of the tree's trunk for each one (1") inch of the tree's diameter at four and one half feet (4.5') above grade (referred to as diameter at breast height)

Trunk Measurement:

Trunk Size	Where Measured
< 4"	6" above grade
4" – 8"	12" above grade
> 8"	54" above grade

Note: All measurements shall be rounded up to the nearest inch.

Drip Line: The outermost edge of the tree's canopy or branch spread. The area within a tree's drip line is all the ground under the total branch spread.

High Value Shrub: Any specimen shrub with an appraised value of one-hundred dollars ($100.00) or more.

Project Consulting Arborist: An independent consultant with a degree in a horticulture, arboriculture, and/or ISA Certified Arborist, and at least five years (5) field experience in tree preservation or on-site monitoring of public works or construction projects involving tree retention and protection. The Consultant shall be an active member in the American Society of Consulting Arborists and/or International Society of Arboriculture.

Structural Root Zone (SRZ): structural rooting area distance based upon biomechanical models of tree root strength and root plate resistance to wind loads; this is the minimum structural distance away from a tree for any type of encroachment under ideal conditions. Shall be defined as 0.9 * one inch (1) of a tree's trunk diameter. For example, a ten-inch (10") diameter tree

would have a structural rooting area, or root plate of nine feet (9) in diameter or four and one half feet (4.5') out from the stem on all sides (radius). The structural root plate shall be determined based on the following guidelines:

Tree Diameter (in inches)	**SRZ (radius in feet)**
< 8	3.5
10	4.5
12	10.8
15	13.50
18	16
20	18
25	11.25

Tree Protection Area: The tree protection area shall consist of the ground encompassing from one and one half (1.5) minimum to two times (2) the distance between the trunk and drip line, or one linear foot away from the trunk base for every inch diameter of the trunk, whichever is greater (see definition of drip line, below). Areas of ground covered by pavement, buildings, or other permanent structures where the presence of roots is minimal or negligible are excluded. The area under or within the tree's drip line is also referred to as the "Critical Root Zone" (see definition of critical root zone).

With groups of trees or where an array effect is present, there may be discontinuous (non-overlapping) perimeters of tree protection areas, which result in difficult to maintain or ineffective tree protection fencing. In these cases, even though tree protection areas do not overlap, they shall be treated as though they do if the distance between the perimeters of such areas is less than thirty feet (30). In effect, this will artificially enlarge the area of tree protection, but will result in a more clearly defined, manageable area.

5.1.6. SUBMITTALS

Tree Protection Plan: Submit tree protection plan for review and comment by the City Forester.

Proposed methods and schedule for effectuating tree and other plant protection shall be submitted for review and comment. Contractor shall submit construction schedule which includes a time frame for work near existing plants. Approval of such shall be obtained from the City Forester prior to commencement of construction near tree protection areas.

Proposed methods, materials, and schedule for root pruning, branch pruning, and other tree maintenance shall be submitted for review and comment.

The City Forester or Forestry Appointee shall mark the location of root pruning lines in the field prior to the operation.

If possible, root pruning shall occur between autumnal leaf fall and spring foliation.

Root pruning during the growing season shall require approval of the City Forester or Forestry Appointee.

Maintenance Schedule: Submit maintenance schedule to City Forester for review and comment.

5.1.7. CONSTRUCTION REQUIREMENTS

Section 5.1.4 through 5.1.16 provides standards and guidelines for the retention and protection of trees and high-value shrubs for any proposed construction project.

5.1.8. DEMOLITION OF EXISTING CONCRETE

Caution shall be used during removal of existing street, curb, gutter, sidewalk, drain inlets, and other concrete and asphalt demolition, to minimize injury to tree root systems. The following procedures shall be used when removing existing concrete.

Breaking of the existing concrete and asphalt for removal shall be done in a manner that will minimize ground disturbance and vibration.

Curbs and sidewalks within designated tree protection areas and critical root zones shall be removed in a manner approved by the City Forester. When removing existing sidewalks and curbs, care shall be taken to avoid injury to roots located under, over, or adjacent to paved surfaces.

Roots and root-trunk flares growing over curbs shall not be injured during breaking of curbs and removal of debris. Wood and bark tissues shall not be injured by striking tissues with equipment.

During the removal of concrete, all root systems and soil areas exposed shall not be disturbed.

Motorized equipment and trailers, including but not limited to tractors, skid steers, bulldozers, rubber-tired excavators, tracked excavators, trucks, cars, and carts are to be limited to access on the existing paved street only. Access is not allowed behind the curb within tree protection areas.

Should access be necessary within designated tree protection areas, the existing grade shall be covered with twelve inches (12”) of wood mulch and double overlapping sheets of three-quarter inch (3/4”) thick plywood placed on top of the wood mulch to help distribute the weight of equipment and to minimize soil compaction and rutting.

Plywood and/or mulch are not acceptable bridging materials for driving over exposed tree roots. Exposed tree roots shall not be driven over.

The City Forester or Project Consulting Arborist shall be notified and shall approve of the access and driving surface prior to its use.

5.1.9. CONSTRUCTION OF SIDEWALKS, CURBS, CONCRETE, ASPHALT PAVING, AND DRAINAGE INLETS

The following procedures shall be used when constructing sidewalks, curbs, concrete, asphalt paving, and drainage inlets.

Keep all materials and equipment within the street bounded by existing curbs.

Construct new sidewalks on, or above, the existing grade instead of excavating into root zones. The new grade shall not interfere with sheet-flow drainage.

Protect exposed roots from contamination by stabilization materials and concrete.

Locate concrete washouts away from tree protection areas. Washout runoff shall be strictly contained within the washout area and shall not flow into Tree Retention and Protection Areas or proposed new planting areas.

When excavating for the construction of inlets, excavated soil shall be deposited in trucks and hauled off or deposited temporarily on three quarter inch (3/4") thick plywood outside the critical root zone. Excavated and fill soil shall not be deposited, even temporarily, on unprotected natural grade.

After proper pruning, as needed, cover exposed roots within thirty (30) minutes to minimize desiccation. Roots may be covered with soil, mulch, or moistened burlap (7 ounce or equivalent), and shall be kept moist during the period until the final grade is established.

The following procedures shall be used when roots are encountered outside of tree protection area.

Where possible, construction shall be relocated to prevent damage to existing roots. Where relocation of walks is not possible, walks shall be constructed in a manner with the least amount of impact/damage to roots including but not limited to raised, narrowed, curbed, ramped, bridged, cantilevered, use of pylons, root break out zones, root channeling, structural cells to prevent cutting and removing major roots (e.g. roots greater than two inches in diameter).

Grading within the critical root zone shall be performed by hand or a method approved by the City Forester. Any fill material that needs to be placed in the critical root zone shall be limited to a maximum of one inch (1") of fill material over the critical root zone area. Fill shall consist of sandy loam topsoil. Clay soils shall not be used as fill. When using fill soil, the existing surface to receive fill shall be scarified by hand to a maximum depth of one inch (1") from the finished grade prior to placing fill material, to ensure proper incorporation of fill material. Any filling operation shall not occur during water saturated soil conditions.

Existing soil may be used as a form for back of curb and gutter, with or without the use of a thin Masonite-type form, although a Masonite form is preferred. This will minimize excavation in the critical root zone and prevent undue injury to the roots. This method is unnecessary in areas outside the critical root zone. Place a layer of "Typar BioBarrier" between the curb and tree roots to help inhibit root growth that may exploit small cracks in the curb. Where appropriate, use curbs with discontinuous footings to maintain natural grade near the base of trees adjacent to the curbing, and to minimize injury to roots and root flares.

Provide for easy concrete removal and replacement where an obvious raised root may cause sidewalk cracking in the future. This can be accomplished by installing an expansion joint on either side of the root or by scoring (as shown on the Contract Documents) the concrete on either side of the root to allow that section to be broken out and replaced. Compaction rating for the replacement walkway shall not exceed eighty percent (80%) Proctor density. Tree roots will continue to slowly add girth every year; therefore, the base material needs to be malleable (e.g. suitable subgrade aggregates, crushed granite, or compacted sand) to prevent a fulcrum or pressure point which can crack or heave the walkway.

Where appropriate, and under the direction of the City Forester or Appointee, root restricting barriers can be installed with a minimal amount of disturbance away from sidewalks, curbs and streets. Materials include:

- Eight (8) Mesh Copper (0.028-inch or greater) wire screen
- "Typar BioBarrier" as manufactured by Fiberweb, Inc. www.biobarrier.com
- Or acceptable substitution

In areas where roots have to be removed for construction of drain inlets, roots shall be severed prior to excavation to eliminate unnecessary tearing of roots by equipment, refer to Article 3.5 - Root Pruning.

Excavate soil by hand at the construction cut limit to a depth of thirty (30) inches or to the depth of the required root cut, whichever is less.

Prune roots as specified.

Protect exposed roots as specified.

Concrete or chemicals spilled within tree protection areas shall be completely removed. Contaminated soil shall be completely removed at the time of the spill and removed by hand and/or air spade tool without disturbance to root systems. Appropriate soil shall be added as necessary to restore the grade. Contact the City Forester immediately in the event of a spill within a tree protection area.

5.1.10. IRRIGATION OR UTILITY INSTALLATION

Protection of Trees and High Value Shrubs: Contractor shall protect all trees and high-value shrubs from injury due to irrigation related work. All injuries to trees and high-value shrubs shall be mitigated to the satisfaction of the City Forester, and, if appropriate in accordance with guidelines established in the "Guide for Plant Appraisal." All costs of such mitigating shall be charged to and paid by the Contractor. See Article 3.9 – Injuries to Existing Plants – Damage Penalties of this section for definition of high value trees and shrubs.

All irrigation lines shall be indicated on construction plans and pre-approved by the City Forester or Project Manager. No irrigation lines shall be located within ten feet (10') of any existing tree trunk, without prior approval of City Forester or Project Manager.

Existing Trees: The City Forester or Project Consulting Arborist shall be notified prior to any trenching or excavation known or suspected to disturb more than ten percent (10%) of the critical root zone.

Where it is necessary to excavate within the critical root zone of existing trees, the Contractor shall use all possible care to avoid injury to trees and tree roots. Where more than ten percent (10%) of the critical root zone area is to be disturbed the Contractor shall notify the City Forester or Project Consulting Arborist to review the conditions. Final approval must be provided by City Forester or Project Consulting Arborist prior to excavation work. In areas where tunneling or boring are to occur all exposed roots shall be covered with moistened burlap to prevent drying of roots.

When excavation within a Structural Root Zone of a tree is required then a directional boring method shall be used, or an alternative method approved by the City Forester.

All trenching or other work within the drip line of any tree shall be done by hand or other methods approved by the City Forester or Project Manager, which will prevent breakage or other injury to branches and roots.

Wherever a trenching machine exposes roots extending through the trench wall, those roots shall be hand pruned immediately, refer to Article 3.5 - Root Pruning. All trenches within critical root zones shall be closed within twelve (12) hours; if this is not possible, the trench walls shall be covered with burlap and kept moistened. Prior to backfilling, the Contractor shall contact the City Forester, Project Consulting Arborist, or Project Manager to inspect the condition and treatment of roots injured by trenching.

5.1.11. ROOT PRUNING

Tree roots shall not be pruned or cut unless their removal is unavoidable or absolutely necessary. The City Forester or Project Manager shall be notified prior to any operation known or suspected to involve cutting of more than:

The City Forester or Project Consulting Arborist shall be notified immediately in the event that roots in excess of one-half the diameter of the tree, as measured per Definitions, are cut, torn, ripped, or otherwise injured.

Upon review and comment by the City Forester, prior to any excavation, removal of sidewalk, or other activity that will result in removal of soil and tree roots, all tree roots within a designated area will be pruned to a depth of fourteen inches (14”). All root pruning shall be done by hand with approved tools.

Removal of roots greater than one-half the diameter of the tree, as measured per Definitions, or parts of roots that are injured or diseased shall be performed as follows:

Preserve the root bark ridge (similar in structure and function to a branch bark ridge). Directional root pruning technique shall be used during hand excavation around tree roots. Roots are like branches in their response to pruning practices. With directional root pruning, objectionable and severely injured roots are properly cut to a lateral root one-third (1/3) the size of the root being cut, if possible, that is growing downward or in a favorable direction.

All roots needing to be pruned or removed shall be cut cleanly with sharp hand tools, with oversight by the City Forester or Project Consulting Arborist. No wound dressings shall be used.

Recommended root pruning tools:

- Scissor-type lopper.
- Scissor-type pruner.
- Large and small hand saws.
- Wound scriber.

Root Pruning Near Sidewalks:

Root pruning shall be done carefully, by hand, to achieve the objective of reducing future sidewalk problems as well as preserving the trees. Removing anchoring roots or causing injuries in anchoring roots and root flares can cause future decay and potential hazards. Indiscriminate cutting of vigorous roots results in their regeneration so that several more new roots may grow from the cut end, back under the sidewalk, thereby reducing the time between sidewalk repairs. Roots can be managed in the ground without significant harm to trees, if care is taken to avoid injuries that lead to root and trunk decay.

Directional root pruning is recommended because it considers the tree's response to root pruning and decay. With directional root pruning, roots are cut to a lateral one third (1/3) the size of the root being cut, if possible, that is growing downward or in a more favorable direction. The pruned root ends will be less likely to regenerate, since a large lateral can assume the new terminal role of the root.

Proper removal of selected roots or parts of roots can direct roots away from sidewalks in the future. Procedures for root pruning directly next to sidewalks are as follows:

Hand-dig a trench six (6) to eight (8) inches in depth at the edge of the planting strip and sidewalk.

Remove all roots less than two inches (2") in diameter in this trench back to a desirable lateral root, preserving the root bark ridge. If careful excavation does not reveal a desirable lateral root within twelve inches (12") of the exposed root in question, then the exposed root shall be pruned properly so that a minimal amount of root is removed.

Small root bundles, the source of future sidewalk problems, shall also be removed at this time.

All roots one-half the diameter of the tree caliper as measured per Paragraph 1.5.D shall be examined by the City Forester or Project Consulting Arborist in terms of their role in anchoring the tree.

All roots that contribute significantly to anchorage shall be preserved. Remove all other roots in this size range to sound, downward growing lateral roots that are at least one third (1/3) the size of the root being removed.

All roots larger than one-half the diameter of the tree caliper as measured per Paragraph 1.5.D diameter are to be preserved unless their removal is absolutely necessary and approved by the City Forester. Preservation of large roots may require:

- Reducing the sidewalk width near the root flare and/or
- Curving or relocating walk around root/root flare;
- Ramping or bridging the sidewalk over the roots to allow for root growth;
- Use of cantilever/pylon technology;

- Establish root break out zones;
- Root channeling;
- Structural cells.

Tree Guying Subsequent to Root Pruning: Upon review of on-site root pruning and constructing grading limits, the City Forester shall determine if existing trees subject to root pruning shall be guyed or otherwise stabilized. Contractor shall retain a qualified tree service company to complete tree guying and stabilization in accordance with Tree Care Industry Association standards. Tree service company shall be licensed by the City and County of Denver, through the City Forester's Office.

5.1.12. TREE PROTECTION FENCING

Tree protection fencing shall be installed one foot (1') behind the existing curb in areas where the street surface will be removed and replaced. Tree protection areas shall be designated on construction documents and fencing locations shall be staked for review and comment by the Project Manager and City Forester or Project Consulting Arborist.

Tree protection fences shall be constructed of one of the following:

Galvanized Chain-link – Six feet (6') in height. Posts shall be installed no less than ten feet (10') on center, at a depth of thirty-six inches (36") minimum. Installation of post shall not result in injury to tree surface roots; root flares or branches.

Colored (orange), molded plastic construction fencing forty-eight inches (48") in height.

Fencing shall be installed to completely surround the limits of tree protection areas and shall extend at least ten feet (10') beyond the designated construction limits.

Tree protection fencing shall be installed prior to any site activity and shall remain until its removal is authorized by the City Forester or the Project Manager.

5.1.13. TREE PROTECTION SIGNAGE

A standard Forestry Tree Protection sign shall be mounted on tree protection fencing at fifty-foot (50') intervals warning construction personnel and the public to keep out of the tree protection areas.

Signs may be picked up at the City Forestry office in the Webb Building at 201 W. Colfax Avenue.

5.1.14. PROJECT SITE MONITORING

As determined by the City Forester for projects of enough size to warrant such, a Project Consulting Arborist shall be retained to enforce and monitor the Tree Retention and Protection objectives.

The project site shall be monitored a minimum of two (2) times weekly (more frequently at the start of the project) until all procedures and specifications are understood and properly executed by all parties.

Specific monitoring schedules shall be developed at preconstruction meetings and modified as deemed necessary by the appropriate parties.

Schedules shall be relayed to the City Forester and the Project Manager along with reports of site visits.

5.1.15. INJURIES TO EXISTING PLANTS - DAMAGE PENALTIES

Tree and High-Value Shrub Appraisal: All trees and high-value shrubs will be evaluated and appraised by the City Forester or Forestry Appointee, and a list of all tree values for the project will be on file in the Contractor's office.

Any tree or other plant requiring retention or protection that is not on the list shall be appraised by the City Forester or Project Consulting Arborist as necessary to comply with this damage penalty.

Documentation for appraisals will consist of:

- Measurement of plant size;
- Identification by common and botanical names;
- Current condition (overall health, injuries, overt hazard status, etc.);
- Location factors as described in the most current addition of "Guide for Plant Appraisal."

Photographs may be taken of certain trees and shrubs to document debilitating condition factors.

The threshold level for plants to be appraised shall be one-hundred dollars ($100.00); only those trees and shrubs estimated to have a monetary value greater than one-hundred dollars ($100.00) shall be appraised.

Trees and other plants designated as requiring retention or protection shall be identified and located on construction plans. Loss of, or partial injury to, any of these plants due to Contractor neglect or improper construction activities will result in a penalty of up to three times the appraised value of the tree as determined by the City Forester or Forestry Appointee as described in Chapter 57 of the Denver Revised Municipal Code.

Trees determined as requiring "general protection" or "special protection" in the construction areas and in other key locations shall be clearly identified by the City Forester or Forestry Appointee. Loss or partial injury to any of these trees due to Contractor neglect or improper construction activities will result in a penalty of up to three times the appraised value of the trees as determined by the City Forester or Project Consulting Arborist as described in Chapter 57 of Denver Revised Municipal Code. Injury to a portion of these trees will be assessed by the City Forester or Project Consulting Arborist and a corresponding portion of the damages will be assessed to the Contractor.

A fine of one-thousand dollars ($1,000.00) will be levied against the Contractor for each incident of construction damage (including construction traffic) within designated tree protection areas.

Any fine shall be independent of any applicable damages for the appraised value of the tree or tree part.

Trees or roots visibly and unnecessarily injured, in the opinion of the Project Manager, City Forester and/or Project Consulting Arborist will cause the City to withhold from the Contractor an assessed amount conforming to the requirements stipulated above, for a period of one full year. After that period the impact of the injury to any tree will be assessed by the City Forester or the Forestry Appointee.

5.1.16. TREE AND OTHER PLANT MAINTENANCE DURING AND AFTER COMPLETION OF CONSTRUCTION

Tree Maintenance: Proper maintenance shall include, but not be limited to structural and remedial pruning, watering, mulching, remediating soil compaction, fertilization, insect and disease control, soil and tissue analysis, aeration, and wound treatment.

The timing duration and frequency of necessary maintenance practices shall be determined and approved by the City Forester or Forestry Appointee, based on factors associated with the site and affected plants.

Submit maintenance schedule to the City Forester for review and comment prior to work beginning.

5.2 DELIVERABLES

At a minimum, the Design-Build Team shall submit the following to the City:

Table 5-1 Deliverables

Deliverable	Information or Review	Schedule
Noise and Dust Control Plan	Review and comment	Concurrent with Baseline Schedule
Waste Management Plan	Review and comment	30 Days prior to Commencement of construction activities
Application for Construction Dewatering Permit	Review and comment	90 Days prior to the start of discharge
Application for appropriate tree pruning and/or removal permit	Review and comment	2 Weeks prior to critical work within the root zone of an existing tree
Tree Protection Plan	Review and comment	Prior to Commencement of construction near tree protection areas.
Tree and Plant Maintenance Schedule	Review and comment	Prior to Commencement of construction

6.0 THIRD-PARTY AGREEMENTS

The Design-Build Team shall be responsible for obtaining all third-party approvals required to complete the Work. Utility Owner approvals and other requirements are provided in Section 7 Utility Relocations.

Notification of any approvals required to complete the Work from third parties shall be submitted to the City within five Working Days of obtaining the approval.

6.1 DELIVERABLES

At a minimum, the Design-Build Team shall submit the following to the City:

Table 6-1 Deliverables

Deliverable	Information or Review	Schedule
Notice of approval for removal, removal and reconstruction or protection in place by affected third party	Information	Within five Working Days of obtaining third-party approval

7.0 UTILITY RELOCATIONS

This Section 7 addresses Utility company (Utility Owner) requirements.

7.1 GENERAL UTILITY WORK OBLIGATIONS

The Design-Build Team shall coordinate and cooperate with the City and the Utility Owners to ensure that all Utility Work (whether performed or furnished by the Utility Owners or by Design-Build Team) is performed in accordance with the executed Utility Agreements. The physical limits of the Design-Build Team's obligation for the performance of Utility Work shall extend as far as is necessary to permit construction of the Project (taking into account the requirements of the Utility Owners, governmental persons with jurisdiction, and adjacent property owners), whether inside or outside the existing City owned property. The Design-Build Team is responsible for all Utility related construction Work necessary to complete the project.

The Design-Build Team shall use reasonable efforts to anticipate and avoid Utilities, and to otherwise minimize and/or mitigate the consequences of the Utility Relocations.

Replacements for any existing Utilities shall be designed and constructed to provide service at least equal to that offered by the existing Utility, unless the Utility Owner approves a lesser replacement.

Except as otherwise stated in this Section 7, the Work shall include all Utility Work related to existing Public Utilities that is necessary or advisable to accommodate or permit construction of the Project.

Except as otherwise stated in this Section 7, the Work shall include coordinating all Utility Work performed by the Utility Owner related to existing Private Utilities that is necessary or advisable to accommodate construction of the Project.

The Design-Build Team shall perform all Utility Work necessary to maintain existing or establish new Utility services for the Work. Denver Water Tap and Xcel power, gas, and heating/chilled water fees shall be the responsibility of the City.

The Design-Build Team shall be responsible for the coordination of power source work to be performed by Xcel. The Design-Build Team is responsible for any additional power source requirements to the Project site by Xcel. The Design-Build Team shall request, and process to completion, the required coordination to establish the Utility service for lighting, ITS, traffic signals, landscaping, irrigation, pump stations, and other electrical devices that, in each case, form part of the Work. All power connections to devices shall include a quick disconnect.

The Design-Build Team shall obtain approval of the design from the Utility service provider and coordinate and meet all requirements as specified by the Utility service provider for the complete and operational service to all required locations.

7.1.1 UTILITY WORK

The Design-Build Team shall carry out all Utility Work in accordance with the requirements of the Utility Agreements and this Section 7. Utility Work includes, but is not limited to the following activities:

- Performance of all tasks, obligations and duties assigned to the Design-Build Team in the Utility Agreements.
- Identification and field verification of Utility locations by investigating all Utilities located within or near the existing City owned property or otherwise affected by the Project. Field verification of Utilities is required by the Design-Build Team prior to construction Work.
- Development and updates to the Design-Build Team's Utility Matrix.
- Prepare and execute the Utility No-Conflict Closeout Form for appropriate Utilities.
- Cooperation with the City at the Design-Build Team's expense, as reasonably requested by the City, in connection with negotiating and preparing of the Utility Work Order for each Utility Relocation by the Private Utility Owner, as needed. This obligation shall include preparing and providing such written information concerning the Project (such as reports, drawings, and surveys) as requested by the City.
- Review each Private Utility Relocation Design (URD), then verify and accept that each Utility Relocation by the form of DRAL that each Utility Relocation is compatible with the Project.
- Preparation of the URD for each required Public Utility Owner and obtaining design acceptance from the Public Utility Owner.
- Construction of the Public Utilities Relocations, including service lines and temporary Relocations, and obtaining the construction acceptance by the form of Construction Relocation Acceptance Letter (CRAL) from the Public Utility Owner.
- Inspection of the Utility Relocation construction for each Private Utilities Relocation, then verification and acceptance by the form of CRAL that each Utility Relocation is compatible with the Project.
- Providing public information for Utility Work performed by Design-Build Team or performed by the Utility Owner.
- All Work required for Utility and service connections to the project.
- Coordination with the appropriate Utility Owners regarding service disconnects and/or removals per Utility Owners procedures as needed for demotion of existing structures.
- Performing and coordinating As-Builts for all public and private Utilities per the Utility Agreements and/or Work Order.
- All necessary Work associated with Utility Work.

7.1.2 DESIGN-BUILD TEAM'S RESPONSIBILITY TO PERFORM

The Design-Build Team shall perform all efforts included in the Utility Work with respect to each impacted Utility regardless of the following:

- Whether or not the Utility was indicated in the attached appendices, or if indicated, whether or not the Utility was accurately indicated. All Utility locations in the plans are for informational purposes only. All Utility locations shall be field verified by the Design-Build Team.
- The type of action, if any (e.g., Relocation, protection-in-place), feasibility, estimated duration of Work time or any other characteristic of any Relocation concept(s) proposed for the Utility in the attached appendices. Protection in place of all Utilities not being relocated, abandoned or removed is the responsibility of the Design-Build Team. The Design-Build Team is responsible for all Utility damages caused by the Design-Build Team and/or its subcontractors. Any repairs will be at the Design-Build Team's expense.

The allocation of responsibility for any Utility Work to a Utility Owner pursuant to this Section 7 or to a Utility Agreement shall not relieve the Design-Build Team of the obligation to coordinate with the Utility Owner as necessary for such Utility Work to be timely performed, or of the obligation to perform any other Utility Work not specifically assigned to such Utility Owner.

7.2 PERFORMANCE STANDARDS

Except as otherwise provided in the applicable Utility Agreement or Work Order – all URDs and construction of Relocations furnished or performed by the Design-Build Team shall be consistent with the Utility Owner's written specifications, standards of practice (which may include design format) and construction methods, that are current at the Proposal due date. The Design-Build Team shall obtain all such written specifications, standards of practice and construction methods from the Utility Owners. In the event of a conflict between the requirements of the Utility Owner or requirements of these Contract Documents, the City in its sole discretion, shall determine which shall govern unless otherwise set forth in the Work Order.

The Design-Build Team shall be responsible for resolution of any unresolved ambiguity prior to proceeding with any Utility Work.

7.3 UTILITY COORDINATION

7.3.1 GENERAL

The Design-Build Team shall be responsible for coordination of all activities and coordination with the Utility Owners and the City in order to accomplish all Utility Work. In the discharge of its coordination responsibilities, the Design-Build Team shall:

- Keep Utility Owners fully informed of schedules with regard to Utility Work. The Design-Build Team shall provide to the Utility Owners, as soon as

practicable, an estimated schedule for their respective Utility Work and shall notify the Utility Owners of any significant changes to the schedule as soon as practicable.

- Keep Utility Owners fully informed of changes that affect their Utilities.
- Consider, to the extent practicable, Utility Owners' needs for the allocation of resources to perform their respective Utility Work in a timely manner. The Design-Build Team and/or their subcontractors and subconsultants shall coordinate with the Utility Owners to minimize delays.
- Keep Utility Owners involved in making decisions that affect their Utilities so Utility Owners are able to provide uninterrupted service to their customers, or to be subject to the least interruption practicable as approved by the Utility Owner.
- Avoid multiple Relocation of the same Private Utility.

Where the Utility Owner performs the Utility Work, the Utility Owner shall provide As-Built Plans of the Relocation to the City and to the Design-Build Team as soon as practicable, but not later than 90 Calendar Days after execution of a CRAL. The As-Built Plans may be in the form of redlining changes that deviate from the Approved URD attached to the Utility Work Order. The Design-Build Team shall show the Utility As-Built information on the final Project As-Built Plans.

Where the Design-Build Team performs the Utility Work, the Design-Build Team shall provide As-Built Plans of the Relocation to the City, CDOT (as applicable), and the Utility Owner as soon as practicable, but not later than 90 Calendar Days after execution of a CRAL. The As-Builts Plans may be in the form of redlining changes that deviate from the Approved URD attached to the Utility Work Order. The Design-Build Team shall show the Utility As-Built information on the final Project As-Built Plans.

8.0 GEOTECHNICAL, PAVEMENTS, AND STRUCTURE FOUNDATIONS

8.1 GEOTECHNICAL INVESTIGATIONS

A geotechnical investigation, including laboratory tests and engineering analyses has been conducted for the City to define subsurface conditions and soil characteristics for the Project. The results of this investigation are contained in the Geotechnical Investigation Report provided in the Reference Documents, which is for information only. The Design-Build Team shall conduct such additional subsurface investigations as it determines necessary to complete its designs.

The Design-Build Team shall utilize the Geotechnical Report provided by the City and be responsible for any supplemental subsurface investigations necessary to complete the Work.

Geotechnical investigations shall comply with the City Building and Fire Code and all other applicable codes and industry standards.

9.0 CONSTRUCTION WASTE MANAGEMENT

9.1 PERFORMANCE REQUIREMENTS

General: Achieve minimum end-of-Project rates for salvage/recycling of 75 percent by weight of total non-hazardous solid waste generated by the Work. Comply with requirements of the LEED scorecard related to waste management. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:

2. Demolition Waste:
    N. Asphalt paving.
    O. Concrete.
    P. Concrete reinforcing steel.
    Q. Terra cotta/plaster walls.
    R. Structural and miscellaneous steel.
    S. Rough hardware.
    T. Insulation.
    U. Doors and frames.
    V. Door hardware.
    W. Windows.
    X. Glazing.
    Y. Gypsum board.
    Z. Equipment.
    AA. Cabinets.
    BB. Piping.
    CC. Supports and hangers.
    DD. Valves.
    EE. Mechanical equipment.
    FF. Refrigerants.
    GG. Electrical conduit.
    HH. Copper wiring.
    II. Lighting fixtures.
    JJ. Lamps.
    KK. Ballasts.

LL. Electrical devices.

3. Construction Waste:

MM. Lumber.

NN. Wood sheet materials.

OO. Metals.

PP. Insulation.

QQ. Carpet.

RR. Metal studs.

SS. Gypsum board.

TT. Piping.

UU. Electrical conduit.

VV. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:

6. Paper.
7. Cardboard.
8. Boxes.
9. Plastic sheet and film.
10. Polystyrene packaging.
11. Wood crates.
12. Plastic pails.

9.2 ACTION SUBMITTALS

Waste Management Plan: Submit plan 60 days prior to start of construction.

9.3 INFORMATIONAL SUBMITTALS

See Evaluations for example of Progress Reports and sample forms in “Waste Reduction Progress Reports” Paragraph below. See “Attachments” Article for example of location for attachment of forms according to CSI's “Section Format.”

Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:

4. Material category.
5. Generation point of waste.

6. Total quantity of waste in tons.
7. Quantity of waste salvaged, both estimated and actual in tons.
8. Quantity of waste recycled, both estimated and actual in tons.
9. Total quantity of waste recovered (salvaged plus recycled) in tons.
10. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

Qualification Data: For refrigerant recovery technician.

Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

9.4 QUALITY ASSURANCE

Some Contractors may use waste management coordination services of an outside waste management firm; retain option in "Waste Management Coordinator Qualifications"

Waste Management Coordinator Qualifications: General Contractor with a record of successful waste management coordination of projects with similar requirements.

Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

11. Disposal Procedures:

    WW. Location: Denver Arapahoe Disposal Site—DADS. All debris must be disposed of at this location.

XX. Removal and Hauling: All Debris removal and hauling cost shall be part of base bid.

YY. The Owner will set up an account with DADS that will cover the dump volumes cost only. All other fees to be included in base bid by General Contractor.

Waste Management Conference: Conduct conference at Project site to comply with requirements in Technical Specification Section 012000 "Project Meetings." Meeting shall include contractors affected by the Waste Management Plan. Review methods and procedures related to waste management including, but not limited to, the following:

12. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
13. Review requirements for documenting quantities of each type of waste and its disposition.
14. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
15. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
16. Review waste management requirements for each trade.

10.0 MAINTENANCE OF OPERATIONS GUEST HOUSE RULES

The Design-Build Team shall conduct all Work necessary to meet the requirements associated with maintenance of operations (MOO), including provisions for the safe and efficient movement of people, goods and services through and around the Project, while minimizing impacts and delays to operations.

10.1 OPERATIONS COORDINATION

10.1.1 OPERATIONS MANAGEMENT PLAN

The Design-Build Team shall prepare an Operations Management Plan (OMP), which defines the strategic plan for operations management for the Project, particularly the coordination requirements in an active convention center and any associated impacts to surrounding properties and property owners. The OMP shall address major aspects of the construction Work based on groupings of similar construction Work. These aspects shall include but are not limited to barricade/area closures, construction phasing and staging, haul routes, construction site access, and description, numbers and type of control personnel, device quality and maintenance requirements, contact lists, communication protocols, public information, pedestrian access, and emergency access. The OMP shall be submitted at least 30 calendar days prior to commencement of construction Work for review and comment by the City and County of Denver (City). The Design-Build Team shall obtain any permits for lane closures through City Right-of-Way (ROW)or Colorado Department of Transportation (CDOT), as necessary.

The OMP shall include a specific grouping of construction Work for the Project, as defined by the Design-Build Team, with similar construction Work elements for the purpose of planning and executing the Work. Construction Work types shall have similar Maintenance of Traffic (MOT) phasing, traffic control personnel, devices, maintenance requirements, communication protocols, lane closure requirements (if any), etc. Each construction Work type shall have a Traffic Control Plan (TCP) in conformance with this Section 16.

The OMP shall include, at a minimum, the following:

- A detailed approach to the development of TCPs and Method of Handling Traffic (MHTs) for the Project.
- A list of known or potential lane closures, with location, time, and durations provided.
- A checklist identifying specific items that shall be provided to the Public Information Officer (PIO), both Design-Build Team's and City's, weekly for public information data collection and management activities for the Project. The checklist shall provide the inclusion of supporting information relevant to coping messages and public awareness and shall be included in the Public Information Plan (PIP).
- Approach to public, business and residential access.

- Approach to coordination and cooperation with construction being performed by Utility Owners or other Utility relocations, as required in Section 7 Utility Relocations.
- Emergency requirements.
- Relevant portions of the Incident Management Plan (IMP), described below.
- Approach to Special Event coordination including event truck access to loading docks, patron vehicular access to parking and pickup/drop off, etc.
- Approach to addressing drainage during traffic management.

10.1.2 MAINTENANCE OF TRAFFIC VARIANCE PROCESS

The Design-Build Team shall submit all traffic changes and lane closure requests directly to the City of Denver Department of Transportation and Infrastructure (Right of Way Department) via their required process. All Street Occupancy Permit lane, meter, and sidewalk closure fees will be the responsibility of the City. The Project Manager shall be copied on all communication with the Right of Way Department. The Design-Build Team shall submit traffic changes and lane closure requests simultaneously to the Project Manager for review and comment.

The following information shall be included in each MOT Variance request:

- Summary of the MOT Variance request.
- Justification for the MOT Variance request including a list of the criteria which cannot be met and the reasons for not meeting those criteria.
- Schedule of planned construction Work activities during the MOT Variance.
- Public notification methods and schedule.
- List of affected emergency services and the schedule for their notification.
- List of affected agencies or private owners and the method(s) and schedule for their notification.
- Description of additional public information surveys to be performed, if required.
- List of potential safety hazards to which motorists and citizens may be exposed, if any.
- Proposed revisions to the final TCP or current MHT.

The Design-Build Team shall allow the City a minimum of 10 working days for review and comment of any MOT Variance requests. MOT Variances are at the sole discretion of the City.

10.1.3 INCIDENT MANAGEMENT PLAN

The Design-Build Team shall develop an Incident Management Plan (IMP) to manage traffic incidents and emergency operations within the Project Limits. The IMP shall be submitted to the

City at least 30 Calendar Days prior to commencement of construction for review and comment. At a minimum, the IMP shall include the following:

- Coordination with the PIP
- Incident response
- Incident clearance
- Emergency services notification, including local area police departments, local area fire departments, ambulance services, and any other emergency response providers
- Geographic or other special constraints
- Design-Build Team responsibilities
- Alternate routes
- Project phasing
- Available resources

No Work impacting traffic will commence until the all IMP related City comments have been addressed.

The Design-Build Team shall inform the City of all recorded incidents located within the Project site as they occur. The incidents shall be reviewed with the City and the Design-Build Team to identify potential problem locations and make the necessary adjustments for the safety of the workers and public.

10.1.4 DESIGN-BUILD TEAM INCIDENT RESPONSE

For incidents that occur along adjacent streets of the Project, within the areas of active construction Work, the Design-Build Team shall have at least one representative on call, via cellular phone, that can respond to all incidents within 30 minutes. Upon arrival at the incident, the Design-Build Team shall assess the situation and immediately notify the appropriate personnel to implement the IMP. Upon notification of the incident, the Design-Build Team shall cooperate with the emergency services and immediately undertake actions necessary to restore traffic operations, as described in the IMP, in a timely and expedient manner. The Design-Build Team is not responsible to provide the services normally provided by police and fire.

10.1.5 EVENTS

The Design-Build Team shall develop and maintain a list and schedule of Convention Center Events in coordination with the City and shall submit updated versions monthly to the City. The Design-Build Team shall identify and implement necessary changes in Work progress to not limit traffic from entering the parking and loading dock ramps.

10.1.6 PEDESTRIAN TEMPORARY ACCESS

The Design-Build Team shall submit for review and comment by the City, a Pedestrian Temporary Access Plan no later than 30 Calendar Days prior to the commencement of the construction Work. The plan shall provide hard surface pedestrian access at all times. Pedestrian detours shall be the shortest route possible and maintain access to existing sidewalks, Regional Transportation District (RTD) light rail stops, Colorado Convention Center, Bellco Theatre, and the Denver Performing Arts Complex. The Design-Build Team shall meet all requirements of the Americans with Disabilities Act (ADA) and Manual on Uniform Traffic Control Devices (MUTCD) for all construction Work that impacts existing pedestrian facilities or that will be used for temporary detour routes. The plan shall be submitted for review and comment by the Denver Department of Transportation and Infrastructure, Right of Way Department.

10.1.7 RTD COORDINATION

The Design-Build Team shall coordinate with RTD to minimize any impacts to the RTD transit system as a result of the construction Work, including light rail stops and other RTD services. During construction, the Design-Build Team shall coordinate with RTD prior to disruptions to RTD service areas and schedules. Coordination with RTD shall be done far enough in advance to allow 30 calendar days' notifications to transit users of any closures, delays, or modifications in bus routes; and of modifications or relocation of transit stops or signage along the affected routes. The Design-Build Team shall utilize the appropriate tools for effective communication, as described in Section 4 Public Information, to communicate changes of RTD services to RTD patrons and the public.

Please note that RTD requires any construction personnel that will be working above, below or near light rail tracks to take and pass the RTD light rail or commuter rail On-Track Safety (OTST) class. Construction personnel may need to take and pass this training if required by RTD. The Design-Build Team will need to contact RTD to determine if this safety training will be required.

All RTD bus stops shall be open and operational, meeting ADA requirements.

10.2 DESIGN REQUIREMENTS

10.2.1 TRAFFIC CONTROL PLAN

Each TCP shall describe the locations available to the Design-Build Team for construction, no-Work locations, environmental, security, safety restricted sites (include references for information), the location of traffic, and the location of Design-Build Team access. Each TCP shall be consistent with the OMP. The TCPs shall conform to the requirements specified herein and shall generally describe all traffic-control signing, pavement markings and traffic-control devices, and temporary signalization, lane and shoulder configurations (including widths), pedestrian/bicycle requirements necessary. All TCPs shall be sealed by a Professional Engineer,

licensed in the State of Colorado. Each TCP shall be submitted at least 10 Working Days prior to the beginning of the construction Work associated with the TCP for review and comment by the City. Any major revision to the TCP, as determined by the City, shall require submission of a new TCP to the City.

10.2.2 METHOD OF HANDLING TRAFFIC

In conjunction with the required Street Occupancy Permit, the MHT Plans are the detailed plans for implementing TCPs and lane closures. MHT Plans shall include, but are not limited to temporary/permanent striping, temporary signage, channelizing devices, temporary signals, locations of shifted signal heads at intersections, traffic flow arrows for each travel lane, Work zones, and affected private accesses (showing compliance with the TCP). MHT Plans shall be compatible with the Street Occupancy Permit. Lane closures shall require signs on temporary portable mounts, cones or vertical panels, and do not require the adjustment of striping. Signals may be put in flash temporarily and uniformed (off-duty police) traffic control may direct traffic. The uniformed police agency officer shall have completed The Safe and Effective Use of Law Enforcement Personnel in Work Zones training course. The Design-Build Team shall provide the City copies of documentation certifying the officer's successful completion of this course. MHT Plans shall be drawn to scale and appropriately sized to show the construction Work area in sufficient detail. MHT Plans shall include the dates and times they are planned to be in effect. Temporary traffic signals shall be installed in conformance with standards set forth in this Section 16. The design speed for all lane shifts shall be defined and shown on the MHT Plans. Tapers, device spacing, and the size of signs and attenuators shall be shown per the MUTCD and design speed. The American Association of State Highway and Transportation Officials (AASHTO) Roadside Design Guide shall be used but not limited to the design of temporary side slopes, clear zones, and barrier end treatments. All permanent traffic control devices shall be shown on every MHT covering its particular portion of the construction Work area. These permanent traffic devices shall have a note describing its role in the MHT such as "cover sign", "permanent signal in operation", "signal not operating/bag heads", etc. MHTs shall be prepared by an American Traffic Safety Services Association (ATSSA) or Colorado Design-Build Teams Association (CCA) certified Traffic Control Supervisor or Professional Engineer, licensed in the State of Colorado. Each MHT Plan shall be submitted a minimum of 10 working days prior to the beginning of the respective Work phase or stage for review and comment by the City.

10.2.4 [OMITTED]

10.2.5 LANE CLOSURES AND RESTRICTIONS

The Design-Build Team shall seek review and comment from the City for lane closures and/or restrictions and meter bagging prior to seeking permits through the Department of Transportation and Infrastructure, Right of Way Department. This would include the Design-Build Team providing different options and schedules based on lane closures restrictions. This would allow the City and its respective stakeholders to make informed decisions.

10.2.6 ACCESS

All accesses shall be maintained, unless otherwise agreed to by the City and documented in writing. If access is being removed as part of this Project, then the access shall only be removed when there is Work that directly affects said access. At a minimum, the Design-Build Team shall communicate and document the following information relevant to business, private, and/or public access:

- Access points impacted by a discrete construction phase or stage
- All notifications of affected business and landowners
- Schedule of closures and estimated durations
- Site-specific access or delivery requirements for local business
- Proposed mitigation efforts
- Detours required to maintain access during construction

10.3 CONSTRUCTION REQUIREMENTS

The Design-Build Team shall provide installation, maintenance, and complete removal of all temporary traffic control devices.

10.3.1 TEMPORARY TRAFFIC CONTROL DEVICES

All permanent and temporary traffic control devices visible to traffic for the Project shall be shown on at least one reviewed and active MHT.

10.3.1.1 CONSTRUCTION SIGNING

Construction signing for the Project and all detours shall comply with the respective City Standards and Specifications and the MUTCD.

10.3.1.2 EXISTING SIGNALS DURING CONSTRUCTION

The Design-Build Team shall be responsible to maintain existing signals within City ROW as required through a Street Occupancy Permit, if construction Work is being performed at those signals.

10.3.1.3 TEMPORARY TRAFFIC SIGNALS

Temporary Traffic Signals shall comply with Section 14 Permanent Signing, Pavement Marking, Traffic Signalization, and Lighting. The Design-Build Team shall operate the temporary signals

and respond to malfunctions during the duration of the Project. Temporary signal timing will be designed and submitted to the City 10 working days prior to implementation for its review and comment. Maintenance of the temporary signal(s) shall be the responsibility of the Design-Build Team. The Design-Build Team shall be responsible to respond to and correct signal malfunctions within one of hour of notification or discovery of the signal malfunction. If the Design-Build Team discovers a malfunction of a temporary traffic signal, the Design-Build Team shall notify the City immediately.

The Design-Build Team shall be responsible for and pay for all power and metering required for temporary traffic signalization.

10.3.1.4 TEMPORARY PAVEMENT MARKINGS

The Design-Build Team shall furnish, apply and remove temporary pavement marking paint in accordance with City Standards and Specifications. Temporary paint striping shall meet the conformity of lines (including no overspray), dimensions, patterns, locations and details established in the Design-Build Team's OMP and MHTs.

- Temporary pavement markings shall be re-striped once a month, or as required to maintain safe traffic operations. Stripes shall be sufficiently retroreflective to be visible at night during a rainstorm.
- No epoxy-based paint shall be permitted on concrete pavement surfaces for temporary striping.
- Hydro blasting, or other methods that do not result in scarring of permanent pavements shall be used for removal of temporary pavement markings.

10.3.2 MAINTENANCE OF TEMPORARY TRAFFIC CONTROL DEVICES

The Design-Build Team shall be responsible for the maintenance of all permanent and temporary traffic control devices within the Project. Temporary traffic control devices shall meet the acceptable standard as defined by the ATSSA Quality Guidelines for Work Zone Traffic Control Devices and the MUTCD.

10.3.3 TEMPORARY PAVEMENT

Temporary pavement locations shall be described in the OMP, designating the type and thickness of the pavement used to accommodate anticipated loadings. The Design-Build Team shall be responsible for the complete removal and disposal of all temporary pavement.

10.3.4 TEMPORARY LIGHTING

The Design-Build Team shall maintain temporary lighting at a level in accordance with City Standards and Specifications. Temporary wood light poles are permitted for installation of temporary lighting.

10.3.5 CONSTRUCTION TRAFFIC AND PARKING

No construction traffic is permitted within the neighborhoods surrounding the site, including staging. Parking on and adjacent to the project site is not permitted. All personnel must find offsite parking.

10.3.6 SIDEWALK MAINTENANCE DURING CONSTRUCTION

The Design-Build Team shall keep the sidewalk adjacent Champa Street clean and free of snow and ice upon mobilization to the site.

10.4 DELIVERABLES

At a minimum, the Design-Build Team shall submit the following to the City:

Table 10-2 Deliverables

Deliverable	Information or Review	Schedule
Traffic Management Plan (OMP)	Review and comment	30 calendar days prior to commencement of construction Work
Maintenance of Traffic (MOT) Variance request	Review and comment	10 working days prior to the requested date for variance implementation
Incident Management Plan (IMP)	Review and comment	30 calendar days prior to commencement of construction Work
Traffic Control Plan (TCP)	Review and comment	10 working days prior to implementation of the TCP
Method of Handling Traffic (MHT)	Review and comment	10 working days prior to implementation of the MHT
Uniformed traffic control certifications	Information	10 working days prior to implementation of the MHT
Temporary signal timing	Review and comment	10 working days prior to implementation
Pedestrian Temporary Access Plan	Review and comment	30 calendar days prior to commencement of construction Work
Bike Temporary Access Plan	Review and comment	30 calendar days prior to commencement of construction Work

11.0 HOUSE RULES

The following is a code of conduct with which all Design-Build Team related personnel ("Construction Personnel") shall comply with while on Site. The Design-Build Team shall provide a copy of these rules to each of its subcontractors, suppliers and delivery companies. All references to Construction Personnel hereinafter shall apply to the Design-Build Team its subcontractors, subconsultants and vendors and each of their respective employees (as applicable). The Design-Build Team shall be responsible for assuring that all Construction Personnel abide by these rules. The City shall not have any responsibility whatsoever for delays in the Work caused by violations of these rules by Construction Personnel.

11.1 FACILITY OPERATIONS

The Project will be performed in a facility that will continue to conduct normal operations. Accordingly, the Design-Build Team shall perform its Work in such a manner that the operations, character and atmosphere of the facility are not materially impaired, except as may be reasonably necessary for execution of the Work and coordinated with operations staff. The Construction Personnel shall ensure that all construction personnel conduct themselves in an appropriate manner so as not to impair the staff and guests' experience at the Colorado Convention Center.

The Design-Build Team shall always exercise good judgment and practice safety for the protection of all construction personnel, as well as that of Colorado Convention Center (CCC) employees, guests, pedestrians, vehicles and other property.

11.2 FACILITY SECURITY

The Colorado Convention Center operates and services clients on a seven-day-a-week, twenty-four-hour-a-day schedule. The Design-Build Team must submit for review and comment a Facility Security and Access Plan documenting the proposed locations of all contractor access into the facility and work area. The plan shall include the proposed approach to managing the security of the facility during and outside of contractor working hours. This plan shall be submitted at least 45 days prior to mobilizing on site. All Construction Personnel must enter and leave the building from the entrance designated for such purpose identified in the final Facility Security and Access Plan. At no time during the term of this project will the Construction Personnel be allowed to claim and/or occupy (temporary or full time) any facility meeting rooms or offices (FOH or BOH) without prior written consent of the City.

11.3 GENERAL CONDUCT

Construction Personnel shall exhibit conduct befitting the CCC and shall show deference to CCC guests and employees. CCC employees are services contractors that operate the facility under an agreement with the City. All Construction Personnel shall refrain from the use of profanity on CCC property. Radios will not be allowed in areas where they disturb guests or CCC employees. Construction Personnel shall be evicted from the CCC premises permanently if found to be

using, possessing or under the influence of alcohol or narcotics. Construction Personnel shall exercise particular care in order to avoid damaging phones, phone wires, and TV cables.

At the end of each workday, all construction equipment and material shall be removed from corridors where guests may be present, and Construction Personnel shall turn out all lights in work areas, close windows and lock doors. Lunch and coffee breaks will be taken in areas designated by Contractor and reviewed by the City.

11.4 FIRE PREVENTION

Smoking shall be allowed only in designated smoking areas. Failure to comply with this requirement will result in the offending individual's eviction from the premises by CCC security. The Design-Build Team shall provide sand buckets and fire extinguishers for use in the designated smoking areas. Design-Build Team shall use appropriate care and caution in the execution of the Work to prevent building fires. All heat-producing work shall be closely supervised, and Design-Build Team will provide a fire watch and appropriate a fire detection and extinguishing equipment in addition to that provided by the City, if reasonably necessary. Design-Build Team shall ensure that all areas where heat-producing Work is being performed are properly ventilated. Personnel performing fire watch duties shall be informed of alarm box locations and fire hose cabinet locations.

11.5 STORAGE

The Design-Build Team shall supply a lock box or boxes for the safekeeping of construction equipment (*e.g.*, tools). There will be no storage area supplied by the City other than the designated work areas and lock box area. Design-Build Team shall restore all areas used for on-site storage and construction activities to their pre-construction condition, excluding ordinary wear and tear. A restroom shall be provided by Design-Build Team and use of CCC restrooms is not permitted. Design-Build Team shall be responsible for the maintenance and sanitation of the restrooms. The Construction Personnel must use identified restrooms only.

11.6 CLEAN-UP

Design-Build Team shall keep all Work areas clean and orderly and shall remove debris daily. Design-Build Team shall provide containers in each work area for empty cartons and debris. All debris removal shall be Design-Build Team's responsibility (or that of its subcontractors, as applicable).

11.7 SANITARY FACILITIES

The Design-Build Team shall provide and maintain sanitary facilities in a neat and sanitary condition at a location approved by the City that is properly screened from public view, such sanitary facilities as are needed to comply with the requirements and regulations of any agency having jurisdiction, for the use of all persons engaged on the work.

11.8 CONSTRUCTION BARRICADES

Design-Build Team shall provide a minimum of 8' tall, painted barricades and include a vinyl marking graphics every 10' for any locations needed to separate construction activities from occupied areas of the building. The Design-Build Team shall provide taller or more robust barriers when necessary to contain the noise, dust or other contaminants from entering the neighboring occupied space. Design of the barricades shall be submitted and approved by the City for the Design-Build Team to install. The Design-Build Team shall coordinate and submit a barricaded plan for City review and comment.

11.9 COMMUNICATION:

Communication with the City and the CCC facility operator (CCC Operator) is essential. The following is a list of items that shall be specifically addressed with the City in the morning (before any Work commences within the CCC). It may be necessary to communicate with the City at mid-day as well, depending on what Work is scheduled to be performed or what changes may have occurred since the morning communication. It is the Design-Build Team's responsibility to keep the City's Project Team apprised of all activities being performed each day so that it can provide proper notification and effectively coordinate with the CCC Operator and the City.

A. Morning Meeting. In the morning of each day on which Work is to be performed, Construction Personnel shall: (i) find out what areas are occupied and what areas may be vacated that day in the construction area; (ii) discuss with City staff and the CCC Operator what Work was performed the previous day, and what Work is planned for upcoming day; (iii) inform the security personnel what type of Work is scheduled to make them aware of any potentially disturbing activities (*e.g.*, noise, painting that may generate unpleasant fumes, etc.); (iv) inform the security personnel of any deliveries expected for the day, including the type and amount of product and delivery truck(s) to be utilized; and (v) inform the security personnel of the number of Construction Personnel that will be on Site and where they will be working, as well as whom to contact in the event of a problem requiring immediate attention. The Design-Build Team shall designate in writing an individual who is accountable for addressing compliance with these rules, and who shall be available at all times throughout each workday by mobile phone (as well as after-hours and/or on weekends and holidays if reasonably necessary).

B. Supplemental Information:

- Design-Build Team staff must enter in security (or other locations identified in the final Facility Security and Access Plan) each day when performing work within the CCC with valid ID and have daily wristband.
- No weapons are allowed in the facility.
- No tailgating or allowing others in any door in the facility.

- At the end of each day, all personnel must exit out through security bay or other locations identified in the final Facility Security and Access Plan.
- While crossing building inside please do not have safety vests or hard hats on.
- If attendees or clients come to any one for questions and/or concerns they shall be redirected to the Director of Operations or the Director of Event Management.
- Design-Build Team staff must use identified restrooms only.
- No parking will be allowed on property unless cleared via operations.
- Smoking is allowed in designated areas only.
- Any incidents or injuries on property outside of the construction area need to be reported to CCC security and the City.
- All Design-Build Team staff must adhere to all OSHA standards.
- Any equipment used on property in/or outside the construction area must have proper training and certified cards on the person.
- All Design-Build Team staff shall not interfere with building staff.
- If there are any HR or other staff issues, those shall be submitted to the City to be followed up on.
- No building equipment shall be borrowed or utilized for any part of construction without approval.
- Any office disruptions shall be identified as early as possible, a week minimum to allow for adjustments by staff for work.
- No trash or other waste shall be put in CCC waste system without approval from executive staff.
- Any requests to see or request video camera viewing would follow our building polices.
- Any emergency response plans need to be shared with the CCC staff to make sure plans are cohesive and work in case they are activated.
- No requests of CCC staff shall be made to assist with any part of construction without executive approval and coordination.
- If any outdoor areas are blocked for construction, it will be the Design-Build Team's responsibility to meet all ADA requirements for revised access areas and for proper removal of snow or obstructions.
- CCC has strict media polices and would ask that all those are observed by anyone working on property.
- The Design-Build Team shall install all equipment and materials in accordance with manufacturer's recommendations unless specifically indicated otherwise or where local codes or regulations take precedence.

- All work performed and materials installed shall be in strict accordance with all applicable codes, regulations and ordinances. The Design-Build Team shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority regarding the performance of the work. Mechanical and Electrical systems shall be installed in accordance with all applicable municipal and utility company specifications, and local and state jurisdictional codes, ordinances and applicable regulations.

11.10 DELIVERABLES

Deliverable	Information or Review	Schedule
Record of Safety Meetings	Information	As meetings are held
Construction Barricades	Information	As needed
Construction Barricade Graphic Coordination	Information	As needed
Construction Barricade Mobilization Plan	Information	Every Barricade movement

12.0 CLOSEOUT

12.1 OPERATIONS AND MAINTENANCE MANUALS

The Design-Build Team shall submit one (1) electronic copy and two (2) bound hard copies of the proposed Operation and Maintenance Data Manual format including a table of contents not less than 90 days prior to Substantial Completion for review and comment by the City.

Once reviewed by the City and comments have been resolved, the Design-Build Team shall submit one (1) electronic copy and two (2) bound hard copies of the final Operation and Maintenance Data Manual prior to final payment. These copies shall incorporate any comments made on the previous submittals, along with final readings on all settings and gauges taken while the system is in fully satisfactory operation, final test and balance reports, and final sequence of operations standards. All electronic submittals shall be text searchable and have an electronic index or table of contents for easy navigation.

The Design-Build Team shall submit one (1) electronic copy of a completed Equipment List prior to Substantial Completion. The City will provide a template Excel file that must be used to populate data of HVAC, Electrical, Plumbing, and other equipment and items as necessary for the project. The city will provide guidance regarding the types of assets and equipment need to be captured in the list for the project. The file will be used to upload into the city asset management system (INFOR) for maintenance and tracking of these assets.

The Design-Build Team will furnish one electronic copy of the Contractor's letter indicating that suppliers have been notified to provide updated operation and maintenance data, service bulletins and other information pertinent to the equipment, as it becomes available.

The Design-Build Team to verify with Project Manager to which Facility Operator these notices are to be sent. All updates after Final Acceptance are to be sent to a Facility Operator with only a copy of the transmittal to the Project Manager.

The following products are the requirements of hard copies:

- PAPER SIZE: 8-½ inches x 11 inches.
- PAPER: White bond, at least 20-pound weight.
- TEXT: typewritten.
- PRINTED DATA: Manufacturer's catalog cuts, brochures, operation and maintenance data. Clear reproductions thereof will be acceptable. If this data is in color, all final manuals must contain color data.
- DRAWINGS: 11 inches x 17inches, bound with the text. Larger drawings are acceptable provided they are folded to fit into a pocket inside the rear cover of the manual. Reinforce edges of large drawings.
- PRINTS OF DRAWINGS: black ink on white paper, sharp in detail and suitable for making reproductions.
- FLYSHEETS: Separate each portion of the manual with colored, neatly prepared flysheets briefly describing the contents of the ensuing portion.

- COVERS: Provide 40 to 50 mil, clear plastic, front and plain back covers for each manual. The front covers shall contain the information required in paragraph 3.02 below.
- BINDINGS: Conceal the binding mechanism inside the manual; lockable 3 ring binders shall be provided.
- ELECTRONIC SUBMITTALS: Pdf documents submitted must be text-searchable (not scans).

The Design-Build Team is to include the following information on the front cover and on the inside cover sheet:

17. OPERATION AND MAINTENANCE INSTRUCTIONS
18. TITLE OF STRUCTURE OR FACILITY AND ADDRESS
19. TITLE AND NUMBER OF CONTRACT
20. CONTRACTOR'S NAME AND ADDRESS
21. GENERAL SUBJECT OF THE MANUAL
22. (Leave spaces for signatures of the City representatives and review date)

The Operations and Maintenance Manual shall contain the following:

- An index of all volumes in each volume of multiple volume systems;
- An index in front of each volume. List and combine the literature for each system in the sequence of operation;
- Name, address and telephone numbers of Contractor, suppliers, and installers along with the manufacturer's order number and description of the order;
- Name, address, and telephone numbers of manufacturer's nearest service representatives;
- Name, address, and telephone number of nearest parts vendor and service agency;
- Copy of guaranties and warranties issued to, and executed in the name of, the City;
- Anticipated date City assumes responsibility for maintenance;
- Description of system and component parts including theory of operation;
- Pre-operation check or inspection list;
- Procedures for starting, operating, and stopping equipment;
- Post-operation check or shutdown list;
- Inspection and adjustment procedures;
- Troubleshooting and fault isolation procedures for on-site level of repair;
- Emergency operating instructions;
- Reviewed test data;

- Maintenance schedules and procedures;
- Test procedures to verify the adequacy of repairs;
- One copy of each wiring diagram;
- One copy of each piping diagram;
- Location where all measurements are to be made;
- One copy of each duct diagram;
- One copy of control diagram;
- One copy of each final shop drawing;
- One copy of software programs imputable or changeable on site;
- Manufacturer's parts list with catalog names, numbers and illustrations;
- A list of components which are replaceable by the City;
- An exploded view of each piece of the equipment with part designations;
- List of manufacturer's recommended spare parts, current prices, and recommended quantities for two (2) years of operation;
- List of special tools and test equipment required for the operation, maintenance, adjustment, testing, and repair of the equipment, instruments, and components;
- Scale and corrosion control procedures;
- Disassembly and re-assembly instructions;
- Troubleshooting and repair instructions;
- Calibration procedures;
- Ordering information;
- Training course material used to train City staff, including DVD, slides and other presentation material;
- Inventory of all attic stock provided per the Technical Specifications and the specific location to which this was delivered.

12.2 MANUAL TRAINING MEETING

The Design-Build Team shall host a meeting to present the manual to the Owner’s operations staff to explain the layout and contents of the manuals, explain the folder structure of the electronic manuals, and answer questions about contents.

12.3 OWNER TRAINING

After startup and testing is completed, the Design-Build Team shall demonstrate to the City's and/or the User Agency’s Representative personnel the proper manner of operating the equipment, programming messages, making adjustments, responding to alarms and emergency

signals, and maintaining the system. Training shall be provided for all equipment, systems, kitchen equipment, and specialty products.

The Design-Build Team shall provide on-the-job training by a suitably qualified instructor to designated personnel and shall instruct them in the operation and maintenance of the systems. In the event qualified instructors on the Design-Build Team's staff are not available, the Contractor shall arrange with the equipment manufacturer for such instruction at no additional cost to the City.

The Design-Build Team shall provide a syllabus to the Project Manager at least seven calendar days prior to the start of each course that outlines topics to be covered, the proposed time allotted to each topic, and the target audience of the training session (technical, casual operator, overview, etc.). The Design-Build Team shall not commence any training courses until the syllabus has been reviewed by the Project Manager.

The Contractor shall videotape all training sessions and provide labeled digital video disks (DVD) to the Project Manager. The Contractor shall provide three copies of the DVD to the Project Manager in DVD+R format.

12.4 WARRANTIES

The Design-Build Team shall provide warranties in accordance with the terms of this Contract and industry standard. A complete list of warranties shall be provided with the 60% design submittal for review by the City. This submittal shall not only be contained in the Technical Specifications but shall be a stand-alone submittal outlining the different warranties being proposed

Exhibit C

Special Contract Conditions

EXHIBIT C

SPECIAL CONTRACT CONDITIONS
DESIGN-BUILD CONTRACT

Contract Control Number: DOTI-202055290-00

The General Contract Conditions were developed and intended to apply to a traditional design-bid-build delivery method. These Special Contract Conditions modify inapplicable provisions of the General Contract Conditions. The remaining General Contract Conditions and these Special Contract Conditions shall apply to this Design-Build Contract unless clearly inconsistent with design-build delivery. In the event of an express conflict, contradiction, or inconsistency between a word, phrase, or provision of the General Contract Conditions and a word, phrase, or provision of these Special Contract Conditions, the word, phrase, or provision of these Special Contract conditions shall prevail over the conflicting, contradictory, or inconsistent word, phrase, or provision of the General Contract Conditions.

SC-1 Construction Specifications

Except as amended herein or in the attached Technical Specifications, all Work performed under the terms of this Contract shall be governed by the applicable provisions of the following latest editions:

City and County of Denver:

Standard Specifications for Construction, GENERAL CONTRACT CONDITIONS, (2011 Edition)

Transportation Standards and Details for the Engineering Division

City and County of Denver Traffic Standard Drawings

Wastewater Capital Projects Management
https://www.denvergov.org/content/denvergov/en/wastewater-management/capital-projects-management.html

Colorado Department of Transportation:

Standard Specifications for Road and Bridge Construction (Sections 200 through 700 of the 2019 Edition)

Federal Highway Administration:

Manual on Uniform Traffic Control Devices for Streets & Highways (MUTCD)

Building & Fire Codes:

Building Code of the City and County of Denver
(International Building Code 2018 Series, City and County of Denver Amendments 2019)
https://www.denvergov.org/content/denvergov/en/denver-development-services/help-me-find-/building-codes-and-policies.html

National Fire Protection Association Standards
(As referenced in the Building Code of the City and County of Denver)

The aforementioned City and County of Denver documents are available for review at the Capital Projects Management Office, 201 W. Colfax Ave., Dept. 506, (5th floor), Denver, CO 80202. The *Standard Specifications for Construction*, *GENERAL CONTRACT CONDITIONS* is available at: https://www.denvergov.org/content/denvergov/en/contract-administration/contractor-resources.html *Transportation Standards and Details for the Engineering Division* and the Wastewater Management Division – *Standard Detail Drawings*, are available at http://www.denvergov.org.

The "*Colorado Department* of *Transportation Standard Specifications for Road and Bridge Construction"* is available for review on CDOT's website at http://www.coloradodot.info/ and can be purchased from the Colorado Department of Transportation.

The *Manual on Uniform Traffic Control Devices for Streets & Highways* is available for review at the Federal Highway Administration Website at: www.fhwa.dot.gov, The FHWA website also contains purchasing information.

SC-2 Department of Transportation and Infrastructure (Replaces General Contract Condition 203)

Delete General Contract Condition 203 and replace with the following:

As of January 1, 2020, the functions of Public Works are housed in the new Department of Transportation and Infrastructure. For purposes of this Design-Build Contract all references (including, but not limited to, references appearing in the body of the contract, General Conditions, Special Conditions, Exhibits, Contract Documents or Policies and Procedures) to the Department of Public Works will have the same meaning as the Department of Transportation and Infrastructure.

Vested exclusively in the Department of Transportation and Infrastructure is the management and control of the design and construction of general and local public improvements undertaken by the City and County of Denver, except for: (i) work which is under the management and control of the Department of Aviation; (ii) that work performed by the Denver Board of Water Commissioners; (iii) any such work that the Mayor has specifically assigned to another department or agency; and (iv) work under the authority of the Department of Transportation and Infrastructure that is performed with the permission of the Manager of Transportation and Infrastructure by private entities at their own expense.

SC-3 Department of Public Works (Modifies General Contract Condition 204)

General Condition 204 is hereby modified as follows:

As of January 1, 2020, the functions of Public Works are housed in the new Department of Transportation and Infrastructure. The Manager of Public Works / Executive Director of Public Works is now the Executive Director of Transportation and Infrastructure. Manager of Public Works, Executive Director of Public Works and Executive Director of the Department of Transportation and Infrastructure have the same meaning for purposes of this Agreement.

SC-4 Designer (Replaces General Contract Condition 110)

Delete General Contract Condition 110 and replace with the following:

"Designer," also sometimes referred to as "Architect", "Engineer"" "Lead Engineer," "Lead Design Engineer," "Design Professional," "Designer of Record" or "Engineer of Record," means the architect(s) and/or engineer(s) who design the Project and prepare the specifications or directs the effort of designing the Project and preparing the specifications. The Designer(s) are employee(s) of the Contractor or are retained by the Contractor.

SC-5 Working Hours and Schedule (Modifies General Contract Condition 306.1)

Delete General Condition 306.1 and replace with the following:

.1 For Contracts executed under the authority of the Manager of Public Works:

A. Work shall not normally be done on Saturdays, Sundays, City observed holidays, or outside of the daytime working hours as specified in the Special Conditions without approval from the Project

Manager. The Design-Build Contractor shall comply with the City's noise control ordinance during all working hours. If the Design-Build Contractor believes it may be necessary to work on Saturdays, Sundays, holidays, or at night, the Design-Build Contractor shall make prior arrangements with the Project Manager and receive written approval at least **48 hours** before such work period so proper coordination may be completed.

SC-6 Design-Build Contractor Superintendent (Modifies General Contract Condition 307)

Delete General Condition 307 and replace with the following:

The Design-Build Contractor shall employ and designate to the Deputy Manager in writing a competent Design-Build Project Manager, Architect's Project Manager, Design Architect(s), Structural Engineer's Project Manager, Design Structural Engineer(s), Construction Quality Assurance Manager, Architect's Quality Assurance Manager, Structural Engineer's Quality Assurance Manager, Mechanical Engineer's Project Manager, Electrical Engineer's Project Manager, Plumbing Engineer's Project Manager, Workforce Development Program Coordinator, Small Business Utilization Coordinator, and Construction Superintendent. The qualifications of these staff shall be acceptable to the Deputy Manager. The Design-Build Manager and Superintendent shall serve on a full-time basis at the Work site and shall be authorized to act on behalf of the Design-Build Contractor in all matters related to the Work. The same person(s) shall continue in their defined roles until the Work has been completed, unless the Deputy Manager requests that they be replaced, or they cease to be employed by the Design-Build Contractor or they become sick or disabled.

SC-7 Design-Build Contractor Submittals and Other Written Communications to the City (Modifies 309.2)

Delete General Condition 309.2 and replace with the following:

.2 Formal communications from the Design-Build Contractor to the City that are necessary for the performance of the Design-Build Contract, including documents described in the Contract Documents, and any other written communications, will be addressed to the Project Manager unless otherwise specified in the Contract Documents. Only when the Design-Build Contractor finds it necessary to request review of a decision of the Project Manager shall the Design-Build Contractor address correspondence directly to the Deputy Manager. All written communications or submittals shall be signed by the Design-Build Contractor's Project Manager. Additional requirements regarding submittals are set forth in the Technical Specifications.

SC-8 Suggestions to Design-Build Contractor (Modifies General Contract Condition 313)

Delete General Condition 313 and replace with the following:

Any plan of action, method of work, or construction procedure suggested orally or in writing to the Design-Build Contractor by any City employee, agent or representative, which is not set out in Change Orders or other written directives issued in accordance with the Contract Documents, if adopted or followed by the Design-Build Contractor in whole or in part, shall be performed at the sole risk and responsibility of the Design-Build Contractor.

SC-9 Permits and Licenses (Replaces Paragraph 317.1 of General Contract Condition 317)

Delete Paragraph 317.1 of General Condition 317 and replace with the following:

.1 The Design-Build Contractor is required to possess the appropriate contractor and engineering licenses issued by the Department of Public Works and the State of Colorado, respectively, pertaining to the Work to be performed.

SC-10 Construction Surveys (Replaces Paragraph 318.1 of General Contract Condition 318)

.1 The City does not take responsibility for the accuracy of any survey data provided by the City. The Design-Build Contractor must validate that this data is accurate and ensure that all elements of the Work are correctly located.

SC-11 Contract Documents – Review and Interpretation (Modifies General Contract Condition 401 by Deleting General Condition 401.3 and Modifying General Condition 401.7)

General Contract Condition 401.3 is deleted.

General Contract Condition 401.7 is deleted and replaced with the following:

.7 If the Design-Build Contractor or any of its Subcontractors or Suppliers, knows or reasonably should know by virtue of common knowledge or customary practice in the construction industry that any of the Contract Documents are at variance with applicable laws, statutes, ordinances, building codes, or rules or regulations, in any respect, the Design-Build Contractor shall promptly notify the Project Manager in writing, and any necessary changes shall be accomplished by issuance of an appropriate Change Order or field directive. If the Design-Build Contractor or any of its Subcontractors, perform any Work when they know or reasonably should know that it is contrary to such laws, statutes, ordinances, building codes, rules or regulations, the Design-Build Contractor shall assume full responsibility therefore and shall bear all costs attributable thereto. Under no circumstances will the City accept or be responsible for any Work deemed to not meet the Denver Building and Fire Code or the opinion of the Authority Having Jurisdiction.

SC-12 Contract Drawings and Technical Specifications (Replaces General Contract Condition 403.2)

General Contract Condition 403.2 is hereby modified as follows:

.2 The Design-Build Contractor is responsible for keeping an accurate record of drawings and specifications to record the construction of the Work in its as-built condition at the Project Construction Site. The Design-Build Contractor shall daily record all changes and deviations in a neat and legible manner on the Contract Documents. Any deviation from the Contract Documents or technical specifications and the Work done, no matter how insignificant, must be recorded. Underground utility structures encountered in performing the Work shall be correctly located on such drawings through physical ties or dimensions to permanent monuments or structures. When the Work is completed, the Design-Build Contractor must deliver a single set of Record Drawings that accurate reflect the as built condition of the Project elements and Technical Specifications along with electronic copies to the Project Manager. These drawings (including electronic copies) must be provided and be approved by the Project Manager before final payment can be made. Electronic copies must be completely useable by the City.

SC-13 Shop Drawings, Product Data and Samples (Replaces General Contract Condition 405)

General Contract Condition 405 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES is hereby deleted in its entirety and replaced with the following:

.1 The Design-Build Contractor shall submit all Shop Drawings, as defined in these General Conditions to the Project Manager after being approved by the Designer of Record. Submittal

shall show applicable stamps of designer approval prior to being submitted to the Project Manager. The Project Manager will review the shop drawings with reasonable promptness following receipt of the shop drawings. The Project Manager will indicate its review with the following messages: Does not object; Does not object, but conditioned as noted, or, Objects.

.2 The Design-Build Contractor shall prepare, review, certify, endorse and submit, to the Designer, with reasonable promptness, and in such sequence as to cause no delay in the Work, all Shop Drawings, required by the Contract Documents. The Design-Build Contractor shall prepare and deliver to the City a submittal schedule for Shop Drawings, as required by the Contract Documents. All such drawings and other material shall contain identifying nomenclature and each submittal shall be accompanied by a transmittal identifying in detail all enclosures. Facsimile reproductions of Contract Documents shall not be used, in whole or in part, for the direct submittal of Shop Drawings unless specifically approved by the Project Manager.

.3 By preparing, certifying, and submitting Shop Drawings, the Design-Build Contractor represents that the Design-Build Contractor has determined and verified all materials, field measurements, and field construction criteria related thereto, and has checked and coordinated the information contained within such submittals with the requirements of the Work, the Project, the Contract Documents and previously reviewed and accepted submittals.

.4 The Design-Build Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the City's review. The Design-Build Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data, or Samples by the City's review of them. Review of a specific item by the City shall not indicate the City's acceptance thereof. City review of the Shop Drawings shall not be construed as approval of the adequacy of the documents and shall not constitute a waiver of any remedies the City may have in law or inequity.

.5 All re-submittals shall either on their face, or in the accompanying transmittal, clearly indicate all revisions that have been made since the previous submittal.

.6 The Project Manager may review the Design-Build Contractor's submittal such as Shop Drawings, for conformance with the Contract Documents. Review by the Project Manager shall not relieve the Design-Build Contractor of its responsibilities under the Contract Documents.

SC-14 Subcontracts (Replaces General Contract Condition 501)

In accordance with General Contract Condition 501 SUBCONTRACTS, no limit shall apply to that percentage of the Work, which may be sublet providing that the subcontractors receive prior approval in accordance with General Contract Condition 502 SUBCONTRACTOR ACCEPTANCE.

SC-15 Subcontractor Acceptance (Modifies General Contract Condition 502.3)

General Contract Condition 502.3 SUBCONTRACTOR ACCEPTANCE is hereby modified as follows:

.3 The Design-Build Contractor shall submit within 30 days of award a statement signed by an officer or principal of the Design-Build Contractor certifying that the Design-Build Contractor has investigated the qualifications and background of each proposed Subcontractor and certifying under oath that, to the best of his or her knowledge, none of the bases for rejection listed above exist. In lieu of this certification, the Design-Build Contractor may identify, for each proposed Subcontractor, any of the issues listed above applicable to that subcontractor and attach to that

statement a list of all judicial and administrative proceedings in the last five (5) years in which any proposed Subcontractor is or was a party, the proceedings involving any of the issues listed above or in which any proposed Subcontractor filed for bankruptcy.

SC-16 Reserved

SC-17 Delay Damages (Deletes Paragraph 603.2 of General Contract Condition 603)

General Contract Condition 603.2 is deleted.

SC-18 Cooperation with Other Work Forces (Replaces Paragraphs 701.4 and 701.5 of General Contract Condition 701)

Paragraphs 701.4 and 701.5 of General Contract Condition 701 COOPERATION WITH OTHER WORK FORCES are replaced with the following:

.4 If the Design-Build Contractor, through its acts or omissions, causes loss, damage or delay to the Work or other property, the Design-Build Contractor shall, upon due notice, promptly use its best efforts to remedy such loss, damage or delay, at no additional cost to the City.

.5 If the Design-Build Contractor, through its acts or omissions, causes loss, damage or delay to the Work or other property, the Design-Build Contractor shall, upon due notice, promptly use its best efforts to remedy such loss, damage or delay, at no additional cost to the City. If the Design-Build Contractor, through its acts or omissions, causes loss, damage or delay to the Work or property of any other Contractors, Subcontractors, tenants, government agencies, and municipal, public service or utility systems, the Design-Build Contractor shall, upon due notice, promptly use its best efforts to remedy such loss, damage or delay, or otherwise settle with such other person or entity by agreement or otherwise, at no additional cost to the City.

SC-19 Protection of Street and Road System (Modifies Paragraph 805.1 of General Contract Condition 805)

General Contract Condition 805.1 PROTECTION OF STREET AND ROAD SYSTEM is replaced with the following:

.1 The City's street and road system will include the Colorado Department of Transportation street and road system included within or adjacent to this Project – and includes but is not limited to all of the City's permanent or temporary highways, streets, alleys, railway lines, bikeways, pedestrian pathways, bridges and other roads or related structures.

SC-20 Hazardous and Explosive Materials or Substances (Adds Paragraph 808.3 to General Contract Condition 808)

Paragraph 808.3 is added to General Contract Condition 808:

.3 As used herein, the phrase "hazardous materials or substances" (or similar words or phrases) shall mean and refer collectively to all applicable local, state, and federal environmental guidelines, rules, regulations, statutes, laws, and orders applicable to the Work (collectively, the "**Environmental Requirements**"), including but not limited to Environmental Requirements regarding the storage, use, transportation, and disposal of Hazardous Materials and regarding releases or threatened releases of Hazardous Materials to the environment. The term "**Hazardous Materials**" shall mean asbestos, asbestos-contaminated soils, and asbestos-containing materials,

special wastes, polychlorinated biphenyls (PCBs), any petroleum products, natural gas, radioactive source material, pesticides, any hazardous waste as defined at 42 U.S.C. § 6903(5) of the Solid Waste Disposal Act, any hazardous substance as defined at 42 U.S.C. § 9601(14) of the Comprehensive Environmental Response, Compensation and Liability Act, and chemical substance as defined at 15 U.S.C.§ 2602(2) of the Toxic Substances Control Act, and any guidelines issued and rules or regulations promulgated pursuant to such statutes, or any other applicable federal or state statute.

SC-21 Payments to Contractors

The application for payment shall be submitted through Textura® Corporations Construction Management Website. Contractor recognizes and agrees that it shall be required to use the Textura® Construction Payment Management System ("Textura") for this Project to request payment from the City and to pay all first-tier subcontractors and suppliers and further record payment to all certified subcontractors or suppliers that are listed for participation towards any assigned SMWDBE program goal. Contractor further agrees that, to the fullest extent possible within Textura, the City shall be entitled to all non-Confidential records, reports, data and other information related to the Project that are available to Contractor through Textura, including, but not limited to, information related to Contractor and subcontractor billings. To that end, Contractor agrees it will activate any available settings within Textura necessary to grant the City access to such non-Confidential information related to the contract and the Project. Applications for payment shall be based on the Contract Unit Prices or the approved Schedule of Values described in GC 903.1

In accordance with General Contract Condition 902, PAYMENT PROCEDURE, the party(ies) responsible for review of all Pay Applications shall be:

Agency/Firm	Name
Department of Transportation and Infrastructure	Brett Hahnenkamp

In accordance with General Contract Condition 906, APPLICATIONS FOR PAYMENT, each Application submitted shall include the following:

1. The estimate of Work completed shall be based on the approved schedule of values or unit prices, as applicable, and the percent of the Work complete.
2. Each Application for Payment shall include each and every independent subcontractor's payroll information including pay dates and pay amounts.
3. The Contractor, and its subcontractors of all tiers who have performed Work, shall also submit to the Auditor and other appropriate officials of the City prior to submitting the payment application, information required by General Contract Condition 1004, REPORTING WAGES PAID.
4. Starting with the second payment application, the payment applications shall be accompanied by a completed Contractors' Certification of Payment Form (CCP), listing all first tier subcontractors and suppliers and all certified subcontractors or suppliers that are listed for participation towards any assigned SMWDBE program goal. The final payment application must be accompanied by an executed Final Claim Release Form and Certificate of Contract Release Form from the Contractor.

   The forms, Final Release and Certificate of Payment (Subcontractor/Supplier) and the Contractor's Certification of Payment (CCP), both of which must be used are attached below. If subcontractor or supplier payments are disbursed via Textura® CPM, those systems generated Release and CCP forms are acceptable.

Title 20, 2003 Final Settlement, section .2, item F is modified to read as follows:

F. At time of request for final payment, Contractor shall submit a complete and final, unconditional waiver or release of any and all lien and claim rights for all labor, equipment, and material used or furnished to complete the Work in the form and format generated within the Textura CPM system. Contractor shall also return an executed Certificate of Contract Release (below), upon request from the City.

REMAINDER OF PAGE LEFT INTENTIONALLY BLANK

(SAMPLE)
Certificate of Contract Release

Name
Street Address
City, State, Zip

Upon receipt of the below stated amount from the City and County of Denver, as full and final payment of the cost of the improvements provided for in the foregoing contract, _____dollars and _____ cents ($_____), in cash, being the remainder of the full amount accruing to the undersigned by virtue of said contract; said cash also covering and including full payment for the cost of all Work, extra Work and material furnished by the undersigned in the construction of said improvements, and all incidentals thereto, and the undersigned hereby releases said City and County of Denver from any and all claims or demands whatsoever, regardless of how denominated, growing out of said contract.

The Undersigned further certifies that each of the undersigned's subcontractors and suppliers that incurred or caused to be incurred, on their behalf, costs, charges or expenses in connection with the undersigned's Work effort on the above referenced Project have been duly paid in full. The undersigned further agrees to defend, indemnify and save and hold harmless the City, its officers, employees, agents and assigns and the above-referenced Contractor from and against all costs, losses, damages, causes of action, judgments under the subcontract and expenses arising out of or in connection with any claim or claims against the City or the Contractor which arise out of the Undersigned's performance of the Work effort and which may be asserted by the Undersigned or any of its suppliers or subcontractors of any tier or any of their representatives, officers, agents, or employees.

And these presents are to certify that all persons performing Work upon or furnishing materials for said improvements under the foregoing contract have been paid in full and this payment to be made as described herein is the last or final payment.

Contractor's Signature Date Signed

If there are any questions, please contact me by telephone at (###) ###-####. Please return this document to me via email at pw.procurement@denvergov.org.

Sincerely,

Contract Administration

DENVER
THE MILE HIGH CITY

City and County of Denver
Contractor's/Consultant's Certification of Payment (CCP)

Prime Contractor or Consultant:	Phone:	Project Manager:
Pay Application #:	Pay Period:	Amount Requested:
Contract #:	Project Name:	
Current Completion Date:	Percent Complete:	Prepared By:
Original Contract Amount:		Current Contract Amount:

				A	B	C	D	E	F
Prime/Subcontractor/Supplier Name	Contracted to:	Org Type:	M/W/S/ DBE/ NON	Original Contract Amount	Current Contract Amount including Amendments	Requested Amount of this Pay Application	Amount Paid on the Previous Pay Application #	Net Paid To Date	Paid % Achieved (G/I)
General Contractor	City of Denver	On-System	MBE						
Self Performed	n/a	n/a							
Subcontracted	n/a	n/a							
Sub1 - 1st Tier	General Contractor	On-System							
Sub2 - 1st Tier	General Contractor	On-System							
Self Performed	n/a	n/a							
Sub 1 - 2nd Tier	Sub 2 - 1st Tier	Lien Waiver							
Sub 3 - 1st Tier	General Contractor	On-System							
Self Performed	n/a	n/a							
Sub 2 - 2nd Tier	Sub 3 - 1st Tier	On-System							
Self Performed	n/a	n/a							
Sub 1 - 3rd Tier	Sub 2 - 2nd Tier	Manual							
Totals				$ -	$ -	$ -	$ -	$ -	0%

The undersigned certifies that the information contained in this document is true, accurate and that the payments shown have been made to all subcontractors and suppliers used on this project and listed herein. Please use an additional form, if more space is necessary.

Prepared By (Signature):	Date:

COMP-FRM-027 rev 052720

Contractors Certification of Payment Form

Field	Description
Prime Contractor or Consultant:	Legal entity name that is contracted to City.
Phone:	General contact number for Prime Contractor or Consultant.
Project Manager:	City Project Manager that serves as primary contact in directing work contracted.
Pay Application #:	Sequential number of each request for payment.
Pay Period:	Period of performance of work; ideally calendar month (i.e. 1/1/2020-1/31/2020)
Amount Requested:	Dollar value of amount requested with this invoice. If retainage applies, this amount would include retainage.
Contract #:	City issued contract number for project specific contract number. If for Work Orders or Task Orders issued from Master On Call, that City issued number for the Work Order or Task Order.
Project Name:	City Project Name.
Current Completion Date:	Estimated completion date of contract, work order or task order.
Percent Complete:	% complete by calculating dollars paid against dollars remaining.
Prepared By:	Contractor or consultant individual completing information.
Original Contract Amount:	Amount of initial awarded contract, work order or task order.
Current Contract Amount:	Amount of initial awarded contract, work order or task order PLUS any change orders or amendments executed by City.
Prime/Subcontractor/Supplier Name:	Each line should reflect either the Prime's company legal name if reflecting self-performed work, or subcontractor or supplier company legal name
Contracted to:	Legal entity name that the listed company is contracted to, whether City, Prime, Tier one sub, or other tier.
Org Type:	Textura CCP only; either On-System, Lien Waiver or Manual. Non-textura = N/A
Requested Amount of this Pay Application:	Provide the amount requested for work performed or materials supplied by each listed subcontractor/subconsultant/supplier for this pay request. This should include all first tier subcontractors/subconsultants/suppliers AND all subcontractors/subconsultants/suppliers listed for participation toward contract's applicable (MWSDBE) program goal.
Amount Paid on previous application:	Provide the amount requested for work performed or materials paid to each listed subcontractor/subconsultant/supplier on prior pay request. The sum of items listed in this column should equal the amount paid the to the Prime Contractor or Consultant on the previous pay request. This should be the actual amount of the check or ACH issued to all first-tier and
Net Paid to Date:	Net paid to date should include amounts paid to all first tier subcontractors/subconsultants/suppliers AND all subcontractors/subconsultants/suppliers listed for participation toward contract's applicable (MWSDBE) program goal.
Paid % Achieved:	% complete by calculating dollars paid against dollars remaining.

SC-22 Change Order (Replaces General Contract Condition 1101)

General Contract Condition 1101 CHANGE ORDER is hereby replaced in its entirety with the following:

1101 CHANGE ORDER

.1 A Change Order is a written instrument signed by the Manager, other designated parties, and the Contractor, that contains their agreement upon all of the following matters:
A. The change(s), addition(s) or deletion(s) to the Work;
B. The amount of the adjustment in the Contract Amount, if any; and
C. The extent of the adjustment in the Contract Time or Period of Performance, if any.

.2 No change of Contract Time or Contract Amount, or any other change to the Contract, shall be binding until the Contract is modified by a fully executed Change Order.

.3 No revision or change furnished or requested by either party to the other in connection with the preparation, submission, review, comment, approval, or identification of the Design Development Documents or Construction Documents will be considered a change entitling the Design-Build Contractor to a change in the Contract Time, unless such change shall be expressly evidenced by a Change Order.

.4 Changes in design and construction required to conform to the requirements of the Design-Build Criteria and Scope, unless the Design-Build Criteria and Scope have been modified by Change Order, shall be completed by Design-Build Contractor without any increase in the Contract Amount or adjustment to the date for Contractual Milestone, Substantial Completion, and Final Completion regardless of the stage of completion of design and/or construction and regardless of whether any design or construction has been otherwise approved by the City. Changes to the Contract Documents, including, without limitation, changes in the Contract Amount or extensions of the date for Substantial Completion, shall only be by Change Order issued by the City.

.5 "Project Directives" are Change Orders funded solely by encumbered City contingency that cumulatively do not exceed the City contingency shown on the most current Appropriation and Encumbrance Form. The Executive Director delegates to the Project Director the authority to execute Project Directives. Nothing in this section 1101.5 of General Condition 1101 gives the Contractor any right to City contingency.

SC-23 [Omitted]

SC-24 TIME EXTENSIONS (Modifies General Contract Condition 1105

General Contract Condition 1105.3 is hereby modified as follows:

.3 If abnormal weather conditions are the basis for a request for an extension of the Contract Time, such request shall be documented by data substantiating that weather conditions were unusually severe for the period of time, and could not have been reasonably anticipated. To establish the existence of abnormal weather, the Design-Build Contractor must submit

documentation that establishes that the weather conditions experienced fall outside of the extreme ranges of weather data published by the National Climatic Data Center for the Denver Metropolitan Area for the ten (10) year period immediately preceding the date of the Design-Build Contract. Regardless of actual weather conditions, delays to non-critical path activities shall not be counted as an abnormal weather Day for purposes of calculating weather related time extensions, unless such delay causes the activity to become part of the critical path.

SC-25 Surety Bonds (Modifies and Supplements General Contract Condition 1501)

General Contract Condition 1501 SURETY BONDS is hereby modified as follows:

.4 The Performance and Payment Bonds required under GC 1502 and 1503 shall remain in full force and effect throughout the general warranty period following Final Acceptance. This obligation of the Design-Build Contractor shall continue notwithstanding the making or acceptance of final payment under GC 2003.

SC-26 Construction Inspection by the City (Replaces General Contract Condition 1701)

General Contract Condition 1701 CONSTRUCTION INSPECTION BY THE CITY is hereby modified to read as follows:

.1 Persons who are employees of the City or who are under contract to the City or the City as lessee will be assigned to inspect and test the Work. These persons may perform any tests and observe the Work to determine whether or not designs, materials used, manufacturing and construction processes and methods applied, and equipment installed satisfy the requirements of the drawings and specifications, accepted Shop Drawings, Product Data and Samples, and the Contractor's warranties and guarantees. The Contractor shall permit these inspectors unlimited access to the Work and provide means of safe access to the Work, which cost shall be included as a cost of the Work without any increase to the Lump Sum Contract Price. In addition, Contractor shall provide whatever access and means of access are needed to off-site facilities used to store or manufacture materials and equipment to be incorporated into the Work and shall respond to any other reasonable request to further the inspector's ability to observe or complete any tests. Such inspections shall not relieve the Contractor of any of its quality control responsibilities or any other obligations under the Design-Build Contract. All inspections and all tests conducted by the City are for the convenience and benefit of the City. These inspections and tests do not constitute acceptance of the materials or Work tested or inspected, and the City may reject or accept any Work or materials at any time prior to the inspections pursuant to G.C. 2002, whether or not previous inspections or tests were conducted by the inspector or a City representative.

.2 Building Inspection will perform building code compliance inspections for structures designed for human occupancy. It is the Contractor’s responsibility to schedule and obtain these inspections. If a code compliance inspection results in identification of a condition which will be at variance to the Contract Documents, the Contractor shall immediately notify the Project Manager and confirm such notification with formal correspondence no later than forty-eight (48) hours after the occurrence.

SC-27 Contractor's Warranties, Guarantees and Correction of Work (Modifies General Contract Condition 1801.1)

General Contract Condition 1801.1 CONTRACTOR'S WARRANTIES, GUARANTEES AND CORRECTION OF WORK is hereby modified to include the following provision:
The Contractor further warrants that the Work and completed Project shall (1) conform to all professional engineering principles generally accepted as standards in the industry in the State of Colorado, (2) be free from defects (including design errors), and (3) incorporate specifications and/or drawings selected or prepared for use during construction that are appropriate for their intended purposes.

SC-28 Disposal of Non-Hazardous Waste at DADS

In accordance with the Landfill Agreement made between the City and Waste Management of Colorado, Inc., bidders will be required to haul dedicated loads (non-hazardous entire loads of waste) to the Denver-Arapahoe Disposal Site ("DADS") for disposal. DADS is located at Highway 30 and Hampden Avenue in Arapahoe County, Colorado. The City will pay all fees associated with such disposal but the Contractor shall be responsible for the costs of transporting the loads. Non-hazardous waste is defined as those substances and materials not defined or classified as hazardous by the Colorado Hazardous Waste Commission pursuant to C.R.S. §25-15-101(6), as amended from time to time, and includes construction debris, soil and asbestos. Bidders shall not use Gun Club Road between I-70 and Mississippi Avenue as a means of access to DADS.

SC-29 Greenprint Denver Requirements

In accordance with the City and County of Denver Executive Order 123: Greenprint Denver Office and Sustainability Policy, as amended, Contractor shall adhere to sections of Executive Order 123 pertinent to the construction of the built environment. This includes but is not limited to: all construction and renovation of buildings shall follow instructions and memorandum for high performance buildings; horizontal projects shall include the use of fly ash concrete and recycled aggregate where possible; and, all projects shall recycle construction and demolition waste, and install materials that contain recycled content whenever possible using the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) as guidance. Non-hazardous solid waste that is eligible for reuse or recycling is not subject to the DADS disposal requirement defined in SC-31.

A completed "Greenprint Denver Closeout Form for Construction Projects" shall be delivered to the Project Manager as a submittal requirement of Final Acceptance.

http://www.denvergov.org/constructioncontracts/Home/ContractorResources/tabid/443154/Default.aspx

SC-30 Prohibition on Use of CCA-Treated Wood Products

The use of any wood products pressure-treated with chromated copper arsenate (CCA) is prohibited. Examples of CCA-treated wood products include wood used in play structures, decks, picnic tables, landscaping timbers, fencing, patios, walkways and boardwalks.

SC-31 Waiver of: Part 8 of Article 20 of Title 13, Colorado Revised Statutes

The Contractor specifically waives all the provisions of Part 8 of Article 20 of Title 13, Colorado Revised Statutes regarding defects in the Work under this Construction Contract.

SC-32 Debarred Subcontractors Prohibited

The Contractor is prohibited from hiring any subcontractor currently debarred by the City in accordance with section 20-77 of the Denver Revised Municipal Code. Without limiting the foregoing, the Contractor is prohibited from hiring any subcontractor ineligible under any of the Federal Provisions of this Contract, including those in Part 4 of the Contract.

SC-33 Attorney's Fees

Colorado Revised Statute 38-26-107 requires that in the event any person or company files a verified statement of amounts due and unpaid in connection with a claim for labor and materials supplied on this Project, the City shall withhold from payments to the Contractor sufficient funds to insure the payment of any such claims. Should the City and County of Denver be made a party to any lawsuit to enforce such unpaid claims or any lawsuit arising out of or relating to such withheld funds, the Contractor agrees to pay to the City its costs and a reasonable attorney's fee which cost shall be included as a Cost of the Work.
Because the City Attorney Staff does not bill the City for legal services on an hourly basis, the Contractor agrees a reasonable fee shall be computed at the rate of one hundred dollars per hour of City Attorney time.

SC-34 Acceptance or Approval by City

Pursuant to the Design-Build Contract, and the other contract documents, the City may be required to review various documents, design, specifications and other information submitted by the Contractor and /or Designer. It is expressly understood and agreed by the Contractor that under no circumstances shall any review by the City, or its agents or representative relieve the Contractor or the Designer, or any engineer, architect or other consultant retained by, through or under the Contractor, of any liability, obligation, or responsibility, whether by statute, regulation, contract, custom or otherwise, for the design and construction of the Project and the compliance of the Work with the requirements of this Contract, including without limitation, compliance with the Design-Build Requirements, except to the extent amended by Change Order. The City's acceptance or approval of any deviation or omission from, or conflict or contradiction with the Design-Build Requirements must be in writing and an appropriate Change Order issued modifying the requirements of the Design-Build Requirements.

SC-35 Spare Parts

Prior to Substantial Completion, the Contractor shall deliver new, unopened containers of maintenance supplies, tools, spare parts, extra stocks of materials, finish materials, paint, and similar physical items to the City for those items typically requiring repair or replacement during the first two (2) years of building operation in quantities as directed by the City. Such maintenance supplies, tools, spare parts, extra stocks of materials, and similar physical items may include, but not necessarily be limited to, any special manufactured items, paint, devices or parts that are not available through regular procurement procedures and shall be delivered to the Project and placed in a location as directed by the City.

SC-36 Start-Up

The Contractor, with the assistance of operating personnel made available by the City, will direct the checkout of utilities and operations of systems and equipment for readiness, perform initial start-up, commissioning and testing procedures, and instruct operating personnel in the operation of said utilities, systems and equipment.

SC-37 Warranty Inspection Services

At the time of final acceptance and during the applicable general warranty period, the Contractor shall provide quarterly, or as otherwise agreed to by the City, on-site review and inspection services. At the end of the month preceding the last month of the applicable general warranty period, the City Project Manager and Contractor shall visit the Project to conduct a final review and inspection of the completed construction to identify additional warranty Work required of the Contractor prior to expiration of the applicable general warranty period. The Contractor shall provide for the City's review and approval a written report of the findings of the Contractor, a list of all warranty work to be completed, and a schedule for that completion.

SC-38 Defense and Indemnification

General Condition 1602, INDEMNIFICATION, is modified to read in full as follows:
1602 DEFENSE AND INDEMNIFICATION
(a) To the fullest extent permitted by law, the Contractor hereby agrees to defend, indemnify, and hold harmless City, its appointed and elected officials, agents and employees against all liabilities, claims, judgments, suits or demands for damages to persons or property arising out of, resulting from, or related to the Work performed under this Contract that are due to the negligence or fault of the Contractor or the Contractor's agents, representatives, subcontractors, or suppliers ("Claims"). This indemnity shall be interpreted in the broadest possible manner consistent with the applicable law to indemnify the City.

(b) Contractor's duty to defend and indemnify City shall arise at the time written notice of the Claim is first provided to City regardless of whether suit has been filed and even if Contractor is not named as a Defendant.

(c) Contractor will defend any and all Claims which may be brought or threatened against City and will pay on behalf of City any expenses incurred by reason of such Claims including, but not limited to, court costs and attorney fees incurred in defending and investigating such Claims or seeking to enforce this indemnity obligation. Such payments on behalf of City shall be in addition to any other legal remedies available to City and shall not be considered City's exclusive remedy.

(d) Insurance coverage requirements specified in this Contract shall in no way lessen or limit the liability of the Contractor under the terms of this indemnification obligation. The Contractor shall obtain, at its own expense, any additional insurance that it deems necessary for the City's protection.

(e) This defense and indemnification obligation shall survive the expiration or termination of this Contract.

Exhibit D

General Contract Conditions

(incorporated herein by reference in their entirety, index attached)

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Exhibit E

Not Used

Exhibit F

CCD ROCIP Insurance Manual, the City Insurance Requirements and the ROCIP Safety Manual

EXHIBIT F
City and County of Denver (CCD
Insurance Requirements including participation in the
CCD Rolling Owner Controlled Insurance Program(ROCIP)

1. General Information

The City and County of Denver has arranged for certain construction activities to be insured under a Rolling Owner Controlled Insurance Program (ROCIP). A ROCIP is a single insurance program that insures the City and County of Denver, the Contractor and Subcontractors of ay tier, and other designated parties (Enrolled Parties), for work performed at the project site. Certain trade contractors and subcontractors are ineligible for this program. See Excluded Parties under the definitions section 3.8.F for a complete list of excluded parties. Insurance requirements will be determined based on the scope of work.

Important! As required in the ROCIP Safety Manual, section 4.1, Contractors must assign a full-time safety professional, meeting the qualifications stated in section 41.B, to monitor the safety of their employees and subcontractors operating under the scope of work for the contract. This employee is to be dedicated full-time to workplace safety, with no other duties assigned. Safety representatives assigned to the project must be approved by the ROCIP Safety Team, with qualifications sent to the ROCIP safety team at least 30 days prior to work beginning. Per section 4.2, Subcontractors of any tier must assign a fulltime safety professional if manpower on the site exceeds 50 employees.

	ROCIP[1]	Auto Liability	Off-site WC	Off-Site General Liability	On-Site WC	On-Site General Liability	Professional Liability	Contractor Pollution Liability
Pre-construction and site wide professional services		√	√	√	√	√	√	
Construction	√	√	√	√				

[1] ROCIP coverage to include on-site WC, on-site General Liability, Builders' Risk, and Contractors Pollution Liability
[2] Coverage to be based on scope of work. ROCIP not applicable to contractors providing work as described under Excluded Parties

2. Insurance Requirements for Non-ROCIP Contractors and Subcontractors (Excluded Parties)

Contractor and each Subcontractor and its lower-tier subcontractors shall require all Excluded Parties, as defined in section 3.8.F, to provide and maintain insurance of the type and in limits as set forth in the Contractor Subcontract Agreement. Such insurance shall include at minimum:

Workers' Compensation/Employer's Liability Insurance: Contractor shall maintain the coverage as required by statute for each work location and shall maintain Employer's Liability insurance with limits of $100,000 per occurrence for each bodily injury claim,

$100,000 per occurrence for each bodily injury caused by disease claim, and $500,000 aggregate for all bodily injuries caused by disease claims

Commercial General Liability: Contractor shall maintain a Commercial General Liability insurance policy with limits of $1,000,000 for each occurrence, $1,000,000 for each personal and advertising injury claim, $2,000,000 products and completed operations aggregate, and $2,000,000 policy aggregate, with the City and County of Denver included as Additional Insured.

Business Automobile Liability: Contractor shall maintain Business Automobile Liability with limits of $1,000,000 combined single limit applicable to all owned, hired and non-owned vehicles used in performing services under this Agreement.

Professional Liability (Errors & Omissions): All Contractors and Subcontractors performing design, engineering, or pre-construction work shall maintain minimum limits of $1,000,000 per claim and $1,000,000 policy aggregate limit. Policy shall include a provision that coverage is primary and non-contributory with any other coverage or self-insurance maintained by the City.

Contractors Pollution Liability: All Contractors and Subcontractors performing demolition, trenching, or excavation work shall maintain minimum limits of $1,000,000 per occurrence and $2,000,000 policy aggregate. Policy to include bodily injury; property damage including loss of use of damaged property; defense costs including costs and expenses incurred in the investigation, defense or settlement of claims; and clean up costs. Policy shall a provision that coverage is primary and non-contributory with any other coverage or self-insurance maintained by the City.

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3. Insurance Requirements for ROCIP Enrolled Contractors and Subcontractors

3.1 Insurance Provided by the CCD ROCIP. The City retains the right to have this Project insured under an Owner Controlled Insurance Program (CCD ROCIP). Coverage under such CCD ROCP shall be provided for Workers' Compensation & Employer's Liability, General Liability, Excess Liability, Contractors Pollution Liability and Builders Risk as outlined herein and as defined by the respective policies for each coverage, for the period from the start of Work through completion and final acceptance by the City except as otherwise provided herein.

3.2 Enrollment Required. Parties performing labor or services at the Project Site are eligible to enroll in the CCD ROCIP, unless they are Excluded Parties (as defined herein). Participation in the CCD ROCIP is mandatory but not automatic. Parties eligible for enrollment shall follow the procedures and use the forms provided in the CCD ROCIP Insurance Manual to enroll in the CCD ROCIP Insurance Program. When the Contractor and Subcontractors and lower-tier subcontractors are properly enrolled in the CCD ROCIP, the CCD ROCIP Administrator will issue or have issued to the Contractor, Subcontractor and lower-tier subcontractors, prior to their commencing Work on the Project Site, a Certificate of Insurance evidencing the coverages arranged by City.

3.3 Exclusion of Contractor/Subcontractor Insurance Costs from Proposal and Bid Prices. Contractor shall exclude from Contractor's cost of work, and ensure that each Subcontractor of every tier exclude from their cost of work, normal costs for insurance without an ROCIP for those coverages provided under the CCD ROCIP. The calculation of these costs will be determined using the forms found in the CCD ROCIP Insurance Manual. The costs of CCD ROCIP Insurance Coverage includes reductions in insurance premiums, all relevant taxes and assessments, markup on insurance premiums, and losses retained through large deductibles, self-insured retentions, or self-funded other programs. Change orders shall also exclude the cost of ROCIP Coverage. Pre-employment substance abuse testing costs will be covered by the City and should be removed from bid prices. Drug testing will be more thoroughly discussed in the ROCIP Safety Manual.

3.4 Insurance Premiums. City will pay the insurance premiums for the CCD ROCIP Insurance Coverages. The City is responsible for all adjustments to the premiums and will be the sole beneficiary of all dividends, retroactive adjustments, return premiums, and any other monies due through audits or otherwise. The Contractor assigns to the City the right to receive all such adjustments and will require that each subcontractor of every tier assign to City all such adjustments. The Contractor and the Subcontractors who are Enrolled Parties shall execute such further documentation as may be required by City to accomplish this assignment.

3.5 Off Site Operations. The CCD ROCIP will provide certain insurance coverage for the City, Contractor and Enrolled Parties, along with their Eligible Employees performing Work at the Project Site. Off-site operations shall be covered only if designated in writing by the City and when all operations at such site are identified and solely dedicated to the Project. Contractors and Subcontractors are responsible to notify the CCD ROCIP Administrator in writing, to request coverage for specified off-site operations. Coverage is not provided at the site unless confirmed in writing by the CCD ROCIP Administrator.

3.6 CCD ROCIP Insurance Manual. As soon as practicable, a CCD ROCIP Insurance Manual will be sent to the Enrolled Party and will become a part of the Contract and Contractor's Subcontract with Subcontractor. The CCD ROCIP Insurance Manual will contain the administrative and claim reporting procedures. Contractor agrees to and will require that its Subcontractors and their lower-tier subcontractors also cooperate with the CCD ROCIP Administrator in providing all information as required in the CCD ROCIP Insurance Manual.

3.7 Conflicts. The descriptions of the CCD ROCIP Insurance Coverages set forth in this Section are not intended to be complete or meant to alter or amend any provision of the actual CCD ROCIP Insurance Policies. The CCD ROCIP Insurance Coverages and Exclusions are set forth in full in their respective policy forms. In the event of a conflict or omission between the coverages described in the CCD ROCIP Policies and the coverages summarized or described in the CCD ROCIP Insurance Manual, this Section or elsewhere in the Contract Documents, the Coverages and coverage amounts set forth in the actual CCD ROCIP Insurance Policies issued by the CCD ROCIP Insurers shall control. In the event of a conflict between the provisions of this Section and the CCD ROCIP Insurance Manual that does not involve any conflict with the provisions of the actual CCD ROCIP Policies issued by the CCD ROCIP Insurers, then the provisions of

this Section shall govern.

3.8 Summary of Insurance Coverage

3.8.A Insurance Provided by the City. Unless otherwise provided herein, prior to commencement of the Work, City, at its sole option and expense, shall secure and maintain at all times during the performance of this Contract the insurance specified below, insuring the City, Contractor, its Subcontractors and such other persons or interests as City may designate with limits not less than those specified below for each coverage.

Workers' Compensation & Employer's Liability:

Coverage: Statutory limits required by the Workers' Compensation Laws of the State of Colorado:

Part One:	Workers' Compensation:	Statutory Limits
Part Two:	Employer's Liability:	
	Bodily Injury by Accident:	$2,000,000 each accident
	Bodily Injury by Disease:	$2,000,000 each employee
	Bodily Injury by Disease:	$2,000,000 policy limit

General Liability (excluding Automobile Liability and Professional Liability)**:**

Coverage: Third party personal injury, bodily injury and property damage liability

Limits of Liability:

Annual General Aggregate (Per Project and Reinstates Annually)	$4,000,000
Products/Completed Operations Aggregate (Statute of Repose)	$4,000,000
Personal / Advertising Injury Limit	$2,000,000
Each Occurrence Limit	$2,000,000
Fire Damage Legal Liability (any one fire)	$300,000
Medical Payments (any one person)	$10,000

Excess/Umbrella Liability Insurance (limits noted are minimum limits. The City may elect to provide higher limits, based on the size of the Project):

Coverage: Written on a following form basis over the primary policies.

Minimum Limits of Liability:

Each Occurrence	$150,000,000 or more
General Aggregate (Reinstates Annually)	$150,000,000 or more
Products/Completed Ops Aggregate	$150,000,000 or more

Products/Completed Operations coverage will extend to the statute of imitations/repose.

Excess Limits above the first $150,000,000 may apply to all Projects placed under the CCD ROCIP.

General Liability Insurance Claim Chargeback. A claims charge-back will be assessed for the amount of any loss payable under the CCD ROCIP Commercial General Liability Policy. The Enrolled Party primarily responsible for causing any bodily injury or property damage liability loss shall be responsible for payment of the charge-back. The charge-back will be calculated on the following sliding scale:

For each Contract per Occurrence:
$1,000 for Enrolled Party with contracts up to $100,000
$5,000 for Enrolled Party with contracts between $100,001 and $250,000
$10,000 for Enrolled Party with contracts between $250,001 and $500,000
$25,000 for Enrolled Party with contracts over $500,000

Contractors Pollution Liability Insurance:

The City shall purchase Contractors Pollution Liability arising from claims for pollution incident arising from Work or services performed under contract at or from the designed project site.

Coverage: Liability or responsibility for unexpected and unintended pollution conditions resulting in bodily injury, property damage or environmental damage from pollution conditions caused by covered operations including completed operations. Coverage includes microbial matter and legionella pneumophila in any structure on land and the atmosphere contained with the structure.

Limits of Liability:

Each Loss:	$10,000,000 or more
Policy Aggregate:	$10,000,000 or more

Products/Completed Operations coverage may extend for the statute of limitations/repose after final completion of the Project.

Contractors Pollution Insurance Claims Chargeback. A claims charge-back will be assessed for the amount of any loss payable under the Contractors Pollution. Up to the first $5,000 of any loss will be paid by Contractor. This includes all expenses or claim payments incurred by the OCIP Insurer for losses attributable to the Contractor's work, acts or omissions, or the work, acts or omissions of any tier of subcontractor. Contractor may elect to pass this charge through to any responsible subcontractor but in no event may require total subcontractor reimbursement in excess of $5,000.

Builder's Risk Insurance:

The City shall purchase and maintain, Builder's Risk (and/or Installation Floater) in the amount of the initial Contract Sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis (as defined in the Builders' Risk Policy). Such builders risk insurance shall end when the first of the following occurs: 1) the

City's interest in the Work ceases; 2) the policy expires or is cancelled; or 3) the Work is accepted by the City.

Builders' Risk Insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss of damage including , theft, vandalism, malicious mischief, terrorism, rigging and hoisting for materials and equipment that are part of the Project, collapse, earthquake, flood, windstorm, falsework, testing and startup (as provided by the policy), temporary buildings and debris removal including demolition occasioned by enforcement of any applicable ordinance laws, and shall cover reasonable compensation for services and expenses required as a result of such insured loss.

This Builder's Risk Insurance shall cover portion of the Work stored off site, and also portions of the Work in transit.

The City and Contractor shall waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by builders risk insurance obtained pursuant to this section or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the City as fiduciary. The City or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors, and they subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

Builder's Risk Insurance Claims Chargeback. A claims charge-back will be assessed for the amount of any loss payable under the Builder's Risk Policy. Up to the first $5,000 of any loss will be paid by Contractor. This includes all expenses or claim payments incurred by the CCD ROCIP Insurer for losses attributable to the Contractor's work, acts or omissions, or the work, acts or omissions of any tier of subcontractor. Contractor may elect to pass this charge through to any responsible subcontractor but in no event may require total subcontractor reimbursement in excess of $5,000.

3.8.B Insurance provided by Enrolled Parties. At their own expense, the Enrolled Parties of all tiers must carry the following minimum coverage and limits:

Commercial Automobile Liability Insurance for contract work both occurring on-site and off-site with limits of liability not less than:

$1,000,000 Combined Single Limit

This insurance must apply to all owned, leased, non-owned or hired vehicles to be used in the performance of work. Such insurance shall allow contractor to waive subrogation against the City and/or its representatives and all Contractors and Subcontractors prior to loss or shall include a waiver of the insurer's right of subrogation. Contractor hereby waives rights of subrogation against City and/or its representatives and all Contractors and Subcontractors. If transporting wastes, hazardous material, or regulated substances, Contractor shall carry a pollution coverage endorsement and an MCS 90 endorsement on their policy. Transportation coverage under the Contractors Pollution Liability policy shall be an acceptable replacement for a pollution endorsement to the Business Automobile Liability policy.

Off-Site Workers' Compensation Insurance, including Employer's Liability with minimum limits of:

$1,000,000 Bodily Injury with Accident – Each Accident
$1,000,000 Bodily Injury with Disease – Policy Limit
$1,000,000 Bodily Injury with Disease – Each Employee

Coverage to protect Contractor/Subcontractor from and against all claims arising from performance of Work outside the Project Site under the Contract. Such insurance (where permissible by law) shall waive subrogation against the City and/or its representatives and all Contractors and Subcontractors.

Off-Site Commercial General Liability Insurance for Contract operations not physically occurring within the Project Site with a limit of liability not less than:

Primary Insurance

$1,000,000 Each Occurrence
$1,000,000 Personal Injury and Advertising Injury
$2,000,000 General Aggregate
$2,000,000 Products/Completed Operations Aggregate

Such policy shall include coverage for contractual liability assumed under the Contract, contractors' protective liability, and explosion, collapse and underground property damage hazards. The Policy Form should be CG 00 01 or equivalent. Contractor and Subcontractors of all tiers will be required to provide additional Insured status to the City for general liability policies in the name of:

THE CITY AND COUNTY OF DENVER, ITS ELECTED AND APPOINTED OFFICIALS, EMPLOYEES AND VOLUNTEERS

The additional Insured status shall provide coverage for the Premises/Operations and Products/Completed Operations exposures and shall indicate that such coverage is primary to any insurance carried by the City.

Professional Liability Insurance (if required based on scope of work)
Contractor shall maintain a Professional Liability policy that shall be primary and non-contributory with any other coverage or self-insurance maintained by the City.

Limits of Liability:

Each Loss:	As required by contract
Policy Aggregate:	As required by contract

3.8.C Contractor Warranties and Agreements

Accuracy of Contractor-provided Information. Contractor warrants that all information submitted to the City or the CCD ROCIP Administrator is accurate and complete to the best of its knowledge. Contractor will notify the City or CCD ROCIP Administrator immediately in writing of any errors discovered during the performance of the work.

Contractor Responsible To Review Coverage. Contractor acknowledges that all references to CCD ROCIP Insurance policy terms, conditions, and limits of liability in this document, as well as the CCD ROCIP Insurance Manual, are for reference only. Contractor and its subcontractors are responsible for conducting their own independent review and analysis of the CCD ROCIP Insurance Coverages in formulating any opinion or belief as to the applicability to such coverage in the event of any loss or potential claim. Any type of insurance or increase of limits not described above which the Contractor requires for its own protection or on account of statute shall be its own responsibility and at its own expense.

Audit. Contractor agrees to make its records available for review and to cooperate with the insurers, the brokers, the City, the Auditor of the City, and the representatives of the aforesaid parties in the event of an audit. In the event that a City audit of Contractor's records, as permitted in the Contract or other CCD ROCIP documents, reveals a discrepancy in the insurance, payroll, safety, or any other information required to be provided to City or CCD ROCIP Administrator, or reveals inclusion of costs for the CCD ROCIP Insurance Coverage in any payment for the work, City will have the right to deduct from payments due Contractor all such insurance costs as well as all audit costs.

Insurance Costs Removed. Contractor warrants that the Costs for insurance as provided under the CCD ROCIP were not included in Contractor's bid or proposal for the Work, the Contract Price/Contract Sum, and will not be included in any change order or any request for payment for the Work or extra work.

3.8.D Contractor Obligations

CCD ROCIP Documents shall be provided to Subcontractors. Contractor shall furnish each bidding Subcontractor, vendor, supplier, material dealer or other party a copy of this CCD ROCIP Exhibit and the CCD ROCIP Insurance Manual and shall incorporate the terms of this Exhibit in all contracts and agreements entered into for performance of any portion of the Work.

Timely Enrollment Required. Contractor shall enroll in the CCD ROCIP Insurance Program within five (5) days request by City or its CCD ROCIP Administrator. Contractor shall notify each Subcontractor of the procedure for enrolling in CCD ROCIP and confirm that enrollment is mandatory but not automatic. Contractor shall assure that

Subcontractor and its lower-tier subcontractors shall not commence work until verification of enrollment is confirmed by the CCD ROCIP Administrator by the issuance of a Certificate of Insurance.

Compliance with Conditions. Contractor shall not violate any condition of the policies of insurance provided by City under the terms of this CCD ROCIP Exhibit or the CCD ROCIP Insurance Manual. All requirements imposed by the subject policies and to be performed by Contractor shall likewise be imposed on, assumed, and performed by each Subcontractor and their lower-tier subcontractors.

Claims Cooperation. Contractor shall participate in the claim reporting procedures of City's CCD ROCIP Insurance Program. Contractor agrees to assist and cooperate in every manner possible in connection with the adjustment of all claims arising out of operations within the scope of the Work required by the Contract, and to cooperate with the Insurer in all claims and demands which City's Insurer(s) is called upon to adjust or to defend against. Contractor shall take all necessary action to assure that its Subcontractors and their lower-tier subcontractors comply with any such request for assistance and cooperation. This obligation includes, without limitation, providing light or modified duty for injured workers, appearing in mediation, arbitration or court proceedings and/or participating in settlement meetings, as may be required.

Monthly Payroll Submission. All Enrolled Parties shall submit monthly payrolls and worker-hour reports to City or CCD ROCIP Administrator on via the CCD ROCIP Administrators on-line Payroll Reporting System as outlined in the CCD ROCIP Insurance Manual. The on-line reporting instructions will be provided to all Contractors at time of enrollment into the CCD ROCIP Insurance Program. Failure to submit these reports may result in funds being held or delayed from monthly progress payments. Payroll must be submitted on-line for each month, including zero (0) payroll, if applicable, until completion of the Work under each Contract and Subcontract. For those Subcontractors and lower-tier subcontractors performing Work under multiple Subcontracts, a separate payroll report is required for each Subcontract under which Work is being performed.

Response to Information Requests. All insurance underwriting, payroll, rating or loss history information requested by City or the CCD ROCIP Administrator shall be provided by the Contractor within three (3) business days of the request. Contractor agrees (and will require each Subcontractor to agree) that City, City's insurer or City's representative may audit the Contractor's or Subcontractor's records and the records of lower-tier subcontractors to confirm the accuracy of all insurance information provided, including, without limitation, any such information that may have any effect on insurance resulting from changes in the Work. At all times during performance of the Contract and Subcontracts, the Contractor, Subcontractor and lower-tier subcontractors shall cooperate with City, CCD ROCIP Administrator and CCD ROCIP insurers.

Responsibility for Safety. Notwithstanding the CCD ROCIP, the Contractor shall initiate, maintain and supervise all safety precautions and programs in connection with the Work. Contractor is solely responsible, at no adjustment to the contract sum payable or contract time, for initiating, maintaining, and supervising all safety precautions and programs relating to the conduct of Work, including, without limitation, any safety programs or procedures that are required by any applicable state or federal laws, rules or regulations,

or by the terms of the CCD ROCIP Safety Manual.

Duty of Care. Nothing herein shall relieve the Enrolled Parties of their respective obligations to exercise due care in the performance of their duties in connection with the Work or to complete the Work in strict compliance with this Contract and subsequent subcontracts.

3.8.E. Notices, Costs

Limitations on City Provided Coverage. City assumes no obligations to provide insurance other than that evidenced by the policies referred to in Paragraph 3.1 and subparagraphs. City, however, reserves the right to furnish insurance coverage of various types and limits provided that such coverage shall not be less than that specified in Paragraph 3.1 and the costs of such insurance shall be paid by City. The CCD ROCIP Insurance Program also does not cover Workers' Compensation claims or Commercial General Liability claims arising from "Off-Site Work."

Contractors Responsible for Own Equipment. Contractors' Equipment insurance for all construction tools and equipment whether owned, leased, rented, borrowed or used on work at the Project Site is the responsibility of the Contractor and/or Subcontractor, and the City shall not be responsible for any loss or damage to tools and equipment. This Contractors' Equipment insurance shall contain a waiver of subrogation against City and/or its representatives and all approved Contractors and Subcontractors. If an individual Enrolled Party does not purchase such insurance, that Enrolled Party will hold harmless City and/or its representatives and other Enrolled Parties for damage to tools and equipment.

No Release; No Waiver of Immunity. The provision of the CCD ROCIP shall in no way be interpreted as relieving CM or any Subcontractor of any responsibility or liability under the Contract Documents, the CCD ROCIP Insurance Policies, or Applicable Laws, including, without limitation, Contractor's and Subcontractor's responsibilities relative to indemnification and their obligation to exercise due care in the performance of the Work and to complete the Work in strict compliance with the Contract Documents. The parties hereto understand and agree that the City, its officers, officials and employees, are relying on, and do not waive or intend to waive by any provisions of this agreement, the monetary limitations or any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, §§ 24-10-101 to 120, C.R.S., or otherwise available to the City, its officers, officials and employees.

City Right to Withhold Payments. In addition to any other rights of withholding that City may have under the Contract Documents, City has the right to withhold any payments otherwise due to Contractor in the event of a failure by Contractor or any Subcontractor to comply with the requirements of this Exhibit or the CCD ROCIP Insurance Manual. City may withhold from any payment owing to Contractor the Costs of CCD ROCIP Insurance Coverages if included in a request for payment. Such withholding by City shall not be deemed to be a default under the Construction Contract. City shall withhold from Contractor the Costs of CCD ROCIP Insurance Coverages attributable to an increase in an Enrolled Party's total payroll for the Work over the amount reported to City and CCD ROCIP Administrator at time of enrollment in the CCD ROCIP Insurance Program.

City Remedies. Without limitation upon any of City's other rights or remedies, any failure of an Enrolled Party to comply with any provision of this Exhibit or the CCD ROCIP Insurance Manual shall be deemed a material breach of the Construction Contract, thereby entitling City, at its option, upon notice to Contractor, to suspend performance by Contractor, without any adjustment to Contract Sum Payable or Contract Time, until there is full compliance, or (2) or terminate this Construction Contract for cause.

Off-Site Storage. Unless otherwise provided in the Contract Documents, the property insurance provided by the City shall not cover portions of the Work stored off the Site without written approval of the City. Contractor shall be responsible for reporting such property or work if ownership has been transferred to the City. If ownership rests with the Contractor, Contractor shall be responsible for obtaining insurance to protect its interests.

Partial Occupancy. Partial occupancy or use shall not commence until the insurance company or companies providing Builders Risk and/or Property Insurance have consented to such partial occupancy or use by endorsement or otherwise. The City and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

City Right to Exclude Parties from the CCD ROCIP Insurance Program. City reserves the right to exclude any Subcontractor from the CCD ROCIP Insurance Program, before or after enrollment by the Subcontractor into the CCD ROCIP Insurance Program. If City elects to exclude a Subcontractor from the CCD ROCIP Insurance Program, the Contractor will be responsible for ensuring the insurance coverages outlined in the Contractor's Subcontract Agreement are provided to the City or CCD ROCIP Administrator before the Subcontractor can begin or resume work on the Project.

City's Right to Modify or Discontinue the CCD ROCIP Insurance Coverages. If the City determines that modification or discontinuation of the ROCIP is in the best interest of all parties, the Contractor and Subcontractor will receive sixty (60) days notice to secure and maintain such insurance as is required to provide replacement coverage comparable to that provided under the RROCIP. Provided that the foregoing is not the result of any failure by the Contractor or any Subcontractor to comply with the requirements of the Contract Documents or CCD ROCIP Reference Guide, the costs of such replacement insurance shall be deemed a Cost of Work for which the Contractor shall be entitled to a Contract Adjustment, without any sum added thereto for Allowable Markup. The form, content, limits of liability, cost and the rating of the insurer issuing such replacement insurance shall be subject to the City's prior written approval.

City Right to Purchase Other Coverages. The City reserves the right at its option, and without obligation to do so, to furnish other insurance coverage of various types and limits if such coverage is not less than that specified in the Contract Documents to be provided by the City. Apart from the CCD ROCIP Insurance Coverages, the City may at its option purchase additional insurance coverages that insure the Project that may not necessarily insure the Contractor or the Subcontractors. Without limitation, examples of such coverage may include pollution liability, excess professional liability, and excess automobile liability insurance.

3.8.F. Definitions

Certificate of Insurance:	Evidence of the insurance coverage afforded under the CCD ROCIP. Also, evidence of insurance coverage provided by Enrolled Parties for automobile liability, offsite exposures, and any additional insurance requirements that may be required by CCD.
City:	City and County of Denver (CCD)
Contract:	The written agreement between the City and County of Denver and Lead Contractor describing the Work, Contract Terms and Conditions, or a portion thereof. Also includes a written agreement between a Contractor and any tier of subcontractor.
Lead Contractor:	The Contractor that the City and County of Denver enters directly into a formal Contract for work performed at the Project Site.
Contractor insurance cost	The Costs of ROCIP Coverage is defined as the amount of Contractor's and eligible Subcontractors' of every tier reduction in insurance costs due to the ROCIP Program.
Rolling Owner Controlled Insurance Program (ROCIP):	A coordinated insurance program providing certain coverage, as defined herein, for the City, Contractor and Enrolled Subcontractors, along with their Eligible Employees, performing Work at the Project Site.
Eligible Employees:	Employees of Enrolled Subcontractors who are not excluded from the ROCIP under the "Excluded Parties" definition.
Enrolled Parties:	The Contractor and those Subcontractors that have submitted all necessary enrollment information and been accepted into the ROCIP as evidenced by the issuance of a Certificate of Insurance.
Excluded Parties:	Parties not covered by the ROCIP because of ineligibility. No insurance coverage provided by City under the ROCIP shall extend to the activities or products of the following: (1) Any person or organization that fabricates or manufactures products, materials or supplies away from the Project Site(s);

(2) Hazardous materials remediation, removal, or transportation companies and their consultants;

(3) Any architect, engineer or surveyor and their consultants except when approved by City;

(4) Truckers, haulers, material dealers, vendors, suppliers, and others who merely transport, pick up, deliver or carry materials, personnel, parts or equipment or any other items or persons to or from the Site;

(5) Contractors and their subcontractors and subconsultants and any employee of an Enrolled Party, who does not work at the Project Site;

(6) Any employees of an Enrolled Party who occasionally visits the Project Site to make deliveries, pick-up supplies or personnel, to perform supervisory or progress inspections, or for any other reason;

(7) Persons or entities who are not enrolled parties or included as insureds within the policies;

(8) Any Day Labor Employees (labor service employees whose coverage is provided by their employer); or

(9) Any other person or entity specifically excluded by City, in its sole discretion, from participation as Enrolled Parties.

Insured: (liability policies) — The City, Contractor and Enrolled Parties and their Eligible Employees and any other party named in the insurance policies.

Insurers — Those Insurance Companies providing the ROCIP insurance coverage. The Insurers will be identified in the ROCIP Manual.

Net Bid: — Contractor bids with insurance costs removed because of the obligation of any Enrolled Party to delete insurance costs for coverage provided by the ROCIP from its bid and all change orders. Net bids are subject to verification by the Administrator through the providing of contractors' rate and declaration pages from their Insurance policies.

ROCIP Administrator: — Arthur J. Gallagher, the insurance services firm selected by the City to administer the ROCIP and provide insurance brokerage services as required.

ROCIP Manual	A reference document provided to contractors of all tiers, which summarizes the terms and provisions of the ROCIP and provides information about compliance with ROCIP requirements.
ROCIP Safety Manual	A reference document provided to contractors of all tiers which contains workplace safety requirements of all enrolled parties.
Off-Site Work	Work performed away from the Project Site.
Payroll:	For purposes of the ROCIP only, refers to Unburdened Straight Time Payroll per Workers Compensation Class Code.
Policy Owner:	The City and County of Denver
Project:	The Project as defined in the contract documents and as described in the Declarations of the CCD ROCIP policies.
Project Site:	Means those areas designated in writing by the City and County of Denver in a Contract document for performance of the Work and such additional areas as may be designated in writing by the City and County of Denver for Contractors' use in performance of the Work. Subject to the ROCIP Insurers written approval, the term "Project Site" shall also include: (1) field office sites, (2) property used for bonded storage of material for the Project approved by the City and County of Denver, staging areas dedicated to the Project, and (4) areas where activities incidental to the Project are being performed by Contractor or Subcontractors covered by the CCD ROCIP Worker's Compensation policy (if included) , but excluding any permanent locations of Contractor or such covered Subcontractors. <u>Items 1 through 4 above must be approved by the ROCIP Insurer and listed on the CCD ROCIP Policy (ies).</u>
Subcontract:	The written agreement between Contractor and Subcontractor, or between Subcontractor and a lower tier Subcontractor, describing the Work, Subcontract Terms and Conditions, or a portion thereof.
Subcontractor:	Includes those persons, firms, joint venture entities, corporations, or other parties that enter into a Subcontract with Contractor to perform Work at the Project Sites and any of these Subcontractor's lower-tier subcontractors.

Work: Operations, as fully described in the Contract and Sub-contract, performed at the Project Site.

Arthur J. Gallagher & Co.

CCD ROCIP Insurance Manual for Tier 1 – National Western Center

Project No.: **7642**

The above Project No. is important when enrolling you must have this code to enroll

Project: **[Enter Project Name]**

Lead Contractor: **[Manager]**

CITY AND COUNTY OF DENVER
201 W. Colfax Dept. 1010
Denver, CO 80202

Version 1 8/1/2018

Table of Contents Page

Section 1

Overview

Welcome to the CITY AND COUNTY OF DENVER ROCIP PROGRAM (CCD ROCIP) for Tier 1, National Western Center Project

A ROCIP is a program that insures the Project Owner, all Enrolled Contractors, Enrolled Subcontractors of every tier and other designated parties for Work performed for various Projects at the City and County of Denver's National Western Center site. Certain contractors and subcontractors are ineligible for this program. These parties are identified in the definitions section of this manual and in Section 4.

Coverage under the ROCIP Program includes Workers' Compensation, Employers Liability, General Liability, Excess Liability, Builders Risk and Contractors Pollution Liability.

Since the CITY AND COUNTY OF DENVER will pay insurance premiums for the ROCIP coverages described in this manual, you should notify your insurer(s) to delete from your insurance program charges for the on sites activities of this Project that are covered under the ROCIP. **Each bidder of every tier is required to exclude from its' bid price, its normal cost for the insurance coverages to be provided by the City and County of Denver under the ROCIP Program. All subsequent change orders will also exclude these costs. Excluded insurance costs are subject to verification and documentation by the ROCIP Administrator.**

Note: PARTICIPATION IS MANDATORY-NOT OPTIONAL

Insurance coverage and limits provided under the ROCIP are specific to CCD ROCIP Projects. Your insurance representative should review this information and assist with you in determining your insurance costs based on your insurance requirements. Any additional coverage you may wish to purchase will be at your option and expense. If you elect to do so, we have the right to review it.

About This Manual

This manual was prepared by Arthur J. Gallagher Risk Management Services, Inc., which is the insurance broker and CCD ROCIP administrator. The manual is designed to identify, define and assign responsibilities for the administration of the ROCIP for the CITY AND COUNTY OF DENVER

What This Manual Does

This Manual:

- Generally describes the CCD ROCIP
- Identifies responsibilities of the various parties involved in the Projects
- Provides a basic description of the CCD ROCIP operation
- Describes some audit and administrative procedures
- Provides answers to basic questions about the CCD ROCIP
- Will be updated throughout the course of the Projects as necessary

What this Manual Does Not Do

This Manual does not:

- Provide coverage interpretations
- Provide complete information about CCD ROCIP coverages
- Provide answers to specific claims questions

Specific questions about the CCD ROCIP, its administration or the coverage's provided, should be directed in writing to the appropriate party identified in the Project Directory section immediately following this introduction.

Disclaimer

The information in this manual is intended to outline the CCD ROCIP Program. If any conflict exists between this manual and the CCD ROCIP insurance policies or Contracts between the Owner and Contractor, the policies or Contracts will govern.

Key Information

This manual includes several important sections that provide quick reference information for contractors and subcontractors. Among these are:

- **Project Directory**: A listing of key contact people who can provide further information
- **Definitions**: A list of words used in the manual and their meanings under the ROCIP
- **Enrollment Instructions and Other Claim Reporting Forms:** Instructions for enrolling into the CCD ROCIP via Gallagher's on-line system, and claims reporting workers' compensation claims to the carrier and Gallagher are provided.

Section 2

CCD ROCIP Project Directory

The following list includes key risk management and insurance personnel involved in the Projects.

CCD ROCIP ADMINISTRATION - GALLAGHER

ROCIP Service Team – Arthur J. Gallagher Risk Management Services, Inc.			
CCD ROCIP Administrator.....	Clayton Pennock	314.800.2280	clayton_pennock@ajg.com
CCD ROCIP Administrator.....	Heather Lawson	314.800.2205	heather_lawson@ajg.com
Safety/Loss Control	Ed Davis	303.889.2552	ed_davis@ajg.com
Safety/Loss Control	Terry McIntire	925.407.5451	terry_mcintire@ajg.com
CCD ROCIP Claims	Kendall Trump	303.889.2570	kendall_trump@ajg.com

CCD ROCIP MANAGEMENT - GALLAGHER

Arthur J. Gallagher Risk Management Services, Inc.			
Account Executive	Karen Graham	303.889.2538	karen_graham@ajg.com
Account Executive …….	Scott Whiteside	510.207.0115	scott_whiteside@ajg.com
CCD ROCIP Program Manager.....	Priscilla McCoy	303.889.2540	priscilla_mccoy@ajg.com

CCD ROCIP MANAGEMENT - CITY AND COUNTY OF DENVER

CCD ROCIP Management Team			
Owner Representative / CCD Risk Manager	Devron McMillin	720-913-3345	Devron.McMillin@denvergov.org
Overall Safety Manager	Keith Williams	720-913-3325	Keith.Williams@denvergov.org

Section 3

Definitions

The following is a summary of definitions applicable to the CCD ROCIP used in this manual.

Approved Additional Sites: Projects as identified in the CCD ROCIP contract documents and on file with the insurance company.

Additional insured: Any other party so named in the insurance policies

Broker: Arthur J. Gallagher Risk Management Services, Inc. herein referred to as "Broker" or "Gallagher".

Certificate of Insurance: A document providing evidence of the existence of coverage for a particular insurance policy or policies.

Change Order: An amendment to the existing, original or most recent scope of work, either increasing or decreasing the breadth of task orders, or their numbers, which may result in greater or reduced charges.

Contract: A written agreement between the CITY AND COUNTY OF DENVER and the Lead Contractor describing the Work, Contract Terms and Conditions, or a portion thereof. Also includes a written agreement between a Contractor and any tier of Subcontractor.

Contractor: The person, firm, joint venture, corporation, other party or entity that has entered into a Contract with THE CITY AND COUNTY OF DENVER to perform Work at the Project Site(s).

Contractor Safety Supervisor: The Safety Coordinator for each major contractor on site is responsible for the safety of that contractor, its subcontractors and their employees. This representative is also the liaison with Gallagher and CCD assigned Project Managers.

Completed Operations Coverage: Completed Operations Coverage is extended for a period of eight (8) years commencing at the earliest of either: 1) completion and/or acceptance of the work by the CITY AND COUNTY OF DENVER, 2) that portion of the Project is put to its intended use by the CITY AND COUNTY OF DENVER

Employer: Any individual, firm, corporation or other entity, which provides direct construction labor, including supervisory labor, for work performed at the Project Sites.

Enrolled Parties: The Contractor and those Subcontractors that have submitted all necessary enrollment information and been accepted into the ROCIP as evidenced by the issuance of a Certificate of Insurance.

Lead Contractor The Contractor that CITY AND COUNTY OF DENVER enters directly into a formal Contract for work performed at the Project Sites.

Non-Enrolled: **A "Non-Enrolled" Contractor or Subcontractor is one that has not submitted the required enrollment forms. A "Non-Enrolled" Contractor or Subcontractor is also one that has submitted the required enrollment forms and has either not received written confirmation from the Owner's representative evidencing acceptance into the ROCIP or has received written confirmation from the Owner or its representative declining acceptance into the ROCIP. The ROCIP does not insure "Non-Enrolled" Contractors, Subcontractors or Sub-subcontractors.**

Ineligible Party: Parties not covered by the ROCIP because of ineligibility. No insurance coverage provided by City and County of Denver under the CCD ROCIP shall extend to the activities or products of the following:

(1) Any person or organization that fabricates or manufactures products, materials or supplies away from the Project Site(s) with no direct onsite installation responsibility; however, for **General Liability Coverage only**, the CCD ROCIP insurance carrier may agree to extend coverage if the Lead Contractor has a written contract with the off-site fabricator or manufacturer to provide the pre-fabricated product. To consider extending coverage, the insurance carrier requires 30 days advance written notice to the CCD ROCIP Administrator with details of the work/product and a copy of the contract between the Lead Contractor and the off-site fabricator or manufacturer. Approval must be obtained from the insurance carrier before enrolling in the CCD ROCIP for General Liability coverage only.

(2) Hazardous materials remediation, removal, or transportation companies and their consultants;

(3) Any architect, engineer or surveyor or their consultants.

(4) Truckers, haulers, material dealers, vendors, suppliers, and others who merely transport, pick up, deliver or carry materials, personnel, parts or equipment or any other items or persons to or from the Site;

(5) Contractors and their subcontractors and subconsultants and any employee of an Enrolled Party, who does not work at the Project Site;

(6) Any employees of an Enrolled Party who occasionally visits the Project Site to make deliveries, pick-up supplies or personnel, to perform supervisory or progress inspections, or for any other reason;

(7) Persons or entities who are not enrolled parties or included as insureds within the policies;

(8) Any Day Labor Employees (labor service employees whose coverage is provided by their employer); or

(9) Any other person or entity specifically excluded by CCD, in its sole discretion, from participation as Enrolled Parties.

If a Contractor's employee is making deliveries to the site and is off-loading materials, the employee shall be eligible for coverage under the CCD ROCIP.

It is your responsibility to contact the CCD ROCIP Administrator and confirm your eligibility before you begin work on the project.

If you are uncertain as to whether your firm will participate in the CCD ROCIP Program, or wish confirmation of your eligibility, please contact the CCD ROCIP Administrator.

Named Insured: The CITY AND COUNTY OF DENVER, A MUNICIAPL CORPORATION OF THE STATE OF COLORADO, and its subsidiary and affiliated companies; Enrolled Contractors and subcontractors of any tier and any other party so named in the insurance policies.

Insurer: The insurance companies which provide coverages for the CCD ROCIP.

On-Sites Activities: Those activities "at or emanating from" the Project Site.

Payroll Reports: Monthly Payroll Reports are mandatory. For purposes of the CCD ROCIP, payroll refers to **unburdened** straight time payroll per Workers' Compensation Class Codes.

Policy Owner: The CITY AND COUNTY OF DENVER, PROGRAM IDENTIFIER: CCD ROCIP

Policy Term: The Policy Term will cover the period of construction through project completion, including a (8) year term for Completed Operations.

Project Sites: "Project Sites" shall mean those areas designated in writing by the CCD ROCIP in a Contract document for performance of the Work and such additional areas as may be designated in writing by the CITY AND COUNTY OF DENVER for Contractors' use in performance of the Work. Subject to CCD ROCIP Insurers written approval, the term "Project Site" shall also include: (1) field office sites, (2) property used for bonded storage of material for this Project only approved by the CITY AND COUNTY OF DENVER, (3) staging areas dedicated to the Project, and (4) areas where activities incidental to the Project are being performed by Contractor or Subcontractors covered by the worker's compensation policy included in the CCD ROCIP, but excluding any permanent locations of Contractor or such covered Subcontractors.

Items 1 through 4 above must be approved by the CCD ROCIP Insurer and listed on the CCD ROCIP Policy.

ROCIP: Rolling Owner Controlled Insurance Program – A coordinated insurance program providing certain insurance coverages as generally described in this manual for Work at the Project Sites.

ROCIP Administrator: Arthur J. Gallagher Risk Management Services, Inc. herein referred to as the "CCD ROCIP Administrator."

Subcontractor: Includes those persons, firms, joint venture entities, corporations, or other parties that enter into a Subcontract with Contractor to perform Work at the Project Site and any of these Subcontractor's lower-tier subcontractors.

Work: Operations as fully described in the Contract and Subcontract, performed at or emanating directly from the Project Sites. Also, the entire completed construction or the various separately identifiable parts required to be furnished under the Contract documents.

Section 4

CCD ROCIP Insurance Coverages

This section provides a brief description of CCD ROCIP coverages. The actual policies that control the details concerning coverage, exclusions and limitations are available upon request.

Covered Parties

Parties covered as Named Insured's include the CITY AND COUNTY OF DENVER, its' related entities, and Enrolled Contractors and Subcontractors of any tier. Parties included as Additional Insured's include all those designated by the CITY AND COUNTY OF DENVER, and any other party that a Named Insured is required under contract to add as an additional insured.

Those Not Covered

A) Ineligible for coverage are: vendors, suppliers, material dealers, off-site fabricators with no on-site labor unless agreed to in advance by the carrier, and those personnel involved merely in, loading, transporting and unloading materials, personnel, parts, equipment or any other items to, from or within the Project Sites. Contractors performing jobs that are not eligible for CCD ROCIP coverage may include but are not limited to those contractors who present an exceptionally hazardous exposure or risk to the jobsites. However, Contractors and Subcontractors engaged in minor demolition work are covered under the CCD ROCIP Program.

B) Those who are not enrolled.

C) Those who are not added as Additional Insured's.

Evidence of Coverage

Each Enrolled Contractor and Subcontractor will be issued a Certificate of Insurance evidencing Workers' Compensation, General Liability and Excess Liability insurance to each Enrolled Contractor and Subcontractor of any tier, each of whom will be an Insured on the policies. Other documentation including forms, posting notices, etc., will be available at the Project Sites. Policy copies will be made available upon written request to the CCD ROCIP Administrator.

Description of ROCIP Coverages

The following sections provide a summary of the policies that the CCD ROCIP has obtained for this Project. The limits shown will be the minimum limits purchased by the Owner.

Workers Compensation and Employers Liability:

A policy will be issued to each Enrolled Contractor for workers' compensation coverage.

Part One -	Workers' Compensation:	Statutory Limit
Part Two -	Employer's Liability:	**Annual Limits Per Insured**
	Bodily Injury by Accident, each Accident	$1,000,000
	Bodily Injury by Disease, each employee	$1,000,000
	Bodily Injury by Disease, policy limit	$1,000,000

- Other States Coverage
- Designated Projects Endorsement
- Waiver of Subrogation
- Alternate Employer Endorsement
- Maritime/Jones Act – If Required

A single policy will be issued toeach Enrolled Party for General Liability. Contractor and Subcontractor will be issued a Certificate of Insurance.

Commercial General Liability:

(Shared by all insured's)	**Limits of Liability**
Annual General Aggregate (Per Project and Reinstates Annually)	$4,000,000
Products/Completed Operations Aggregate (Per Project) (Statute of Repose)	$4,000,000
Total Products/Completed Operations Aggregate- (Statute of Repose)	$8,000,000
Personal / Advertising Injury Limit	$2,000,000
Each Occurrence Limit	$2,000,000
Fire Damage Legal Liability (any one fire)	$300,000
Medical Payments (any one person)	$10,000

- Named Insured Endorsement
- Additional Insured Endorsements (CG 2038 and CG 2037 or their equivalent)
- Designated Projects Declaration and Schedule
- Legal Defense Outside Policy Limits
- Annual Reinstatement of Aggregates as defined in the policy
- Period of Statute of Repose Products & Completed Operations Extension commencing when your work is considered to be completed as defined in the Policy
- Primary and Non-Contributory to any insurance of self-insurance otherwise available to the insured parties
- Separation of Insureds Clause
- Waiver of Transfer of Rights of Recovery Against Others
- Limited Exclusion - Contractors Professional Liability Endorsement
- Repair Work Coverage – 3 years
- Absolute Lead and Asbestos Exclusions
- Total Pollution Exclusion with Hostile Fire, Building Heating and Air Conditioning Exceptions
- Nuclear Energy Liability Exclusion

Above is only a summary and the actual terms and conditions are contained in the policy

Exception/Notes: The CCD ROCIP coverage is limited solely to Work performed at the Designated Project Site and the products and materials permanently incorporated into the Project. Off-site operations shall be covered only if approved by the ROCIP Insurers, designated in writing by the ROCIP Administrator, and when all operations at such site are identified and solely dedicated to the Project. It shall be the responsibility of the Contractors and Subcontractors to notify the ROCIP Administrator, in writing to request coverage for specified off-site operations.

Claims Charge-Back: A claims charge-back will be assessed for the amount of any loss payable under the ROCIP **Commercial General Liability Policy**. The Enrolled Party primarily responsible for causing any bodily injury or property damage liability loss shall be responsible for payment of the charge-back. The charge-back will equal the deductible under the Enrolled Party's commercial general liability policy (non-ROCIP) up to a maximum charge-back of $25,000. The minimum charge-back shall be the actual loss or $5,000 whichever is less. The charge-back shall be applied on the same basis as applied under the Contractor's or Subcontractor's commercial general liability insurance policy. All Enrolled Parties are required to provide the City and County of Denver, a copy of their Commercial General Liability insurance deductible endorsement for the purpose of determining the charge-back. If the loss exceeds $5,000 and information necessary to determine an Enrolled Party's deductible as stated on its commercial general insurance certificate is not available to the City, the City and County of Denver will charge the Enrolled Party the actual loss up to a $25,000 maximum per occurrence until receipt of documentation from the Enrolled Party's commercial general insurance policy evidencing the contractor's actual deductible. If the loss is less than $5,000, the City and County of Denver will charge the actual loss. The charge-back does not apply to workers' compensation claims for an Enrolled Party's own employee.

Excess Liability:

	Limits of Liability shared by all Insureds
Each Occurrence Limit :	$200,000,000
General/Other Aggregate Limit ((Per Project Basis and Reinstates Annually)	$200,000,000
Products/Completed Operations Aggregate Limit (applies on a Per Project Basis)	$200,000,000
Products/Completed Operations Aggregate Maximum Policy Cap	$400,000,000

- "Pay on behalf" wording with legal defense outside the limits
- Designated Projects Schedule
- Scheduled Underlying Coverage's: Employer's Liability; Primary Commercial General Liability
- Period of Statute of Repose for Products & Completed Operations Extension (single policy term aggregate) commencing when the Work is considered to be completed as defined in the underlying General Liability Policy
- Excludes: Automobile Liability, Asbestos; Lead, Silica, Discrimination & Wrongful Termination; War, Nuclear; Pollution (except where noted); and other policy terms and conditions

Above is only a summary and the actual terms and conditions are contained in the policies

Note

Contractors and Subcontractors of any tier are advised to arrange their own insurance for Contractor-owned or –leased equipment and materials not intended for inclusion in the Project. The CCD ROCIP will not cover Contractor-owned or leased property.

Contractors Pollution Liability Insurance

(Shared by all insureds)

Coverage: Liability or responsibility for bodily injury, property damage or environmental damage caused by a pollution event resulting from covered operations and completed operations. Coverage includes microbial matter and legionella pneumophila in any structure on land and the atmosphere contained with the structure.

Limits of Liability:

Each Loss:	$25,000,000
Policy Aggregate	$25,000,000

Products/Completed Operations coverage will extend for eight (8) years after final completion of the Project.

Exception/Notes: The CCD ROCIP Contractors Pollution coverage is limited solely to Work performed at the Project Site and for Projects specifically listed on the Policy.

Contractors Pollution Insurance Claims Chargeback. A claims charge-back will be assessed for the amount of any loss payable under the Contractors Pollution, up to the first $5,000 of any loss will be paid by Contractor. This includes all expenses or claim payments incurred by the ROCIP Insurer for losses attributable to the Contractor's work, acts or omissions, or the work, acts or omissions of any tier of subcontractor. Contractor may elect to pass this charge through to any responsible subcontractor but in no event may require total subcontractor reimbursement in excess of $5,000.

Note

The descriptions above provide a summary of coverages only. Contractors and Subcontractors should refer to the policies for actual terms and conditions.

Builders Risk:

Property Excluded: Land/Land Values, Water, Vehicles, Damage To Existing Property (unless specifically endorsed), Contractor Plant & Equipment, Prototypical or Used Equipment As Respects Testing, Property Located At Other Than The Project Site Except While In Transit Or Temporary Offsite Locations, And Others Per Policy Form

Limits of Insurance:	$465,405,000	Policy Limit/Any One Occurrence
Sublimits:	Included in Policy Limit	Water Damage (includes surface water, back up of sewers and drains)
	$15,000,000	Damage to Existing Building
	Included Policy Limit	Flood
	Included in Policy limit	Earthquake
	$10,000,000	Property in Storage Off-Site
	$10,000,000	Property Temporarily Off-site
	$10,000,000	Property in Transit (Road, Rail or Inland Waterway, including Place of Storage and Accommodation and all related Loading and Unloading
	25% of Loss/$10,000,000 Maximum	Debris Removal
	125%	Escalation Clause
	$2,500,000	Fire Fighting and Service Charges
	$10,000,000	Law or Ordinance (Coverage B and C only); for Coverage A (building) is included within the Project Value)
	$5,000,000	Plans, Drawings and Documents
	$5,000,000	Reproduction of Computer Records
	$20,000,000	Extra Expense
	$20,000,000	Expediting Expense
	$2,000,000	Temporary Repairs
	$2,000,000	Professional Fees
	$5,000,000	Loss Minimization Expenses and Preventative Measures
	$1,000,000	Pollution Clean Up Costs from land and water
	$500,000	Continuing Hire Costs
	$5,000,000	Soft costs

Deductibles	$25,000	Per Occurrence except
	$75,000	Water Damage
	$50,000	Flood
	$50,000	Earthquake
	$150,000	Damage arising out of Defects in materials, Workmanship, Design, Plan or Specification (LEG/06)

In the event that more than one Deductible could apply, the largest single Deductible only will apply

Coverage Extensions:	• Beneficial Occupancy Clause – Property taken into Use Clause • Automatic Reinstatement Clause – without additional premium • Repeat Tests Clause • Civil or Military Authority Clause • Other Interests Clause
Other Terms and Conditions:	• Occurrence Definition – 72 hour period • Primary Insurance Provision • Defects Extension (LEG 2/96 or LEG 3/06) • Concealed Damage Clause 50/50 • Permissions Clause • Claims Procedures Clause • Interim Payments Clause • Cancellation Clause – Insurer may cancel only for non-payment of premium • Inadvertent Errors and Omissions Clause • Reasonable Precautions Clause • Dispute Resolution Clause • Waiver of Subrogation
Exclusions (including but not limited to):	• Contractors' Plant and Equipment • Wear and Tear or Gradual Deterioration (with exception) • Corrosion and Erosion (with exception) • Normal Upkeep • Penalties and Consequential Loss • Money • Inventory Loss (including mysterious disappearance) • Aircraft • War and Civil War • Political Risks • Radioactivity (CL 370) • Electronic Data (Computer Virus, Corruption or Alteration, etc.) with exception for if loss is caused by an insured peril • Deliberate Acts

Coverages: The CITY AND COUNTY OF DENVER shall provide Builder's Risk insurance on an "all risk" basis, and covering the work and all materials and equipment to be incorporated therein, including property in transit or elsewhere, subject to certain sub-limits, and insuring the interests of the CITY AND COUNTY OF DENVER, the Contractor, subcontractors, and material suppliers. This insurance shall not cover any personal property of the Contractor or Subcontractors, including tools, equipment, scaffolding, staging towers, and forms, rented or owned by the Contractor or any Subcontractor, the capital value of which is not included in the cost of the Work. Builder's Risk insurance will not provide coverage against loss by theft or disappearance of any materials (unless the materials are to be incorporated into the Project), tools, or equipment of the Contractor or any tier of Subcontractor, or any other person furnishing labor or materials for the Work. Contractor agrees to indemnify, defend, and hold the CITY AND COUNTY OF DENVER and its officers, agents, and employees, harmless from any such loss, theft, or disappearance.

A **claims charge-back** will be assessed for the amount of any loss payable under the **Builder's Risk Policy**. The first $5,000 of any such occurrence will be paid by Contractor. This includes all expenses or claim payments incurred by the Insurer for losses attributable to the Contractor's Work, acts or omissions, or the Work, acts or omissions of any tier of subcontractor. Contractor may elect to pass this charge through to any responsible subcontractor but in no event may require total subcontractor reimbursement in excess of $5,000.

Note

The descriptions above provide a summary of coverages only. Contractors and Subcontractors should refer to the policies for actual terms and conditions.

ROCIP Termination or Modification

The CITY AND COUNTY OF DENVER reserves the right to terminate or modify the CCD ROCIP or any portion thereof. The CITY AND COUNTY OF DENVER exercises this right, Enrolled Contractors and Subcontractors of any tier will be provided notice as required by the terms of their individual Contracts. At its option, the CITY AND COUNTY OF DENVER may procure alternate coverage or may require the Lead Contractor to procure and maintain alternate insurance coverage at the costs that you identified in your bid.

Section 5

Required Coverage for Contractors and Subcontractors

Contractors and Subcontractors of any tier are required to maintain coverage to protect against losses that occur away from the Project Sites or that are otherwise not covered under the CCD ROCIP.

Contractors and Subcontractors of any tier are required to maintain insurance coverage that protects the CITY AND COUNTY OF DENVER from liabilities arising from the Contractor's and Subcontractor's operations performed away from the Project Sites and for types of coverage not provided by ROCIP, and for operations performed in connection with the Contract by those who are Ineligible. Contractors and subcontractors are solely responsible for monitoring these matters.

See Section 8 for sample Certificate of Insurance form.

Verification of insurance may be submitted in the form of a Certificate of Insurance on a standard ACORD Form 25-S. A sample of an acceptable Certificate of Insurance is provided in Section 8. Please note requirements for a thirty (30) day notice of cancellation, waiver of subrogation and additional insured status. Also, Contractor's and Subcontractor's insurance must be primary and non-contributory.

Contractors are responsible for verifying and monitoring the adequacy of insurance required to be maintained by Subcontractors and Ineligible parties' with whom the Contractor contracts. The CITY AND COUNTY OF DENVER reserves the right to disapprove use of Subcontractors unable to meet any insurance requirements. Enrollment information and Certificates evidencing compliance with any and all insurance requirements shall be sent to the CCD ROCIP Administrator.

Prior to mobilization and within 30 days of any renewal, change or replacement of coverage, Contractors and Subcontractors shall submit to the CITY AND COUNTY OF DENVER and the CCD ROCIP Administrator a Certificate of Insurance evidencing the coverage, limits and deductibles as specified in this section.

The limits of liability shown for the insurance required of the Contractor and Subcontractors are minimum limits only and are not intended to restrict or limit the liability imposed on the Contractor and Subcontractors for Work performed under their Contract.

Contractor and Subcontractor Provided Coverages

All Contractors and Subcontractors shall provide evidence of automobile liability. CCD ROCIP does not cover automobile liability.

Automobile Liability and Automobile Physical Damage

Covering all owned, leased, hired and non-owned automobiles, trucks and trailers with coverage no less broad than that of the ISO Commercial Business Auto Policy in limits not less than **[$1,000,000] combined single limit** each accident for bodily injury and property damage and automobile physical damage. Coverage shall apply both on and away from the Project Sites.

All hazardous waste or materials transporters including but not limited to any contractor or subcontractor (including fuel, oil, gasoline) must carry a minimum of $5,000,000 combined single limit and show evidence of MCS90 Endorsement.

Eligible Contractors and Subcontractors **shall** provide evidence of workers' compensation insurance for off-site activities, including design work.

Ineligible Contractors and Subcontractors shall provide evidence of workers' compensation applicable to the Project.

Workers' Compensation and Employer's Liability

Part One -	Workers' Compensation:	Statutory Limit
Part Two -	Employer's Liability	**Annual Limits: Contractor**
	Bodily Injury by Accident, each Accident	$100,000
	Bodily Injury by Disease, each Employee	$100,000
	Bodily Injury by Disease, Policy Limit	$500,000

Commercial General Liability/Umbrella Liability

Ineligible Contractors and shall provide evidence of general liability insurance for the Project and must name the CITY AND COUNTY OF DENVER, the Owner of the Project Sites and other parties as additional insured's to the policy

PRIME CONTRACTOR REQUIREMENTS	Limits of Liability
General Aggregate	$2,000,000
Products/Completed Operations Aggregate	$2,000,000
Personal/Advertising Injury Aggregate	$1,000,000
Each Occurrence Limit	$1,000,000

SUBCONTRACTOR REQUIREMENTS*	Limits of Liability
General Aggregate	$2,000,000
Products/Completed Operations Aggregate	$2,000,000
Personal/Advertising Injury Aggregate	$1,000,000
Each Occurrence Limit	$1,000,000

*Please refer to your Insurance Requirements as they may differ from these requirements

Coverage shall be on an occurrence form and apply to bodily injury and property damage for operations (including explosion, collapse and underground coverage), independent contractors, products and completed operations. Limits can be provided by a combination of a primary Commercial General Liability policy and Excess or Umbrella Liability policy.

Watercraft and Aircraft Liability

Should watercraft or aircraft of any kind be used by a Contractor or Subcontractor of any tier, or by anyone else on its behalf, Contractor or Subcontractor shall maintain or cause the operator of the watercraft or aircraft to maintain Liability insurance with a minimum combined single limit for bodily injury and property damage including passengers in an amount agreed upon in writing with the City and County of Denver.

THE CITY AND COUNTY OF DENVER does not provide professional liability insurance for Contractors or Sub-contractors.

Professional Liability

All contractors with any design responsibility must provide professional liability insurance or require their design consultants provide appropriate insurance covering liability arising out of design errors and omissions with a limit of not less than $1,000,000 per claim for each design Contractors. All such policies must be primary and non-contributory with a waiver of subrogation.

Contractor's Equipment

All Contractors and Subcontractors of any tier must provide a Certificate of Insurance evidencing coverage or replacement cost of Contractor's or Subcontractors [tools and] equipment, with a waiver of subrogation in favor of the CITY AND COUNTY OF DENVER, and all CCD ROCIP enrolled contractor and subs of any tier.

Section 6

Contractor and Subcontractor Responsibilities

Throughout the course of the Project, Contractors and Subcontractors will be responsible for the reporting and maintaining of certain records as outlined in this section.

The Contractor and all Subcontractors of any tier are required to cooperate with the CITY AND COUNTY OF DENVER, its Broker, CCD ROCIP Administrator and insurance companies, in all aspects of CCD ROCIP operation and administration. Responsibilities of the Contractor and Subcontractors of any tier include:

- Enrolling in CCD ROCIP
- Including CCD ROCIP provisions in all subcontracts as appropriate
- Providing timely evidence of off-sites insurance to and the CCD ROCIP Administrator
- Notifying the CCD ROCIP Administrator of all subcontracts awarded
- Maintaining and reporting payroll records
- Cooperating with the City and County of Denver, its Broker, the CCD ROCIP Administrator's and insurance companies' requests for information
- Complying with insurance, claim and safety procedures
- Notifying the Broker and the CCD ROCIP Administrator as required by contract of any insurance cancellation or non-renewal (Contractor- and Subcontractor- required insurance)

Contractor Bids

See Section 8 for sample forms that can help identify your insurance costs. See Section 2 for information on contacting the CCD ROCIP Administrator.

Insurance is provided for all Eligible, Enrolled Contractors and Enrolled Subcontractors of any tier under CCD ROCIP for Work performed at the Project Site. Contractor bids and Change Orders should exclude insurance costs for these coverages. Section 8 of this CCD ROCIP Insurance Manual contains information on how to enroll e and submit information to the CCD ROCIP Administrator via an on-line system (VUE) to that the Contractor will be required to submit to the CCD ROCIP Administrator after award of the Contract to document insurance costs excluded by the Contractor for this Project.

Each bidder of every tier is required to exclude from its' bid price, its normal cost for the insurance coverages to be provided by the CITY AND COUNTY OF DENVER under the CCD ROCIP Program. All subsequent change orders will also exclude these costs. Excluded insurance costs are subject to verification and documentation by the CCD ROCIP Administrator.

Note

Before estimating insurance costs or contacting your insurance representative about excluding the Project from regular coverage, you should read this manual in its entirety.

Enrollment

See Section 8 for sample ROCIP forms

Each Contractor shall provide details about itself and its subcontractors as necessary to enroll in the CCD ROCIP. **The City and County of Denver will need all of the information requested to enroll the project, your declaration rate pages and deductible endorsement on CGL, Xs Liability, WC policies must be completed and submitted to the CCD ROCIP Administrator prior to mobilization to obtain coverage under the CCD ROCIP.**

The CCD ROCIP Administrator must be notified of each separate contract and all change orders.

When a Contractor or Subcontractor is accepted into CCD ROCIP, they will receive a Certificate of Insurance acknowledging that they have been enrolled in CCD ROCIP.

Note: Enrollment is Mandatory - Not Automatic

Enrollment into the CCD ROCIP is required, but not automatic. Eligible Contractors and all Eligible Subcontractors of any tier MUST complete the enrollment forms and participate in the enrollment process for CCD ROCIP coverages to apply. Access to the Project Sites will not be permitted until enrollment is complete.

Assignment of Return Premiums

The cost of the CCD ROCIP insurance coverages will be paid by the City and County of Denver. The City and County of Denver will be the sole recipient of any return CCD ROCIP premiums or dividends. All Enrolled Contractors and Subcontractors of any tier shall assign to the City and County of Denver all adjustments, refunds, premium discounts, dividends, credits or any other monies due from the CCD ROCIP insurers. Contractors shall assure that each Enrolled Subcontractor of any tier shall execute such an assignment. The *Insurance Application* that the Contractor completes on-line will be used for this purpose.

Payroll Reports

Each Contractor and Subcontractor of any tier must submit **Payroll Reports online via the CCD ROCIP Administrator's website (VUE)** identifying labor-hours and payroll for all work performed for the Project. The monthly labor-hours and payroll reports should include supervisory and clerical personnel on-sites and shall certify all Work performed at or emanating directly from the Project Sites.

Note

Each Contractor and Subcontractor must submit payroll through CCD's LCP portal on conjunction with remitting to the CCD ROCIP Administrator.

This information will be used to provide the insurance companies with information required to determine the City and County of Denver premium**.** *Instructions are noted under Section 8 of this manual.* The Contractor and each Subcontractor must register first and enroll online. *See Section 8 of this manual for instructions.*

Once the enrollment application is approved, ***an E-mail will be sent to each Contractor and Subcontractor providing each Contractor and Subcontractor a Certificate of Insurance as evidence of participation in the CCD ROCIP. You will be required to log-in monthly to the CCD ROCIP Administrator III's website and submit monthly payroll.***

Note: Separate Reports Required

A separate Payroll Report is required for each Contract for Work you are performing.

Insurance Company Payroll Audit

Each Enrolled Contractor and Subcontractor is required to maintain payroll records for the Project in accordance with the *Basic Manual of Rules, Classifications, and Experience Rating Plan for Workers' Compensation and Employer's Liability Insurance*. Such records shall allocate the payroll by Workers' Compensation classification(s) and shall include all payrolls as defined by the State of Colorado state manual rules.

It is important that you properly classify payrolls, as these will be reported to the rating agency. All Enrolled Contractors and Subcontractors of any tier shall make available their books, vouchers, contracts, documents, and records, of any and all kinds, to the auditors of the ROCIP insurance carriers or the City and County of Denver 's representatives at any reasonable time during the policy period, any extension, or during a final audit period as required by the insurance policies.

The Insurance Company has the right to correct and reclassify payroll.

Note

Failure to submit the payroll reports as required may result in the withholding of payments until required documentation is received.

Completion of Work

When an Enrolled Contractor or Subcontractor of any tier has completed its Work, each Enrolled Contractor or Subcontractor of any tier shall complete must login into the CCD ROCIP Administrator's website and complete the close out page.

Final Payment will not be released by the City and County of Denver until all necessary forms have been submitted to the CCD ROCIP Administrator.

Claims Reporting

A claims kit will be provided to all Contractors. It will include details about claim reporting and is intended for use at the Project Sites.

Each Contractor and Subcontractor of any tier shall follow the claims procedures as established by the CCD ROCIP Administrator. Contractors and Subcontractors of any tier agree to assist and cooperate in every manner possible in connection with the adjustment of all claims and demands in which the City and County of Denver Insurer(s) is called on to adjust or defend. Please refer to **Section 7** of this Manual.

Contractors will be provided loss information for their respective claims. Contractors are encouraged to participate in the claims management process. The CITY AND COUNTY OF DENVER has ultimate authority in any claim settlement matter.

Each Contractor and Subcontractor will have the full right to participate in the management and mitigation of their own workers' compensation claims and any financial information regarding each individual contractor's workers' compensation claims will be provided.

A Manual
establishing minimum standards for Contractor and Subcontractor of any tier safety programs will be provided to all Contractors and Subcontractors of any tier.

Safety Procedures

Each Contractor and Subcontractor of any tier is required to establish a written safety program and to provide a full-time Safety Manager or designated safety representative who shall be on sites when any Work is in progress. Minimum standards for such programs are outlined in the CCD ROCIP Safety Program Manual.

.Off-Sites Locations

The Contractor and Subcontractor of any tier are responsible for applying for approval to have off-site locations covered. The Contractor shall notify the City and County of Denver of the need and shall request approval of such location. The request should include the location, address, and description of the Project Sites, the type of use to which it will be put, and the duration of the work to be performed at such location. The off-site location must be dedicated to the Project.

Coverage is not automatic until confirmed by the CCD ROCIP Administrator.

Change Order Procedures

Change orders will also be priced by the Contractor and its Subcontractors to exclude their cost of insurance for the coverages provided by CCD ROCIP.

Close Out and Audit Procedures

When a Contractor and/or an associated Subcontractor of any tier has completed its Work at the Project Site(s) and will no longer have on-site workers, the Contractor shall notify The CCD ROCIP Administrator of final payroll by clicking the box on the Monthly Payroll Screen. Then the Contractor should go into the Close out Tab and verify total payroll and final contract value and complete close out information.

Section 7

Claim Procedures

This section describes basic procedures for reporting various types of claims: workers' compensation, liability, and damage to the Project.

Claim Contacts

The primary Claim contact for the project will be:

Kendall Trump, CIC, ARM-e
Vice President/Sr. Claim Consultant
Arthur J. Gallagher Risk Management Services, Inc.
303-889-2570
kendall_trump@ajg.com

Workers' Compensation Claims

A Claims Reporting Kit will be provided to all Contractors. It will include details about claim reporting and is intended for use at the Project Sites.

The main responsibility for any Contractor or Subcontractor is first to see that any injured worker receives immediate medical care. Next, you should contact the Prime Contractor immediately in the event of a serious injury or accident**.** An Employer's First Report of Injury and the Supervisor's Report of Injury form must be completed within 24 hours and submitted in accordance with claims procedures as noted on **page 24**. Each Contractor or Subcontractor is responsible for providing to their injured employee a WC-1 form which also must be completed by the injured employee.

The claims kit will be provided to all Enrolled Contractors and Subcontractors of any tier. These packets will include claim forms. Additional claim forms will be available by contacting the CCD ROCIP Administrator.

The City and County of Denver 's Insurer will arrange with preferred, local medical providers for treatment of all minor or non-life threatening injuries. The name and location of such preferred, local medical providers are provided in the claim kits as well as a poster to be posted at Project Sites.

Enrolled Contractors of any tier must designate a representative called the Contractor Safety Supervisor at the Project Sites to take injured employees to the medical center, and to report the claim. This individual should remain with the injured employee at the medical center while such employee is being treated. The treating physician should provide a written description of whether or not the injured employee can return to work, a list of restrictions if any, and the estimated length of time such employee can stay on modified duty.

The City and County of Denver Insurer will arrange for local 911 emergency ambulance services for response to any serious, traumatic, life-threatening injuries and will provide information to be posted at the Project Sites and in the claims packet.

Carrier: Zurich American Insurance Co.
Worker Compensation Claims Reporting Information

Gallagher has created a claim report kit to report workers' compensation claims. The claims kit is sent out by the ROCIP Administrator with acknowledgement of your enrollment into the ROCIP. The Claims Kit is available on the CCD ROCIP Administrator's on-line system (VUE) under the Documents tab under each Contract. Contractors and Subcontractors can access the claims kit on a 24/7 basis.

Below are instructions on how to report a workers' compensation claim. You can report a claim via the INSURER's website, e-mail, fax or by telephone as noted below:

Make sure your Policy # is included in Forms or Cover Sheets.

Report Workers Compensation Claims

Claims are to be reported via the INSURER's website noted below:

www.zurichna.com
(click on the "Claims" tab and then under "Report a New Claim" click on the "file a claim online tab , click on "Workers' Compensation" on the left hand side of the screen and follow the instructions). You will need your Policy #; the Insured Name is your Employer Entity Name.

You may report a claim by **calling or faxing** the Zurich's North American Claims Reporting Care Center as follows:

Phone: 1-800-987-3373

Fax: 1-877-962-2567

Any questions, please contact Kendall Trump at Gallagher at 303.889.2570 for assistance.

Carrier: Zurich American Insurance Co.
Worker Compensation Claims Reporting Information (Continued)

Reporting via e-mail:

You may e-mail the FIRST REPORT OF INJURY to the following E-mail address which has been specifically set up for this ROCIP; however, please note the following restrictions on the E-mail Notice of Loss:

E-mail: usz.nwcclaims@zurichna.com

Additional restrictions on this e-mail program include the following:

- Send notice of loss when emailing us (no photos, color graphics, or shaded attachments)
- Send a basic attachment format that does not contain digitized logos, unstable formatting, or hyperlinks
- Any changes to the email format or types of attachments will require additional approval on the INSURER's end

Also, the Colorado First Report of Injury form *(See page 51 and the separate worksheet provided)* that is currently being used for new claim reporting does not include fields for Location Code, policy # etc. We have attached an INSURER Workers' Compensation Worksheet for reporting claims to the INSURER. There are fields for the Location Code and your Policy #. This form can be used for E-mail reporting. The INSURER will file the Colorado First Report of Injury electronically with the State.

Medical Bills
Please send all medical bills to the following Zurich Office:

Zurich North America - Claims
P.O. Box 66941
Chicago, IL 60666
Fax: 847.240.8172

Medical Bill Inquiries

Please call Zurich; however, contacting the adjuster assigned is more efficient.

Medical provided line to assist in finding claim number assigned:
Call the Zurich Medical Provider Helpline at 719.590.8719
E-mail Zurich's Care Center at usz_carecenter@zurichna.com

Claim Documents:
Usz.zurich.claims.documents@zurichna.com

Liability Claims

Accidents at or around the Project Sites resulting in damage to property of others (other than the Work itself), or personal injury or death to a member of the public, must be reported immediately to the Prime Contractor, City and County of Denver and Gallagher. The General Liability Reporting form found in the **Claim Kit** shall be completed and emailed, faxed or phoned within 24 hours of injury or damage.

Contractors and Subcontractors of any tier shall not voluntarily admit liability and shall cooperate with the CITY AND COUNTY OF DENVER, Gallagher and the Insurer representatives in the accident investigation.

Builder's Risk Claims

Report any damages to your Work or the Work of any other Contractor/Subcontractor to the Prime Contractor, CITY AND COUNTY OF DENVER Assigned Project Manager, and Gallagher. In addition, complete the Builders Risk Loss Reporting form and submit it to Gallagher.

Automobile Claims

No coverage is provided for automobile accidents under the CCD ROCIP. It is the sole responsibility of each Contractor and Subcontractor of any tier to report accidents involving their automobiles to their own insurers.

HOWEVER, all accidents occurring in or around the Project Sites must be reported to the Lead Contractor, the CITY AND COUNTY OF DENVER, Assigned Project Manager, and Gallagher. These accidents may be investigated with regard to any liability arising out of the Project construction activities that could result in future claims (e.g. due to the conditions of the roads, etc.) Each Contractor and Subcontractors of any tier shall cooperate in the investigation of all automobile accidents.

Pollution Claims

Contractors and Subcontractors of any tier shall **immediately** notify the Lead Contractor, CITY AND COUNTY OF DENVER, Assigned Project Manager and Gallagher of any known or suspected pollution incidents.

Section 8

Enrollment Procedures and Requirements – via Administrator's On-Line System

Prime Contractor [Manager]

Project: 7642

This section contains information on enrollment procedures and requirements including enrolling via the CCD ROCIP Administrator's website and, reporting payroll on-line and other administration of the CCD ROCIP.

Note

For assistance, please contact:

Clayton Pennock– CCD/ROCIP Administrator
Telephone Number: 800-877-8218 ext 2280 or 314-800-2280
Email: clayton_pennock@ajg.com

Or
Heather Lawson – CCD/ROCIP Administrator
Telephone Number: 800-877-8218 ext 2205 or 314-800-2205
Email: heather_lawson@ajg.com

CCD ROCIP Enrollment Procedures and Requirements

EVERY CCD ROCIP PARTICIPANT MUST COMPLETE THE CCD ROCIP ENROLLMENT ONLINE.

IMPORTANT! YOUR PROJECT NO. IS REQUIRED WHEN ENROLLING

1. Enroll online at: https://ajg.vuewrapup.com/contractorportal. You must register first if you do not already have a user login. Once you register and login click "New Enrollment" and when you are prompted for a Project Code use **your Project No. 7642**

2. Once you complete the online enrollment upload a certificate of insurance to the documents section. Please find a sample certificate after this page. The certificate must be in accordance with the CCD ROCIP enrollment provisions in the General Conditions evidencing primary Auto Liability, Workers' Compensation, and General Liability for Project-Related Operations performed away from the CCD ROCIP Project Site. *Contact your Insurance Agent for this certificate (a sample is included). It is your responsibility to notify your Insurance Agent to exclude all work to be done at this Project Site from your regular General Liability and Workers' Compensation policies.*

3. You must also upload a copy of your Workers Compensation, General Liability, and Excess Liability rating and declaration pages from your primary insurance policy.

4. Arthur J. Gallagher will send a Certificate of Insurance evidencing your coverage under the CCD ROCIP program. You should keep this certificate as evidence of your participation in the CCD ROCIP. It may be required by your regular insurance company to exclude this job site from your regular policy.

5. Once you begin work on site you must log in on a **monthly basis** and submit your monthly payroll. Click the box by the contract number and click the "Payroll" button at the top of the page. Verify that the dates the system pulled in are correct before saving your monthly payroll. If you have multiple class codes and are only reporting payroll under one of them for any given month you must enter $0 for those class codes that you do not have payroll for.

6. When you are have completed your work on the Project, you must login into the system and complete the closeout page. Click the box by your contract and click "Close Out" at the top of the page. You will be asked to reconcile your monthly reported payroll and provide your final contract value.

   If you have any questions or concerns please don't hesitate to contact:

   Clayton Pennock
   314-800-2280
   Clayton_Pennock@ajg.com

On-line Enrollment Instructions

Enrolling Through the Online Portal

1. In your web browser, open the AJG Wrap-up Management Portal URL (https://ajg.vuewrapup.com/contractorportal). This will open the portal login screen.

If you have never registered with the AJG Wrap-up Contractor Portal nor received a login for ajg.vuewrapup.com, follow steps 2-4.

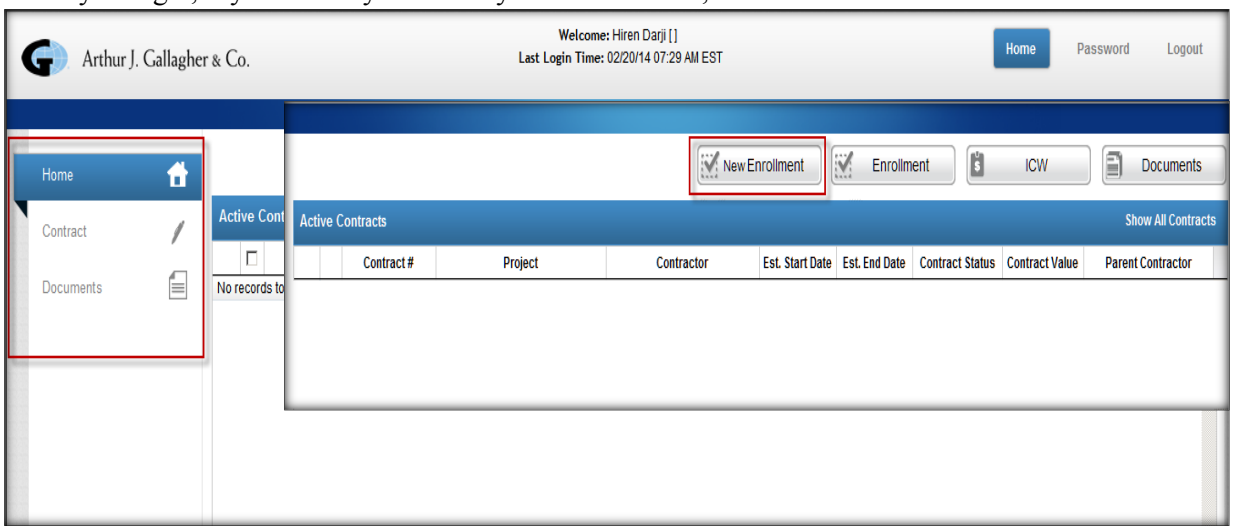
If you are already registered, proceed to step 5.

2. Click the Register Me link at the bottom right hand corner of the login box.

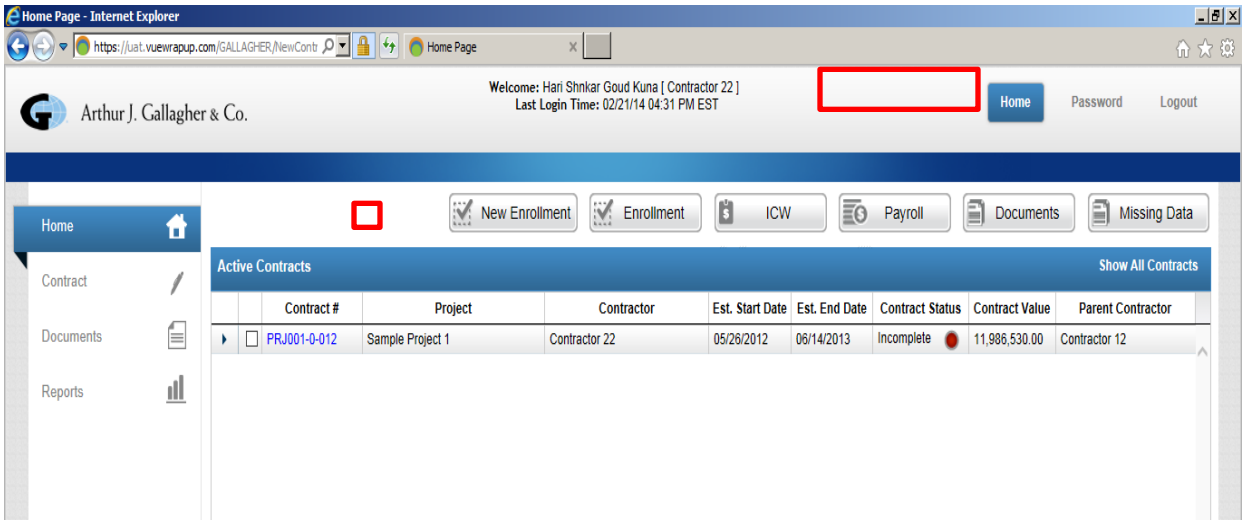
3. Fill in the form with your first name, last name, email ID (email address) and enter the User ID you would like to use. Your User ID can be any User ID you will easily remember, such as your first initial and last name (preferred), your company name, or your email address, and must be unique. Password may contain letters, numbers and symbols. All fields are required.

4. When your registration has been received successfully, you will see the message "User ID and Password are created. Please click here to login to Contractor Portal" in red. Click the link to be redirected to the login page where you can login to the portal to complete your enrollment. You will also receive an email with your User ID and Password for your records.

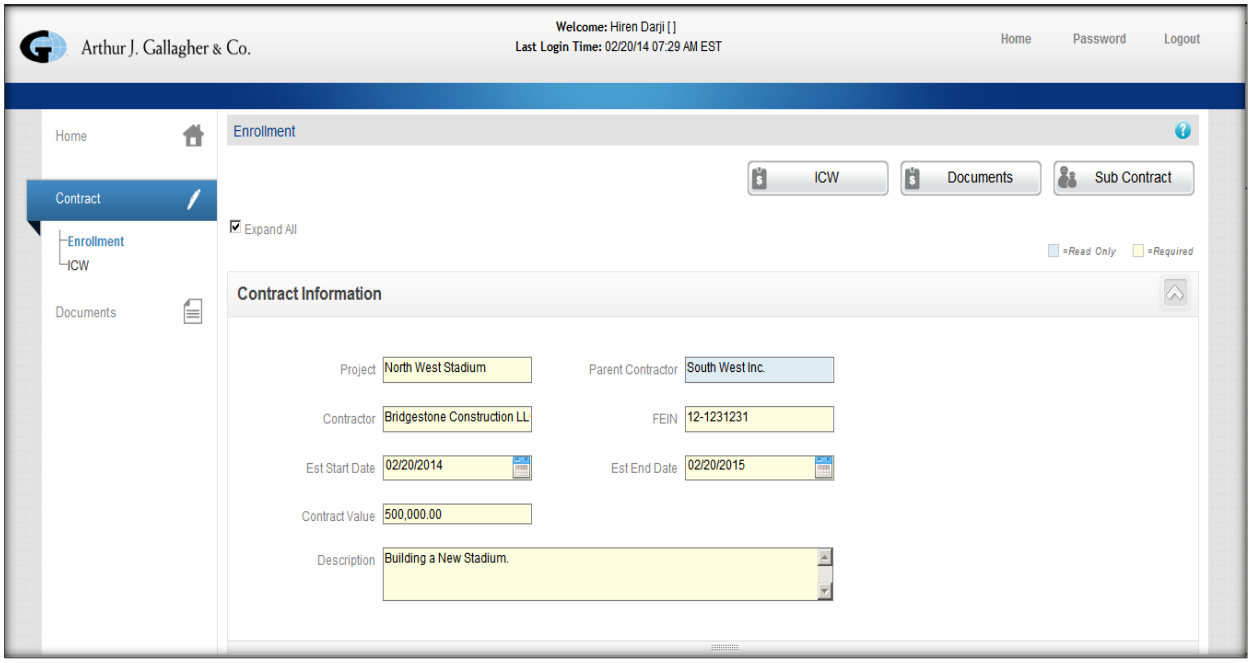
5. When you login, if you do not yet have any contracts added, click the button "New Enrollment".



If you already have the contract in the system, click the checkbox next to the contract you need to enroll or complete enrollment, then click the Enrollment button. If you do not see your contract, add a New Enrollment and **use project code [7642]**



6. You will be brought to the Enrollment Screen.

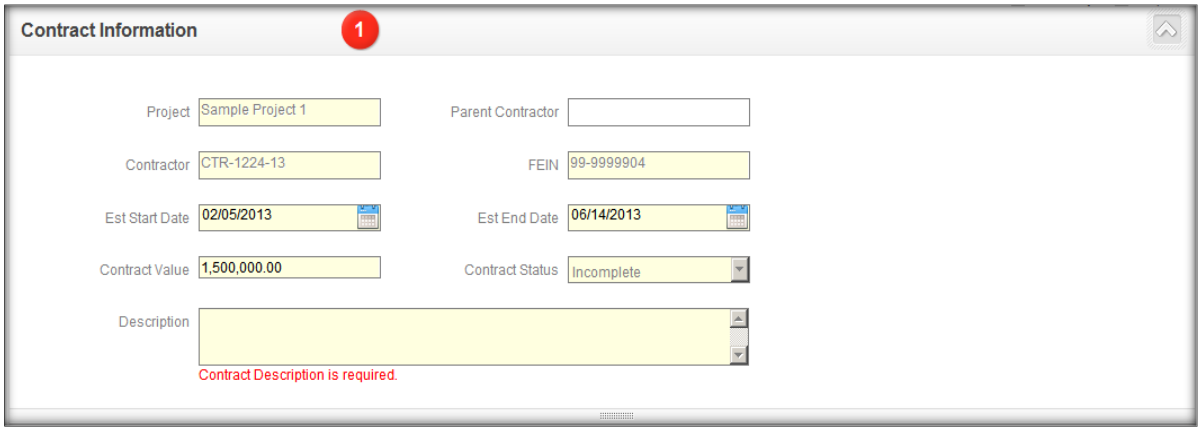


The Enrollment Screen includes the following sections, each of which can be expanded or collapsed for ease of review:

a. Contract Information
b. Address
c. Contact
d. Estimated Payroll
e. Insurance Information

7. Fill in each section with your information to the best of your ability. Fields highlighted in yellow are required. If you do not know the information for a required field, enter an X, or if a specified format is required such as a date, enter your best estimate.
   a. For a new enrollment, all fields shown should be filled in.
   b. If you have previously started an enrollment or if a contract has been added to your portal by an administrator, you may not be able to edit some fields. Move on from those and fill in all the other fields as completely as possible. (If you notice a mistake in a non-editable field, contact your administrator).

8. In the Contract Information section, please enter your contract Estimated Start Date, Estimated End Date, Contract Value and Description of Work.



9. In the address section, enter a primary address by filling in the fields for address type, street address, city, state, zip, and checking the checkbox "Primary". You must enter at least one address and it must be marked as primary.

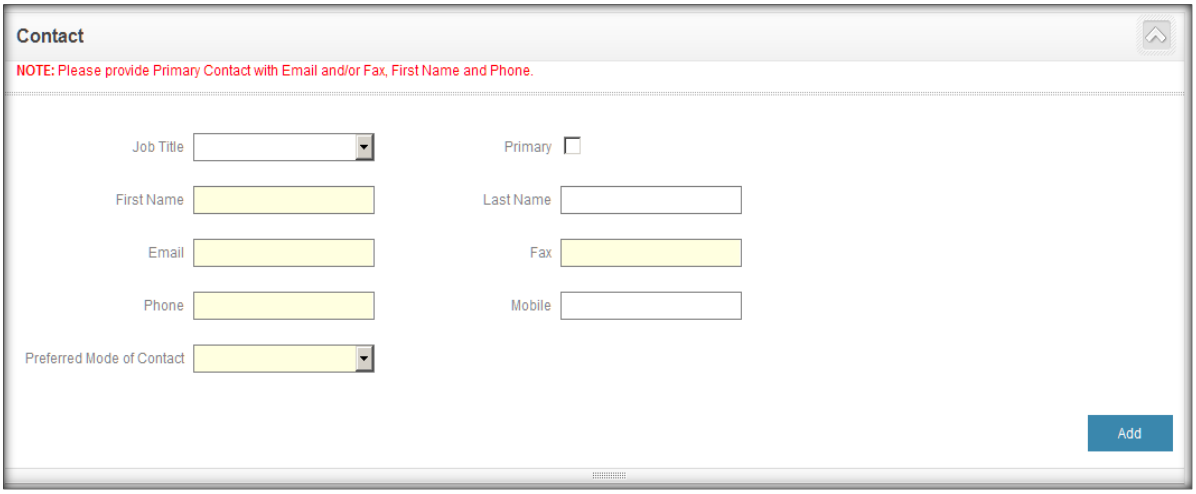
a. To add a secondary address, click the Add button in the lower right hand corner of the address section. This will open another address section.

b. To mark a different address as primary, first uncheck the Primary checkbox in the address originally checked as primary, then check the primary checkbox in the new primary address. If you check the Primary box in a different address first, you will get an error message. You first must un-check the original checkbox and then check the new checkbox.

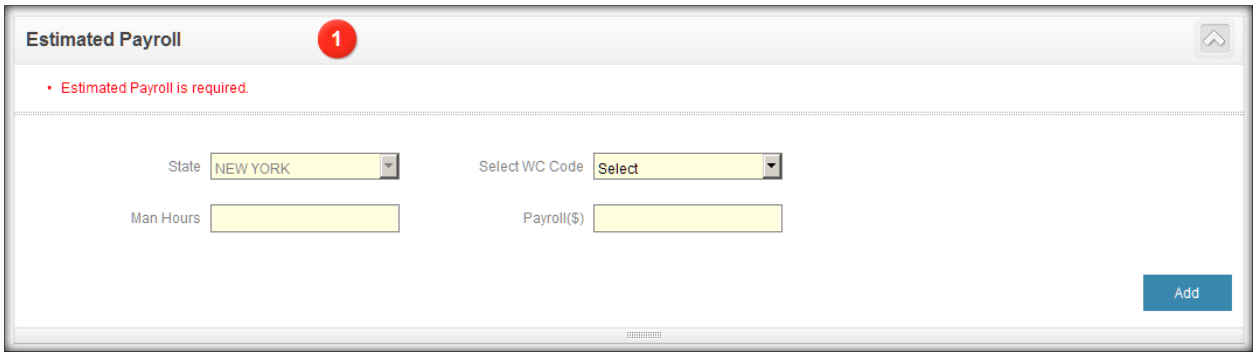
c. To delete an address, click the delete button at the lower right hand corner of the section containing that address. (Delete will only show when there is more than one address added.)

d. Note: You cannot delete an address that has already been approved by the administrator. If you try to delete an address which has been approved by AJG Wrap-up Administrator, then you will get the error message: "You cannot delete Address approved by administrator. Please contact AJG Wrap-up administrator."

10. In the Contact section, add your contacts. You must enter at least one contact and it must be marked as primary. You can also add additional contacts. The same rules around marking as primary, adding and deleting apply for Contact as for address. Please see the address section above for more details.
    a. You must provide a value for your corresponding preferred mode of contact. For example, if you select email as your preferred method of contact, you must provide an email address.



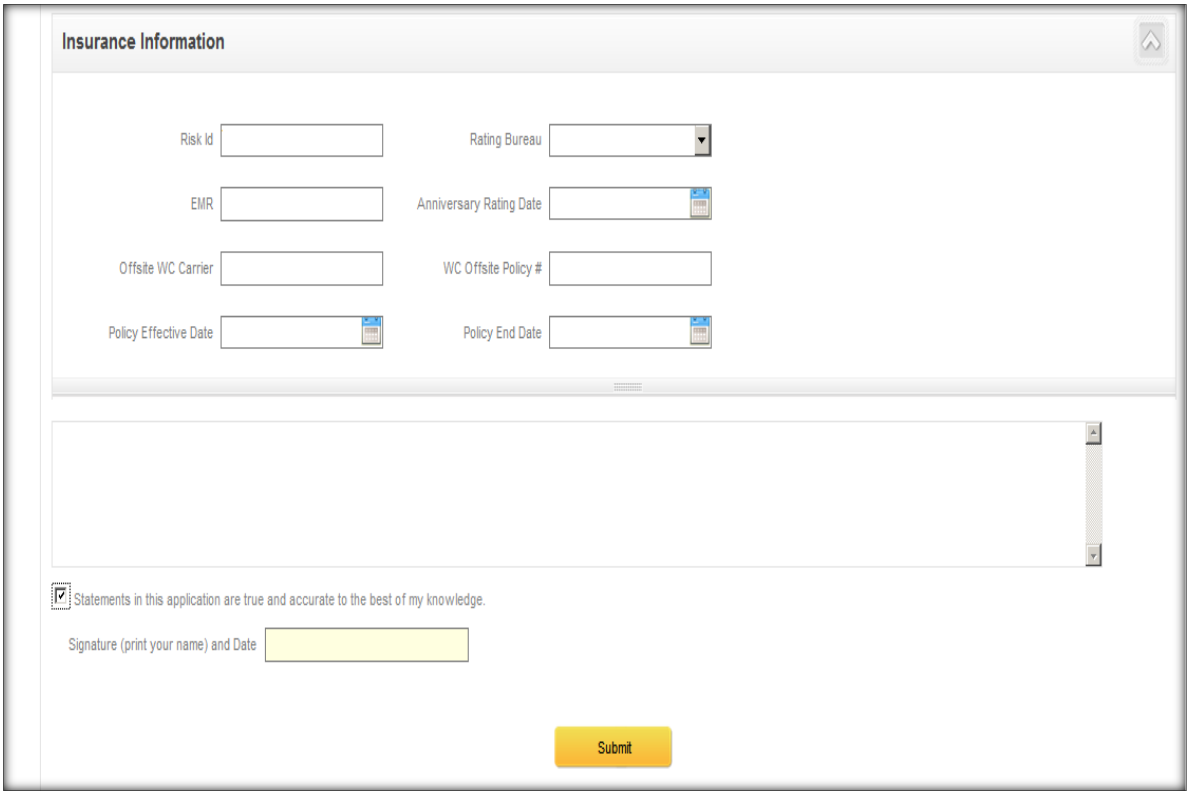
11. In the estimated payroll section, you must enter estimated payroll for at least one worker's compensation class code. For each class code, select the class code, enter the man hours and the payroll amount.



    a. If editing an existing enrollment or completing an enrollment for an administrator-added contract, the state will be driven off of the project state and will not be editable.
    b. To add another class code, click Add. Once there is more than one class code, the Delete button will also appear, allowing you to delete other records if needed.

12. The Insurance Information section is required, however items a. and b. below are not mandatory (please enter that information if available).
    a. *Risk ID # (This is the ID # assigned t*o the Contractor by the Rating Bureau that compiles and calculates the EMR).
    b. Rating Bureau (The organization that compiles Claims history and Payroll to calculate the EMR).
    c. EMR value for current year.
    d. Anniversary Rating Date (MM/DD/YYYY) by when new EMR shall come into effect).

    (Note: Contact your Broker/Producer on your worker's compensation policy to obtain these details if you do not have them.)
    e. Offsite WC (Worker's Compensation) Carrier Name
    f. WC (Worker's Compensation) Offsite Policy Number
    g. Policy Effective Date (mm/dd/yyyy) - Start date of the Policy
    h. Policy End Date (mm/dd/yyyy) – End date of the Policy



13. Before you submit your enrollment information, you must check the confirmation checkbox. (Note: The text in your portal may differ from what is shown in the above screenshot.) After you verify the information is correct, check the checkbox.
    a. Once this checkbox is checked, Signature (print your name) and Date field will be visible. Please add details for sign and date.
    a. If Verification checkbox is not checked before submitting enrollment, then system will give message as "You have not verified the above information."
    b. If Signature is not entered before submitting Enrollment, then system will give message as "Signature is required."

Note:

1. If anything is incomplete, a red circle with the number of missing items will be shown on each section.
    a. For example, if five required data points are missing in the Insurance Information section, the header shows red circled count for the # of missing data points.
2. Once your Contract is Pending / Enrolled, you cannot make changes to the enrollment for the contract.

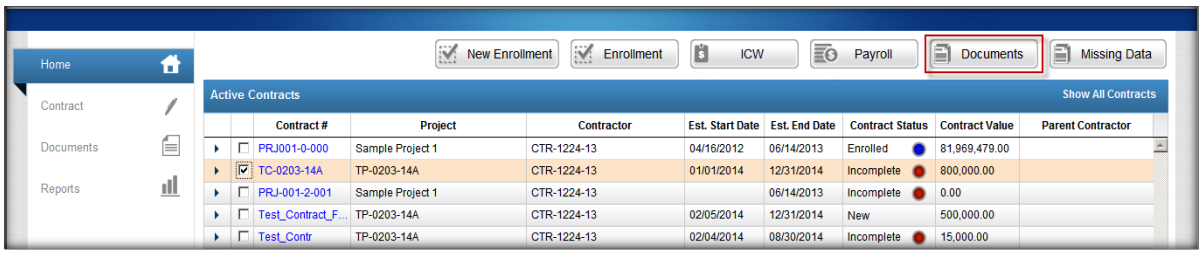
Submit Documentation

- As part of your enrollment, you will be required to submit the following supporting documentation:
    - WC Rating and Dec pages (Upload per instructions below)
    - Monthly Payrolls (Completed on-line and due on the 5th of every month for the preceding month)
    - Notice of Completion (When your work has been completed)

- From the home screen, you can access the document section in one of the two ways mentioned below.
    - Select the record of Contract # from the list on the Home Screen, and then click on Documents button.

      Or
    - Click on Documents sub-menu under Contract from the left menu on the screen.

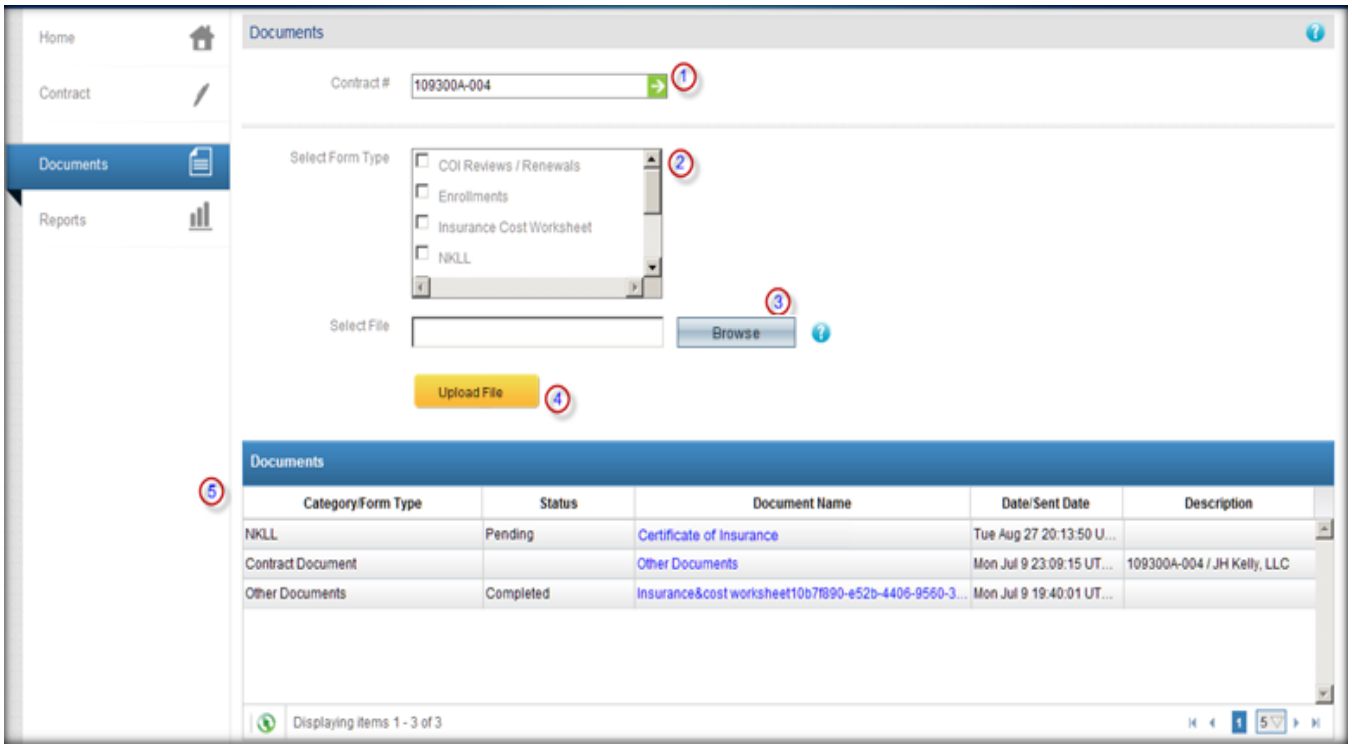
      Or
    - Click on Documents button from the Enrollment page to upload document for a given contract.



- Documents screen will be opened.
    - If you access the documents screen by selecting the contract # from the list on the home page or from the Enrollment page, then the contract # will be pre-filled on the top of the screen.

    - If you access the screen by clicking on the Documents sub-menu from the left menu, then you will need to search the Contract # by providing at least the first three characters of the contract number.

On Documents screen, there are three fields: Contract #, Select Form Type and Select File to upload the document. Refer to the image below.



Screen 1 – Documents Screen

If there are existing document(s) for selected Contract, the system will display those under Documents section.

To add the documents to the selected Contract, please follow below steps.

1. Select Contract # or, if already displayed, go to step #2.
2. Select the Form Type from available options. Note: One can select multiple form types, i.e. Enrollment and NKLL.
3. To locate the file to upload, browse your local drive by clicking on the Browse button. The file must be on your device or computer from which you are currently accessing the portal.
4. Select the file to upload, and click the Upload File button to upload the file.
5. Once the file is successfully uploaded, that document(s) will be listed in Documents Screen.

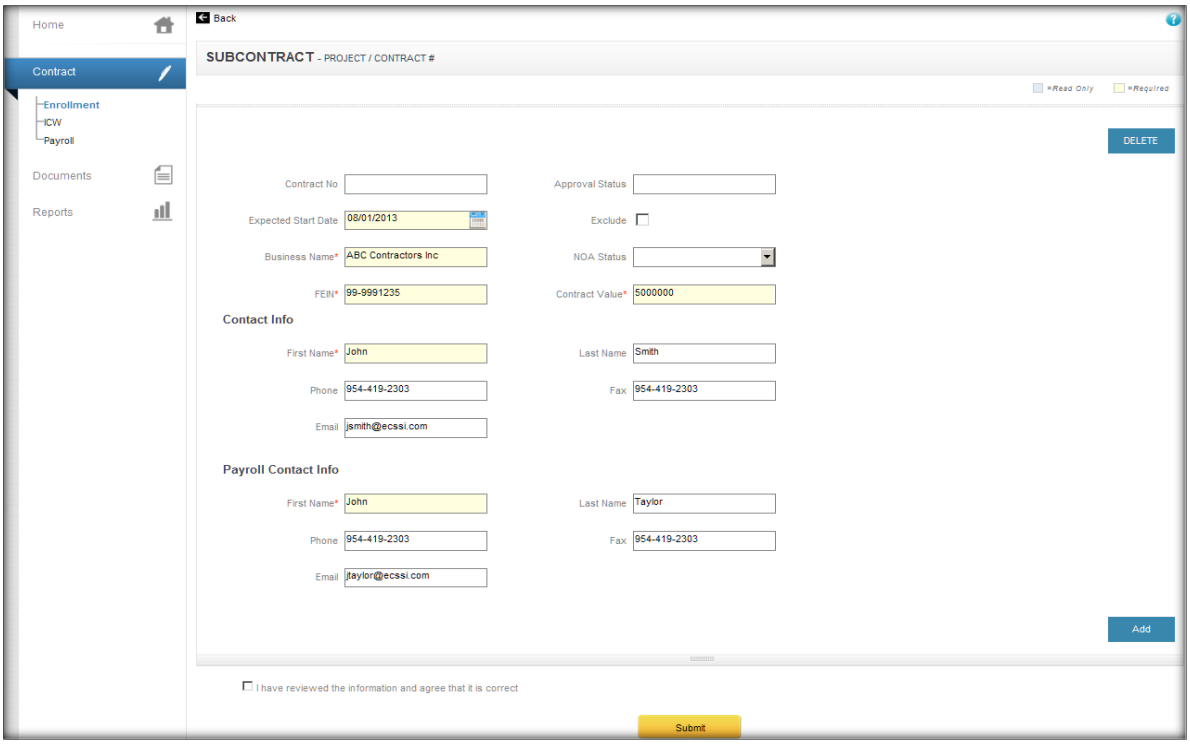
You can return to the Home page by clicking on the Home button.

Note:

1. Only PDF or TIFF documents can be uploaded.
2. Once the document(s) are uploaded, the document(s) will be listed in the Documents section. Click on the link in the Document Name column to confirm it is the right document for that contract.

Add Lower Tier Subcontractors

1. For adding your lower tier Subcontractors for the respective contract, please click on Subcontract button. Please refer to the image below.



2. To add a new Subcontractor, please make sure to enter:
    i. Expected Start Date – Estimated start date of the subcontract
    j. Please enter Business Name, NOA Status (from the available options in the dropdown), FEIN #, Subcontract Value.
    k. Contract # and Approval Status are read only fields.
    l. Please enter following details for Contact Information and Payroll Contact Information for the subcontract.

    First Name, Last Name, Phone #, Fax # and Email Address.
3. To add another subcontractor; please click on the ADD button. A new subcontract block will be added under the existing section.
4. **DELETE** button is available to delete the subcontractor, if needed.
5. Please verify the information and check the checkbox next to the statement "I have reviewed the information and agree that it is correct" before submitting the subcontractor details.

Note:

1. Once subcontract is submitted, system will display the auto generated contract number in the given Contract # field. The Approval Status will also be shown in the Approval Status field.
2. By clicking on Back button on the top-left of the Subcontract screen, the user can go back to the Enrollment screen.

On-line Payroll Reporting Instructions

How to Report Payroll On-Line

- All enrolled Subcontractors **must** submit an On-Site Payroll Report **every month** from the inception of the contract until work is completed. The Payroll report is due on the **5th of every month** for the preceding month's work.
- Actual Payroll details can be submitted online through the portal https://ajg.vuewrapup.com/contractorportal/.

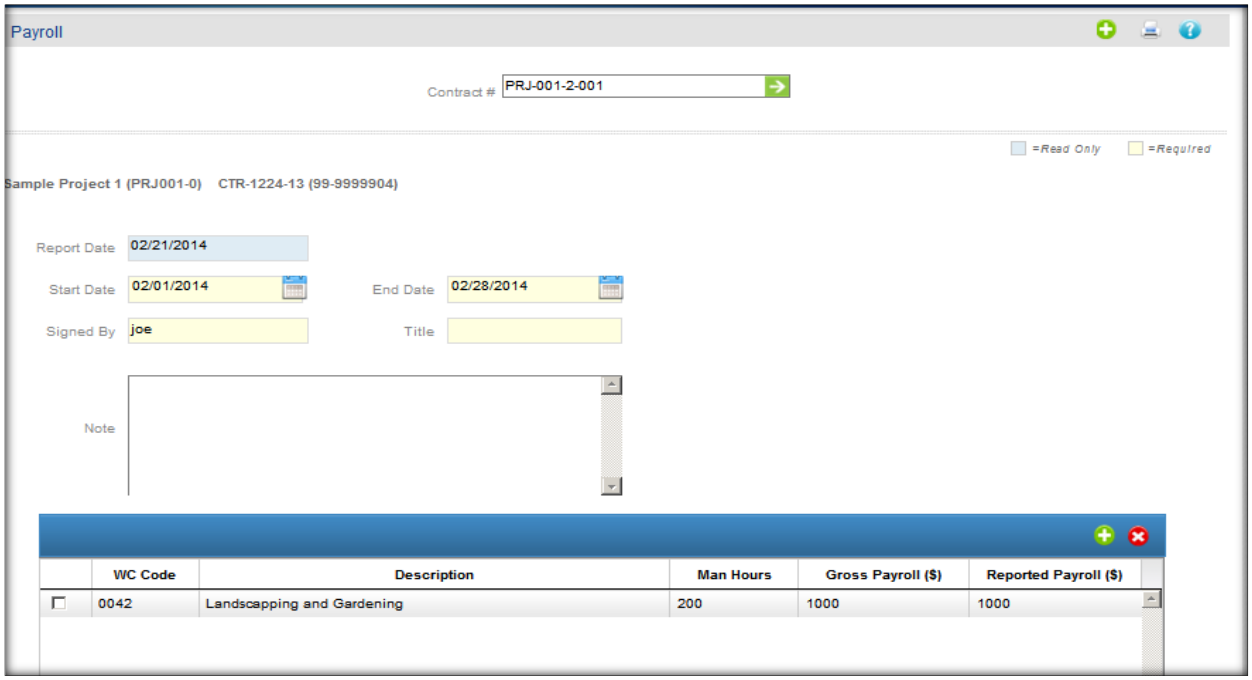
Please follow the steps below to submit the Actual Payroll online.

1. Once logged in to the portal site, the Actual Payroll details can be submitted online by using one of the following two options:
   a. Select the Contract # listed on the Home Screen, then Click on the Payroll button. **NOTE:** If any of your Contract #'s are not listed, please contact your AJG Wrap-up Administrator to check the status of enrollment.

      Or

   b. Click on Payroll sub-menu under Contract from the left menu of the screen.

2. Actual Payroll screen will open. Please see the Actual Payroll Form image on following page.



3. If you selected the Contract # from the Home Screen, the Contract # will be pre-filled on the form. If it is not, you must select the Contract # from the Contract search box above.
4. Report date is the current date, and will be filled by the System.
5. If this is the first payroll report, please enter the Start Date by either manually typing in Date textbox (MM/DD/YYYY), or using the drop down Calendar. Do the same for the End Date. While submitting subsequent payrolls, the System will populate the next calendar day as the Start Date from the previous report. The End Date needs to be entered manually.
6. Signed By textbox will be pre-filled. Title can be manually entered in the Title textbox.
7. On the payroll screen, the WC Code(s) will be filled from the estimated payroll you submitted during enrollment.
8. If you need to add another WC code, click on the green plus button located above the Reported Payroll column.
9. In the WC Code box, enter the WC Code followed by the Description in the next field. In addition, you can delete a selected WC Code by clicking the Delete (x) icon located above the Reported Payroll column. **Note:** You must leave a note in the notes field explaining to the administrator why you are entering payroll for a class code not included on your enrollment.
10. Click the Man Hours field to enter the correct hours. Enter the Gross Payroll that includes unburdened overtime pay.

    Remember: If there are no hours worked for a WC code for that month, enter zero (0).
11. Reported Payroll does not include the premium (excess) portion of any Overtime pay. (i.e. 48 hours. x 24.00$/hr. = $1,152, do not include the premium overtime pay of $12.00 for the 8 hours of overtime). The states of PA, NV, UT, DE and applicable WC monopolistic states require the entire unburdened overtime portion as Reportable Payroll. If you are unsure whether to include the unburdened overtime portion as Reportable Payroll, you can find the information in your CCIP manual, or by calling the AJG Wrap-up Administrator.
12. If a WC Code is entered which was not included in the original Estimated Payroll section on Enrollment Application, a Note explaining the reason for the same must be added before saving the Actual Payroll.
13. If Reported Payroll is less than Man Hours then system will give the message as "Reported payroll should be more than man hours."
14. If Reported Payroll is less than Gross Payroll then system will give the message as "Reported payroll can never be greater than gross payroll."
15. If Payroll Start Date is before Project or Contract Start Date then system will give message as "Payroll cannot be entered before the Project Start date / Contract Start date, which is [DATE]. Please contact AJG Wrap-up Administrator for assistance."
16. After all the required information has been entered, click Submit button. Please note: Once the payroll information has been submitted it cannot be changed. You must contact the AJG Wrap-up Administrator for changes.
17. To print, click Print button on the top right corner of Actual Payroll screen. A PDF file will open displaying the details of the submitted Actual Payroll.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): mm/dd/yyyy

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Your Agent's Contact Name
Your Insurance Agent/Broker Name	PHONE (A/C, No, Ext): Your Agent's Phone Number / FAX (A/C, No): Agent's Fax #
Address	E-MAIL ADDRESS: Your Agent's E-mail address
City St Zip Code	INSURER(S) AFFORDING COVERAGE / NAIC #
INSURED: Your company Name, Address, City, State, Zip Code	INSURER A : Your Insurance Company
	INSURER B : Your Insurance Company
	INSURER C : Your Insurance Company
	INSURER D :
	INSURER E :
	INSURER F :

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY PRO-JECT LOC	Y	Y	Your Policy #	mm/dd/yy	mm/dd/yy	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ $ $ 1,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS	Y	Y	Your Policy Number	mm/dd/yy	mm/dd/yy	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
	UMBRELLA LIAB OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $						EACH OCCURRENCE AGGREGATE	$ $
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICE/MEMBER EXCLUDED? Y / N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	Y	Your Policy #	mm/dd/yy	mm/dd/yy	X WC STATU-TORY LIMITS OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000

Sample Document Only
Certificate must be issued by your primary insurance agent and include the specific wording shown at the bottom of this sample. E-mail or fax to Arthur J. Gallagher ROCIP Dept
EM Heather_Lawson@ajg.com

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

The CITY AND COUNTY OF DENVER, A MUNICIPAL CORPORATION OF THE STSATE OF COLORADO, its officers, directors, employees and agents are Additional Insureds per endorsement equivalent to ISO Form CG 2038. Coverage is primary and non-contributory. Waiver of Subrogation is included for the General Liability, Workers' Compensation per Endorsements #_____attached.

CERTIFICATE HOLDER	CANCELLATION
City and County of Denver c/o Arthur J. Gallagher RMS, Inc./Gallagher ROCIP Group 12444 Powerscourt Drive St. Louis, MO 63131	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE Your Agent's Signature

ACORD 25 (2010/05) The ACORD name and logo are registered marks of ACORD

IMPORTANT

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

DISCLAIMER

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.

ACORD 25 (2001/08)

Instructions for Completing the

First Report of Injury
(Form follows these instructions)

Please read all pages }

Note, the actual fillable PDF is attached as a separate document

This is TBD Telephone Reporting Worksheet and will be used to file the Workers' Compensation Claim electronically by TBD.

This form is "fillable." That means you can type the information onto the form from your computer and print the form. To save the form to your computer's hard drive, save it as a pdf with a unique name, then you can clear the form for the next incident.

Use numbers *only* to fill in the fields for Social Security #, phone numbers and dollar amounts. If a dollar amount contains cents, *do* type the period. To fill in a check box, click inside the box with your mouse. Some check boxes require you to select only one answer; you cannot check both. The "Injury Description", "Name of Witness", and "Name of Doctor" fields have a gray border to indicate how many lines you have to type in. Use the tab key to navigate to the next field.

INSTRUCTIONS

This form contains all items requested on OSHA Form No. 301, "Injuries & Illnesses Incident Report"

General

- All injuries no matter how trivial must be reported to your insurance company.
- All injuries or occupational diseases which result in lost time from work in excess of three shifts or calendar days, or in permanent physical impairment, must be reported to your insurance carrier on this form within ten days after notice or knowledge of the injury or disease. Fatalities must be reported to your insurance carrier immediately.
- Forms should be typed or printed legibly.
- All questions must be answered completely to meet requirements of the Colorado Workers' Compensation Act and to conform to the OSHA requirements for Form No. 301.
- The employer has the right in the first instance, to select the physician who attends the injured employee.

Calculation of Average Weekly Wage

- Determine the weekly wage rate.
- Add the average weekly amount of any overtime wages, tips or commissions.
- Add the average weekly value of any board, rent, housing, or lodging provided by the employer *if the employer will not be paying such benefit during the period of disability*.
- If the employee is covered by group health insurance *and* the employer does not continue the employee's health insurance coverage during the period of disability, add the employee's cost of conversion to a similar or lesser insurance plan and include this cost in the average weekly wage computation.
- Compute the total from the above categories and insert in the *Average weekly wage at time of injury* field.

Injury Date Information

In the case of an occupational disease, use the date of the last injurious exposure.

Notes

Are Wages continued per C.R.S. 8-42-124?[1]
(Subject to application with and approval of the Director of the Colorado Division of Workers' Compensation)

1 Any employer who, by separate agreement, working agreement, contract of hire, or any other procedure, continues to pay a sum in excess of the temporary total disability benefits to an employee temporarily disabled as a result of a work related injury or disease, and has not charged the employee with any earned vacation leave, sick leave, or other similar benefits, shall be reimbursed if insured by an insurance carrier or shall take credit if self-insured, to the extent of all moneys that such employee may be eligible to receive as compensation for temporary partial or temporary total disability subject to the approval of the Director of the Colorado Division of Workers' Compensation.

Injury Description (Tell us the part of the body that was affected. Tell us the nature of the injury/illness[2]; What was the employee doing just before the accident occurred?[3]; What happened?[4]; What object or substance directly harmed the employee?[5])

2 Be more specific than "hurt", "pain", or "sore." Examples: "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."
3 Describe the activity, as well as the tools, equipment or material the employee was using. Be specific. Examples: "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; or "daily computer key-entry."
4 Tell us how the injury occurred. Examples: "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."
5 Examples: "concrete floor"; "chlorine"; "radial arm saw." If this question does not apply to the incident, leave it blank

Notices

You are hereby notified that if a child support obligation is owed, compensation benefits may be attached and payment of the child support obligation may be withheld and forwarded to the obligee pursuant to sections 8-42-124 and 26-13-122(4), C.R.S. YOU ARE FURTHER NOTIFIED that you must provide written notice of any award for social security, pension, disability or other source of income that might reduce your compensation benefits. This notice must be sent to the insurance carrier or self-insured employer within 20 days after learning of the payment or award. Failure to report may result in suspension of your benefits pursuant to section 8-42-113.5, C.R.S.

C.R.S. Section 10-1-128(6) (a) states: "It is unlawful to knowingly provide false, incomplete, or misleading facts or information to an insurance company for the purposes of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance, and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies."

WC 1 Rev 01/06

WC 8062r (1-06)

Note, the actual fillable PDF is attached as a separate document

WORKERS' COMPENSATION TELEPHONE REPORTING WORKSHEET

THINGS TO REMEMBER WHEN COMPLETING THE INFORMATION BELOW:
Call the Telephone Reporting Center to quickly and easily report all Workers' Compensation injuries. We will be asking you the following questions, so please have the information handy. We will produce and submit the necessary state forms.

DO NOT DELAY IN CALLING IF YOU DO NOT HAVE ANSWERS TO ALL THE QUESTIONS.

ACCOUNT / ACCIDENT INFORMATION

CALLER'S PHONE NUMBER / EXTENSION	CALLER'S TITLE	CALLER'S NAME	REPORTING STATE
( )			CO

SUBCONTRACTOR/SUBSIDIARY NAME	SUBCONTRACTOR'S ADDRESS (STREET, CITY, STATE & ZIP)	SUBCONTRACTOR'S MAILING ADDRESS (STREET, CITY, STATE & ZIP) ☐ SAME

DID THE ACCIDENT OCCUR AT THE LOCATION ADDRESS?
☐ YES ☐ NO IF NO, ADDRESS WHERE ACCIDENT OCCURRED

PARENT COMPANY / INSURED'S NAME
City and County of Denver; Program Identifier: CCD ROCIP

LOCATION CODE	POLICY SYMBOL AND NUMBER	NATURE OF BUSINESS

DATE OF INJURY	TIME OF INJURY

ACCIDENT DESCRIPTION

EMPLOYEE INFORMATION

INJURED EMPLOYEE'S SOCIAL SECURITY NUMBER:	EMPLOYEE'S NAME (FIRST, MI, LAST)	GENDER ☐ MALE ☐ FEMALE

DATE OF BIRTH	EMPLOYEE'S MAILING ADDRESS

EMPLOYEE'S HOME PHONE NUMBER	EMPLOYEE'S HOME ADDRESS (IF DIFFERENT FROM MAILING)
( )	

EMPLOYEE JOB INFORMATION

EMPLOYMENT STATUS CODE ☐ FULL-TIME ☐ PART-TIME ☐ OTHER_____	INJURED WORKER TYPE	REGULAR OCCUPATION

OCCUPATION WHEN INJURED

EMPLOYEE'S WORK SCHEDULE
REGULAR WORK HOURS HOURS/DAY DAYS/WEEK

EMPLOYEE'S WAGE INFORMATION:
$ _____ / HOUR OR $ _____ / ANNUAL OR $ _____ / WEEKLY OVERTIME: $ _____ ADDITIONAL BENEFITS: $ _____

DATE OF HIRE OR LENGTH OF EMPLOYMENT

SUPERVISOR'S NAME:	SUPERVISOR'S PHONE NUMBER: ( )	BEST HOURS TO CONTACT

ACCIDENT INFORMATION

DATE CLAIM REPORTED TO EMPLOYER?	DID EMPLOYEE LOSE ANY TIME FROM WORK? ☐ YES ☐ NO	IS THE EMPLOYEE BACK AT WORK? ☐ YES ☐ NO IF YES, DATE RETURNED TO WORK?

RETURN TO WORK STATUS ☐ LIGHT ☐ MODIFIED ☐ REGULAR	DATE EMPLOYEE LAST WORKED	WAS INJURY FATAL? IF YES, DATE OF DEATH ☐ YES ☐ NO

CAUSE OF ACCIDENT (E.G., SLIP/FALL, LIFTING, CHEMICAL)

EQUIPMENT, MATERIAL OR SUBSTANCE INVOLVED

DO YOU QUESTION THE VALIDITY OF THE CLAIM?
☐ YES ☐ NO

WITNESS INFORMATION/OTHERS INVOLVED
NAME (FIRST, MI, LAST) ADDRESS PHONE NUMBER

CONTINUED ON REVERSE SIDE

C-23437 Rev. 9/02

INJURY INFORMATION

PART OF BODY INJURED (E.G., HEAD, NECK, ARM, LEG)

NATURE OF INJURY (E.G., FRACTURE, SPRAIN, LACERATION

PRIOR INJURY OR PRE-EXISTING CONDITION(S) (IF YES, DESCRIBE)

☐ YES ☐ NO

TREATMENT ("X" ALL THAT APPLY

☐ FIRST AID —	TREATMENT AND DATE OF 1ST TREATMENT
☐ HOSPITAL/ CLINIC —	NAME, ADDRESS, PHONE NUMBER, PHYSICIAN NAME, TREATMENT, DATE OF 1ST TREATMENT, LENGTH OF STAY, AMBULANCE USED? WAS EMPLOYEE TREATED IN AN EMERGENCY ROOM? ☐ YES ☐ NO WAS EMPLOYEE HOSPITALIZED OVERNIGHT AS AN IN-PATIENT`? ☐ YES ☐ NO
☐ PHYSICIAN —	

SEE WORKERS' COMPENSATION - FIRST REPORT OF INJURY - STATE SPECIFIC QUESTIONS FOR YOUR INDIVIDUAL STATE.

CUSTOMER SPECIFIC INFORMATION

ADDITIONAL COMMENTS & INFORMATION

C-23437 Rev. 9/02 (Back)

City and County of Denver
CCD ROCIP
GENERAL LIABILITY LOSS REPORT

DESIGNATED PROJECT:	7642

Contractors Email to Devron.McMillin@denvergov.org and to Kendall_trump@ajg.com within 24 hours of incident. Once complete, CCD will submit to Arthur J. Gallagher. Contact AJG by telephone at **(303) 773-9999** about any case involving bodily injury / fatality, extensive property damage, or lawsuit.

POLICY HOLDER / COMPANY NAME

Name				Phone Number
CITY AND COUNTY OF DENVER; PROGRAM IDENTIFIER: CCD ROCIP – TIER 1 NATIONAL WESTERN CENTER				
Address	Street	City	State	Zip Code
Finance officer/Risk Mgt	201 W. Colfax Ave	Denver	CO	80203

TIME AND PLACE OF ACCIDENT

Date of Accident	Hour A.M. P.M.	Location of Accident
Date Notified of Loss		

DESCRIPTION OF ACCIDENT

Full description and cause of accident *(Attach photos, if available)*

Was accident caused by employee of subcontractor? ☐ Yes ☐ No — If "Yes," give employee's name

Name of subcontractor | Address | Street | City | State & Zip Code

Who owns premises where accident occurred? | Does your lease or contract contain any provision regarding injuries?

WITNESSES (VERY IMPORTANT)

Names | Addresses | Street | City | State & Zip Code

INJURED PERSON AND INJURIES

Name of person injured | Age | ☐ Married | ☐ Single

Address | Street | City | State | Phone Number

Nature and extent of injuries

Name of doctor or hospital | Address | Street | City | State & Zip Code

By whom is injured person employed? | Did injured person lose time from work as a result of this injury? ☐ Yes ☐ No | Has injured returned to work? ☐ Yes ☐ No

DAMAGE TO PROPERTY OF OTHERS

Names | Addresses | Street | City | State & Zip Code

Kind of property | Phone Number

Where may property be seen? | Estimated cost of repairs

Do you think a claim will be made against you? ☐ Yes ☐ No | By whom?

Date of this report

Signed

CITY AND COUNTY OF DENVER

Michael B. Hancock
Mayor

PROCEDURE FOR FILING A NOTICE OF CLAIM
AGAINST THE CITY AND COUNTY OF DENVER

(For any party who may want to make a claim for any accident or incident involving the City and County of Denver)

1. Write and file a Notice of Claim (letter) that complies with the provisions of the Colorado Governmental Immunity Act notice requirements found in §24-10-109, 7B (2003), as amended and may be further amended by the legislature.

2. Mail or deliver your Notice of Claim to:

   Mayor Michael Hancock
   1437 Bannock Street, Room 350
   Denver, CO 80202

3. The Mayor's Office will forward your Notice of Claim to the Denver City Attorney's Office. You will receive a letter, which Will provide Denver's claim number and the investigator's name and phone number.

4. If you have any questions about your claim contact the Denver International Airport Risk Management Department at 303.342-2151.

24-10-109. Notice required - contents - to whom given - limitations. Statute text

(1) Any person claiming to have suffered an injury by a public entity or by an employee thereof while in the course of such employment, whether or not by a willful and wanton act or omission, shall file a written notice as provided in this section within one hundred eighty days after the date of the discovery of the injury, regardless of whether the person then knew all of the elements of a claim or of a cause of action for such injury. Compliance with the provisions of this section shall be a jurisdictional prerequisite to any action brought under the provisions of this article, and failure of compliance shall forever bar any such action.

(2) The notice shall contain the following:

(a) The name and address of the claimant and the name and address of his attorney, if any;

(b) A concise statement of the factual basis of the claim, including the date, time, place, and circumstances of the act, omission, or event complained of;

(c) The name and address of any public employee involved, if known;

(d) A concise statement of the nature and the extent of the injury claimed to have been suffered;

(e) A statement of the amount of monetary damages that is being requested.

(3) If the claim is against the state or an employee thereof, the notice shall be filed with the attorney general. If the claim is against any other public entity or an employee thereof, the notice shall be filed with the governing body of the public entity or the attorney representing the public entity. Such notice shall be effective upon mailing by registered mail or upon personal service.

(4) When the claim is one for death by wrongful act or omission, the notice may be presented by the personal representative, surviving spouse, or next of kin of the deceased.

(5) Any action brought pursuant to this article shall be commenced within the time period provided for that type of action in articles 80 and 81 of title 13, C.R.S., relating to limitation of actions, or it shall be forever barred; except that, if compliance with the provisions of subsection (6) of this section would otherwise result in the barring of an action, such time period shall be extended by the time period required for compliance with the provisions of subsection (6) of this section.

(6) No action brought pursuant to this article shall be commenced until after the claimant who has filed timely notice pursuant to subsection (1) of this section has received notice from the public entity that the public entity has denied the claim or until after ninety days has passed following the filing of the notice of claim required by this section, whichever occurs first.

Source: L. 71: p. 1207, § 1. **C.R.S. 1963:** § 130-11-9. **L. 79:** (1) amended, p. 862, § 2, effective July 1. **L. 86:** (1),(2)(b), (3), and (5) amended and (6) added, p. 877, § 9, effective July 1. **L. 92:** (1) amended, p. 1117, § 4, effective July 1.

BUILDERS RISK CLAIMS

DESIGNATED PROJECT:	7642	Stockyard Event Center

1. Take immediate steps to protect property from further damage, securing temporary board-up service if necessary. Keep records of all expenses related to your loss. **Secure all damaged equipment or parts for cause of loss and subrogation investigation by the Insurance Carrier.**
2. List all items damaged or stolen. If original purchase invoices are available, accumulate for the claim representative.
3. Call police department, if appropriate. Please note that your policy requires that all theft losses MUST BE reported to the police.
4. Save any damaged property for examination by the insurance company.
5. If a third party is responsible for the damage, obtain their name, address and telephone number or, if applicable, the make of vehicle and license plate number.
6. Complete the attached Incident Report and email to Kendall Trump at A. J. Gallagher at Kendall_trump@ajg.com or fax to 303.889.2571 within 24 hours.

CCD ROCIP
BUILDERS RISK LOSS REPORT

Email to Arthur J. Gallagher: Kendall_Trump@ajg.com or fax to (303) 889-2571 within 24 hours of incident.

Company Name: **City and County of Denver, ROCIP**					
Mailing Address	Street	City		State	Zip Code
	201 W. Colfax Ave	*Denver*		*CO*	*80203*
Date of Loss or Accident	Month	Day	Year	Time	A.M. P.M.
Location where loss or accident occurred	Street	City		State	Zip Code
Cause of loss (i.e., fire, wind, theft, etc.)					
Describe how loss or accident occurred					
General description of property *(Attach photos or inventory if appropriate)*					
If caused by burglary, theft or vandalism, was loss reported to police?			☐ Yes	☐ No	
If yes, police address and case number					
Estimate of entire loss $					
Estimated salvage value of damaged articles $					
Which fire department(s) attended?					
Name of person reporting claim		Phone number & Email			

CITY AND COUNTY OF DENVER

ROLLING OWNER CONTROLLED INSURANCE

SAFETY MANUAL

REVISED: JUNE 10, 2019

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TABLE OF CONTENTS

SECTION 1. INTRODUCTION & GENERAL INFORMATION

The City and County of Denver has arranged for certain activities under this construction project to be insured under a Rolling Owner Controlled Insurance Program (ROCIP). A ROCIP is a single insurance program that insures the City and County of Denver, the Contractor and Subcontractors of any tier, and other designated parties for work performed at the project site. Certain Trade Contractors and Subcontractors are ineligible for this program. See ROCIP Insurance Manual for eligibility.

The ROCIP Safety Manual was prepared by The City and County of Denver and Arthur J. Gallagher & Co., and reviewed by Zurich Services Corp., to ensure proactive safety processes are used on ROCIP projects to prevent accidents involving employees and the public. The contractor and subcontractors of any tier are responsible for complying fully with all applicable laws, statutes, ordinances, rules, regulations and/or orders of any public authority (federal, state, local) as they relate to safety of persons, environment, public and property. This document is not intended to reiterate applicable health and safety standards, but rather to provide a minimum standard of compliance. Revisions to requirements within this document made during the duration of the contract will be immediately binding and enforced, provided they are more stringent than existing health and safety standards. All applicable federal, state and local standards are incorporated into this program by reference. The Contractor and each subcontractor shall have a current copy of the OSHA Construction standards on site.

Throughout the duration of this project, the contractor and subcontractor shall be responsible for administering their own safety program. Neither this document, nor the safety services provided by individuals associated with this project, is intended to serve as a substitute for the control and responsibility of the contractor and subcontractor to provide a safe work environment for their employees, staff and the public.

The general contractor safety programs will be submitted at least 30 days prior to the start of any construction work under the ROCIP. The safety programs submitted must meet or exceed the safety requirements outlined in the Contract Documents, including Division 1 – General Requirements, the ROCIP Safety Manual and be in compliance with all applicable federal, state, and local safety and environmental laws and regulations. This ROCIP Safety Manual shall serve as a general framework.

The Contractor is required to develop a site specific safety plan (SSSP), which identifies specific site safety requirements, potential exposures associated with the project, and the means and methods to be employed to address these exposures. Review and acceptance of the Contractor's site specific safety plan shall not impose any liability on the Owner, broker or insurance carrier.

All subcontractors are required to develop their own site specific safety plan to cover the scope of their work activity. Subcontractors must submit their site specific safety plan to the

Contractor. The Contractor is responsible for reviewing their Subcontractor's site specific safety plan and making them available to the ROCIP Safety Team for review.

The Contractor will be responsible for overseeing the safety of all Subcontractor employees on the project. This is required regardless of a Subcontractors' eligibility for coverage under the ROCIP program; however, this does not relieve the Subcontractor of its safety responsibilities.

The ROCIP has specific safety requirements that, in many instances, exceed current federal, state, or local safety and environmental standards. In the event of a conflict between Division 1 and the ROCIP Safety Manual, the ROCIP Safety Manager and the Director of Construction will determine which safety procedure will be followed.

The contractor and each subcontractors must thoroughly review this document and the appropriate portions of the Contract Documents, including Division 1- General Requirements, to understand the risks inherent in the project and the safety measures needed to adequately protect employees and the public from harm.

This document shall become part of the Contract Documents. The requirements contained herein are binding and failure to comply will be deemed as non-compliance or default of the contract. Payments of monthly pay applications may be withheld until compliance is deemed satisfactory. Failure to comply may result in removal from the project.

The CCD reserves the right to revise and/or modify this document via bulletin, form or any other written communication.

SECTION 2. DEFINITIONS

A. The following acronyms and titles may not reflect the actual titles and acronyms in use by all entities on this project and do not have any force or effect beyond their use in the Safety Standards. Due to such differences in nomenclature among Owners and Contractors, the following are used throughout the ROCIP Safety Manual to establish the functional framework for the ROCIP Safety Program.

1) **Accident.** An undesired event or sequence of events causing injury, illness, property damage or loss of life.
2) **Authorized Person.** (In reference to an employee's assignment) Selected by the employer for that purpose.
3) **CCD ROCIP Safety Team.** This is the management team that represents the safety and health interests of the ROCIP in the prevention of insurable loss on CCD ROCIP projects. The team includes The City and County of Denver project Risk Management

and Safety Departments, and Arthur J. Gallagher safety representatives and representatives from the insurance carrier.

4) **Competent Person.** One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
5) **Contractor.** The entity with which the City and County of Denver enters into this contract; or, any entity that determines means and methods on the work site and supervises Subcontractors.
6) **Contractor Safety Representative**. Fulltime safety professional assigned to monitor the safety of Contractor employees and Subcontractors under the scope of work of the contract.
7) **Employee.** Person employed by an Employer as defined by this section.
8) **Employer.** Firm or entity that has Employees working on site and is enrolled in the ROCIP program. The term Employer includes the Contractor and Subcontractors of all tiers.
9) **Hole.** A gap or void 2 inches or more in its least dimension, in a floor, roof, or other walking/working surface.
10) **Near Miss Incident.** Incident that had the potential to cause harm or injury but because of circumstances resulted in no harm.
11) **ROCIP Broker/Administrator.** Arthur J. Gallagher & Co. (AJG) is the broker administering the ROCIP Insurance Program providing risk management consulting and being a consultant for safety to the project.
12) **Occupational Safety and Health Administration.** OSHA as used in the context of these Safety Standards refers to Federal agency with jurisdiction over workplace occupational safety and health at the project site.
13) **Qualified Person, Attendant or Operator.** A person designated by the employer who by possession of a recognized degree, certificate, or professional standing, or who, by extensive knowledge, training and experience, has successfully demonstrated his/her ability to solve or resolve problems relating to the subject matter, the work, or the project.
14) **Rolling Owner Controlled Insurance Program (ROCIP).** Owner's wrap-up insurance program which provides insurance coverage for eligible and enrolled owner's representatives, Contractors, and Subcontractors of any tier, working on City and County of Denver ROCIP project sites. The Owner identifies program participants.
15) **Site-Specific Safety Program (SSSP).** The Employer's Site-Specific Safety Program prepared in accordance with the requirements of this document and the Contract.
16) **Subcontractor.** Firm or other entity awarded work by a Contractor on a particular construction project. Subcontractor as used herein shall apply to all tiers of Subcontractors, as well as vendors and service providers performing work for the benefit of the Contractor. For the purposes of the Safety Standards, vendors, suppliers, and service providers on the project for the furtherance of the project are covered by this definition and are subject to the provisions of the Safety Standards even though they may not be enrolled in the ROCIP.

17) **Walking and Working Surface**. Any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.

SECTION 3. CCD ROCIP SAFETY TEAM DIRECTORY

Name	Title	Company	Office	Cell	Email
Ray Sibley	Director, Risk Management	CCD	(720) 913-3349		Raymond.Sibley@Denvergov.org
Devron McMillin	Risk Manager	CCD	(720) 913-3345	(303) 717-2150	Devron.McMillin#@Denvergov.org
Keith Williams	CCD Project Safety Manager	CCD	(720) 913-3325	(970) 980-7559	Keith.Williams@Denvergov.org
Ed Davis	Senior Loss Control Specialist	A.J. Gallagher	(303) 889-2552	(303) 601-1165	ed_davis@ajg.com
Rick Zellen	AVP, Principal Risk Engineer	Zurich Services Corp.	(720) 737-8434	(720) 737-8434	rick.zellen@zurichna.com

For all emergencies, call - 911.

SECTION 4. SAFETY RESPONSIBILITIES & QUALIFICATIONS

4.0 CONTRACTOR

A. Contractor and Subcontractors, of any tier, have the explicit responsibility to perform work in accordance with the Contract Documents, including Division 1- General Requirements, federal law (including both 29CFR1910 and 29CFR1926 statutes) and the City and County of Denver's ROCIP Safety Manual requirements. This is in addition to compliance with the Contractor's company requirements and submitted and accepted Site-Specific Safety Plan (SSSP).

4.1 CONTRACTOR SAFETY REPRESENTATIVE

NOTE: Variance to the requirements in Sections 4.1.A. and 4.1.B. may be granted at the sole discretion of the CCD ROCIP Safety Team. Any variance must be negotiated prior to contract signing.

A. The Contractor shall assign a fulltime safety professional, meeting the qualifications of 4.1.B., to monitor the safety of their employees and Subcontractors under the scope of

work of the contract. If the manpower loading exceeds 249 employees on the project, a second fulltime safety professional shall be retained. If the project exceeds 750 employees, and Contractor will discuss the need for adding additional safety personnel to ensure the safety requirements of the ROCIP are fully met. When multiple shifts are involved the Contractor will assign additional qualified safety professional meeting the minimum qualification outlined below.

B. The qualifications of the Contractor's safety representative must be submitted to the CCD ROCIP Safety Team for review prior to assignment to the site. Approval will depend upon the following qualifications and experience:
   1) Hold a BCSP (Board of Certified Safety Professionals) designation (CHST, ASP, CSP, OHST, GSP) with at least 5 years of relevant construction safety and health experience; **or**
   2) Have a Bachelor's degree in Safety Management or an equivalent engineering degree with at least 7 years of relevant construction safety and health experience; **or**
   3) Have at least 12 years of relevant construction safety and health experience; **and**
   4) Completed the OSHA 500 course for construction or OSHA 30-hour course for construction outreach within the last 24 months, and remain current for the duration of the project.
   5) Provide proof of completion of a Red Cross or approved equal for Cardio – Pulmonary Resuscitation (CPR), First Aid, Automated External Defibrillation (AED), and blood-borne pathogens training course.
   6) Completion of drug and alcohol reasonable suspicion training.
   7) Knowledge of safety representatives' responsibilities.

C. Specific responsibilities of the Contractor's Safety Representative include, but are not limited to the following:
   1) Employee Safety Orientation, Training and Instruction
      i) Conduct orientation sessions for employees new to the site, prior to their beginning work.
      ii) Participate in weekly tool box safety meetings; assist field supervisors, as requested, with meetings.
      iii) Conduct monthly supervisor safety meetings.
      iv) Participate in Job Hazard Analysis development and Pre-Task Planning activities.
      v) Instruct supervisors on safety rules and regulations.
      vi) Instruct employees concerning special procedures (e.g. lock-out, excavation, confined space entry, etc.) as required by OSHA or this manual
      vii) Conduct regulatory training as required.
      viii) Conduct emergency evacuation training.
   2) Record Keeping

i) Complete and maintain OSHA, state, federal, company, and project specific reports and retain for the duration of the project or as required by law.
ii) Complete accident investigation, conduct root cause analysis and develop lessons learned reports for distribution to Contractors, Subcontractors and CCD ROCIP Safety Team.
iii) Complete inspection reports.
iv) Maintain training documentation.
v) Complete and process The City and County of Denver ROCIP safety and health reporting requirements. This includes but is not limited to inspections, incident/ accident reports and training logs.

3) Safety Standards, Rules and Regulations Enforcement
i) Authority to take immediate corrective action, including authority to stop work.
ii) Organizational freedom necessary to implement and enforce Subcontractor safety and health programs.
iii) Implement, maintain, and update, as required, conditions and project site specific safety policies and procedures.
iv) Interpret and implement site specific safety policies and procedures.
v) Demonstrate, by example, proper safety behavior.
vi) Ensure that appropriate company disciplinary action is taken in response to unsafe behavior.

4) First Aid/Medical Treatment
i) Ensure first aid supplies are adequate.
ii) Investigate accidents and complete or obtain accident reports.
iii) Coordinate transportation of employees with minor injuries to Contractor's first aid station or designated medical facility.
iv) After ensuring treatment of the injured worker and securing the work site, inform the CCD ROCIP Safety Team immediately.
v) Prior to medical treatment, provide the injured employee with a copy of Appendix S. Ensure that the injured employee selects an authorized treatment facility. Employee must circle their choice on the document, then sign/date and return to the Contractor.

5) General Responsibilities
i. Keep the CCD ROCIP Safety Team appraised of any safety related issues that have or may develop.
ii. Conduct work area safety inspections and provide results to the CCD ROCIP Safety Team upon request.
iii. Conduct investigations of all accidents and incidents and forward reports to the CCD ROCIP Safety Team.
iv. Compile safety statistical information and copy the CCD ROCIP Safety Team.
v. Participate in scheduled weekly safety meetings with the Program Manager.

4.2 SUBCONTRACTOR SAFETY REPRESENTATIVE

A. Subcontractors of any tier are responsible for complying with the safety requirements addressed in the ROCIP Safety Manual, the Contractor's SSSP, Federal, State and Environmental, Safety and Health rules and regulations, whichever is most stringent.

B. Each Subcontractor on site with a manpower loading less than 50 employees shall have an employee assigned as a safety representative meeting the minimum requirements listed below. This employee may be a working foreman.
   1) Completed at least an OSHA 10 Construction Outreach Training Course within the last twenty-four (24) months before being assigned to this project
   2) Provide proof of non-expired completion of a Red Cross or approved equal for Cardio –Pulmonary Resuscitation (CPR), First Aid, Automated External Defibrillation (AED), and blood-borne pathogens training course.
   3) Received training on Heat Illness and is required by qualification to train his/her employees on the subject.

C. When a Subcontractor's manpower loading is equal to or exceeds 50 employees, the Subcontractor is required to have a full time Subcontractor safety representative onsite. The qualifications for the full time safety representative shall meet the following minimum requirements:
   1) Completed at least an OSHA 30 Construction Outreach Training Course within the last twenty-four (24) months before being assigned to this project.
   2) Provide proof of completion of a Red Cross or approved equal for Cardio – Pulmonary Resuscitation (CPR), First Aid, Automated External Defibrillation (AED), and blood-borne pathogens training course.
   3) Received training on Heat Illness and is required by qualification to train his/her employees on the subject.
   4) Completion of drug and alcohol reasonable suspicion training.

D. Duties of the Subcontractor Safety Representative include the following regardless of manpower loading:
   1) Participation in accident and incident investigation involving their work and employees.
   2) Have the right and authority to stop any and all hazardous work being performed by their employer whenever imminent danger to life and health exists.
   3) Organizational freedom necessary to implement and enforce Subcontractor's safety and health program and report to their own direct supervisor all cases of employees who, in their opinion, are not qualified for the work to which they have been assigned or who engage in unsafe practices.
   4) Attend safety meetings scheduled by Contractor or CCD ROCIP Safety Team.
   5) Counsel and train the employees when the Daily Pre-Task Planning Sheet does not adequately identify the key areas of the task.

4.3 FIELD SUPERVISORS/FOREMAN

A. The field supervisors have the responsibility for overall training, control, and conduct of personnel on their crew. As first line supervisors, their role in the safety and health program is crucial because they set the example by which their employees work. Field supervisors/foremen must have completed at least an OSHA 10 Construction Outreach Program within the last 24 months or OSHA 30 Construction Outreach Program within the last 60 months.
B. The field supervisors' safety responsibilities include, but are not limited to:
   1) Authority to stop work when employee's or crew is exposed to hazardous conditions or potentially hazardous conditions.
   2) Capable of developing and leading JHA's and daily pre-task planning activities.
   3) Task specific safety training.
   4) Safety inspections.
   5) Tool box safety meetings.
   6) Accident investigation.
   7) Provide proof of non-expired completion of a Red Cross or approved equal for Cardio –Pulmonary Resuscitation (CPR), First Aid, Automated External Defibrillation (AED), and blood-borne pathogens training course.
   8) Completion of drug and alcohol reasonable suspicion training.
   9) Capable of implementing the crisis management plan.

4.4 CCD ROCIP SAFETY TEAM

4.4.1 STATEMENT OF AUTHORITY

A. All persons who come into the work area for any reason during construction will be required to comply with the established safety regulations that govern the Project. The CCD ROCIP Safety Team is a representative of the City and County of Denver, National Western Center, and shall directly review and manage the requirements of the ROCIP Safety Plan. If CCD ROCIP Safety Team finds the Contractor areas of work or individuals being, or acting in noncompliance with OSHA, the Site Specific Safety Plan, ROCIP Safety Manual requirements, or any other applicable regulations, the CCD ROCIP Safety Team shall have the authority to order immediate correction and to stop work. Noncompliance with Project Safety Plan may be grounds for Contractor dismissal and/or employee(s) being forbidden entry onto the project. All costs of correction shall be borne by the Contractor deemed responsible. Nothing contained herein, however, shall serve to relieve the Contractor of his liabilities and/or obligations to the requirements set forth by OSHA, or other applicable Federal, State and Local requirements. The most stringent regulation shall apply if a conflict arises in the interpretation of the safety requirements of the ROCIP Safety Manual, Federal, State or local Government.

4.4.2 RESPONSIBILITIES/DUTIES

A. The CCD ROCIP Safety Team is responsible for generating and maintaining a high level of commitment for safe operations among all personnel assigned to the project site. Responsibilities and duties of The CCD ROCIP Safety Team include, but are not limited to, the following:
   1) Review and accept Site Specific Safety Plans, review and approve Contractor Safety Representative qualifications, and evaluate variance requests.
   2) Compile, follow-up, and maintain safety performance statistics for the project. Communicate above information to the project's senior management to ensure they are informed of the safety program.
   3) Keep apprised of new regulations and developments to keep the safety policies and procedures current and effective.
   4) Conduct safety surveys of Contractors' and Subcontractors' activities to observe safety performance and make appropriate recommendations.
   5) Review and communicate methods and procedures to foster the highest level of accident prevention performance possible. Provide such information to the safety representative or designee.
   6) Act as an advisor providing consulting and training to the Contractors and their Subcontractors to enhance safety performance and best practices specific to the project.
   7) The focus of the safety efforts are on prevention of accidents through the safety plan; however there can be circumstances where accident investigations may be necessary to systematically determine the root cause, therefore the degree of detail required shall parallel the severity of the incident.
   8) Periodically attend Contractor safety tool box meetings, review Job Hazard Analysis to ensure content and quality of the meetings are being achieved.
   9) Review all accident investigation reports to ensure thorough investigations were conducted to control future accidents and communicate lessons learned.
   10) Disseminate safety bulletins.
   11) Distribute written information to the safety representative or designee regarding new proactive requirements, regulations or developments in safety.
   12) Review and evaluate Contractors' safety meeting minutes to ensure that safety meetings are being held.
   13) Provide the ROCIP safety manual and its revisions throughout the course of the project. Provide other written safety information, posters, etc., as needed.
   14) Provide coordination with public and regulatory agencies.
   15) Participate in organizations such as ABC, AGC, ASSP, and National Safety Council to remain apprised of new developments in safety or any other professional electronic briefings as necessary.

SECTION 5. HEALTH AND SAFETY SPECIAL PROVISIONS

5.0 CONTRACTOR'S SITE SPECIFIC SAFETY PLAN (SSSP)

A. The SSSP is essential to the successful and consistent implementation of ROCIP Safety Program. The Contractor/Subcontractor will be responsible for costs to establish and maintain a safety program that meets or exceeds the requirements contained in this manual. A written Site-Specific Safety Plan must be submitted for review by the Program Manager and the CCD ROCIP Safety Team at least 30 days before mobilization.
B. Each SSSP must be tailored to the risks of the project. Some projects involve a variety of complex hazards and require substantial SSSP development with comprehensive guidance. See Model site specific safety plan in Appendix A.
C. See additional requirements in Division 1 - Section 01110

5.0.1 PRE-PROJECT HAZARD ANALYSIS

A. The purpose of pre-planning is to prevent unnecessary hazards during construction and to ensure each Contractor performing an operation will have the necessary material and equipment on hand when needed.
B. Project hazard analysis is required to help the Contractor's and Subcontractor's supervision anticipate hazards and develop an appropriate mitigation plan to ensure safe performance of work.
C. It is the responsibility of the Contractor's project superintendent to ensure that job hazard analysis is completed for their scope of work and their Subcontractor has completed a Project hazard analysis of their scope of work operations before initiating work on this project and revised as frequently as necessary.
D. Placing high risk activities on the project schedule ensures their visibility to key project personnel and fosters cooperation and communication of associated project risks.

5.1 DRUG FREE WORK ENVIRONMENT

A. This project is a drug-free work environment. Contractors and Subcontractors of any tier will maintain a drug-free environment in accordance with the CCD ROCIP Program. Contractors/Subcontractors of any tier are responsible for testing all of their employees who work on the project for the presence of drugs or alcohol.
    1) CCD/owner will pay for the cost of pre-employment substance abuse testing.
        i. If an employee fails the pre-employment drug test, they will be disqualified from working on the ROCIP project.
        ii. If an employee is absent from the site more than 90 consecutive days, pre-employment drug testing will be required to regain site access. The Contractor is responsible to reimburse CCD for the cost of this testing.

iii. At the sole discretion of CCD/National Western Center Safety, a negative pre-employment drug test result may be used to qualify an employee to work on a second ROCIP project. Otherwise, another pre-employment drug test will be required.

2) Contractor is responsible for the cost and set up of post-incident and reasonable-suspicion testing.

B. Contractor must present a negative drug and/or alcohol screen to the ROCIP Program Administrator for employees to return to the project site after post incident and reasonable suspicion testing.

C. Employees subject to a post-incident or reasonable suspicion drug test and who test positive for illegal drugs or substances or alcohol above established limits will be immediately removed from the project site.

D. Managers and supervisors will be trained in recognizing the signs and symptoms of drug and alcohol abuse.

E. Employees suspected of drug or alcohol abuse should be escorted by a salaried supervisor of the general contractor to the testing facility.

F. The Contractor shall carefully consider the expectations of individual privacy and confidentiality in retaining records under their policy. With the exception of the testing laboratory and the Contractor's program administrator, drug test results may not be divulged to anyone without the expressed written authorization of the tested individual, unless requested by State agency officials as part of an accident investigation.

G. Each Contractor shall submit a substance abuse policy that contains the following:
   1) Statement of Purpose
   2) Statement of Policy
   3) Policy Administration/Types of Drug (including testing for synthetics) & Alcohol Tests (Pre-employment, post incident, and reasonable suspicion)
   4) Positive & Negative Results
   5) Transporting employees to and from testing facility
   6) Use of prescription drugs
   7) Recordkeeping
   8) Training
   9) Right to Search
   10) Discipline
   11) Definitions
   12) Confidentiality

5.1.1 ROCIP DRUG-FREE WORKPLACE POLICY

SECTION I. INTRODUCTION

The CCD ROCIP has a vital interest in ensuring safe, healthful and efficient working conditions. The unlawful presence of controlled substances in the workplace conflicts with these vital interests and constitutes a violation of public trust. For these reasons, CCD has

established, as a condition of employment and continued employment, a drug-free workplace policy.

All employees shall have a drug (and alcohol) test conducted at the approved Concentra clinic prior to working at the project location. The employee shall return the result, in the provided sealed envelope, to the CCD Safety Director. Any employee who has been off the site for more than 90-days will require another drug test prior to being permitted on site. A site orientation sticker will not be provided until after a confirmed negative drug test has been received.

The drug test policy also includes the following requirements:

SECTION II. TYPES OF DRUG TESTS

The drug-free workplace requires the following drug tests to be conducted:

- Pre-Employment
- Post-Accident
- Reasonable Suspicion
- Return-to-Duty

A. Pre-Employment

All applicants for initial employment, re-employment or temporary employment are required to test. Applicants will be notified at the time they complete a job application that they will be required to submit to a drug test if they are considered otherwise qualified for employment and that employment is contingent upon testing negative for substance abuse. Failure to obtain a verified negative drug test will be cause to remove the applicant from employment consideration for the duration of the project.

Any employee who fails to report the use of prescribed medication or over the counter medication that could impair the employee's ability to perform his/her job in a safe and productive manner or which may threaten the safety of others is in violation of this policy and subject to removal and barring from the project. An employee may be allowed to perform his or her job responsibilities if the CCD ROCIP Safety Team determines that the employee's performance will not be specifically affected and/or the employee will not pose a threat to his or her safety or the safety of others. If the CCD ROCIP Safety Team determines that the employee will be impaired or that a potential safety threat exists, it will, when possible, temporarily reassign the employee to a position or job where the potential for impairment will not adversely affect the employee's job performance or safety.

B. Post-Accident

As soon as possible, but no later than four hours after an accident, unless the employee is in a life threatening condition as determined by the primary treating physician, a test will be required of any employee whose performance either contributed to the accident or cannot be completely discounted as a contributing factor to the accident if there is reasonable suspicion and that substances influence the employee's performance. This will include any individual who is the cause of any accident resulting in damage to CCD or private property during work hours. Failure to submit to the test will be cause for removal from the project.

1. For purposes of this policy an accident is defined as an "incident" as follows:
    a. Death or bodily harm to any person resulting in one or any combination of the following:
        (1) Loss of consciousness
        (2) Necessity for professional medical treatment.
        (3) Disability which prevents the discharge of normal activities beyond the day of the accident.
    b. Property damage, resulting in cost of recovery value, for loss of product and/or damage to the property of the ROCIP project or others, without regard to monetary value.
2. The ROCIP Contractor will provide employees with the necessary post-accident information, procedures and instructions.
3. The Contractor shall take all reasonable steps to ensure that the employee is available for post-accident testing. Employees who are subject to post-accident testing have the responsibility to make themselves available for such testing and this does not mean that necessary medical treatment for injured people should be delayed. Employees subject to post-accident testing are not to drink alcohol for up to eight hours after the accident or until post-accident testing is completed (whichever occurs first).

If an employee tests positive on a post-accident test, he/she will be subject to immediate disciplinary action.

C. Reasonable Suspicion

1. Employees reasonably suspected of being under the influence of drug(s), or otherwise in violation of this policy, will submit to a drug test as determined by the Contractor or the ROCIP Program Administrator. No employee is allowed to return to work until the Program Administrator is notified by the testing facility that his/her test was negative.
2. Reasonable suspicion is any activity or behavior that suggests that this policy has been violated. The decision to test must be based on specific, contemporaneous, articulable observations of the appearance, behavior, speech, or body odor of the employee. It may also include, but is not limited to, abnormal

coordination/balance/motor skills, behavior, significant deterioration in job performance, serious mood changes or physical altercation in the workplace. Reasonable suspicion also includes the presence of drugs or drug paraphernalia.

3. If an employee tests positive on a reasonable suspicion drug test, he/she will be subject to immediate disciplinary action. For documentation purposes, see Sample Reasonable Suspicion Form in Appendix W.

D. Return to Duty

1. Employees will be subject to immediate dismissal for refusal to submit to testing upon return to duty, or if the employee tests positive upon return to duty.

2. Return to duty is defined as an employee previously tested and accepting employment for the CCD ROCIP Project and who has left the project for a period of greater than 14 (fourteen) consecutive calendar days due to a work-related injury or illness.

SECTION III. CONFIDENTIALITY

The ROCIP will carefully consider the expectations of individual privacy and confidentiality in retaining records under this policy. With the exception of the testing laboratory and the ROCIP Program Administrator, drug test results may not be divulged to anyone without the expressed written authorization of the tested individual, unless requested by state or Federal agencies as part of an accident investigation.

The ROCIP will require each employee to sign a consent form that authorizes that the drug test results may be released to the employee or the employee representative on a "need to know" basis only.

To maintain confidentiality, written records regarding testing and rehabilitation under this policy will be stored in a locked file or secured location. These records will not be made part of individual personnel files.

SECTION IV. CONCLUSION

A. Employee Compliance.

Employee compliance with this policy is a condition of employment. Employees are expected to comply fully and promptly with instructions issued under the authority of this program. Failure to do so may result in disciplinary action.

B. Conditions of This Policy.

All conditions of this policy apply to employees, Contractors, Subcontractors, and vendors or third parties on the ROCIP project.

5.2 Job Hazard Analysis (JHA)

A. The Contractor's or Subcontractor's safety representative is required to complete a JHA for non-routine and high risk tasks. The JHA is used by the field supervisor/foreman to participate in discussions regarding high risk and non-routine tasks with employees during daily pre-task planning. See Appendix B for JHA form and example.

5.3 Daily Pre-Task Planning

A. Daily pre-task planning enables Contractor field supervisors/foremen and employees to participate in a discussion regarding the day's activities, associated risks, and the relevant control measures. Contractor and Subcontractor's foreman or assigned competent person shall complete a daily pre-task plan, and review it with all workers. The plan shall be kept with the foreman during the shift; and retained on file for a minimum of 90 days. The plan shall be made available upon request by the CCD ROCIP Safety Team.

5.4 Risk Mitigation Two Week Look Ahead

A. Contractors and Subcontractors shall maintain a bi-weekly summary of work tasks, associated hazards and control measures, using the Risk Mitigation Two Week Look Ahead Form in Appendix D, or equivalent.

5.5 Stretch and Flex Program

A. The Contractor will implement a stretch and flex program that is conducted prior to the start of each shift and after the lunch break where all employees will participate, to include Subcontractors.

5.6 Subcontractor Pre-Mobilization Meeting

A. The Contractor will conduct a Subcontractor pre-mobilization safety meeting at the worksite on or before mobilization. The Contractor's project manager, safety representative, supervisors and Subcontractor's safety representative, competent persons shall attend this meeting.

B. The purpose of this meeting is to review the Subcontractor's project hazard analysis, discuss site safety issues, requirements and address any special concerns. The Contractor shall present their approach to managing safety on high risk tasks. The sample site safety and health requirement checklist in Appendix E identifying procedures and hazards can be used to discuss and document this meeting. All attendees shall acknowledge understanding by their signature to the Contractor's checklist.

5.7 MOTOR VEHICLES & EQUIPMENT

5.7.1 PERSONAL VEHICLES

A. Must be parked in designated areas that are free of construction activities.
B. Personal vehicles are prohibited from accessing the project. If parked on-site without authorization, they shall be removed at the vehicle owner's expense.
C. Approved routes will be limited and appropriately marked.
D. See Division 1 – Section 01016 for vehicle permitting requirements.

5.7.2 JOBSITE VEHICLES & EQUIPMENT

A. All equipment shall be inspected daily before use by each operator. All moving construction equipment (such as but not limited to forklifts, scissor/boom lifts, loaders) shall have a daily written checklist inspection available during each work shift. Equipment that does not pass all checklist items will not be operated on site until repaired by qualified personnel.
B. Defective equipment shall be repaired or removed from service immediately. If removed from service, a "red tag" shall be attached with an explanation of the defect and the date and name of the individual placing the equipment out of service.
C. All Contractors' operators of construction equipment shall be properly licensed (where required), certified and classified as a competent person for that equipment. Copies of the certifications (and licenses if required) shall be maintained on project site by Contractor and made available upon request.
D. Vehicles used to transport employees shall have seats firmly secured and adequate for the number of employees to be transported. All passengers shall be properly seated with seat-belt used. Standing/kneeling on the back of moving vehicles or equipment is prohibited.
E. Drivers of motor vehicles and equipment shall have a valid state driver's license (CDL-Commercial Driver's License when applicable) and be instructed to exercise good judgment as well as observe posted speed limits.
F. Drivers must operate appropriately for existing weather conditions. This may require speeds below the posted speed limit.
G. All Contractors' means of ingress and egress shall be adequately marked and kept clear of stored material, debris and equipment.
H. Pedestrians always have right-of-way over motorized traffic.
I. Horns shall be sounded at blind corners, when passing, when backing up, and/or for warning.
J. Established hand signals or turn signals are to be used.
K. The use of cellular telephones, PDA's or other wireless devices (collectively referred to as "wireless devices") while operating motor vehicles and mobile equipment on projects site(s) is prohibited.
    1) Communication devices in vehicles for constant use for access control and emergency response purposes are exempted from this policy.

L. Reckless driving or other non-observance of these instructions will be cause for withdrawal of driving privileges on the project.
M. Speed limits on the project site and haul roads are 10 MPH. Violations of the posted speed limit or traffic control devices may be cause for removal from the project site.
N. All vehicles permitted access to the site shall display the name of their company on the side, front or rear of the vehicle at all times while on the project. The company name or identification shall be visible and legible from a distance of 50 feet. Vehicles without proper identification will be removed at the Contractor's expense.
O. Seat belts shall be worn by all employees operating motor vehicles and any equipment with rollover protection structures during performance of work.
P. Golf carts, Kawasaki Mule buggies, John Deere Gators, or vehicles of such type must have Roll over protection that has been designed by the manufacturer , an orange flag for visibility, a horn, back up alarm and a seat belt installed before the vehicle is allowed on site.
Q. Motorcycles and bicycles are not permitted on the project site.
R. For additional requirements, see Division 1 of the Contract Documents – Section 01016.

5.8 Crane Operations

5.8.1 Crane Operators

A. Crane operators must be certified by an accredited third party testing entity prior to operating the type of crane assigned. Crane operator certification must be submitted to the CCD ROCIP Safety Team prior to crane assembly/operation. There are two ways that an equipment operator can be qualified or certified and meet ROCIP Safety requirements:
   1) A certificate from the National Commission of Certification of Crane Operators (NCCCO).
   2) Qualification from the employer through an accredited NCCCO testing organization.
B. The crane operator shall not be responsible for hazards or conditions that are not under his direct control and that adversely affect the lift operations. Whenever the operator has doubt as to the safety of crane operations, the operator shall stop the crane's functions in a controlled manner. Lift operations shall resume only after safety concerns have been addressed or the continuation of crane operations is directed by the lift supervisor.

5.8.2 Critical Lift Plans

A. The Critical Lift Plan in Appendix F is required to be completed, approved in writing by the Contractor and submitted for review by the CCD ROCIP Safety Team seven working days prior to critical lifts taking place if:
   1) The gross load exceeds 75% of the crane's total lifting capacity
   2) The gross load at any point during the lift exceeds 75% of the crane's lifting capacity.
   3) The lift requires more than two cranes.

4) The load will be swung over unprotected plant, equipment or service.
5) The lift is performed in proximity of live electrical lines.
6) Hoisting of personnel.

5.8.3 Shared Space Agreement

A. When two Contractors/Subcontractors have common or shared airspace with the potential for two crane booms and/or associated rigging to collide, a written Shared Space Agreement must be developed by the two affected Contractors and made available to the CCD ROCIP Safety Team. See Appendix G for sample Shared Space Agreement.

5.8.4 Third Party Inspection

A. A third party inspector must oversee the erection of any crane being assembled on site.
B. All cranes requiring assembly onsite must be inspected and certified by a third party inspector prior to use.
C. Inspection documentation must be provided to the CCD ROCIP Safety Team after crane assembly and prior to operation.

5.8.5 Crane Assembly/Disassembly

A. Work is to be directed by an A/D (Assembly/Disassembly) director. The A/D director must meet the criteria for both a “competent person” and a “qualified person,” which are defined terms in this rule, or must be a “competent person” assisted by a “qualified person.”
B. The A/D director must understand the applicable procedures.
C. The A/D director must review the procedures immediately prior to beginning work unless he or she understands the procedures and has used them before for that equipment type and configuration.
D. The A/D director must ensure that each member of the crew understands his or her tasks, the hazards of the tasks, and any hazardous positions or locations to avoid and be documented on the Pre-Task Planning sheet.
    1) Address hazards associated with the operation, including 12 specified areas of concern: site and ground conditions, blocking material, proper location of blocking, verifying assist crane loads, boom & jib pick points, center of gravity, stability upon pin removal, snagging, struck by counterweights, boom hoist brake failure, loss of backward stability, and wind speed and weather.
E. The A/D director must verify all capacities of any equipment used, including rigging, lifting lugs, etc.
    1) Any lifting accessory must be designed by a professional engineer, with design criteria available on site, and capacities legibly marked on the device.

5.8.6 Qualified Riggers

A. Employers must use qualified riggers authorized by their employer. They must be present during hoisting activities for assembly and disassembly work. Additionally, qualified riggers are required whenever workers are within the fall zone and hooking, unhooking, or guiding a load, or doing the initial connection of a load to a component or structure.
   1) Contractors using riggers shall make available upon request, proof of documentation supporting the expertise of their qualified rigger.

5.8.7 Qualified Signal Person Requirements

A. A signal person is required when:
   1) The point of operation is not in full view of the operator.
   2) The operator's view is obstructed in the direction the equipment is traveling.
   3) Either the operator or the person handling the load determines that a signal person is needed because of site-specific safety concerns.
   4) Contractor must use one of the following options to ensure that a signal person is qualified:
      i. Third party qualified evaluator. The signal person has documentation from a third party qualified evaluator showing that he or she meets the qualification requirements.
      ii. The employer's qualified evaluator (not a third party) assesses the individual, determines the individual meets the qualification requirements, and provides documentation of that determination. This assessment may not be relied on by other employers.

B. Employers must make the documentation of the signal person's qualifications available at the worksite in paper form for review by the CCD ROCIP Safety Team. The documentation must specify each type of signaling (e.g., hand signals, radio signals, etc.) for which the signal person is qualified under the requirement of ASME B30.5-2007 and ASME B30.3-2009

5.8.8 Outriggers and Stabilizers

A. When outriggers or stabilizers are used or are necessary:
   1) The Contractor must evaluate the soil bearing capacity at the lift site to ensure that the crane, including the maximum intended loads is compatible with the location and placement of the crane. Review of any underground installations shall be part of the evaluation.
   2) Outriggers and stabilizers must be fully extended or, if permitted by manufacturer procedures, deployed as specified in the load chart.
   3) Outriggers must be set to remove equipment weight from the wheels.
   4) Outrigger floats, if used, must be attached to the outriggers; stabilizer floats, if used, must be attached to the stabilizers.

5) Each outrigger or stabilizer must be visible to the operator or to a signal person during extension and setting.
6) Outrigger and stabilizer blocking must be placed under the float/pad of the jack or, if there is no jack, under the outer bearing surface of the outrigger or stabilizer beam. Blocking must also be sufficient to sustain the loads and maintain stability and must be properly placed, per manufacturer's specifications.
7) Horizontal distance for crane setup from an excavation must be greater than the depth of the hole.

5.8.9 Work Platforms Suspended From Cranes

A. The use of a crane or derrick to hoist employees on a personnel platform is prohibited, except when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous or is not possible because of structural design or worksite conditions.
   1) Prior to use of a suspended personnel work platform, the Contractor shall submit a written request to the CCD ROCIP Safety Team identifying the rationale for selecting a suspended personnel work platform and explanation why conventional methods would be more hazardous or infeasible.
B. The Contractor's safety representative or designee must provide the CCD ROCIP Safety Team with a copy of the critical lift plan at least seven days prior to any operation requiring the use of personnel platforms suspended from a crane.
C. Prior to the use of a work platform suspended from a crane, the Contractor and/or Subcontractor will complete the Suspended Personnel Platform Checklist in Appendix H for each such operation and will maintain a file documenting its operation. Each record is good only for lifts made from a single crane set-up location. Traveling, repairs or modifications of the crane will require a new record. Each record is to:
   1) Be initiated by the supervisor of the employee who will be working from the platform
   2) Describe the work to be performed and its exact location
   3) List all required inspections, certifications, tests, and pre-lift meetings
   4) Be signed by the crane operator, rigger, and initiating supervisor
   5) Note the name of the person who will flag or signal the crane operator
   6) Remain with the crane while the personnel hoist is in progress
   7) Section 4 (Weight Calculation Sheet) of the Suspended Personnel Work Platform Checklist must be submitted to the CCD ROCIP Safety Team for review 7 days in advance of scheduled work.

5.9 Elevated Work - Fall Protection

A. Contractors and Subcontractors of any tier shall provide the appropriate fall protection system against falls from elevations six (6) feet or more 100% of the time. This includes holes from drilled shafts when working within six (6) feet of the hole; and when working from elevated positions within six (6) feet of the leading edge. All fall protection

equipment must be inspected by employees before each use. This equipment shall also be inspected by a qualified person at least monthly. Damaged and worn equipment must be removed from service and the project site immediately.

5.9.1 Types of Fall Protection Systems

A. Personal fall arrest system is a means used to arrest an employee in a fall from a work level. It consists of an anchorage, connectors, a full body harness and may include a lanyard, deceleration device, lifeline, or a combination of these.
B. Positioning device system allows an employee to be safely supported on an elevated vertical surface (such as a wall) and work with both hands free. The positioning device is not to be used as a primary anchor point.
C. The use of safety monitors is prohibited.
D. Guardrail system is a barrier erected to prevent employees from falling to lower levels. All guardrails must meet the requirements of 29CFR1926.502.
E. Safety net system can be used when workplaces are more than 25 feet above the ground, water surface or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines or a safety harness is impractical.

5.9.2 Safety Harness

A. The only permissible fall arrest system on this project is a full body harness, subsystem and components meeting ANSI requirements.
B. Safety harnesses must be secured to an anchor point of substantial capacity capable of supporting five thousand pounds per worker attached (e.g. pipe, structure, cable, or rope lifeline). Anchorage not secured overhead may require additional sharp or leading edge protection.
C. In order to maintain 100 percent fall protection, two lanyards may be required.
D. The use of body belts is prohibited.

5.9.3 Lanyards and Lifelines

A. Lanyard and lifeline selection is determined by the type of work as well as the environmental conditions. If lanyards, connectors or lifelines may be damaged by welding, chemical cleaning, sandblasting, or sharp edges, either protect the components or use a more appropriate type of securing system.
B. Lanyards and lifelines must incorporate or be used with an appropriate deceleration device. Deceleration devices include rope grabs, rip-stitch lanyards, specially woven lanyards, tearing or deforming lanyards, automatic self-retracting lifelines and lanyard, etc., which dissipate or otherwise limit the energy imposed on an employee during fall arrest.
C. Once in use, the system's effectiveness is to be monitored by a qualified person. In some cases, a program for cleaning and maintaining the system may be necessary.
D. Lanyards and lifelines must only use locking snap hooks.

E. Under no circumstances must two lanyard snap hooks be connected together.
F. Horizontal lifelines (HLL) shall be designed by a registered professional engineer, installed and maintained by a qualified person.
    1) Horizontal Lifeline Fall Distance. The primary factor that is critical to the design of HLL system is calculating the dynamic deflection of the lifeline. Other factors that must be accounted for include freefall of the worker, the deceleration distance of the worker's shock-absorbing lanyard or retractable lifeline and any other considerations that increase the worker's fall distance. The sum of these factors shall not be so great that the worker can contact an obstruction or lower level. The designer or manufacturer of a HLL system shall provide a method of calculating minimum clearances for temporary systems that can be installed in multiple configurations.
    2) Horizontal Lifeline Designed Load Factor. When HLL's are used, the Contractor shall have available upon request the appropriate engineered calculations for the system based on the number of workers attached to the HLL.
G. Anchor points being used for fall arrest will hold at least 5,000 pounds, per person attached. Fall arrest and horizontal lifeline systems must be designed by a qualified person or purchased from a manufacturer qualified in the design and building of these systems. Areas where anchorage systems will be installed must be evaluated to ensure it is capable of supporting the intended loads.

5.9.4 Written Fall Protection Plan

A. Preparing and following a written, site specific fall protection plan is required for employees working at heights of six feet or more. The plan must be submitted to the CCD ROCIP Safety Team seven working days in advance of upcoming work for review. Changes to the plan must be discussed with the CCD ROCIP Safety Team. At a minimum, the plan will include:
    1) Names of competent and qualified persons for fall protection.
    2) Identify the specific fall hazards in the work area (including location of fall hazards).
    3) Methods to be used for fall arrest or fall restraint.
    4) Overhead hazard protection measures (worker and public)
    5) Description of rescue methods/options for fallen personnel
    6) Identify how the plan will be enforced and the disciplinary actions for non-conformance.

5.9.5 Training

A. Contractor must provide a fall prevention training program for each employee who might be exposed to fall hazards. The training program must include recognition of the hazards of falling and procedures to follow to minimize these hazards. Training materials must be reviewed to verify that each employee has been trained, as necessary, by a competent person qualified in the following areas:
    1) The nature of fall hazards in the work area;

2) The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used;
3) The use and operation of guardrail systems, restraint systems, personal fall arrest systems, safety net systems, warning line systems, CAZs, and other protection to be used;
4) The limitations on the use of mechanical equipment during the performance of roofing work on low sloped roofs;
5) The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection;
6) The role of employees in fall protection plans;
7) The requirements contained in 29 CFR 1926 Subpart M.

B. Contractor must maintain a written certification record for employee training on site at all times for review. The record must contain the following information:
1) The name or other identity of the employee trained
2) The date(s) of the training;
3) Topics reviewed; and
4) Trainer and trainee signatures

5.10 Floor and Roof Openings

A. Floor and roof hole covers shall be installed and maintained by the Contractor creating the hole and/or by the contractor whose employees are exposed to the hazard. In the event a Contractor alters or removes a hole cover to complete work, they shall replace it, or make it safe, prior to leaving the work area. The covers must be capable of supporting at least twice the maximum intended load, secured against displacement or lifting, and labeled as a “hole” or “cover”. The securement and labeling shall be maintained until the hazard is removed.

5.11 Ladders

A. The purpose of this policy is to establish minimum expectations for personnel working with portable ladders. This policy applies to all ladder use on the project.

B. This policy is intended to notify Contractors and their employees of the basic safety requirements associated with portable ladder use.

5.11.1 General Requirements

A. Only Class 1A fiberglass and wood ladders are allowed on site. Metal ladders are prohibited on the CCD Project.
B. Use a ladder for its intended purpose ONLY.
C. Inspect ladder prior to use according in accordance with manufacturer’s requirements.
D. Tag and dispose of defective ladders immediately.

E. All ladders shall be labeled with the company name.

5.11.2 JOB-BUILT LADDERS.

A. Job built ladders shall be built in compliance with ANSI requirements.

5.12 SCAFFOLDING

A. All scaffolds and platforms must meet the following requirements:
   1) General Requirements
      i. Scaffolds shall be erected, moved, dismantled or altered only under the supervision and direction under a competent person qualified in scaffold moving, erecting, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.
      ii. The competent person will determine the feasibility and safety of providing fall protection for employees erecting or dismantling support scaffolds. The Contractor is required to provide fall protection for employees erecting or dismantling support scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.
      iii. Scaffolds six (6) feet or more above the ground or floor are to be completely decked and have handrails, midrails and toe boards installed. If for some reason, a platform or scaffold cannot be equipped with standard handrails or completely decked, safety harnesses must be worn and connected to an engineered anchorage point.
      iv. Chain guardrails on scaffolding are not permitted.
      v. Overhead protection for employees on a scaffold is required if they are exposed to overhead hazards.
      vi. Barricade the area beneath the scaffold and post “working overhead” signs in all approach directions.
      vii. Contact the CCD ROCIP Safety Team if any special scaffolding issues arise.
   2) Rolling Scaffolds
      i. No one is to ride (surf) on a rolling scaffold while it is being moved.
      ii. All materials and tools must be secured prior to moving a rolling scaffold.
      iii. No rolling scaffolds will be utilized to support other scaffolds.
   3) Scaffold Planking
      i. Paint or stamp scaffold planks within 12” on each end or edge to denote use for scaffold decking only.
      ii. Use only 2” X 10” or 2” X 12” scaffold grade material for scaffold planking.
   4) Tagging –The most effective means of communication between the scaffold builder and the scaffold user is a scaffold tag. The tagging procedures are as follows:
      i. The crew that erects the scaffold must complete and attach the appropriate scaffold tag.

ii. The scaffold tag must be placed at eye level on or near the access ladder so it is easy to locate and plainly visible.
iii. If the scaffold needs to be altered in any way, the person who signed the tag must be contacted to authorize the change and re-tag if necessary.
iv. An untagged scaffold must not be used.
v. Scaffolds shall be inspected and documented by a competent person before each shift. Scaffolds passing inspection shall have a green tag applied with the date of inspection and the inspector's signature.

5) Tagging System procedure:
   i. A green "Scaffold Use" tag shall be used for pre-shift inspections. Note: This tag shall be attached by the qualified person upon completion of the scaffold erection.
   ii. A yellow tag is completed and attached to scaffolds that cannot be erected with all the components complete. The yellow tag allows the erecting crew to note what portion of the scaffold is incomplete and cautions the user. A yellow tag also informs the user fall protection may be required.
   iii. A red tag means the scaffold is being dismantled not yet completely erected or for some reason not safe and shall not be used.

5.12.1 Scissor Lifts

A. Fall protection is not required when working from the platform of a scissor lift unless required by the manufacturer. Required is when the word "shall" or "must" is incorporated in the manufacturer's operator's manual and/or instructions.
   1) The scissor lift should not be used as a means of transfer material from the lift to another location.
   2) Employees shall always stand firmly on the floor of the scissor lift, and shall not sit or climb on the edge of the rails or use planks, ladders, or other devices for a work position.
   3) Scissor lifts must be inspected prior to each shift by each trained operator who will be operating the lift. This will be documented on a standard inspection form supplied by the contractor who provided the lift.

5.13 Aerial Work Platforms

5.13.1 Boom Lifts

A. Fall protection shall be worn by persons working from an aerial lift and the fall protection system shall be attached to the manufacturer's approved anchorage point on the boom or basket of an aerial lift. It is the responsibility of the user to review the manufacturer's operator's manual for approved anchorage locations.
   1) Fall protection shall not be secured to an adjacent pole, equipment or structure when work is being performed from the basket of the aerial lift.

2) Aerial lift fall protection devices are restricted to a SRL rated for horizontal use or restraint lanyard 36" in length or less.
3) Employees shall always stand firmly on the floor of the basket, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
4) Boom Lifts must be inspected prior to use each shift and by each operator who may use the equipment during the shift. This will be documented on a standard inspection form supplied by the contractor who is responsible for the equipment.

5.14 EXCAVATIONS AND TRENCHING

A. Excavation and trenching are among the most hazardous construction operations. Excavations are defined as any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal. A trench is defined as a narrow underground excavation that is deeper than it is wide, and is no wider than 15 feet.
   1) Prior to beginning any excavation, digging, trenching or drilling operation, Contractors or Subcontractors, of any tier, must ensure that all underground utilities have been located and verified by the responsible parties. Refer to 5.14.1 of this Manual for further information.
   2) Contractors shall never enter an unprotected trench. Trenches 4 feet deep or greater require a protective system. Refer to OSHA 29 CFR 1926 Subpart P for soil type definitions and protective system requirements.
      i. All soils on the project will be classified as Type C soil when designing protective systems, unless a geotechnical survey is conducted by a registered professional engineer specialized in geotechnical design.
      ii. Regardless of soil type, the Contractor must provide a competent person with demonstrated soil classification experience to be on site during any excavation and trenching activity.
      iii. The competent person shall be responsible for observing soil conditions during all phases of excavation. If the competent person determines that the soil has become less stable than the original classification determined by the geotechnical survey, they shall have the duty and authority to stop work and require that additional protective measures be implemented.
   3) Trenches 20 feet deep or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and/ or approved by a registered professional engineer.
   4) Trenches must be inspected daily, and as conditions change, by a competent person prior to worker entry to the excavation is safe for entry to perform work.
   5) Safe access and egress must be provided by the Contractor to all excavations; including ladders, steps, ramps, or other safe means of exit for employees working in trench excavations four feet or deeper. These devices must be located within 25 feet of lateral travel to all workers.
   6) Heavy equipment shall be kept a safe distance away from trench edges.

7) Surcharge loads must be kept a minimum of two feet from trench edges.
8) Testing shall be performed for low oxygen, hazardous fumes and toxic gases when such conditions may exist.
9) Contractors are not permitted to work under raised loads.

5.14.1 UNDERGROUND UTILITY DAMAGE PREVENTION WORK PLAN

A. Underground Utility Damage Prevention. The Contractor is responsible for complying with all OSHA regulations and Division 1 – Section 01020 related to underground utility damage prevention. The Contractor shall take all reasonable steps necessary to make certain that all active, abandoned, or unknown utilities are identified. Such steps are to include the utilization of an individual or firm acceptable to the Contractor and knowledgeable in Subsurface Utility Engineering (SUE) techniques, and competent to perform utility designation in conformance with the National Utility Locating Contractors Association (NULCA) Standard 101 for Professions Competence Standards for Locating Technicians or other written standard acceptable to the CCD ROCIP Safety Team. Appendix V - Excavation/Utility Permit, or other CCD approved form, must be completed prior to all underground/excavation work.
   1) Preparation
      i. All existing underground utilities depicted on the drawings, (which include but are not limited to: power, control, and communications cables; telephone, water and sewer lines; and other utilities) are shown in their approximate locations only. Other utility lines may exist but not be depicted. It is the Contractor's responsibility to ensure that locations of all underground utilities, located prior to work in the area.
      ii. Protect surface encumbrances, structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
      iii. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
   2) Pre-excavation Requirements for Underground Utility Installations
      i. Prior to any excavation, the Contractor shall layout in the field the centerline of all proposed utilities.
      ii. The Contractor shall identify the location of existing underground utilities on as-built drawings, including any unknown or abandoned utility found during construction. The Contractor shall ensure that all CCD, National Western Center, other utility owners/operators, and Colorado 811/Utility Notification Center of Colorado performing utility designation/location services designate/mark existing utilities within the construction limits as well as the entire path of excavation, including three (3) feet to either side of proposed utilities. The Contractor shall be solely responsible for notifying relevant utility owners/operators and Colorado 811 sufficiently in advance to ensure that delays to construction does not occur.

v. The Contractor shall coordinate a pre-work meeting for all excavation work, with the CCD ROCIP engineer and other responsible parties, to walk the excavation area and review applicable documentation. The Contractor shall provide a written excavation work plan that includes a contingency plan to restore to service all utilities including cables that may be placed out of service or damaged during performance of the work. The work plan must be on site with the crew performing the work. Contractor shall expose all utilities that it will be crossing through non-destructive mechanical excavation methods such as vacuum excavation or similar mechanical method(s) approved by the CCD ROCIP Safety Team ("potholing") or by hand digging. When a cable is located, the Contractor shall hand-excavate three (3) feet each side of the exposed utility to verify that another utility is not adjacent to the exposed utility.

vi. Life threatening utilities such as gas and electrical services will be exposed through the entire length of the excavation by non-destructive methods.

vii. Contractor shall continuously maintain utilities, facilities and/or systems that are or may be affected by work associated with the project. The Contractor shall provide the CCD ROCIP Safety Team with written reports on any utility damage

viii. If the Contractor does not find an underground utility that was previously marked, the excavation shall be stopped, the Contractor's safety representative shall be contacted, and the Contractor shall contact the appropriate owner/operator of the utility, using the Colorado 811/Utility Notification Center of Colorado when warranted.

ix. Every attempt shall be made to preserve the locate markings during excavation. Locate markings that are no longer visible shall be refreshed by calling the one-call system and/or the utility owners/operators for remarking.

x. All existing utilities that have been exposed during exploratory potholing or excavation must be supported to prevent stretching, kinking, or damage to the existing utility.

3) Excavation

i. Preserve, protect and maintain existing operable drains, sewers, and electrical ducts during grading, excavating and backfilling operations.

ii. Excavation made with power driven equipment is not permitted within three feet of any known existing utility. Start hand excavation on each side of the indicated obstruction and continue until the obstruction is uncovered.

iv. The Contractor shall coordinate on a daily basis with the excavator and the excavating work crew regarding the work to be performed that day with an emphasis on the underground utility damage prevention work plan and anticipated utility crossings.

5.15 Hazardous Chemicals

5.15.1 Hazardous Materials and Hazardous Waste

A. An EPA ID number will need to be obtained for the hazardous wastes produced by the Contractors and/or Subcontractors.
B. All hazardous wastes produced by the Contractors and/or Subcontractors must be removed from the project site by a licensed hazardous waste hauler. Such loads will need to be manifested and a copy of the manifest sent to the CCD Engineer.
C. All hazardous materials must be properly labeled and stored until removed from the project (by a licensed hazardous waste hauler).
D. Hazardous materials or hazardous wastes stored in 30 or 55 gallon drums are to be placed on spill containment pads.
E. Report all accidental releases of a hazardous material or hazardous waste promptly to the CCD Engineer. If the release is of a reportable quantity, the responsible Contractor or Subcontractor, of any tier, will notify the appropriate regulatory agency.
F. Proper clean-up of accidental releases of hazardous materials waste will be done by the responsible Contractor or Subcontractor. Clean-up is to be done by properly trained personnel. Hazardous waste from the clean-up must be hauled away by a licensed hauler. The CCD ROCIP Engineer must be given a copy of the hauler's manifest.
G. Depending on the hazardous materials spilled, the CCD ROCIP Engineer may require the responsible Contractor or Subcontractor to hire a certified laboratory to take an appropriate number of soil samples to test at their laboratory. A copy of the results is to be given to the CCD ROCIP Engineer.
H. Contractors or Subcontractors, of any tier, must inspect their hazardous material and waste storage areas at least weekly to ensure they are properly maintained.
I. Consideration shall be given to chemical compatibility prior to storage of chemicals.

5.15.2 Safety Data Sheets (SDS)

A. Contractors are responsible for developing and implementing their own written Hazard Communication Program as part of the SSSP. They must also ensure the proper handling, labeling, use, and storage of these chemicals and provide access to Safety Data Sheets (SDS) for all employees.
B. As part of the written HAZCOM program, a site specific hazardous chemical list must be maintained. The CCD ROCIP Safety Team or another Contractor may request copies of the most current SDS on a chemical being used by other Contractors/Subcontractors.

5.16 Confined Space Entry

A. Confined spaces include, but are not limited to, tunnels, manholes, utility vaults, pumping stations, storage tanks, process vessels, pits, vats, vaults or similar types of enclosures with limited access and without proper ventilation. Entry into confined

spaces may be for the purpose of inspection, testing of equipment, maintenance (repair and cleaning) or an emergency. The Contractor or Subcontractor performing confined space entry shall submit an exposure-specific Confined Space Entry Procedure in writing as part of their SSSP and include at a minimum, the following elements:

5.16.1 Identification Of Confined Spaces

A. During the project hazard analysis or JHA development the Contractor shall identify confined spaces. The characteristics of a confined space are:
   1) A space that is large enough and so configured that an employee can enter and perform assigned work, and
   2) A space that by design that has limited openings for entry and exit; and
   3) A space not designed for continuous employee occupancy.

5.16.2 Permit-Required Confined Space

A. All confined spaces on CCD property are considered "permit-required confined spaces".
B. A permit-required confined space has one or more of the following characteristics:
   1) A potential to contain a hazardous atmosphere;
   2) Material that can cause the engulfment of an employee;
   3) An internal configuration that might cause an employee to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section; or
   4) Contains any other recognized serious health or safety hazard.
C. Permit-required confined spaces must be posted with signs stating Danger: Permit Confined Space. Do Not Enter and secured to prevent unapproved access

5.16.3 Permit Required Confined Space Entry Program

A. If the Contractor determines that its employees will enter permit-required confined spaces, a written confined space entry program must be developed and enforced. In this program, the Contractor must describe how they will comply with the requirements of the standard. The written program must include the following:

   1) How the employer will implement the measures necessary to prevent unauthorized entry;
   2) Identification and evaluation of the hazards of permit spaces before employees enter them;
   3) Equipment needed to perform a safe entry operation;
   4) Procedures for atmospheric testing of the space;
   5) Provision of at least one attendant outside the space;
   6) Provision for responding to emergencies and rescue equipment to be available on site;

7) Designation of all persons with active roles (e.g. entrants, attendants, persons who test and monitor) and provision of required training;
8) Procedures for summoning rescue and emergency services;
9) System for the preparation, issuance, use and cancellation of entry permits;
10) The system developed and implemented for the closing off the permit space and cancellation of entry permits; and
11) Procedures to coordinate operation where more than one Contractor (such as a Subcontractor) is involved;
12) Procedure for evaluation and correction of entry operations when the Contractor has reason to believe that the program is not sufficiently protective; and
13) The mechanism by which the confined space permit entry program is reviewed.

5.16.4 Entering A Permit-Required Confined Space

A. Entry is defined as occurring when any part of the body passes through the opening of a confined space. Prior to entry, an entry permit should be completed and signed by the entry supervisor verifying that the space is safe to enter. The entry permit must also be posted at the entrance or otherwise made available to entrants before they enter the permit space.

5.16.4.1 Entry Permit

A. The contractor must complete their internal confined space entry permit before an employee enters a confined space – this permit must be posted at or near the confined space. Permits are valid for one shift only – a new permit must be completed for the next shift. The contractors' internal permit shall contain the following types of specific information concerning:

1) Identification of space;
2) Purpose of entry;
3) Date and duration of permit;
4) List of authorized entrants;
5) Names of current attendants and entry supervisor;
6) The hazards of the permit space to be entered;
7) The measures used to isolate the permit space and eliminate or control hazards;
8) The acceptable entry conditions;
9) The results of atmospheric monitoring;
10) Rescue and emergency services that can be summoned and the means for summoning those services;
11) The communication methods used by entrants and attendants to maintain contact;
12) Any other safety information necessary for the specific space;
13) Any additional permits, such as for "hot work" (welding).

B. **NOTE:** Contractors must also obtain a confined space entry permit from the Denver Fire Department prior to entering a confined space. This permit will be valid for the duration of the project and must be posted at or near the space. Contractors are responsible for meeting the requirements needed to obtain the fire department permit.

5.16.4.2 Air Monitoring

A. Before entering the area, the Contractor must always test for oxygen content of the air, then flammable or explosive gases or vapors, and finally toxic chemicals such as hydrogen sulfide. This sampling should be done with a remote monitor on a wand attached to the toxic gas meter. The monitor should be able to reach the lowest point in the confined space. Oxygen monitoring should be done first as the explosive gas monitor will not be accurate if there is an oxygen deficiency.

5.17 Personal Protective Equipment

A. All employees and visitors to the project site must be provided and use required PPE. Minimum PPE requirements include a hard hat, safety glasses with side shields, sturdy leather work boots that rise above the ankles and a class II safety vest. Any other specific PPE needed to protect employees or visitors, based on the exposures, shall also be provided.
B. All employees and visitors on the site must comply with PPE requirements or may be prohibited from accessing the site.

5.17.1 Eye Protection

A. ANSI Z87.1 safety glasses with side shields shall be worn at all times while in the work area.
B. Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment. It should be recognized that dusty and/or chemical environments may represent an additional hazard to contact lens wearers. Hazardous environments may include, but are not limited to, those in which a respirator may be required or where welding is being performed.
C. If the task requires an employee to wear goggles, basic eye protection should not be worn since a good seal cannot be obtained.
D. When Contractors' or Subcontractors' employees are exposed to flying particles, splashes, mists, etc., they must wear an approved face shield as well as basic eye protection.
E. When welding, a welding hood as well as both basic eye protection and a hard hat must be worn.

5.17.2 Head Protection

A. All project work areas are considered "hard hat areas".

B. Everyone, including delivery personnel, vendors and visitors must wear approved hard hats while on the project. Hard hats are not required in construction parking lots and office trailers.
C. Employee's first and last name and company logo/name are to be displayed on the front of all employee hard hats that are issued to their employees.
D. Employees must also have an official ROCIP project-specific orientation sticker on their hardhat, indicating that they have successfully completed safety orientation and project drug testing. The project-specific sticker will be issued by the general contractor. This sticker should be applied to the right side of the hard hat.

5.17.3 HEARING PROTECTION

Contractors, Subcontractors, vendors, and visitors shall be required to wear hearing protection when working in, or passing through high noise areas. It shall be the responsibility of the Contractor or Subcontractor to provide the hearing protection and training.

5.17.4 FOOT PROTECTION

A. All trades must wear ANSI approved safety-toed work boots (steel or composite toe) at all times, with substantial soles including uppers that extend above the ankle.
B. No one is permitted to wear sneakers (including ANSI approved sneakers), tennis shoes or athletic shoes of any type, sandals, and high heels or flip flops on this project.
C. Metatarsal covers are required for operating jackhammers, earth compacting equipment (jumping jacks), and other similar activities.

5.17.5 CLOTHING

A. Clothing suitable for the weather and your work shall be worn. Torn or loose clothing, cuffs, jewelry or neckwear that may be a hazard are not allowed. Shirts shall be worn and have sleeves measured at least four inches. Pants shall have full length legs (no shorts allowed). Clothing and personal protective equipment shall not exhibit any form of inappropriate or profane drawing, photographs, language (foreign or English), related to sex, race, national origin, gang related or personal opinion.
    1) Shoulder length or longer hair must be tied back and put under the hard hat or worn in a

Class II or III, depending on traffic or equipment hazard, high visibility/reflective vests, shirts or jackets shall be worn by all personnel working in all construction areas.

5.17.6 HAND PROTECTION

A. This project has implemented a hand protection policy for the project. During the project hazard analysis or JHA development, hand protection shall be selected based upon the hazard and performance characteristics of the protection. Hand protection must be available and worn by employees performing a task.

5.17.7 RESPIRATORY PROTECTION

A. Contractor and Subcontractors who require or permits employees to wear a respirator must have a written respiratory protection program as part of the SSSP. The written respiratory protection program shall establish standard operating procedures concerning the use and maintenance of respiratory equipment. In addition to having such a written program, the Contractor must also be able to demonstrate that the program is enforced and updated as necessary. The written respiratory protection program shall meet or exceed OSHA requirements.

B. Respirators should be used for protection only when engineering controls have been shown to be infeasible for the control of the hazard or during the interim period when engineering controls are being installed.

5.18 HOUSEKEEPING

A. Materials shall be piled and stacked so that safe clearances are maintained and toppling is prevented.
B. Spillage of fuel, oil or hazardous materials shall be reported to the CCD engineer and the CCD ROCIP Safety Team. Spills shall be cleaned up or contained immediately. Each contractor on site must have a Spill Cleanup Kit available on site. On-site disposal of oil or hazardous material is prohibited.
C. Trash and garbage shall be placed into appropriate containers. Debris is to be cleaned up daily
D. Nails shall be pulled from lumber.
E. Trash removal from upper floors/work levels will require the use of trash chutes or some other safe means of trash removal. No one is permitted to throw or drop trash/debris from upper floors/levels to the dumpster or ground below.
F. Cords or hoses must be hung overhead, out of designated walkways, whenever possible. Cords or hoses on the ground must be bundled or covered to minimize trip hazards.
G. Unobstructed passageways for the movement of fire trucks, ambulances or similar emergency vehicles shall be maintained. A minimum of 15 feet (or as stipulated by the governing fire official) of clear, unobstructed access shall be maintained leading to fire hydrants and Siamese connections.
H. All loose and combustible material shall be removed from work areas at the end of the workday or as wind and weather conditions dictate.
I. Gang boxes, conex boxes and tool boxes shall not have materials stored on top or under them.
J. See Division 1 – Section 01710 for additional requirements.

5.19 SPILL PREVENTION

A. Contractors will store fuel, petroleum products, and hazardous materials at the construction yards in safe locations within secondary containment structures. Secondary containment systems normally consist of a bermed area lined with an impervious material to provide a minimum containment volume equal to 100 percent of the volume of the largest storage vessel contained within the bermed area.
B. The Contractor will visually inspect aboveground bulk tanks frequently and whenever the tank is refilled. Drain valves on temporary storage tanks will be locked to prevent accidental or unauthorized discharges from the tank. The Contractor will correct visible leaks in tanks as soon as possible. All fuel nozzles will be equipped with functional automatic shut-off valves. Prior to departure of any fuel tank truck, all outlets on the vehicle will be examined by the driver for leakage and tightened, adjusted, or replaced to prevent leaking while in transit.
C. Routine vehicle and equipment maintenance of wheel-mounted vehicles; such as oil changes, will be accomplished at the Contractor yards or staging areas to the greatest extent practical.
D. Routine maintenance of track-mounted equipment will be conducted in a manner to gather all oil and other discharges and removed from the project site to a suitable recycling or disposal site.
E. Contractors shall provide equipment diapers and/or drip pans to prevent spills to the ground.
F. Equipment will not be washed on the project sites. Equipment operators will be held responsible for prompt reporting and mitigation of any fuel or lubricant spills from their equipment.
G. Equipment such as large stationary pumps may be fitted with auxiliary tanks as appropriate. Such auxiliary tanks will be placed within a secondary containment structure. Refueling of dewatering pumps, generators, and other small portable equipment will be performed using approved containers with a maximum volume of 10 gallons. Alternately, a pickup truck-mounted tank (up to 300 gallons) may be used to fill the secondary fuel tanks provided the pump hose has an automatic cut-off sensor and provided the person conducting the refueling does not leave the filling location.
H. The Contractor will appoint a Spill Coordinator who will be responsible for the reporting of spills, coordinating Contractor personnel for spill cleanup, subsequent site investigations, and associated incident reports.
I. See Division 1 – Section 01566 for additional requirements

5.20 SANITATION

5.20.1 POTABLE WATER

A. The Contractor must supply potable water on the project site. Potable water shall be available for each crew at their working location.

B. Portable containers used to dispense drinking water shall be capable of being tightly closed, and equipped with a tap. Water shall not be dipped from containers.
C. Any container used to distribute drinking water shall be maintained in a sanitary condition, and shall be clearly marked as to the nature of its contents and not used for any other purpose.
D. A common drinking cup is prohibited.

5.20.2 TOILETS

A. Toilets shall be provided for employees according to the following table:

Number of Employees	
20 or less	1
20 or more	1 toilet seat and 1 urinal per 40 workers
200 or more	1 toilet seat and 1 urinal per 50 workers

B. Toilet facilities shall be maintained in a sanitary condition

5.20.3 WASHING FACILITIES

1) The Contractor shall provide hand washing facilities for all employees Hand washing facilities shall be maintained in a sanitary condition.

5.21 SEVERE WEATHER

A. Severe weather encompasses any weather-related event—tornado, severe thunderstorm, hurricane, flood, winter storm, temperature extremes—that poses a risk to life and property or impacts operations. The Contractor shall develop a plan that focus on ensuring employee safety and minimizing equipment/property damage. The plan shall also include responsibilities, communications procedures, mitigation measures, preparedness activities, response actions, warning resources, safety and logistical considerations.

5.21.1 SNOW AND ICE REMOVAL

A. The Contractor will establish procedures in the event of snow, sleet, freezing rain, and/or ice accumulation to provide safe access to the site, parking areas, walking surfaces and haul roads. The plan will include responsibilities, communication procedures, priorities for snow and ice removal of all sidewalks, parking lots, roadways, and designated parking areas on the project.

5.22 ELECTRICAL

A. Only qualified electricians may perform electrical work.
B. Temporary electrical service shall be installed and maintained to conform to all of the requirements along with all applicable provisions of the NESC, NEC and OSHA.
C. Where required, appropriate warning signs will be posted. All temporary components shall be plainly marked to indicate the maximum operating voltage.
D. All temporary and permanent circuits shall be protected against overload and grounded with Ground Fault Circuit Interrupters (GFCI). Temporary power boxes and GFCI's shall be tested monthly and documentation of tests for each device shall be made available upon request.
E. Temporary power cords of any size shall not be spliced.
F. Electric wire and flexible cord passing through work areas shall be protected from damage (including that caused by foot traffic, vehicles, sharp corners, protections, and pinching).
G. Flexible cords and cables passing through holes shall be protected by bushings or fittings.
H. Temporary electrical distribution systems and devices shall be checked and found acceptable for polarity, ground continuity and ground resistance before initial use and before use after modification.
I. Extension cords shall not be plugged into each other to increase length.
J. Extension Cords shall only be repaired by a qualified person.

5.22.1 LOCK-OUT PROCEDURES

A. Due to the scope of this project, the procedures used for energy isolation, be it electrical, mechanical, hydraulic, pneumatic or other types need to be both uniform and coordinated. Therefore, the ROCIP has adopted the following procedures which must be communicated to Contractors, Subcontractors, and employees. Make sure they are aware of, understand, and follow these lock-out procedures and cooperate with other Contractors who require a lock-out that involves your work. Note that the ROCIP requires the use of lock-out energy isolation devices throughout this project. Tag-outs only will not be used. A written lockout / tagout procedure is required.
B. General Information
    1) Padlocks, hasps, tags, and other lock-out devices must be durable enough to withstand the environment to which they will be exposed.
    2) Locked-out switches, valves, etc., must not be operated regardless of the circumstances.
    3) Only the employee, who placed the lock on the switch, valve, hasp, etc., can remove it. Anyone who removes or defeats another's lock-out is subject to removal from the project site.
    4) Locked-out switches, valves, etc. must be inspected at the beginning of each shift to ensure that the locks and tags are still in place.

5.22.2 Energized Electrical Work

Work on energized equipment is not permitted on this project. If there is no other way for the work to be performed, an arc flash hazard analysis must be conducted by a qualified person and verified by a third-party electrical engineer.

5.23 Silica

Contractors and/or Subcontractors shall submit a written silica exposure control program prior to any work where exposure to silica may reasonably be expected. The plan shall meet or exceed the OSHA requirements.

5.24 Powder Actuated Tools

A. Contractors/Subcontractors, of any tier, shall ensure that employees using powder actuated tools be certified by the manufacturer's representative prior to use.
B. Certification cards must be available for immediate inspection if requested.
C. Contractors/Subcontractors using powder actuated tools shall ensure that all cartridges, whether used, not used or misfired, have been picked up and removed from the work area.
D. Signs shall be posted in areas where powder actuated tools are in use.
E. Powder actuated tools shall not be left unattended while loaded. If found unattended and loaded, the operator shall be subject to removal from the project.
F. The use of hardhat, safety glasses and hearing protection shall be used while operating a powder actuated tool. In some cases, a face shield, in addition to safety glasses or goggles may also be required.

5.25 Steel Erection

A. Steel erection requires compliance with the following:
    1) 100% fall protection provisions, such as lifeline attachments, dynamic fall restraints and other such devices shall be considered during shop drawing preparation and incorporated into fabricated pieces.
    2) Lifelines or other fall protection devices shall be attached prior to erection where possible. Foot level connection points are not permitted on the project.
    3) All project personnel must comply with the fall protection requirements.
    4) Wire rope used for guardrails and mid rails shall be equipped with support stanchions every eight feet and maintain the required deflection.
    5) A turnbuckle may be installed for maintenance of the perimeter protection to keep tight. If used, a minimum of three domestic cable clamps will be installed and torqued to specification. The use of lap splice joints is prohibited.
    6) When Christmas Treeing, only three pieces shall be allowed. A critical lift plan is required to be submitted to the engineer as required.
    7) All columns shall be evaluated by a competent person to determine whether guying or bracing is needed; if guying or bracing is needed, it shall be installed.

8) Anchor bolts shall not be repaired, replaced or field-modified without the approval of the project structural engineer of record.
9) Conduct and document appropriate pre-task planning and a job hazard analysis for all steel erection. This documentation must be maintained on site, at the work location,

5.26 WELDING AND CUTTING

A. The contractor shall establish recommended and required safe practices that meet or exceed OSHA requirements.
B. See additional requirements in Division 1 – Section 01010 and 01060

5.26.1 ELECTRIC ARC WELDING

A. Screens, shields, or other safeguards should be provided for the protection of workers or materials exposed to sparks, slag, falling objects, or the direct rays of the arc.
B. The welder shall wear approved eye and head protection. Workers assisting the welder shall also wear protective glasses, head protection and protective clothing.
C. Adequate exhaust ventilation shall be maintained at all welding and cutting work areas.
D. Electric welding equipment, including cables, shall meet the requirements of the National Electric Code.
E. All arc welding and cutting cables shall be of the completely insulated flexible type capable of handling the maximum current requirements of the work.
F. Cables in need of repair shall not be used.
G. Welding leads shall not be repaired with tape or by any other means.
H. Leads shall be inspected before each use, leads in need of repair will be tagged “do not use” and taken off the project site at the end of the day’s work shift.
I. The frames of all arc welding and cutting machines shall be grounded either through a third wire in the cable connecting the circuit connector or through a separate wire which is grounded at the source of the current. All ground connections shall be inspected to insure that they are mechanically strong and electrically adequate for the required current.
J. Welding practices shall comply with all applicable regulations.

5.26.2 GAS WELDING OR CUTTING

A. All hose used for carrying acetylene, oxygen or other fuel gas shall be inspected at the beginning of each working shift. Defective hose shall be removed from service.
B. Oxygen cylinders and fittings shall be kept away from oil and grease. Oxygen shall not be directed at oily surfaces, greasy clothes or hands.
C. Regulators, gauges, backflow check valves, and torches shall be kept in proper working order.

D. Appropriate personal protective equipment, such as burning glasses, shields, and/or gloves shall be used. Adequate exhaust ventilation shall be maintained at all welding and cutting work areas.
E. All oxygen/acetylene setups shall have a “flashback” arrestor check valve at the regulators and the torch head.

5.27 Compressed Gas Cylinders

A. When gas cylinders are stored, moved, or transported, the valve protection cap shall be in place.
B. When cylinders are hoisted, they shall be secured in an approved cage or basket. The valve cap shall never be used for hoisting. All cylinders shall be stored, transported, and used in an upright position. If the cylinder is not equipped with a valve wheel, a key shall be kept on the valve stem while in use.
C. Cylinders should be transported using hand trucks designed for that purpose. Cylinders shall not be lifted or carried by any other means.
D. Gas cylinders shall be properly secured at all times to prevent tipping, falling or rolling. They can be secured with straps or chains connected to a wall bracket or other fixed surface, or by use of a cylinder stand.
E. Oxygen cylinders in storage should be separated from fuel-gas cylinders and combustible materials by a minimum distance of 20 feet or by a barrier at least 5 feet high having a fire-resistance rating of at least one-half hour.
F.
G. At the end of each work day or if work is suspended for a substantial period of time, compressed gas cylinder valves shall be closed, regulators removed and properly stored.
H. Cylinders containing oxygen or acetylene or other fuel gas shall not be taken into confined spaces.
I. Cylinders containing oxygen or acetylene or other fuel gas shall be stored in designated areas outside the structure.
J. No one shall use a cylinder's contents for purposes other than those intended by the supplier.

5.28 Hot Work Permits

A. Hot work operations include tasks such as welding, brazing, torch cutting, grinding, and torch soldering. These operations create heat, sparks and hot slag that have the potential to ignite flammable and combustible materials in the area surrounding hot work activities. The Contractor will develop and submit a hot work permit procedure as part of the SSSP and include the provisions in 5.28.1.
B. A hot work permit shall be created daily and authorized by the general contractor.
C. Contractors shall obtain a hot work permit from the Denver Fire Department, to be renewed annually.

5.28.1 General Guidelines

A. Work should be performed using alternative methods other than hot work whenever possible.
B.
C. Employees who perform hot work operations must always obtain a Hot Work Permit before beginning hot work. A Hot Work Permit is valid for one day and one area and shall be posted in the area of hot work for the duration of the activity.
D. Hot work permits shall be retained for a period of at least thirty days and readily available for review.
E. A Fire Watch is posted to monitor the safety of hot work operations and watch for fires.
F. Fire Watches are posted if the situation requires one, during hot work, and for at least 30 minutes after hot work has been completed. Any employee who has successfully completed hot work safety training can serve as the Fire Watch.
G. All flammable and combustible materials within a 35-foot radius of hot work must be removed.
    1) When flammable and combustible materials within a 35-foot radius of hot work cannot be removed they must be covered with flame retardant tarps and a fire watch must be posted.
H. Floors and surfaces within a 35-foot radius of the hot work area must be swept free of combustible dust or debris.
I. All openings or cracks in the walls, floors, or ducts that are potential travel passages for sparks, heat and flames must be covered.
J. Two fire extinguishers (minimum 10 lbs. each) of the appropriate type must be readily available and accessible with at least one being within reach of the worker performing the welding, cutting or brazing activity.
K. Prevent false alarms.

5.29 Fire Prevention and Protection

A. Open fires are prohibited.
B. Storage of fuels shall be away from ignition sources
C. Only containers approved by Underwriters Laboratories, Factory Mutual or DOT, and clearly labeled to identify contents shall be used for transporting or storing flammable or combustible liquids. Metal safety cans with self-closing spouts and flash arresters are required for the storage, handling, and transporting of flammable and combustible liquids.
D. Smoking is not permitted within building structures or work areas.
E. Flammable or combustible liquids or gases shall not be stored inside any building unless approved by the Denver Fire Department, in writing. When indoor storage is approved such storage shall comply at a minimum with OSHA 1926.152 and NFPA requirements. Storage is defined as maintaining quantities in excess of what can be used in the course of normal work during the intended shift.
F. Flammable or combustible liquids or gases shall not be stored on roofs when not in use including after work shifts.

G. Storage tanks shall be equipped with self-closing dispensing nozzles and shall be provided with atmospheric and emergency relief vents equipped with flame arresters.
H. Tanks or drums from which flammable liquids are dispensed shall be electrically grounded and bonded.
I. There shall be no smoking or open flame in flammable or combustible liquid or gas storage areas. Conspicuous and legible signs prohibiting smoking shall be posted by the Contractor.
J. The Contractor will provide a minimum 20 pound ABC portable, dry chemical fire extinguisher) for the fuel storage areas.
K. Portable fire extinguishers suitable for the potential hazard shall be provided by each Contractor for their equipment, office area, and work activities. The Contractor shall have on site personnel trained in the proper use of fire extinguishers.

5.30 SMOKING

A. The primary purpose of this policy is the establishment of a completely smoke-free environment in the work place in order to protect life, health and property.
B. Smoking is not permitted inside any building on CCD property. Smoking is only permitted in designated smoking areas on site. Employees or visitors observed in violation of this program will be removed from site.

5.31 SECURITY

5.31.1 VEHICLE SEARCH

A. All vehicles will be subject to search upon entering and exiting the construction site and designated parking areas. Any unauthorized vehicle parked on the project site (other than in designated parking areas) may be physically removed at the expense of the vehicle owner.

5.31.2 TOUR & VISITOR GUIDELINES

A. Escorted Visitors
   1) Non-construction personnel, visitors or groups shall be accompanied at all times by an authorized representative of the Program Manager or the Contractor, or other designee that is familiar with the site hazards and properly badged on the project.
      i. The "Waiver and Release" provided in Appendix I shall be signed by all visitors/tour groups prior to accessing the project.
      ii. Display a visitor's site badge on the outer garment at all times,
      iii. Use required PPE.
B. Safety Enforcement
   1) Before entering the project, all visitors shall be receive a brief safety orientation on site specific hazards expected to be encountered during the tour or visit to including but not limited to things such as holes, trip hazards, potentially open electrical

wiring, nails, exposed rebar, partially completed framing, excessive noise, vibration, hazards from falling objects, project signage, moving equipment, these and other conditions present hazards, dangers and risks of potential injury, illness and/or property damage.

5.31.3 LOITERING ON THE JOB

A. Loitering on the job site before or after the assigned shift is prohibited.

5.32 GENERAL RULES

A. Good conduct is essential to the common good of all employees and the speedy progress of the job. Undesirable conduct including, but not limited to the following will not be tolerated and employees will be subject to removal from project:
   1) Unauthorized possession of any project property or material
   2) Possession of or use of intoxicants on premises, regardless of source
   3) Engaging in disorderly conduct
   4) Gambling, including sale of chances
   5) Fighting on project premises
   6) Failure to wear or use required safety equipment
   7) Failure to observe safety, sanitary or medical rules and practices
   8) Illegal possession or use of narcotics or non-prescribed tranquilizers or pep pills on premises, or attempting to bring them on job site
   9) Possession or use of firearms, weapons, or explosives is expressly prohibited on the project premises
   10) Willful defacing or damaging of equipment, tools, material or other property of the project or Contractors.
   11) Offensive language is prohibited.
B. Contractor and Subcontractor employees are required to report unsafe behaviors and conditions to their supervisor. When possible, employees shall correct hazards immediately. Employees should look out for their fellow worker and advise them to work safely, assisting them if necessary. Employee suggestions for improved safety performance are encouraged.

5.33 TRAFFIC CONTROL

A. All work shall be planned well in advance to keep traffic obstructions, public inconvenience and lost work time to a minimum. Therefore, a traffic plan shall be developed in accordance with the Colorado Department of Transportation and the Manual of Uniform Traffic Control Devices (MUTCD) and submitted for review and comment to the Program Manager and the CCD ROCIP Safety Team CCD prior to the work to be performed.
B. The traffic control plan shall include:

1) Traffic conditions;
2) Existing traffic controls;
3) Physical features;
4) Visibility restrictions;
5) Problems of access to private property;
6) Business access and activities;
7) The type, number and location of signs, barricades, lights and other traffic devices required for the work; and
8) Means of mitigating any adverse effect upon the blind or other physically handicapped.

C. Flaggers are required:
1) Where workers or equipment intermittently block a traffic lane;
2) Where plans or permit allow the use of one lane for two directions of traffic (one person is required to direct vehicles for each direction of traffic); and
3) Where the safety of the public and/or workers determines there is a need.
4) All flaggers are to be certified to perform this duty.

5.34 PROTECTION OF THE PUBLIC AND PROPERTY

A. The Contractor and Subcontractors shall take the necessary precautions to protect the general public (individuals not contractually related to the project(s)) from injury or damage to property and shall follow the contract requirements. The precautions to be taken shall at a minimum are as follows:
1) Perform no work in any area occupied or in use by the public unless specifically permitted by the contract or in writing from Program Manager.
2) Maintain work areas where public use may be necessary, especially involving sidewalks, entrances to buildings, lobbies, corridors, aisles, stairways, and vehicular roadways. Protect the public with appropriate guardrails, barricades, temporary fences, overhead protection, temporary partitions, shields, and adequate visibility. Such protection shall guard against harmful radioactive rays or particles, flying materials, falling or moving materials and equipment, hot or poisonous materials, explosives and explosive atmospheres, flammable or toxic liquids and gases, open flames, energized electric circuits, or other harmful exposures.
3) Keep sidewalks, entrances to buildings, lobbies, corridors, aisles, doors, or exits that remain in use by the public clear of obstructions to permit safe ingress and egress of the public at all times.
4) Appropriate warning signs and instructional safety signs shall be posted where necessary. In addition, a signalman shall control the movement of motorized equipment in areas where the public might be endangered.
5) Provide sidewalk sheds, canopies, catch platforms, and appropriate fences when it is necessary to maintain public pedestrian traffic adjacent to the erection, or structural alternation of outside walls on any structure.

6) Provide temporary fences around the perimeter of above ground operations adjacent to public areas except where a sidewalk shed or fence is provided by the contract or as required (2) above. Perimeter fences shall be at least six (6) feet high. They may be constructed of wood or metal frame and sheathing, wire mesh or a combination of both. When the fence is adjacent to a sidewalk near a street intersection, at least the upper section of the fence shall be open wire mesh from a point not over four (4) feet above the sidewalk and extending at least twenty-five (25) feet in both directions from the corner of the fence or otherwise required by CCD Representative.
7) Provide warning signs and lights, including electric lights during periods of severely restricted visibility, and continuously from dusk to sunrise along the guardrails, barricades, temporary sidewalks, and at every obstruction to the public as needed. They shall be placed at both ends of such protection or obstructions and not over twenty (20) feet apart alongside of such protection or obstruction.
8) Provide temporary sidewalks when a permanent sidewalk is obstructed by the operations. They shall be in accordance with the requirements of the local ordinances. Guardrails shall be provided on both sides of temporary sidewalks.
9) Provide guardrails on each side of vehicular and pedestrian bridges, ramps, runways, and platforms. Pedestrian walkways elevated above adjoining surfaces, or walkways within six (6) feet of the top of excavated slopes or vertical banks shall be protected with guardrails, except where sidewalk sheds or fences are provided. Guardrails shall be made of rigid materials capable of withstanding a force of at least two hundred (200) pounds applied in any direction at any point in their structure. Their height shall be approximately forty-two (42 + or - 3) inches. Top rails and posts may be two inches by four inches (2 x 4) dressed wood or equal materials. Posts shall not be more than eight (8) feet apart. Material used for wood guardrail system railing components shall be minimum 1,500 lb. – ft./square inch fiber (stress grade) construction grade lumber.
10) Provide barricades where sidewalk sheds fences or guardrails as referenced above are not required between work areas and pedestrian walkways, roadways or occupied buildings. Barricades shall be secured against accidental displacement and shall be maintained in place except where temporary removal is necessary to perform the work. When a barricade is temporarily removed, a watchman shall be placed at all openings.
11) Prohibit fuel-burning types of lanterns, torches, flares or other open flame devices.
12) Maintain all equipment, devices and structures so as to not pose a hazard to the public, property or employees, and to perform their intended functions properly at all times.
13) Each point of access to the project will be controlled.

5.35 HEAT ILLNESS PREVENTION

A. The ROCIP recognizes that during certain times of the year employees may be exposed to working in excessive temperatures which may create the risk of heat stress and illness. Acknowledging this exposure, Contractors/Subcontractors are required to establish a Heat Illness Prevention Plan to educate and monitor employees for heat-related illness.
B. At a minimum, the Heat Illness Prevention Plan is to contain the elements listed below and submitted as part of the SSSP. See sample heat illness plan in Appendix J
    1) Training
    2) Water
    3) Shade
    4) Monitoring the Weather
    5) High Heat Procedures & Acclimatization
    6) Clothing
    7) Emergency Response

5.36 CRISIS COMMUNICATIONS PLAN

A. Contingency planning for crisis and emergency situations is accepted as good management practice and by accepting this fact, anticipating certain crisis scenarios management will minimize the potential damage from critical situations. Proposed work flow process that details the general crisis communications on the program. All steps in the crisis communication process will be conducted in consultation with CCD. CCD, unless otherwise identified, will be responsible for crisis communications. Each Contractor on the program is expected to have a component in the crisis communication plan that addresses the following:
    1) Ensuring accurate and timely information is disseminated both internally and externally. (The Crisis Communication Plan shall be updated when there are changes to responsible personnel, etc.).
    2) Preparing CCD, Program and Contractor staff to respond in a crisis by identifying roles and responsibilities
    3) Coordinating effectively with existing CCD protocol and when necessary impacted agencies
B. The plan shall also include information on:
    1) Crisis Communications Operations
    2) Crisis Communications Center
    3) Crisis Communications Team
    4) Roles and Responsibilities
    5) Emergency Contact Phone Tree
    6) Crisis Tasks
    7) Media Briefing
    8) On Site Crew Response

9) Crisis Communications Tools
10) Crisis Communication Workflow (see Appendix K)

C. The Program Management Team Strategic Communications Lead, in coordination with Contractors (if necessary), under the direction of CCD Director of Communications will administer the crisis communication plan.

D. The project shall hold at least two mock emergency drills per year. Table top exercises where possible crisis situations that may arise shall be discussed at least once monthly during progress meetings. Minutes of the meetings shall be retained.

5.37 JOBSITE SAFETY INSPECTIONS

A. The Contractor's safety representative will conduct and document daily jobsite inspections of work site to evaluate compliance with SSSP and the ROCIP Safety Manual. Any hazards identified shall be corrected in a timely manner. The date the observation was corrected shall be recorded. Safety trends identified through regular safety inspections shall be reviewed weekly by the general contractor and discussed with all personnel on site. Trends shall have an action plan established to prevent repeat hazards or concerns. Inspections by each subcontractor shall be collected and evaluated to determine project-wide trends.
   1) A member of the Contractor's management group (Project Manager, Field Supervisor, Foreperson, etc.) must attend and participate in at least one jobsite inspection per week.
   2) Contractor may be directed to use a software program or solution that will enable Contractor and Program Manger to perform jobsite safety assessment or audits to measure the effectiveness of their safety programs.

SECTION 6. REQUIRED SAFETY TRAINING

6.0 NEW EMPLOYEE ORIENTATION TRAINING PROVIDED BY THE CONTRACTOR

A. One of the requirements of the Contractor and their safety representatives or designees is to conduct a complete safety orientation for all their employees and Subcontractor employees new to the site. The orientation is required before an employee can receive a project ID card and hard hat sticker and enter the construction area. The purpose of the orientation is to provide employees an awareness of what they can expect and what is expected of them on site. At a minimum, the orientation will include:
   1) Employee jobsite safety and health requirements and policies
   2) Review of site specific safety plan to include emergency procedures/phone numbers and Crisis Management Plan
   3) Employer and employee rights and responsibilities
   4) Hazard communication

5) Fall Protection
6) PPE and work attire
7) Personal conduct and disciplinary actions
8) Authorized access and parking
9) Good housekeeping practices
10) Job Hazard Analysis (JHA)
    - The new employee shall bring with them to the orientation, a copy of the hazard analysis for the task that they will be performing. This will have been provided to them by their foreman.
11) Pre-Task Planning
12) Return to work programs, accident reporting procedures, workers compensation requirements, and designated provider information.
13) Drug free workplace and substance abuse testing.
14) A roster of attendees for each safety orientation training session must be provided to the CCD ROCIP Safety Team. See Appendix L for an example.

6.0.1 DOCUMENTATION

A. All employees will complete the Project Safety Orientation Training Acknowledgement Form in Appendix L at the end of the orientation training session. A copy of the completed form must be forwarded to the Program Manager prior to issuing of project ID card.

SECTION 7. RECORDKEEPING REQUIREMENTS

A. The CCD ROCIP believes that proper documentation and record keeping of safety related functions are essential. All required documentation needs to be maintained on site, available to the CCD ROCIP Safety Team upon request. The Contractor's or Subcontractor's Project Manager is responsible for ensuring that record keeping and related requirements, as outlined in this section, are accurate and up-to-date.
B. There are several forms provided by the CCD ROCIP that are to be used. If a Contractor and/or Subcontractor prefer to use their own forms, they should be submitted to the CCD ROCIP Safety Team for review and approval. As long as they meet or exceed the forms developed by the CCD ROCIP they may be acceptable.

7.0 POSTERS

A. Post Project Safety Alerts, Bulletins, Lessons Learned and any other project safety information issued by the CCD ROCIP and Contractor as well as the posters required by federal and state regulation in areas where employees may be able to review them.

7.1 SIGNS

A. Contractors and Subcontractors, of any tier, will need to furnish appropriate signage in accordance with the contract, depending on the nature of their work and work area, such as (but not limited to):
   1) *Hard Hats, safety glasses, and high visibility vest is Required Beyond This Point* (posted at all entrances to the project site and work areas).
   2) *Danger - Construction Area - Authorized Personnel Only* (posted at all entrances to the project site).

7.2 NEAR MISS REPORT

A. A 'near miss' is an unplanned event that did not result in injury, illness, or damage, —but had the potential to do so. Only a fortunate break in the chain of events prevented an injury, fatality or damage. Although human error is commonly an initiating event, a faulty process or system invariably permits or compounds the harm, and should be the focus of improvement. Complete the Near Miss Report Form in Appendix M for each near-miss event. Blank Near Miss Report forms are to be made readily available onsite to employees to report near misses.

7.3 ACCIDENT/INCIDENT INVESTIGATION REPORTS

A. Complete an accident investigation report for each accident resulting in injury or damage to materials or equipment. This includes the Contractor's accident report form and applicable ROCIP accident investigation forms in Appendix O. The Contractor will provide a copy of investigative reports to the CCD ROCIP Safety Team within 2 working days of the accident.
B. The contractor shall file a notice of incident with the insurance carrier within 24 hours of any incident/accident.

7.4 WEEKLY SAFETY TOOL BOX ATTENDANCE ROSTER

A. Toolbox safety meetings shall be held at least weekly. These meetings shall be specific to the work being performed. Copies of toolbox meeting documentation shall be submitted to the general contractor each week. Note that although toolbox safety meetings are required at least once weekly, it is recommended that safety information be transmitted daily to all workers on site.

7.5 SAFETY OBSERVATIONS

A. Regular safety assessments will be conducted by the CCD ROCIP Safety Team; including, CCD personnel, the insurance broker and the insurance carrier. Written reports documenting observations will be submitted to the ROCIP Safety Team. Corrective

action must be completed as promptly as possible. The ROCIP Safety Team has the authority to stop any work at any time for any safety issue or concern. A written response may be required for any observation. Written responses must be issued in a timely manner.

7.6 Contractor's Monthly Safety Report

A. The CCD ROCIP Safety Team will track leading and lagging safety statistics by Contractor. In order to do this, each Contractor will report the correct number of work hours worked on the project for the reporting month. This report will include:
   1) The work hours for the Contractor's and Subcontractor's employees;
   2) Incident types;
   3) OSHA recordable injury rates;
   4) Employment information;
   5) Project safety activities; and
   6) Details of injuries and illnesses.

B. Send this report to the ROCIP Safety Team by the 1st Tuesday of the following month. See Appendix R for Contractor's Monthly Safety Report.

SECTION 8. Administrative Policies

8.0 Contractor Safety Program Review

A. After the Contractor submits the written SSSP, a meeting must be held to review the program with the Program Manager and the CCD ROCIP Safety Team. The Contractor must be prepared to discuss in detail the procedures to control the hazards likely to happen during major phases of the work, and the organizational assignments involved in administering the program. The Contractor's principal onsite representative, general superintendent and safety representative must attend this meeting.

8.1 Weekly Joint Safety Meeting

A. The Contractor Safety Representative and designated members of the respective staff must participate in scheduled weekly safety meetings with the Program Manager. The meetings must review the effectiveness of the Contractor's safety effort, resolve health and safety issues relating to current or future operations, and provide a forum for developing the risk mitigation two week look ahead schedule.

8.2 Supervisory Safety Meetings

A. The Contractor must conduct regularly scheduled (at least monthly) supervisory safety meetings for all levels of job supervision. The Contractor will maintain a summary

report containing subject matter and signatures of all attendees and make it available for review by the CCD ROCIP Safety Team.

8.3 Incident Notification

A. The Contractor shall report all incidents by phone immediately to the CCD Project Manager and the CCD Safety Lead. Voicemail is not deemed as incident notification.

8.4 Incident and Near Miss Investigations

A. All incidents, whether they involve injury or not ("near-miss") must be reported to the Program Manager immediately and investigated by the Contractor or Subcontractor's safety representative or designee and documented on the appropriate Project Incident report. The preliminary report must be completed and submitted to the CCD ROCIP Safety Team within twenty-four hours of the incident. The final investigative report and supporting documentation is due seven days after the date of the incident.

B. Most accidents, incidents, and near-miss incidents relate to system failure rather than individual mistakes. The Contractor must have an open and fair reporting system so that employees can report problems without fear of reprisal. Contractor representatives gather the reporting information and disseminate this information to all project personnel so that everyone can learn from our projects and program accidents, incidents, and near-miss incidents. Lessons learned from accidents, incidents and near-miss incidents will be shared with employees.

8.5 Lessons Learned

A. The goal of this program is to share and use experience based information to promote the recurrence of desirable activities, and prevent the recurrence of undesirable activities. All Contractors and Subcontractors are expected to plan and execute their work based on best available practices. Through their work experiences, all personnel are expected to identify opportunities for improvement and best practices and share these with their colleagues using the form in Appendix Q. Actions taken as a result of a Lesson Learned may include:
   1) Corrective actions (taken as a result of the analysis of an actual experience)
   2) Preventive actions (taken to prevent a negative situation from occurring)
   3) Improvement actions (taken to improve the efficiency of operations based on a good work practice or an innovative approach)

B. Lessons Learned Programs include two basic processes:
   1) A development process that includes identification, documentation, validation, and dissemination of a Lesson Learned.
   2) A utilization and incorporation process that includes identification of applicable Lessons Learned, distribution to the CCD ROCIP Safety Team, identification of actions

as a result of the Lesson Learned, and follow-up to ensure that appropriate actions were taken.

8.6 ACCIDENT/INCIDENT REVIEW WITH PROGRAM MANGER & CCD ROCIP SAFETY TEAM

A. When notified by the Program Manger or the CCD ROCIP Safety Team, recordable injuries/illnesses, builders' risk, and general liability incidents will require Contractor/Subcontractor management personnel to meet and review the findings of incident investigation and resolutions with Program Manager Representatives and the CCD ROCIP Safety Team. The Contractors/Subcontractors Project Manager, Safety Representative, involved supervisor/foremen and employee(s) will be required to attend and present investigative findings, causes/underlying factors and corrective actions.

8.7 EMPLOYEE DISCIPLINE & ENFORCEMENT

A. The ROCIP has established various rules and regulations, which serve as guidelines to acceptable employee behavior. In addition, specific job site rules may be established to meet the needs of the project. In either case, the rules and regulations of the ROCIP, and jobsite rules, are subject to change, without prior notice, at the sole discretion of the CCD ROCIP Safety Team.
B. All employees need to be aware of the ROCIP and Contractor's work rules and regulations. Rules have been developed to assist the efficient operation of the Project and for the benefit and safety of all employees and the general public. In general, any employee found to be in violation of ROCIP Project rules will be subject to disciplinary action, including immediate suspension or permanent discharge.
C. The following is a description of the ROCIP Project policy for dealing with discipline and termination:
    1) Corrective discipline is normally the responsibility of the job foreman or superintendent. One purpose of discipline is to motivate an employee to change his/her behavior. Discipline can be effective in helping an employee develop a more acceptable level of job performance. In every case, the Program Manager reserves the right, in its sole discretion, to determine the appropriate level of discipline.
    2) In the event that discipline is considered, the foreman or superintendent will identify the severity of the problem and determine the appropriate level of discipline. The Program Manager and Contractor's recognize that the seriousness of offenses may vary. When violations of a less serious nature occur, a discussion between the employee and the supervisor will often be sufficient.
    3) In the case of more serious violation, a written warning will be issued. On some occasions, because of the seriousness of the offense, a written warning may be given even though a verbal warning has not been issued. Certain other offenses will be of

such a serious nature that they will be grounds for immediate suspension and /or discharge.

4) Verbal or written warnings are often appropriate for minor infractions and first time offenses. A warning should include an explanation of the problem, which has been identified, with an opportunity for the employee to respond.
5) Discharge of an employee will be considered if the desired change in an employee's conduct is not accomplished through prior actions.
6) Employee misconduct may be of such a high level of seriousness that immediate termination will result. Examples of more serious misconduct include, but are not limited to violation of the Substance Abuse Policy, blatant disregard for personal and public safety, disregard of the ROCIP Safety Plan, fighting, theft, falsification of records, violating rules such as weapons on site (vehicles or on person), violations involving fall protection, LO/TO, excavation/trenching, confined space, etc.
7) In any given case, the Program Manager or the Contractor may find it appropriate to impose greater or lesser disciplinary action, based on individual circumstances.

D. Nothing in this policy should be construed as limiting the discretion to impose any level of discipline at any time, up to and including discharge, as circumstances warrant.
E. Nothing in this policy alters an employee's status as an "at will" employee or creates any contractual rights, either expressed or implied. The Program Manager will apply this Policy in a matter that is consistent with the requirements appropriate to local, state and federal laws.
F. This policy will remain in effect until it is changed or updated by the Program Manager.

8.8 DESIGNATED PROVIDER LIST

A. When a worker is injured, the Contractor shall provide the injured worker with a written designated provider list, from which the injured worker must select a health care provider. See Appendix S for Designated Provider List (the injured worker must circle their selection on the Designated Provider List, then sign/date the document and return to the Contractor for retention). If the injured workers is away from their usual place of employment at the time of the injury, the injured worker may be referred to a physician in the vicinity where the injury occurred who can attend to the injury. Within seven (7) business days following the date the Contractor has notice of the injury, the Contractor shall comply with the provisions of this paragraph.
B. The injured employee or employer must complete the Authorization Form in Appendix T upon arrival at designated medical provider location.
C. In an emergency situation the injured worker shall be taken to any physician or medical facility that is able to provide the necessary care. When emergency care is no longer required the provisions of paragraph (A) apply.

8.9 TRANSITIONAL DUTY

A. The Contractor and its Subcontractors of any tier shall provide Transitional Duty (also known as a “Return-to-Work”, "Light Duty", or "Modified Work") to any injured employee who is released by a medical doctor to return-to-work with restrictions, or for modified or alternative work. Restricted Duty shall be an assignment provided to an employee who, because of a job-related injury or illness, is physically or mentally unable to perform all or any part of his/her normal assignment during all or any part of the normal workday or shift for a minimum duration of 90 days. Each employer offering transitional duty to an injured worker shall comply with Rule 6 of the Colorado Workers’ Compensation Act.

1) All work-related injuries must be reported to the affected worker’s supervisor, the Contractor and the Program Safety Manager immediately.
2) If an employee has questions about medical treatment for a job-related injury, they must contact their employer. All employees must be treated at one of the designated providers listed in Appendix S.
3) Project policy is to return Contractor employees to work as soon as possible after a job-related injury or illness has occurred. All possible opportunities will be considered to provide Transitional Duty Assignments.
4) When an injured employee returns to work, all physical and mental limitations must be evaluated so that additional injury or aggravation does not occur. The safety of other employees working with the injured individual must also be considered.
5) The program safety manager, claims coordinator, and the insurance carrier will evaluate all injuries and illnesses on case-by-case basis.
6) Injured employees may return to work on Transitional Duty under the following circumstances:
    i. The employee’s attending physician has determined the physical restrictions.
    ii. The Contractor has a task that can be assigned that meets the restrictions.
    iii. The Contractor’s Project Managers, Supervisors, and Foreman are informed of the injured employee’s restrictions.
7) The employee must receive a full medical release from the treating physician before resuming normal work activities.
8) No employee on Transitional Duty will be allowed to work more than (40) forty-hours per week.
9) The injured employee will remain on the project where the injury occurred while on transitional duty if at all possible. If not possible (project completed, contractor no longer on site, etc.) the injured employee’s Contractor is expected to accommodate Transitional Duty requirements for the employee on other jobs they currently have enrolled under the ROCIP.
10) When injured employees are off duty they shall follow work restrictions.
11) The Contractor and/or Subcontractors shall discuss employee injury management protocol with the Arthur J. Gallagher Representative (303) 889-2570 prior to any injured employee being laid-off or terminated from a Transitional Duty program.

8.10 OSHA INSPECTIONS

An OSHA Compliance Officer may show up for an inspection based on complaints, accidents, programmed inspections, referrals, or drive-by observations. The Health, Safety & Security Program Manager and/or the CCD ROCIP Safety Manager must be present during the opening conference, during the actual inspection, and during the closing conference. The Compliance Officer can be made to wait a reasonable amount of time for these individuals to make it to the office for the opening conference. Safety personnel may decide to inform other management officials of the inspection, such as the Superintendent or Project Manager. It is the policy of CCD to cooperate fully with OSHA Compliance Officers and to treat them with respect and courtesy.

See Appendix X for CCD OSHA Inspection Procedures.

APPENDIX A MODEL SITE SPECIFIC SAFETY PLAN (SSSP)

INSTRUCTIONS FOR THIS MODEL PROGRAM Every Contractor and Subcontractor must develop and implement a written Site-Specific Safety Plan (SSSP) and a copy must be maintained at each work site. At a minimum, the SSSP must address the following elements:

1. Accountability/Responsibility/Key Line Personnel to include Site Safety Representative
2. Statement of Contractor's Safety and Health Policy
3. Identification of Competent/Qualified Persons
4. Scope of Work Evaluation
5. Hazard/Risk/Exposure Assessment
6. Control Measures/Job Hazard Analysis/Pre-Task Planning Activities
7. Subcontractor Daily Safety Audits/Inspections
8. Subcontractor's Weekly Safety Planning – Weekly Look Ahead Plan
9. Compliance Requirements and Policy
10. Written Disciplinary Program
11. Hazard Identification and Correction Process
12. Training and Instruction
13. Project Site Orientation
14. Communication System
15. Recordkeeping
16. Accident Investigation
17. Crisis Management Plan/Emergency Action Plan
18. Site-Specific Medical Emergency Plan
19. Written Hazard Communication Program
20. Written Trenching and Shoring Plan (if applicable)
21. Written 100% Fall Protection Plan (if applicable)
22. Substance Abuse Program
23. Respiratory Protection Program (if applicable)
24. Heat Illness Prevention Plan (if applicable)
25. Hot Work Permit Procedure (if applicable)
26. Silica Exposure Control Program (if applicable)
27. Confined Space Entry Procedure (if applicable)
28. Lockout/Tagout Procedure (if applicable)
29. Crane Operations Plan

This model program has been prepared only as an aid for use by Contractors and Subcontractors. Contractors and Subcontractors are solely responsible for the content of their own SSSPs. This model program was written for a broad spectrum of employers and it should be modified as appropriate to provide the essential framework required for a Site-Specific Safety Plan on this Project. Proper use of this model program requires the Project Manager/Superintendent and the Contractor Safety Representative to carefully review the

requirements for each of the SSSP elements found in this model. To be effective, this model program must be maintained by the Contractor's/Subcontractor's Project Manager or Safety Representative.

1. ***Responsibility/Identification of Key Line Personnel***

Contractor:			
Address:			
Telephone:	Fax:	Email:	
Company Executive responsible for project:		Office #	Cell #
Manager/Superintendent:		Office #	Cell #
Safety Representative/Manager:		Office #	Cell #
Field Supervisors or forepersons:		Office #	Cell #
Program Manager POC:		Office #	Cell #

- Provide 24/7 phone numbers for key personnel.
- Provide roles and responsibilities of persons listed above.

All managers and supervisors are responsible for implementing and maintaining the SSSP in their work areas and for answering worker questions about the SSSP. A copy of this SSSP is available from each manager and supervisor.

2. ***Statement of Subcontractor's Safety and Health Policy*** Include your company statement here

3. ***Identification of Competent/Qualified Persons*** List/Submit Certificate

4. ***Scope of Work Evaluation*** List Major Activities

5. ***Hazard/Risk/Exposure Assessment*** Major hazards or risks and exposures associated with the scope of work evaluation must be listed here. Each major activity must be evaluated and a Job Hazard Analysis developed before the start of work.

6. ***Control Measures/Hazard Analysis/Pre-Task Planning*** (Provide an Appendix to include Hazard Control Measures and Job Hazard Analysis for Risks Listed in #5)

7. ***Subcontractor Daily Safety Inspections*** Daily inspections to identify and evaluate on-going workplace hazards must be performed by the following competent persons or observers in the following areas of our workplace:

Competent Person/Observer	Area of Expertise/Responsibility

Periodic inspections are performed according to the following schedule:

- When the SSSP is first implemented;
- Daily;
- When new substances, processes, procedures or equipment which present potential new hazards are introduced into our workplace;
- When new, previously unidentified hazards are recognized;
- When occupational injuries and illnesses occur;
- When we hire and/or reassign permanent or intermittent workers to processes, operations, or tasks for which a hazard evaluation has not been previously conducted; and
- Whenever workplace conditions warrant an additional inspection.

8. ***Contractor Risk Mitigation Two-Week Look-Ahead Planning Submission*** The form in the appendices can be used to plan risk mitigation strategies at weekly progress meetings.

9. ***Compliance Requirements Policy*** Management is responsible for ensuring all safety and health policies and procedures are clearly communicated and understood by all employees. Managers and supervisors are expected to enforce the rules fairly and uniformly. All employees are responsible for using safe work practices, for following all directives, policies and procedures, and for assisting in maintaining a safe work environment. Our system of ensuring that all workers comply with the rules and maintain a safe work environment includes:

    - Informing workers of the provisions of our SSSP and the ROCIP Safety Manual.
    - Evaluating the safety performance of all workers.
    - Recognizing employees who perform safe and healthful work practices.
    - Providing training to workers whose safety performance is deficient.
    - Disciplining workers for failure to comply with safe and healthful work practices; and
    - The following practices:

      _____
      _____
      _____

10. ***Written Disciplinary Program*** (Explain or attach written program)

11. ***Hazard Identification and Correction Process*** Unsafe or unhealthful work conditions; practices or procedures must be corrected in a timely manner based on the severity of the hazards. Hazards must be corrected according to the following procedures:

    - When observed or discovered;
    - When an imminent hazard cannot be immediately abated without endangering employees or property, all exposed workers will be removed from the area except those necessary to correct the existing condition. Workers needed to correct the hazardous condition must be provided with the necessary protection. All corrective actions taken must be documented, with completion date, on the appropriate forms.

12. ***Training and Instruction Policy*** All workers, including managers and supervisors, must have training and instruction on general and job-specific safety and health practices. Training and instruction must be provided as follows:

    - When the SSSP is first established;
    - To all new workers;
    - To all workers given new job assignments for which training has not previously provided;
    - Whenever new substances, processes, procedures or equipment are introduced to the workplace and represent a new hazard;
    - Whenever the employer is made aware of a new or previously unrecognized hazard;
    - To supervisors to familiarize them with the safety and health hazards to which workers under their immediate direction and control may be exposed; and
    - To all workers with respect to hazards specific to each employee's job assignment.
    - When employee actions indicate that retraining is necessary.

Workplace safety and health practices for all locations include, but are not limited to, the following:

- Explanation of the employer's SSSP, emergency action plan and fire prevention plan, and measures for reporting any unsafe conditions, work practices, injuries and when additional instruction is needed.
- Use of required personal protective equipment.
- Information about chemical hazards to which employees could be exposed and other hazard communication program information.
- Availability of toilet, hand-washing, and drinking water facilities.
- Provisions for medical services and first aid including emergency procedures.

In addition, employees will receive specific instructions regarding hazards unique to their job assignment, to the extent that such information was not already covered in other training.

13. ***Employee Site Safety Orientation Program*** All new employees will receive a site safety orientation prior to work on the project. The site safety orientation will include the following elements:

    - Employee jobsite safety and health requirements and policies
    - Review of site specific safety plan to include emergency procedures/phone numbers and Crisis Management Plan
    - Employer and employee rights and responsibilities
    - Hazard communication
    - Fall Protection
    - PPE and work attire
    - Personal conduct and disciplinary actions
    - Authorized access and parking
    - Good housekeeping practices
    - Job Hazard Analysis (JHA)
    - Pre-Task Planning
    - Return to work programs, incident reporting procedures (to include near misses), workers compensation requirements, and designated provider information.
    - Drug free workplace and substance abuse testing.
    - Other job specific hazards.

14. ***Employee Communication System and Policy*** The following system of communication is designed to facilitate a continuous flow of safety and health information between management and staff in a form that is readily understandable and consists of one or more of the following checked items:

    - New worker orientation including a discussion of safety and health policies and procedures.
    - Review of our SSSP and ROCIP Safety Manual.
    - Workplace safety and health training programs.
    - Regular weekly and daily safety meetings.
    - Effective communication of safety and health concerns between workers and supervisors, including translation where appropriate.
    - Posted or distributed safety information.
    - A system for workers to anonymously inform management about workplace hazards.
    - Lessons learned.
    - Other:
      _____
      _____

15. ***Recordkeeping Policy*** We have taken the following steps to document the implementation of the SSSP:
    - Records of hazard assessment inspections, including the persons conducting the inspection, the unsafe conditions and work practices that have been identified and, the action taken to correct the identified unsafe conditions and work practices are recorded on a hazard assessment and correction form
    - Documentation of safety and health training for each worker, including the worker's name or other identifier, training dates, types of training, and training providers are recorded on a worker training and instruction form.
    - Other records are retained as required by contract specifications or by local, state or federal (OSHA regulations). Where regulations do not specify the length of records retention, a period of three years after project completion will be used.

16. ***Accident Investigation Policy*** Procedures for investigating workplace accidents include:
    - Responding to the accident scene as soon as possible;
    - Reporting immediately to the appropriate Program Manager point-of-contact and ROCIP
    - Interviewing injured workers and witnesses;
    - Post-accident substance abuse testing.
    - Examining the workplace for factors associated with the accident;
    - Determining the cause of the accident;
    - Taking corrective action to prevent the accident from reoccurring;
    - Recording the findings and corrective actions taken; and
    - Communicating lessons learned.

17. ***Crisis Communication Plan/Emergency Action Plan*** (Define assembly areas, head count procedure etc.)

18. ***Site Specific Medical Emergency Plan*** (Define/ provide emergency contact numbers, competent first-aider, provider locations, etc.)

19. ***Hazard Communication Program*** (Attach written program, safety data sheets, and hazardous materials list)

20. ***Written Trenching and Shoring Plan*** (Attach if applicable)

21. ***Written 100% Fall Protection Plan*** (Attach if applicable)

22. Written Substance Abuse Program

23. ***Written Respiratory Protection Program*** (Attach if applicable)

24. ***Written Heat Illness Prevention Plan*** (Attach if applicable)

25. ***Written Hot Work Permit Procedure*** (Attach if applicable)

26. ***Written Silica Exposure Control Program*** (Attach if applicable)

27. ***Written Confined Space Entry Procedure*** (Attach if applicable)

28. ***Written Lockout/Tagout Procedures*** (Attach if applicable)

29. Written Crane Operations Plan (Attach if applicable)

30. ***List of Attachments***

- Daily Safety Inspection Record
- Accident Inspection Report Form
- Training Record
- Monthly Safety Report
- Contractors Weekly Safety Planning Submission

APPENDIX B JOB HAZARD ANALYSIS

Job Hazard Analysis (JHA)

JHA #:	**Overall Risk Assessment Code (RAC) (Use highest code)**					
Activity/Work Task:	**Risk Assessment Code (RAC) Matrix**					
	Severity	**Probability**				
Date Prepared :		**Frequent (F)**	**Likely (L)**	**Occasional (O)**	**Seldom (S)**	**Unlikely (U)**
Prepared by:	**Catastrophic (C)**	**E**	**E**	**H**	**H**	**M**
	Critical (Cr)	**E**	**H**	**H**	**M**	**L**
Reviewed by:	**Marginal (M)**	**H**	**M**	**M**	**L**	**L**
	Negligible (N)	**M**	**L**	**L**	**L**	**L**

Notes: (Field Notes, Review Comments, etc.):

References :

Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above).
The RAC is developed after correctly identifying all the hazards and fully implementing all controls.

P "Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent (F), Likely (L), Occasional (O), Seldom (S) or Unlikely (U).

S "Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic (C), Critical (Cr), Marginal (M), or Negligible (N)

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

Job Steps	Hazards	Controls	P	S	RAC

Equipment to be Used	Training Requirements/Competent or Qualified Personnel	Inspection Requirements

APPENDIX C DAILY PRE-TASK PLANNING SHEET

Daily Pre-Task Planning

Supervisor/Foreman: _____ Date: _____

Job Activity: _____

_____ _____

Signature – Supervisor/Forman Signature – Project Manager/Safety Manager

LIST TASKS	
1. _____	6. _____
2. _____	7. _____
3. _____	8. _____
4. _____	9. _____
5. _____	10. _____

REQUIRED TOOLS

Air Compressor		Electrical Drill		Port Bandsaw	
Electrical Grinder		Roto Hammer		Chipping Gun	
Generator		Sawzall		Welding Machine	
Chop Saw		Hydraulic Jacks		Skill Saw	
Cutting Torch		Impact Wrench		Other Tool:	
Ladder		Electric Cords		Other Tool:	
Powder Actuated		Welding Leathers		Other Tool:	

REQUIRED EQUIPMENT

Crane		Dump Truck		Aerial Lift:	
Motor Grader		Scraper		Suspended Personnel	
Compactor		Roller		Platforms/Manbaskets:	
Excavator		Dozer		Other:	

IDENTIFY POTENTIAL HAZARDS

Particles in Eye		Chemical Burn		Thermal Burn	
Overexertion		Elevated Load		Live Utilities (above	
Abrasion/Cuts		Struck By		/below grade)	
Falls Over 6'		Overhead Work		Dropping Material &	
Strains/Sprains		Trip/Slip/Fall		Tools to Lower Level	
Fire		Cave-in		Moving Machinery	
Loud Noises		Heat/Cold Exp.		Moving Aircraft	
Pinch Points		Electrical Shock		Other:	
Other:		Other:		Other:	

IDENTIFY HAZARD ELIMINATION

Fall Protection		Toeboards/Netting		Be in the Proper Position	
Keep Area Cleaned		Sloping/Shoring		/Situational Awareness	
Guardrails		Proper Rigging		Tools/Materials Secured	
Fire Watch/Exting		Taglines		Coordination with Other	
Make Eye Contact		Get Help		Trades	

Additional Hazard Controls: _____

REQUIRED PERSONAL PROTECTIVE EQUIPMENT

Hardhat	✓	Hearing Protection		Safety Goggles	
Safety Glasses	✓	Face Shield		Welding Leathers	
Reflective Vest	✓	Metatarsal Guards		Welding Hood	
Safety Boots	✓	Rubber Boots		Other PPE:	
Work Gloves		Rubber Gloves		Other PPE:	

Permits and Plans Issued? (Check all that Apply)

Fall Protection Plan		Crane: Critical Lift Plan		Confined Space Permit	
Energized Electrical Work Permit		Hot Work Permit		Excavation Plan	
Other:		Other:		Other:	

List each employee covered by this Pre-Task Planning Sheet: (Print name and have each employee initial to acknowledge understanding of job specific hazards/mitigations identified by this Pre-Task Planning Sheet)

Name	Initials	Name	Initials

Near Miss Report

Time of Occurrence: _____

Describe Near Miss: _____

Actions Taken to Correct/Prevent Similar Incidents: _____

APPENDIX D RISK MITIGATION TWO WEEK LOOK AHEAD

PROJECT NAME: DATE:

CM/GC: PM:
Subcontractors (if necessary): Phone:
Report Prepared By:

CONSTRUCTION LOOK AHEAD								
Scheduled Start	Duration	Description of Work	Identified Risks/Hazards	Control Measures	Potential Impacts (Public/Stakeholders)	Coordination Required (Stakeholders)	Supervisor Phone	Doc/MHT#
Week One								
Week Two								

ADDITIONAL LOOK AHEAD	
Additional Job Hazard Analysis Required	
Subs Mobilized/ Demobilized	
Audits/ Inspections Scheduled	
Competent Person Changes	
Planned Orientation/ Training	
Upcoming Procurements	

ADDITIONAL COMMENTS (Major anticipated activities, issues, etc.):

Subcontractor Premobilization Safety Meeting

Date: _____ **Project/Location:** _____

Contractor Representatives: _____

Subcontractor Representatives: _____

The following project site safety, health and security requirements, procedures, and hazards have been identified and reviewed with the Subcontractor.

	SSSP/Emergency Planning/Crisis Com		Demolition	
	Competent/Qualified Person		Personal Protective Equipment	
	Hazardous Materials/Waste		Cranes/Hoists/Annual Inspection Certificate	
	Vehicle/Heavy Equipment		Overhead Power Lines	
	Lockout/Tagout		Confined Spaces (Permit/Non-Permit)	
	Electrical		Excavations/Trenching	
	Fire Protection		Site Security/Visitor Control/Public Exposure	
	Hot Work/Welding/Cutting		Risk Mitigation Two Wk. Look Ahead, Daily Pre-Task Planning Sheet, Job Hazard Analysis	
	Fall Protection/Guardrails/ Scaffolding/Ladders		Permits (Excavation/Scaffolding/Demolition/Traffic/ Confined Space/etc.)	

Additional Project Concerns:

_____

_____

_____

_____

Other Attendees:

Name	Title	Company

APPENDIX F CRITICAL LIFT PLAN (CRANES)

Critical Lift Plan

Crane Make/Model/Serial #: _____ Anticipated Lift Date: _____

Lift Location: _____

Load Description: _____

Required Attachments: ☐ Copy of load chart for applicable crane configuration ☐ Diagram of crane lift & load placement

☐ Rigging certifications ☐ Diagram of rigging configuration with load calculation ☐ Copy of crane's annual inspection

A. Load

1. Wt. of load _____lbs.
2. Wt. of auxiliary block _____lbs.
3. Wt. of main block _____lbs.
4. Wt. of lifting beam _____lbs.
5. Wt. of slings/shackles/other rigging _____ lbs.
6. Wt. of jib (erected/stowed/stored) _____lbs.
7. Wt. of hoist rope (#parts X L X unit wt.) _____ __lbs.
8. Wt. of excess load material _____lbs.
9. Other _____lbs.

GROSS WEIGHT _____lbs.

Source of load Wt. information (drawings, calcs, etc.)

_____

Load Wt. confirmed by: _____

B. Crane

1. Type of crane _____
2. Counterweight _____ _____ lbs.
3. Boom length ____ ft. / boom configuration _____
4. Radius at pick-up _____ft./set-down_____ ft.
5. Crane capacity at radius: over rear _____ lbs. over side _____lbs. / over front _____ lbs.
6. Boom angle at pickup ____ ft. / set down _____ _ft.
7. Max. rated capacity of crane at this boom length, radius and boom angle for this lift _____lbs.
8. Max. load on crane for this lift is _____ _lbs.
9. Lift is _____% of the crane's rated capacity

C. Jib/Fly

1. Erected _____ Stowed _____ Stored _____
2. If jib/fly to be used: length _____ _ angle _____
3. Rated capacity of jib/fly from chart _____ lbs.

D. Hoist Rope

1. Rope diameter _____ Number of parts _____
2. Lift capacity based on parts _____lbs.

E. Rigging

1. Sling configuration (choker, basket, straight)
2. Sling material _____
3. No. of slings _____size_____ length _____
4. Sling assembly rated capacity _____lbs.
5. Shackle size _____ No. of shackles _____
6. Shackle rated capacity _____lbs.
7. Shackle secured to load by _____
8. Spreader beam capacity _____ lbs.

F. Crane Placement

1. Any deviation from smooth, solid foundation? _____

A. Distance to nearest overhead power line? _____
B. Buildings, equipment, plant, or services to lift or swing over? _____
C. Crane travel during lift? _____
D. Swing direction? _____
E. Will crane be set up away from excavations? _____ (horizontal clearance shall be greater than hole depth)

G. Considerations

1. Multiple crane lifts require a separate plan for each crane.
2. Any changes in crane configuration, placement, rigging, lifting scheme, or calculations require that a new lift plan be developed
3. Number of taglines required to stabilize load _____
4. If other personnel or equipment, other than lift team and their equipment, are in close proximity to lift. Barricade and evacuate the lift area.
5. Check crane's operator manual for maximum wind speed a lift may be executed _____ mph.
6. Surface area of load should be considered for impact due to wind.
7. Method of communication between signal person and operator ☐ Radio ☐ Hand Signals

Crane Operator: I have been briefed of the contents of this lift plan and accept the duty of ensuring the lift is carried out to the agreed procedure, to the limits of my responsibilities.

_____ _____ _____
Name Signature Date

Lifting Supervisor: I have been briefed of the contents of this lift plan and accept the duty of ensuring the lift is carried out to the agreed procedure.

_____ _____ _____
Name Signature Date

Shared Airspace Agreement

(Date)

GENERAL TERMS, DEFINITIONS AND BACKGROUND INFORMATION

1. This **Shared Airspace Agreement** is between (Named Contractor) and (Named Contractor).
2. (Contractor) is operating a (crane model, type) crane at (Specific Location and Project Name) near the intersection of (street, intersection, city and state).
3. (Contractor) is operating a (crane model, type) crane at (Specific Location and Project Name) located near the intersection of (street, intersection, city and state).
4. The (Contractor's) (crane model, type) crane and the (Contractor's) (crane model, type) share a common or overlapping airspace with the potential for the two crane booms and/or associated rigging to collide.
5. The (Contractor) tower crane is positioned on an engineered foundation. The radius, swing or operational area of the tower crane cannot be adjusted or changed. The (Contractor's) crawler crane is mobile. The location of the (Contractor's) crawler crane can be altered, thereby changing the radius, swing or operation area of the crawler crane. Relocation of the (Contractor's) crawler crane may change or alter the size or location of the overlapping airspace of the two cranes.
6. Under normal operating conditions, assuming no shared, common or overlapping airspace, the (Contractor's) tower crane would weathervane (swing freely) during non-operating hours. The risk associated with the ability of the (Contractor's) tower crane to weathervane when not in operation is unacceptable whenever (Contractor) plans to work and (Contractor) is not operating or manning their tower crane.
7. Both the (Contractor) (crane model, type) crane and the (Contractor) (crane model, type) crane have established safe operating air speed limits for operation. The maximum air speed for safe operation of the (Contractor's) (crane model, type) crane is **(XX) miles per hour**. The maximum air speed for safe operation of the (Contractor's) (crane model, type) crane is **(XX) miles per hour**.
8. The (Contractor's) tower crane can be guyed off or tied down safely without placing any additional loads on the tower crane foundation at all air speeds below **(XX) miles per hour.** Guying off the tower crane when not in operation and ensuring that the boom is anchored outside the common or shared

airspace would allow (Contractor) to operate their crane without (Contractor) manning their tower crane.

9. All cranes in the State of (Name) are regulated by OSHA. Both (Contractor) and (Contractor) will operate their respective cranes within OSHA regulations at all times.
10. The (Contractor) crawler crane was in operation before the installation of the (Contractor) tower crane. (Contractor) requested and received prior approval from OSHA before installing the tower crane. The OSHA prior approval was conditioned upon both crane operators having instant, continuous, dedicated mobile communication at all times. OSHA was aware of the existence of the (Contractor) (crane model, type) crane and the shared airspace problem before giving approval to (Contractor) to install the (crane model, type).
11. After installation of the (Contractor) tower crane OSHA requested that both (Contractor) and (Contractor) sign a written agreement to ensure that both cranes would operate in the shared or common airspace safely. This original agreement was the (Contractor) letter to OSHA signed by both (Contractor) and (Contractor) and dated (Day-Month-Year).

SPECIFIC TERMS TO INCLUDE OPERATING PROCEDURES

1. (Contractor) and (Contractor) both agree that the (Contractor) letter to (Name) of OSHA dated (Day-Month-Year) is hereby null and void. This original agreement did not include a procedure for dealing with the excessive amount of overtime crane operations by (Contractor). The original agreement did not discuss the conditions under which the tower crane would weathervane. The operating procedures defined in the (Contractor) letter to OSHA dated (Day-Month-Year) are hereby replaced by the operating procedures in this Shared Airspace Agreement. This Shared Airspace Agreement has been reviewed and approved by OSHA.
2. When both cranes are in operation at the same, time both crane operators will have instant, continuous, dedicated mobile communication. Before either crane approaches the shared or common airspace the other crane operator must provide clearance. If any doubt or confusion exists, the crane operator will not enter or even approach the shared airspace. (Contractor) and (Contractor) agree to allow both operators to communicate, share information and work together to ensure safe crane operations for both companies.
3. (Contractor) and/or (Contractor) will not, under any circumstances, operate their crane when the air speed exceeds the safe operating air speed for that crane. (Reference Line Item # 7)

4. (Contractor) will place the boom of their tower crane outside the shared or common airspace at the end of every work shift. (Contractor) will guy off or secure the boom in this safe location allowing (Contractor) to operate within the shared airspace without (Contractor) manning their tower crane. (Contractor) must release the guying cables and allow the tower crane to weathervane (swing freely) when air speeds exceed (XX) miles per hour.
5. (Contractor) will place the boom of their crane well beyond or outside the shared airspace at the end of every work shift. Although the Sumitomo SC 1500 crawler crane does not weathervane, (Contractor) is responsible for ensuring that their crane boom remains outside the shared airspace whenever their crane is not manned or in operation.
6. (Contractor) will install and monitor an air speed indicator on their tower crane. (Contractor) will confirm the weather report before leaving the jobsite after each work shift. (Contractor) will provide air speed and/or weather forecast information to (Contractor) upon request. The intent is to communicate weather information that may predict air speeds and/or weather conditions that are unsafe for continued crane operations. (Contractor) cannot operate their crane under extreme weather conditions. (Contractor) cannot guy off or secure their tower crane under extreme weather conditions.
7. Before the end of every (Contractor) work shift the (Contractor) superintendent will review the current air speed and weather forecasts. If these weather reports and/or air speed monitor(s) indicate or forecast that weather conditions may deteriorate and cause air speeds in excess of (XX) miles per hour (the maximum safe operating air speed for the {Contractor} mobile crane) Contractors will discuss their intention to continue crane operations under these severe weather conditions.
8. (Contractor) or (Contractor) may decide to start operating their crane when the other company is not manning their crane. This may happen during overtime conditions to include weekday nights, weekends or holidays. If either (Contractor) or (Contractor) commences crane operations when the other crane is not manned, they must confirm that the other crane is safely outside the shared or common airspace. DO NOT ASSUME THAT THE OTHER CRANE IS GUYED OFF, SECURED OR OUTSIDE THE SHARED AIRSPACE AREA BEFORE STARTING CRANE OPERATIONS. A simple visual inspection will confirm that the (Contractor) tower crane is safely guyed off and secured. The guying cables are clearly visible and (Contractor) can easily confirm that the guyed off and secured tower crane will remain outside the shared or common airspace. Confirmation that the (Contractor) tower crane is safely guyed off before commencing an overtime (Contractor) shift is important given that the

(Contractor) tower crane has the potential to weathervane into the shared or common airspace. Confirmation that the (Contractor) tower crane is safely guyed off and secured is critical after a major storm has passed through the area. A major storm may have forced (Contractor) to release the guyed cables and allow the tower crane to weathervane. (Contractor) will also ensure that the (Contractor) crane is safely outside the shared airspace area before commencing crane operations.

9. Under normal weather conditions (Contractor) agrees to take all actions necessary to ensure that their tower crane is safely guyed off and secured; and out of the shared or common airspace when their tower crane is not manned. (Contractor) must release the guying cables and allow the tower crane to weathervane when air speeds approach (XX) miles per hour.
10. Both (Contractor) and (Contractor) agree to provide the other party to this Shared Airspace Agreement with advance written notification of any change to crane configuration, size, location or operation that may possibly impact the size or location of the shared airspace zone.
11. Both parties to this Shared Airspace Agreement reserve the right to contact OSHA if the other party violates the letter or intent of this Shared Airspace Agreement. OSHA has the authority to shut down one or both cranes. Both parties agree to work together to ensure a safe operating environment for both cranes. A copy of this fully executed Shared Airspace Agreement will be provided to OSHA.
12. This Shared Airspace Agreement will remain in effect until either (Contractor) or (Contractor) permanently remove their crane(s) from their jobsite thereby eliminating any shared airspace problem.
13. This Shared Airspace Agreement can only be modified in writing. Any changes must be agreed to, signed by both parties to this agreement.

ACCEPTED AND AGREED:

(Contractor) Date

(Contractor) Date

APPENDIX H SUSPENDED PERSONNEL PLATFORM CHECKLIST

SUSPENDED PERSONNEL PLATFORM CHECKLIST

Date	Competent Person:	
Crane Make:	Model:	Serial Number:
Equipment Number:	Hours:	Crane Capacity:
Crane Type:	Hydraulic	Conventional

(1.) CRANE REQUIREMENTS

Contractors and/or users must ensure that all items in this checklist are satisfied, including compliance with all safety requirements prior to making a lift. All precautions and instructions on the decals attached to the crane and the platform must be strictly adhered to.

Circle Items "Yes" to verify compliance:

No	Yes	Use of a man basket is the safest and most practical way to accomplish the task.
No	Yes	All crane inspections are current per ANSI B30.5 requirements.
No	Yes	All hooks have a current inspection per ANSI B30.10 and have positive locking type hook latches.
No	Yes	The correct load chart is with the crane and the operator is thoroughly familiar with all special notes and manufacturer recommendations given on the chart.
No	Yes	All operational aids and safety devices in the crane are functioning and the operator is fully versed in their operation.
No	Yes	The load lines have a 7:1 safety factor (10:1 when using non-spin rope). NOTE: This is achieved by a 50 percent de-rating of the crane load chart.
No	Yes	The crane is on firm footing and the crane outriggers are all the way out, down, and locked as applicable.
No	Yes	The crane is level within 1 percent, (1 foot in 100 feet) and is on firm surface. NOTE: Stability of the footing will be verified during the full cycle of the operation test.
No	Yes	Means have been provided to enable the operator to ensure that the crane is level.
No	Yes	A firm, level surface has been prepared and designated as a "runway" or path of travel for the weight and configuration of the crane begin used.
No	Yes	The crane counterweights are per manufacturer specification.
No	Yes	All load lines are properly revved and laying properly on the drums.
No	Yes	All drum hoists have full control load lowering. NOTE: Free fall is not to be used.
No	Yes	The boom is fully powered up and down, live boom is not to be used.
No	Yes	The boom angle and radius indicator works. NOTE: Measure radius with tape measure on conventional cranes.
No	Yes	The boom length indicator on telescoping booms is fully functional.
No	Yes	The positive anti two-block device is functioning properly. NOTE: A warning system alone does not suffice.

(2.) RIGGING REQUIREMENTS

No	Yes	Each bridle leg is connected to the master link, or shackle in a way that ensures the load is evenly distributed between all the bridle legs.
No	Yes	All rigging, wire rope, shackles, rings, master links, and other rigging hardware, have a minimum safety factor of 5:1. NOTE: When non-spin cable is used, a minimum safety factor of 10:1 is required.
No	Yes	All wire rope eye fittings are provided with thimbles.
No	Yes	All load hooks are closed with locking type latches.
No	Yes	All rigging equipment for the man basket is exclusively for that use only.
No	Yes	All rigging has been inspected for kinks or damage of any kind.
No	Yes	Shackle pins are of the nut-with-pin-retainer-type.

(3.) MANBASKET REQUIREMENTS		
No	Yes	The basket has been designed with a 5:1 safety factor by a qualified engineer and welded by a qualified welder.
No	Yes	The suspension rigging system has been designed in such a way as to minimize tipping of the man basket
No	Yes	The maximum rated load and maximum capacity is posted on a permanently affixed plate on the man basket.
No	Yes	The guardrail designed to enclose the platform is provided and is enclosed from the toe board to the mid-rail.
No	Yes	Body harness anchorage provided.
No	Yes	The access gate has been designed to open in and is positively prevented from swinging outward while the man basket is in use.
No	Yes	The access gate must have a positive locking system to prevent accidental opening during operation.
No	Yes	The design allows enough headroom for employees to stand upright.
No	Yes	There are no rough edges on any man basket surface.
No	Yes	In addition to hard hats, overhead protection is provided when employees are exposed to falling objects.
No	Yes	A trial-lift meeting has been attended by the crane or derrick operator, signal person(s) (if necessary for the lift), employee(s) to be lifted, and the employee responsible for the task to be performed
No	Yes	Precautions have been taken to protect employees from any special hazards in the area where the crane and man basket will be operating; for example, power lines or areas where the man basket will be out of the operator's view.
No	Yes	Special precautions have been taken to protect personnel from electrical hazards. When the crane with a man basket is working near electrical lines or devices, the minimum working clearances shall be at least twice those for material handling operations.
No	Yes	A man basket use authorization has been issued dated and properly signed for the task at hand.
No	Yes	The man basket and rigging has been proof-tested to 125 percent of the platform rated capacity.
No	Yes	An unoccupied trial lift loaded to at least the anticipated lift weight has been performed and hoisted to each location where work is to be performed, or to any point where employees are expected to enter or exit the platform. NOTE: The trial lift must be performed each time the crane is moved.
No	Yes	A post trial-lift inspection of the crane has been carried out by a designated employee.
No	Yes	The loading is less than 50 percent of the crane-rating chart for all work locations.
No	Yes	The operator has determined that all systems, controls, and safety devices are activated and functioning properly and that no interferences exist.
No	Yes	The man basket has been hoisted a few inches and has been re-inspected after the trial lift for any deficiencies.
No	Yes	Prior to hoisting personnel, the man basket has been hoisted a few inches to verify its hang level.
No	Yes	All hoist ropes are free of kinks.
No	Yes	Multipart lines are not twisted around each other.
No	Yes	The hook is centered over the load.
No	Yes	The hoist lines are laying properly on hoist drums and in the sheaves.
No	Yes	All post trial lift defects have been corrected.
No	Yes	The crane-bearing surface has been rechecked and crane re-leveled as required.
No	Yes	Have the crane safety components, dogs, pawls, brakes, etc., have been re-inspected after the trial lift.
No	Yes	Travel with the crane is not permitted except where all requirements are satisfied and where not to do so would endanger life
No	Yes	The operator has been advised that the load and boom hoist drum brakes, swing brakes, and locking devices such as pawls or dogs must be engaged when the occupied personnel platform is in a stationary working position.
No	Yes	The operator has been advised that the platform must be hoisted in a slow, controlled, cautious manner with no sudden movement of the crane, derrick or platform.
No	Yes	The operator has been advised that the platform must be hoisted in a slow, controlled, cautious manner with no sudden movement of the crane, derrick or platform.
No	Yes	Employees have been advised to perform tasks specified in the man basket authorized only. NOTE: Only the number of employees needed for the task at hand is allowed to be hoisted.
No	Yes	All employees have been advised to keep all body parts inside the platform during raising. NOTE: This provision does not apply to an occupant of the platform performing the duties of a signal person.
No	Yes	All employees have been advised that they are not allowed to enter or exit the platform when it is secured to the structure where the work is to be performed unless securing to the structure creates an unsafe situation.
No	Yes	All employees have been advised that they are not allowed to exit the platform before landing.
No	Yes	All employees have been advised that taglines must be used unless their use would create an unsafe condition.
No	Yes	The operator has been advised to remain at the controls at all times while the crane engine is running and the platform is occupied.
No	Yes	All employees have been advised that platform use must be promptly discontinued if there is any indication of dangerous weather conditions or other impending danger.
No	Yes	The operator is in constant contact by standard hand signals or voice communications during operation of crane and man basket.
No	Yes	All employees have been advised to remain in continuous sight of or in direct communication with the operator or signal person.
No	Yes	All employees have been advised that the use of a radio is permissible when direct visual contact is not possible, or where the use of a signal person could create a greater hazard.

No	Yes	All employees occupying the platform have been advised to wear a body belt or harness system, with the lanyard appropriately attached to the lower load block, overhaul ball, or structural member within the personnel platform capable of supporting the fall impact for employees using the anchorage.
No	Yes	All employees have been advised to wear a life vest when working over water.
No	Yes	Employees have been advised to secure materials and tools to prevent displacement during the lift.
No	Yes	All employees have been advised to load the man basket evenly and to only carry tools and materials needed for the task at hand.
No	Yes	The operator, and all employees that will be using the platform, have been advised that no other object may be lifted on any of the crane load lines while the platform is suspended.
No	Yes	An audible and visual device has been provided to the personnel in the platform so that they can signal for assistance in the event of an emergency.
No	Yes	Personnel have been advised to stand firmly on the floor of the platform and to not sit or climb on the edge of the platform or use planks, ladders, or other devices for attaining a work position.
No	Yes	If welding is to be performed by employees occupying the platform, the electrode must be protected from touching the metal components of the platform.
No	Yes	Any needed repairs to the crane or man basket used only original manufacturer parts to ensure that the new components are compatible with their original counterparts.
No	Yes	Care taken to prevent ropes, electrical cords, and hoses from becoming entangled in the platform when the platform is being moved.
No	Yes	Operator aids or interlocks have not been altered, modified, or disabled in any way.
No	Yes	The crane operator responsible for operating the cranes used for personnel handling is a thoroughly trained operator and has related experience operating the subject crane.
No	Yes	All manuals, operating instructions, and load charts provided have been read and understood by the operating personnel prior to starting the operation.
No	Yes	The operator has ensured that the area surrounding the platform is clear of personnel and equipment before moving the platform.
No	Yes	Prior to the trial lift at each new location, a pre-lift meeting has been held, and is also held for any new employee assigned to the man basket.
No	Yes	All deficiencies discovered in post-trial-lift inspection have been corrected.
No	Yes	All employees attending the pre-lift meeting signed the roster for the meeting.
No	Yes	The trial-lift calculation sheet has been completed, signed and dated.

(4.) PERSONNEL PLATFORM WEIGHT CALCULATION SHEET

- Platform Rated Capacity _____
- 125 Percent Proof Test _____

  ***(NOTE:** Suspended load for 5 minutes)*
- Number of Occupants x 250 lb. each _____
- Tools plus materials in platform _____
- Misc. weight not otherwise listed _____
- Tare Weight of Platform Plus Rigging _____
- Total Occupied Weight of Platform _____
- Hoist Line Cable Weight: _____
- Headache Ball Weight _____
- Load Block Weight _____
- Rooster Sheave Weight _____
- Effective JIB Weight: _____
- (If Hoisting on Main Load line) _____
- JIB Weight Stowed _____
- Misc. Weight Not Otherwise Listed _____
- Total Load Chart Deductions _____
- Total Weight, "W" (Total Load Chart Deductions Plus) _____
- Total Occupied Weight of Platform _____
- Capacity of Crane at Minimum Radius _____
- Capacity of Crane at Platform Work Radius _____
- 50 Percent of Crane Capacity at Minimum Radius _____
- 50 Percent of Crane Capacity at Platform Working Radius _____
- Total Load, "W" Divided by 50 Percent Crane Rating=Percent of De-rated Capacity Used _____

Cr Operator Signature_____	**Rigger Signature: _____**	**Lift Supv. Signature: _____**

APPENDIX I VISITOR'S WAIVER AND RELEASE

The City and County of Denver is pleased to welcome you to this project. Because of the hazards and risks associated with this construction site, we require every visitor to the Site to be alert for his/her own safety and to sign a written Waiver and Release absolving the Owner and others associated with this project of any and all responsibility in connection with all risks encountered at the Site. While on the Construction Premises, please be on guard constantly and follow good safety practices including, but not limited to, the following:

1. Hard-hats, safety glasses and high visibility vests must be worn by all visitors at all times.
2. Although work boots are not required, all visitors shall wear low-heeled leather shoes. High heels of any kind or open-toed sandals are not permitted.
3. All visitors are to be escorted at all times by a badged employee while on the Project Site.
4. Display visitor's badge on the outer garment at all time
5. BE ALERT for changing conditions and ongoing construction activities while walking on the Project Site. LOOK and LISTEN before you move from one position to another.
6. Be aware of uneven walking surfaces and extreme care shall be taken with each step.
7. No firearms, drugs or alcoholic beverages are permitted on the site.
8. All warning signs and barricades must be obeyed.
9. Do not stray from the approved path for ingress and egress.
10. Do not enter areas with inadequate lighting.
11. Be aware of and stay clear of any overhead hazards.
12. Smoking is only permitted in designated areas.
13. Do not touch construction materials of any kind without written authorization from the **Program Manager.**
14. Do not lean on or reach beyond any handrails or barricades.
15. Report any hazards to the **Program Manager** prior to leaving the site.
16. No written correspondence regarding any hazards observed on the site shall be written or forwarded after leaving the site unless previously agreed upon at the site.
17. Call 911 in the event of an emergency

I agree to abide by the Instructions set forth above.

_____ _____

Date Visitor's Signature

V I S I T O R

NAME: _____

COMPANY: _____

NAME OF COMPANY/PERSON VISITING: _____

DATE: _____

WAIVER AND RELEASE

In consideration of granting the undersigned permission to enter upon the premises at the Project and for other good and valuable consideration, I hereby waive and forever discharge the Owner, Owner's representatives, Program Manager, Construction Manager, all Subcontractors on the project (the "Released Parties") from and against any claim for damages that may arise due to injury to my person or property while on the project whether caused in whole or in part by any negligence, actions or inactions of the Released Parties. As a licensee, I assume the risk of all dangerous conditions on or about the premises and waive notice of the existence of any such conditions.

I acknowledge the confidential nature of the Owner construction procedures and processes and agree not to photograph, reproduce or divulge the same without the written consent of the Owner.

I HAVE READ THE ABOVE AND AGREE TO SAME:

Signature: _____ Date: _____ / _____ / _____

Escort's First and Last Name: _____ Escort's Badge No.: _____

APPENDIX J SAMPLE HEAT ILLNESS PROGRAM

(Name of Company)
Heat Illness Policy and Procedure

The company recognizes that during certain times of the year employees may be exposed to working in excessive temperatures which may create the risk of heat stress and illness. Acknowledging this exposure, the company has established a "Heat Illness Policy and Procedure" plan to educate and monitor employees from heat-related illness.

Employees are responsible for following these guidelines and maintaining a healthy nutritional balance.

Employees shall be monitored by foremen and superintendents, especially during the first few days of hot work seasons for signs of heat illness.

As a part of our orientation, employees shall be made aware of signs of heat stress and potential illness. Employees shall be made aware of acclimatization which is the process whereby a person gradually adapts to work in the heat when the exposure exists. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.

It is the policy of (Name of Company) is to comply with at least the minimum requirements established by State and Federal agencies with respect to preventing our employees from heat illness.

A. Training

1. Effective training in the following topics shall be provided to all supervisory and non-supervisory employees before the employee begins work that should reasonably be anticipated to result in exposure to the risk of heat illness:
    a. The environmental and personal risk factors for heat illness;
    b. The company's procedures for complying with the requirements of the heat illness standard;
    c. The importance of frequent consumption of small quantities of water, up to 4 cups per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties;
    d. The importance of acclimatization;
    e. The different types of heat illness and the common signs and symptoms of heat illness;
    f. The importance to employees of immediately reporting to their foreman or superintendent, symptoms or signs of heat illness in themselves, or with co-workers;
    g. The company's procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary;
    h. The company's procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider;
    i. The company's procedures for ensuring that, in the event of an emergency, clear and precise direction to the work site can and will be provided as needed to emergency responders.

2. The company shall provide supervisory training prior to assignment to supervision of employees working in the heat. Training will be provided on the following topics:

    a. Information covered in A (1) “a.” through “i.” in this policy as described above.
    b. The procedures a supervisor is to follow to implement the applicable parts in this policy.
    c. The procedures a supervisor will follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.

B. Water

1. Employees shall have access to potable drinking and meet the following requirements:
    a. Where water for consumption is not plumbed or otherwise continuously supplied, it shall be provided in sufficient quantity at the beginning of the work shift to provide one quart per employee per hour for drinking for the entire shift.
    b. The shift may begin with smaller quantities of water if the project has effective procedures for replenishment during the shift as needed to allow employees to drink one quart or more per hour.
    c. The frequent drinking of water shall be encouraged.
    d. Water containers shall be sealed to prevent contamination.
    e. A designated person shall check the water level of containers every thirty minutes and more frequently when the temperature exceeds 90 degrees. When the water level drops below 50%, the container shall be refilled with cool water. To accomplish this task the designated person will carry additional water containers to replace the water.
    f. When the temperature exceeds 90 degrees, the designated person will carry ice in separate containers so that when necessary, it will be added to the drinking water to keep it cool.
    g. The designated person will bring paper cone rims or bags of disposable cups and the necessary cup dispensers to ensure that enough disposable cups are made available for each worker and are kept clean until used.
    h. The designated person will check the work site and place the water as close as possible to the workers (i.e. no more than 50 feet from the workers). If field terrain prevents the water from being placed as close as possible to the workers, the designated person will bring bottled water or individual containers (in addition to disposable cups and water containers), so that workers can have drinking water readily accessible. The designated person will ensure that the water containers are relocated to follow along as the crew moves.
    i. The designated person will point out daily the location of the water coolers to the workers and remind them to drink water frequently. When the temperature exceeds or is expected to exceed 90 degrees, the designated person will hold a brief ‘tailgate’ meeting each morning to review with employees the importance of drinking water, the number and schedule of water and rest breaks and the signs
    j. When the temperature equals or exceeds 95 degrees Fahrenheit or during a heat wave, the designated person will increase the number of water breaks, and will remind workers throughout the work shift to drink water.

C. Shade

1. Employees suffering from heat illness or believing a preventative recovery period is needed, shall be provided access to an area with shade that is either open to the air or provided with ventilation or cooling for a period of no less than five minutes. When the outdoor temperature in the work area does not exceed 85 degrees Fahrenheit (Company Name) shall either provide shade as per (a) below or provide timely access to shade upon an employee's request.
    a. Access to shade shall be permitted at all times when the temperature exceeds 85 degrees. When the outdoor temperature in the work area exceeds 85 degrees, (Company Name) shall have and maintain one or more areas with shade at all times while employees are present that are either open to the air or provided with ventilation or cooling. The amount of shade present shall be at least enough to accommodate 25% of the employees on the shift at any time, so that they can sit for at least 5 (five) minutes in a normal posture, fully in the shade without having to be in physical contact with each other or direct contact with the ground. Chairs, benches, sheets or towels shall be provided for seating. The shaded area shall be located as close as practicable to the areas where employees are working.
    b. Cooling measures other than shade (e.g., use of misting machines) may be provided in lieu of shade if the company or project can demonstrate that these measures are at least as effective as shade in allowing employees to cool.
    c. Employees are allowed and encouraged to take a cool-down rest in the shade for a period of no less than five minutes at a time when they feel the need to do so to protect themselves from overheating.
    d. In situations where trees, vegetation or structures may be used to provide shade, the designated person will evaluate the thickness and shape of the shaded area (given the changing angles of the sun during the entire shift), before assuming that sufficient shadow is being cast to protect employees.
    e. In situations where it is not safe to provide shade (example winds of more than 40 mph), the designated person will document how this determination was made, and what steps will be taken to provide shade upon request.
    f. In situations where it is not safe or feasible to provide shade, the designated person will document how this determination was made, and what steps will be taken to provide shade upon request or other alternative cooling measures with equivalent protection.

D. Monitoring the Weather

1. Procedures for monitoring the weather shall include but not be limited to the following:
    a. Two weeks in advance (or with as many days in advance as possible), (Company Name) Superintendent will go on the internet (www.nws.noaa.gov), call the National Weather Service or check the Weather Channel TV Network to view the extended weather forecast in order to plan in advance the work schedule, know whether a heat wave is expected and if additional schedule modifications will be necessary. This type of advance planning shall take place in the summer months.
    b. Prior to each workday, the designated person will review the forecasted temperature and humidity for the worksite and compare it against the National Weather service Heat Index to evaluate the risk level for heat illness, for instance whether or not workers will be exposed at a temperature and humidity characterized as either "extreme caution" or "extreme danger" for heat illnesses such as heat stroke. It is important to keep in mind that the temperature at which these warnings occur must be lowered as much as 15 degrees if the workers under consideration are in direct sunlight.

c. Prior to each workday, the designated person will be responsible for monitoring the weather (using www.nws.nooa.gov or with the aid of a simple thermometer) at the worksite. This critical weather information will be taken into consideration, to determine when it will be necessary to make modifications to the work schedule (such as stopping work early, rescheduling the job, working at night or during the cooler hours of the day, increasing the number of water and rest breaks).
d. The designated person will be responsible for using a thermometer at the jobsite and checking the temperature every 60 minutes to monitor for sudden increases in temperature, to ensure that once the temperature exceeds 85 degrees, the shade structures are opened and accessible to the workers and to make certain that once the temperature equals or exceeds 95 degrees additional preventive measures such as the High Heat Procedures are implemented as described in Part E of this document.

E. High-Heat Procedures.

1. (Company) shall implement high-heat procedures when the temperature equals or exceeds 95 degrees. These procedures shall include the following to the extent practicable:
    a. Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor when necessary. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if reception in the area is reliable.
    b. Observing employees for alertness and signs or symptoms of heat illness.
    c. Reminding employees throughout the work shift to drink plenty of water.
    d. Close supervision of a new employee by a supervisor or designee for the first 14 days of the employee's employment by the employer, unless the employee indicates at the time of hire that he or she has been doing similar outdoor work for at least 10 of the past 30 days for 4 or more hours per day.

F. Clothing

1. Employees should wear clothing appropriate for the work they are performing and should follow these guidelines:
    a. Wear light-colored clothing of a fabric that is permeable to the air, such as cotton. Most synthetic materials do not provide adequate ventilation.
    b. Generally, less clothing is desirable in hot environments, except when the air temperature exceeds 95 degrees Fahrenheit or when a person is standing next to a radiant heat source or exposed to the sun; in those instances, covering exposed skin is beneficial to reducing heat stress and sunburn.
    c. Shorts are not permitted. Shirt sleeves will extend at least four inches in length. Tank tops and sleeveless shirts are not permitted. The Project Safety Specific Safety Plan may address additional requirements.

G. Emergency Response:

1. The procedures for emergency response and handling the sick are as follows but not limited to these guidelines.
    a. Prior to assigning a crew to a particular worksite, the designated person will provide workers and the foreman a map along with clear and precise directions (such as streets or road names,

distinguishing features and distances to major roads) of the site, to avoid a delay of emergency medical services.

b. Prior to assigning a crew to a particular worksite, the designated person will ensure that a qualified, appropriately trained and equipped person will be available at the site, to render first aid if necessary.
c. Prior to the start of the shift, the designated person will determine if a language barrier is present at the site and take steps to ensure that emergency medical services can be immediately called in the event of an emergency.
d. All foremen and supervisors will carry cell phones or other means of communication, to ensure that emergency medical services can be called and check that these are functional at the worksite prior to each shift.
e. When an employee is showing symptoms of possible heat illness, the designated person will take immediate steps to keep the stricken employee cool and comfortable once emergency service responders have been called (this will be done to reduce the progression to more serious illness).
f. At remote locations or undeveloped areas, the designated person will assign an employee or employees to physically go to the nearest road or highway where they can be seen by emergency responders. If daylight is diminished, the designated employee(s) shall be issued a high visibility Type 2 or Type 3 vest, a vehicle (if necessary), and flashlights in order to direct emergency personnel to the location of the worksite, which may not be visible form the road or highway.
g. (Company Name) training for employees and supervisors will include every detail of these written emergency procedures.

2. Managing a sick employee or one who displays possible signs or symptoms of heat illness, the following procedures shall be used:
    a. A trained first aid worker or supervisor will check the sick employee and determine whether resting in the shade and drinking cool water will suffice or if emergency service providers will need to be called.
    b. The sick worker shall not be left alone in the shade, as he or she can take a turn for the worse.
    c. While the ambulance is in route, initiate first aid (cool the worker: place in the shade, remove excess layers of clothing, place ice pack in the armpits and join area and fan the victim).
    d. A sick worker shall not be permitted to leave the site (unless being transported by ambulance or treatment has been started by paramedics) until they have been evaluated by an EMT or physician and released to return to work.
    e. If an employee does not look OK and displays signs or symptoms of severe heat illness (loss of consciousness, incoherent speech, convulsions, red and hot face), and the worksite is located more than 20 min away from a hospital, call emergency service providers, communicate the signs and symptoms of the victim and request Air Ambulance.

    f. Treatment for heat cramps – Have the person rest in a cool place and provide cool water. Usually rest and fluids are all the person will need to recover. Lightly stretch the muscle and massage the area. When cramps stop, the person can usually start activity again if there are no other signs of illness. He or she should keep drinking plenty of fluids. Watch the person carefully for further signs of heat illness.
    g. Treatment for Heat Exhaustion and Heat Stroke – When you recognize heat-related illness in its early stages, you can usually reverse it. Get the person out of the heat. Loosen any tight clothing and apply cool, wet cloths, such as towels or sheets, taking care to remoisten the

cloths periodically. Spraying the person with water and fanning is also beneficial. If the person is conscious, give them small amounts of cool water to drink.

Do not let a conscious person drink too quickly. Give about 4 ounces of water every 15 minutes. Let the person rest in a comfortable position and watch carefully for changes in their condition. The person should not resume normal activities the same day.

Refusing water, vomiting and changes in consciousness mean that the persons' condition is getting worse. Call 303-342-4211 immediately if you have not already done so. If the person vomits, stop giving fluids and place the person on their side. Watch for signs of breathing problems. Keep the person lying down and continue to cool the body any way you can. If you have ice packs or cold packs, place them on each of the persons' wrists and ankles, on the groin, in each armpit and on the neck to cool the large blood vessels. Use barriers, like towels or clothing, between the ice packs and the person to protect the skin.

H. Definitions

1. The following definitions and terms are provided in this policy as determined by OSHA.
   a. Acclimatization - Temporary adaptation of the body to the work to be performed in excessive heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.
   b. Environmental risk factors for heat illness - Working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, and radiant heat from the sun and other sources; conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees.
   c. Heat cramps – Painful intermittent spasms of the voluntary muscles following hard physical labor in a hot environment. Cramps usually occur after heavy sweating and often begin at the end of a work shift.
   d. Heat exhaustion – Profuse sweating, weakness, rapid pulse, dizziness, nausea, and headache. The skin is cool and sometimes pale and clammy with sweat. Body temperature is normal or subnormal. Nausea, vomiting and unconsciousness may occur.
   e. Heat Illness - A serious medical condition resulting from the body's inability to cope with a particular heat load and may include heat cramps, heat exhaustion, heat syncope and heat stroke.

   f. Heat Stroke – Sweating is diminished or absent. The skin is hot, dry and flushed. Increased body temperature, which, if uncontrolled, may lead to delirium, convulsions, coma and death. Medical care is urgently needed.
   g. Personal risk factors for heat illness - Factors such as an individual's age, degree of acclimatization, health, water consumption, alcohol and caffeine consumption. Additional contributing factors are the use of prescribed medications that affect a body's fluid retention or other physiological responses to heat.
   h. Preventative recovery period - A period of time for recovery from heat to effectively prevent heat illness.
   i. Shade - The blocking of direct sunlight. Use of canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when

heat in the area of shade defeats the purpose of shade, which is intended to allow the body to cool. Avoid sources of shade such as metal sheds or parked cars/trucks that are sitting in the hot sun.

j. Temperature - Unless otherwise noted, temperatures are rated at Fahrenheit

APPENDIX K RESERVED

APPENDIX L PROJECT SAFETY ORIENTATION TRAINING ACKNOWLEDGEMENT

	Badge #:
Name of Employee: **(Print Name)**	**Date:**
Company:	**Person Conducting the Orientation:**

The following topics are to be reviewed with all employees during their initial site orientation.

Topics

1. Information to acquaint the employee with special safety requirements of the work site, including security and traffic regulations;
2. Employer and employee rights and responsibilities
3. Description of the nature of the project;
4. Drug free work place and substance abuse testing
5. Accident reporting procedures;
6. How to report unsafe acts or conditions;
7. Site disciplinary procedures;
8. Personal protection equipment requirements;
9. Hazards prevalent for the work being performed (fall protection, trenching, ladder usage, scaffold safety, etc.); and
10. Hazard Communication Program
11. Emergency Evacuation Procedures
12. Good housekeeping practices
13. Job Hazard Analysis (JHA)
14. Pre Task Planning
15. Return to work programs, incident (to include near misses) reporting procedures, workers compensation requirements, and medical provider list.
16. Other _____

Comments:

By signing this site orientation form, I hereby acknowledge that the basic site safety controls outlined above have been thoroughly reviewed with me and that I agree to obey by the contents of the site safety requirements.

_____ _____

Employee Signature Date

Note: Any employee questions regarding the Safety Requirements shall be directed to the Contractor's Project Safety Representative.

Near Miss Report Form

Near Miss Reporting is the process of identifying and preventing an unsafe act or condition before it causes an injury, illness or damage to property and equipment. This form is used to formally document the recognition of a hazard, the change that is made to prevent a reoccurrence of the hazard and to share the lessons learned with the Contractors on the CCD ROCIP.

All Information is required.

Contractor/Subcontractor Name: _____

Fact Finding: Please explain the following. (To be completed by employee)

Who was involved in the near miss (employee names optional):
_____?

_____

Describe what happened: _____

_____

_____

_____

Where did the near miss occur: _____

_____

When did the near miss occur: _____

How did the near miss occur: _____

_____

_____

_____

Preventative Measures Taken. (To be completed by Contractor's Safety Representative)

What acts or conditions led directly to the near miss incidents? _____

_____

_____

_____

What steps have/will be taken to prevent a similar incident? _____

_____

_____

_____

Who is responsible for taking these actions and following up to ensure that they are completed? _____

_____

Expected completion date: _____ Actual completion date: _____

Weekly Safety Toolbox Attendance Roster

Topics Discussed: _____

(Attach pertinent information discussed)

Date of Meeting: _____ Discussion Leader: _____

Print Name	Signature	Company

Employee Injury Investigation Form

1. Injured Employee's Name	**2.** Contractors Name	**3.** Date/Time of Injury	**4.** Supervisors/Foreman Name	**5.** Specific Location of Injury

6. Employee's Occupation	**7.** Employee's Job Task at time of Injury	**8.** Length of Service on Project	**9.** Length of Service with Employer

10. Description of what happened

11. Part of Body Injured or Affected	**12.** Nature of Injury

13. Severity	☐ First Aid	☐ Medical treatment beyond first aid	☐ Lost workdays	☐ Fatality	☐ Other: Specify

14. Contributing Causes to Injury

15. Root Cause of Injury

16. Probable Recurrence	☐ Frequent	☐ Occasional	☐ Rare	**17.** Loss Severity Potential	☐ Major	☐ Serious	☐ Minor

18. Preventive Measures

19. Injured employee's description of what happened (attach sheet for additional comments)
20. Witness names and description of incident (attach sheet for additional comments)
21. Supervisors description of incident (attach sheet for additional comments)

22. Specific corrective actions or preventative measures taken

Corrective action taken	Person responsible	Target completion date	Date completed

23. Attached supporting documentation (required)

☐ Photos	☐ Diagram of work area	☐ Applicable training documentation for parties involved	☐ Contractor's investigation report	☐ Witness statements
☐ JHA (if applicable)		☐ Daily Pre-Task Planning Sheet	☐ Corrective action supporting documentation	

_____
Supervisor's Signature

_____
Safety Representative's Signature

_____
Project Manager's Signature

Builders' Risk/General Liability Investigation Form

1. Names of parties involved	**2.** Contractors Name	**3.** Date/Time of Injury	**4.** Supervisors/Foreman Name

5. Description of incident

6. Description of damages

7. Contributing causes to incident

8. Root cause of incident

9. Probable Recurrence	☐ Frequent	☐ Occasional	☐ Rare	**10.** Loss Severity Potential	☐ Major	☐ Serious	☐ Minor

11. Preventive Measures

12. Employee's description of what happened (attach sheet for additional comments)

13. Witness names and description of incident (attach sheet for additional comments)
14. Supervisors description of incident (attach sheet for additional comments)

15. Specific corrective actions or preventative measures taken

Corrective action taken	Person responsible	Target completion date	Date completed

16. Attached supporting documentation (required)

☐ Photos	☐ Diagram of work area	☐ Applicable training documentation for parties involved	☐ Contractor's investigation report	☐ Witness statements
☐ JHA (if applicable)		☐ Daily Pre-Task Planning Sheet	☐ Corrective action supporting documentation	

_____ _____

Supervisor's Signature Safety Representative's Signature

_____

Project Manager's Signature

APPENDIX P SAMPLE HOT WORK PERMIT

Hot Work Permit

Authorization: The information on this permit has been evaluated, the site has been examined, and all safety measures are in place.

Signed: _____
(Qualified Person Authorizing Hot Work Permit)

Date: _____

Location: _____

Description of hot work: _____

Authorized workers: _____ _____

_____ _____

Is a fire watch required?

☐ Yes Name of Fire Watch _____
☐ No

A Fire Watch will be posted if:

- Flammable and combustible materials cannot be moved 35' from the point of operation
- Wall or floor openings within the immediate work area expose combustible materials in adjacent areas, including concealed spaces in walls or floors
- Combustible materials are adjacent to the opposite side of partitions, walls, ceilings or roofs, and are likely to be ignited

Permit Checklist

☐ Flammable and combustible materials within 35' of the point of operation have been removed, covered with fire retardant tarps, or otherwise shielded
☐ All floors and surfaces have been swept free of combustible dust or debris
☐ Any openings or cracks in the walls, floors, or ducts that are potential travel passages for sparks, heat and flames have been covered.
☐ An operable fire extinguisher is nearby and accessible
☐ Sprinkler heads that could be activated by hot work have been covered by a wet rag
☐ Smoke detectors in the area of hot work have been covered to prevent false alarms
☐ A Fire Watch has been posted during the hot work operation and for 30 minutes afterwards to verify that there are no live embers, sparks, or smoldering fires.

APPENDIX Q LESSONS LEARNED FORM

Lessons Learned Communication

Date:
What:
When:
Where:

Incident Summary:

Discussion of Activities:

Analysis of What Went Wrong:

Immediate and System Cause:

Resolutions and Recommendations

Cost Savings/Avoidance

Work Function:

Hazards:

Originator:
Telephone:
Email:

Contact:
Telephone:
Email:

Distribution:

Contractor's Monthly Safety Report

(Due 1st Tuesday of each month)

Contractor Name: _____ Contract Number: _____

Data for Month/Year of: _____

INCIDENT TYPES *(Includes all Subcontractors)*	Number of Cases/Claims			Project Goal	Rates		
	Current Month	Year to Date	Project to Date		National Average	Year to Date	Total Project
OSHA Recordable Incidents					3.5		
Lost Workday Incidents					1.3		
DART Incidents					0.6		
First Aid Incidents					2015 BLS Construction Data		
Near Misses Reported							
General Liability							
Builders Risk							

OSHA RECORDABLE AND FIRST AID INCIDENTS: *Please classify below and also complete on page 2 with details:*	Current Month	Year to Date	Project to Date
Fall (e.g. , floors, platforms, roofs)			
Struck by (e.g., falling objects, vehicles, equipment)			
Caught in/between (e.g., cave-ins, unguarded machinery, equipment)			
Electrical (e.g., overhead power lines, power tools/cords, outlets, wiring)			
Other (e.g., cuts, burns, and other items not covered above)			
EMPLOYMENT INFORMATION *(Includes all Subcontractors)*			
Average Daily Number of Employee's (FTE's)			
Total Hours Worked by Employees			
PROJECT SAFETY ACTIVITIES			
Safety Orientations Completed			
Tool Box Meetings Completed			
Disciplinary Actions			
Number of Site Safety Inspections Completed			
Number of Supervisors/Foreman Participating in Site Safety Inspections			

_____

Contractor Project Director/Manager Date

_____

Contractor Site Safety Representative Date

DETAILS OF RECORDABLE AND FIRST AID INJURIES OR ILLNESSES FOR CURRENT MONTH: *For all injuries and illnesses listed on page 1.*

Date	Job Title/Craft	Brief Description	Corrective Actions Initiated

DETAILS OF GENERAL LIABILITY CLAIMS FOR CURRENT MONTH: *For all general liability claims listed on page 1*		
Date	Brief Description	Corrective Actions Initiated

DETAILS OF BUILDERS RISK CLAIMS FOR CURRENT MONTH: *For all builders risk claims listed on page 1*		
Date	Brief Description	Corrective Actions Initiated

COLORADO WORKERS' COMPENSATION INFORMATION

Your employer has workers' compensation coverage for employees through:

AMERICAN ZURICH INSURANCE COMPANY
1299 ZURICH WAY
SCHAUMBURG, IL 60196-5870

Workers' compensation is a type of insurance coverage that employers must provide to their employees. The cost of workers' compensation insurance is paid entirely by the employer and may not be deducted from an employee's wages.

If you are injured or sustain an occupational disease while at work, you may be entitled to compensation benefits as provided by law. WRITTEN NOTICE MUST BE GIVEN TO YOUR EMPLOYER WITHIN 4 WORKING DAYS OF THE ACCIDENT. If you don't report your injury or occupational disease promptly your benefits may be reduced.

If you are unable to work as the result of a work-related injury or occupational disease, compensation (wage replacement) benefits will be based on 2/3 of your average weekly wage up to a maximum set by law. No compensation is payable for the first 3 days' disability unless the period of disability exceeds two weeks.

You are entitled to reasonable and necessary medical treatment of compensable injuries or occupational diseases. If you notify your employer of an injury or occupational disease and are not offered medical care, you may select the services of a licensed physician or chiropractor.

You may file a Worker's Claim for Compensation with the Division of Workers' Compensation. To obtain forms or information regarding the workers' compensation system, you may call Customer Service at 303.318.8700, or visit our website at: www.coworkforce.com/dwc/.

COLORADO DIVISION OF WORKERS' COMPENSATION
633 17TH Street, Suite 400, Denver, CO 80202-3626

Any information provided below comes from your employer and is specific to this place of employment:

WC49 Rev 11/07

To Report A Claim Contact:
ZURICH CLAIMS SERVICES
Telephone: 800-987-3373

NOTICE TO ALL EMPLOYEES

If you become injured on the job... Take the following steps:

- **Notify a member of Management of your injury immediately.**
- **If you feel that you need medical attention, the providers listed are available for treatment.**
- **Please call the provider to schedule an appointment.**
- **For urgent care needs OR after clinic hours, you may seek treatment from the hospital Emergency Department at the nearest qualified facility or provider.**
- **Patients will be seen on a medical priority basis.**

City and County Of Denver
ROCIP
Program Identifier:
Tier 1-National Western Center

Concentra North Denver
420 E. 58th Avenue, Ste 111
Denver, CO 80216
303.292.2273
Hours: M-F 7 a.m. to 5 p.m.
Occupational Medicine

Workwell Occupational Medicine
3350 North Peoria Street, Ste 190
Aurora, CO 80010
303.365.4646
Hours: M-F 8 a.m. to 5 p.m.
Occupational Medicine

Midtown Occupational Health Services
2490 W. 26th Ave., Building A, Suite 300
Denver, CO 80211
303.831.9393
Hours: M-F 7 a.m. to 6 p.m.
Occupational Medicine

Concentra
treated right

CITY AND COUNTY OF DENVER ROCIP/NATIONAL WESTERN CENTER AUTHORIZATION FORM

CONCENTRA LOCATIONS:

Lakewood:
11185 W 6th Avenue, Lakewood, CO 80215
PH: 303-239-6060
Hours: M-F 8-6

Highlands Ranch
9330 S. University, Ste 100, Highlands Ranch, CO 80126
PH: 303-346-3627
Hours: M-F 8-6; Sat 8-4; Sun 10-4

Aurora Chambers
3449 Chambers Road, Suite B, Aurora, CO 80111
PH: 720-859-6139
Hours: M-F 8-5

North Denver
420 East 58th Avenue, Suite 111, Denver, CO 802106
PH: 303-292-2273
Hours: M-F 7-5

Stapleton Location
5855 Stapleton Drive North, Ste A-130, Denver CO 80216
PH: 303-371-7444
Hours: M-F 8-5; opens 7 am on Wed

Patient's Name: _____

Employer: City and County of Denver ROCIP / National Western Center

c/o Keith Williams, CCD Safety Manager, NWC Project
Department of Finance/Cash, Risk & Capital Funding
201 W. Colfax Avenue, Denver, CO 80202
Phone: O: 720-913-3325; M: 970-980-7559
keith.williams@denvergov.org

Contractor Name: _____

Contractor Address: _____

_____

Contractor Phone Number: _____

Contractor E-mail Address: _____

Contractor Project No./Code: _____

Below services authorized by: _____

Date: _____ Title/Phone: _____

CITY AND COUNTY OF DENVER ROCIP/NATIONAL WESTERN CENTER AUTHORIZATION FORM

PRE-EMPLOYMENT

- ◯ History & Physical - Bill requesting party
- ◯ 11 panel rapid drug screen - Bill to Employer: City and County of Denver ROCIP/National Western Center
- ◯ Other: _____

POST ACCIDENT

- ◯ 11 Panel rapid drug screen - Bill Subcontractor
- ◯ Injury Treatment - **Bill to Zurich American Insurance Company**
- ◯ Other: _____

REASONABLE SUSPICION - BILL SUBCONTRACTOR NOT PROJECT

- ◯ 10 panel rapid drug screen
- ◯ Breathalyzer
- ◯ Other: _____

INJURY TREATMENT – Bill Zurich American Insurance Co.

Date of Injury: _____ Part of Body Injured: _____

DOT reportable injury: Yes _____ No _____

Notes:

_____

_____

_____

Project coordinator: Kendall Trump (p) 303-889-2570

kendall_trump@ajg.com

FINAL TBD

Midtown Occupational Health Services

AUTHORIZATION FOR MEDICAL TREATMENT AND/OR SERVICES

Patient's Name: _____SSN:_____DOB:_____

Employer: _____Employer Phone: _____

Below Services Authorized by: _____Date: _____

Check services that are authorized and/or required below:

☐ **INJURY TREATMENT:**

Date of Injury: _____Part of body injured: _____

☐ **DRUG SCREEN:**

___DOT Employee ___Non-DOT employee

Check one ___Post Accident ___Random ___For Cause ___Pre-employment ___Direct Observation

☐ **BREATH ALCOHOL:**

Check one ___Post Accident ___Random ___For Cause ___Pre-employment

☐ **ANCILLARY SERVICES:**

___Post offer physical **without** drug screen ___Post Offer physical **with** drug screen ___DOT Physical

___New Hire Asbestos Physical ___Annual Asbestos Physical ___Respiratory Physical ___Pulmonary Function Test

___Lead/ZPP ___Haz-Mat physical **List of Exposures:** _____

☐ **OTHER:** _____

Please go to Midtown Occupational Health Services for medical services and/or treatment.

Midtown Occupational Health Services, PC
2490 West 26th Avenue, Building A, Suite 300 Denver, CO 80211

Hours of Operation
Injury Care Monday – Friday 7:00 a.m.-6:00 p.m.
Pre-Employment Drug Screening 7:00 a.m.-4:30 p.m.
DOT Drug Screening 7:00 am-3:00 p.m.
Phone: (303) 831-9393 Fax: (303) 831-6355

APPENDIX V WORKWELL DRUG TESTING AND MEDICAL TREATMENT AUTHORIZATION FORM

workwell

AUTHORIZATION FOR TREATMENT
(Patient required to show photo ID at time of service)

Walk-in Workwell Occupational Medical clinic locations below.

Required

Today's Date:_____/_____/_____
Company Name: _____
Company Address: _____
City/State/Zip: _____
Temp Staffing Agency: _____
(If applicable)

Date Of Birth:_____/_____/_____
Employee Name: _____
Employee Job Title: _____
Authorized by: _____
Title:_____
Phone:_____/_____/_____

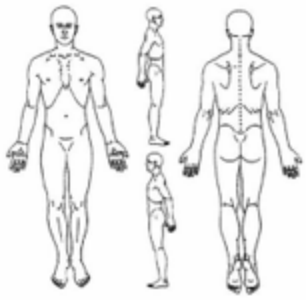
On-the-Job Injuries

Date of Injury:____/____/____

Is a post-accident drug screen required?
☐ Yes ☐ No
If yes, mark below:

☐ Drug Screen
- ☐ D/S – DOT
- ☐ D/S – Non-DOT
- ☐ Collection Only

☐ Breath Alcohol
- ☐ DOT
- ☐ Non-DOT



(Indicate location of Injury on the diagram)

Describe how the injury happened and any additional details below:

_____
_____
_____
_____
_____
_____
_____
_____

Other Services

Substance Abuse Screens
☐ Breath Alcohol Test
☐ Drug Screen
*Choose one:
☐ DOT or
☐ Non-DOT
AND:
Available Testing:
☐ Hair ☐ ~~serum~~ collection only
☐ Lab (Must provide Chain of Custody form)

☐ Post-Accident
☐ Pre-Employment
☐ Random
☐ Reasonable Suspicion

Medical Physicals
☐ Pre-employment ☐ Recertification
☐ Basic Medical
☐ Comprehensive Medical
☐ DOT
☐ Hazmat
☐ Respirator

Other Services
☐ Audiogram
- ☐ Baseline
- ☐ Annual

☐ Vision

Other
☐ Lift Test/Evaluation
* Set-up required and restrictions apply
☐ Respirator Questionnaire Review Only
☐ Spirometry (PFT) with Medical Interpretation

workwell

Copies of this form are available on our website

WORKWELL Occupational Medicine Clinic
205 S. Main Street, Ste C
Longmont, CO 80501
Phone: 303-702-1612
Fax: 303-774-7899
Hours: 8am-5pm M,W, F; 7am-5pm T,Th

WORKWELL Occupational Medicine Clinic
2528 West 16th Street
Greeley, CO 80634
Phone: 970-356-9800
Fax: 970-353-3182
Hours: 8am-5pm Monday-Friday

WORKWELL Occupational Medicine Clinic
1600 Specht Point Road, Ste 115
Fort Collins, CO 80525
Phone: 970-672-5100
Fax: 970-672-5105
Hours: 8am-5pm Monday-Friday

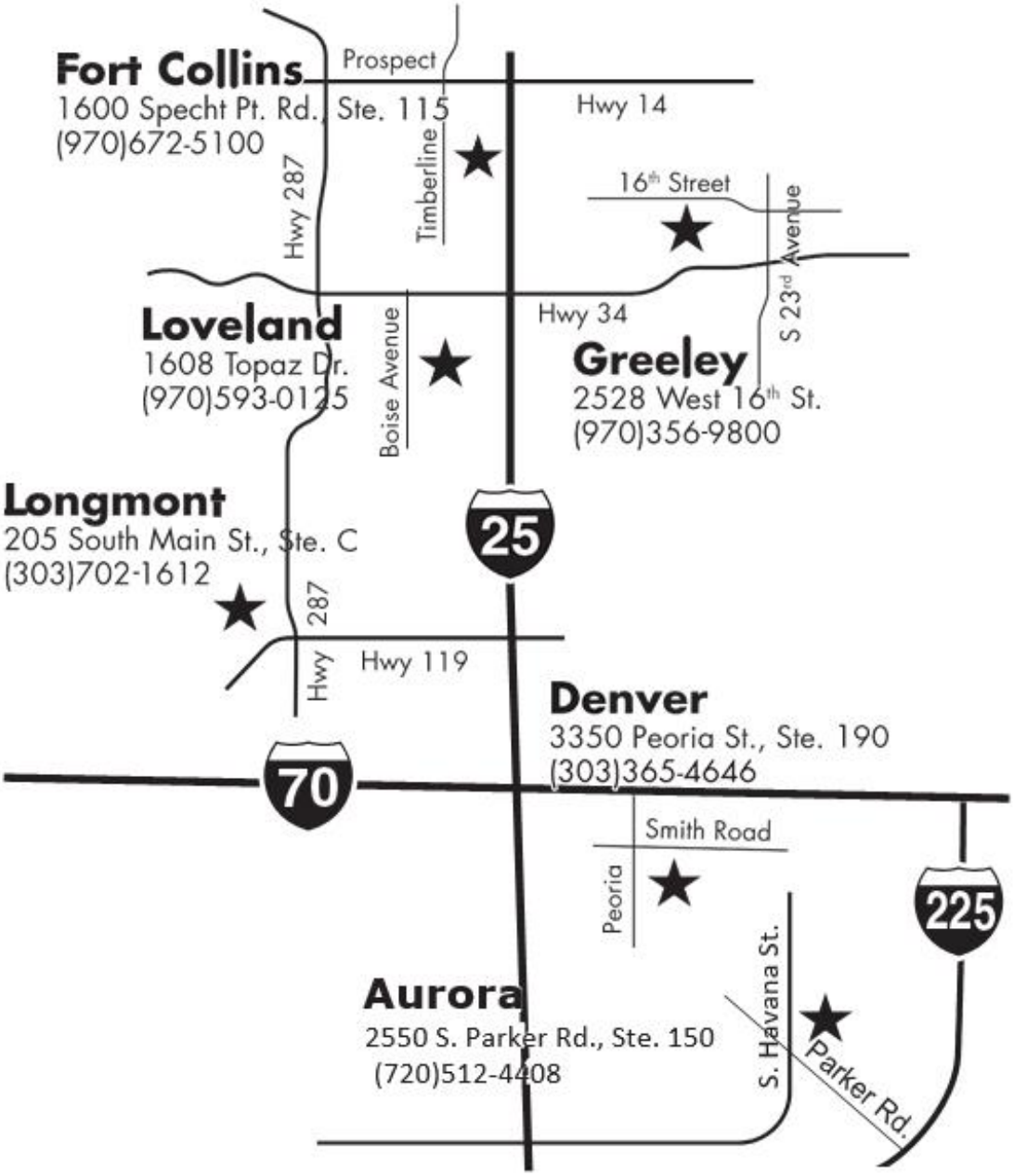
WORKWELL Occupational Medicine Clinic
3350 Peoria Ave. Ste. 190
Aurora, CO 80011
Phone: 303-365-4646
Fax: 303-365-4644
Hours: 8am-5pm Monday-Friday

WORKWELL Occupational Medicine Clinic
1608 Topaz Drive
Loveland, CO 80537
Phone: 970-593-0125
Fax: 970-593-0127
Hours: 8am-5pm Monday-Friday

WORKWELL Occupational Medicine Clinic
2550 S. Parker Rd. Ste. 150
Aurora, CO 80014
Phone: 720-512-4408
Fax: 720-512-5978
Hours: 8am-5pm Monday-Friday

OPENING MARCH 20, 2017

We make it easy. www.workwellworks.com



We make it easy. www.workwellworks.com

APPENDIX W EVACUATION/UTILITY PERMIT

EXCAVATION / UTILITY PERMIT

Contractor Name: _____

Permit Valid From: _____ **To:** _____

I. GENERAL INFORMATION				
Location of excavation (attach copy(s) of plan sheets w/ utilities highlighted):				
Purpose of excavation:				
Start Date:	Expected Completion Date:	Depth:	Width:	Length:

II. LOCATE SERVICE NOTIFICATION		
Ticket No.:	Date Requested:	Requested By:

III. PRE – WORK CHECKLIST		**Initials**	**Comments: If "No" Explanation required.**
Designated NWC Supervisor for operation.	☐ Yes ☐ No		Name:
Subcontractor designated competent person in writing to oversee operation (on AHA)	☐ Yes ☐ No		Name:
AHA prepared and reviewed with all involved parties and signed by each site work crew member.	☐ Yes ☐ No		
If high priority lines are located within 10 feet, has a meeting been held with owners / operators?	☐ Yes ☐ No		
Are utilities shown in the area of excavation on utility map?	☐ Yes ☐ No		
Are utilities located?	☐ Yes ☐ No		
Plans verified against locate markings.	☐ Yes ☐ No		
Locate markings offset.	☐ Yes ☐ No		
Visual check for unmarked utilities (e.g., manholes, equipment, valves).	☐ Yes ☐ No		
If electrical, has electrical subcontractor been notified and scheduled to turn off the service prior to the start of the operation (including pot holing and all other work that might result in contact with the utility)?	☐ Yes ☐ No		
All utilities potholed at each crossing according to approved procedure?	☐ Yes ☐ No		

IV. SIGNATURES (All signatures required)		
	Location of Markings Known	Signature
Electrical Supervisor	☐ Yes ☐ No	
Operation Foreman	☐ Yes ☐ No	
NWC Superintendent	☐ Yes ☐ No	

Modified: 04.2018 Page 1 of 2 Appendix V

This permit has been reviewed by National Western Complex, NWC S&H for general compliance with the jobsite safety requirements. That review, however, does not relieve Subcontractor of the responsibility for compliance with all applicable safety laws, regulations, ordinances, and contractual requirements. Subcontractor is responsible for reviewing this with all personnel involved with the Definable Feature of Work (DFOW) on a regular basis and must notify NWC S&H and adjust the AHA and permit as necessary whenever the plan for performing the DFOW is modified.

Utility Locate / Pothole Procedures Instructions & Field Guide

All existing utilities will be located, marked, and visually verified prior to starting any operation. The foreman of each operation is responsible for ensuring that these procedures are followed and the AHA and all necessary drawings are available at the operation.

Excavation / Utility Permits:
An Excavation / Utility Permit are **required** for all operations, which penetrate the ground surface. The Excavation/Utility Permit has several sections requiring completion.

- Section 1: Describe the work zone and include the location of the work, purpose of the work, start and finish dates, and the size of the excavation. Attach an additional sheet of paper if more space is needed.
- Section 2: Record the locating service information and include the locate ticket number, the date requested and who requested it.
- Section 3: Covers the pre-work checklist and includes a series of questions concerning the One-Call Center, utility locations, pot holing, and job/activity hazard analysis. This section is to be completed by the Project Superintendent. The questions are yes / no and must be initialed off before excavation operations can begin.
- Section 4: This section requires signatures that must be obtained before excavation operations can begin. The responsible engineer, foreman, and superintendent will sign this section before any operations can begin. By signing this area, each person is acknowledging that all proper operation steps have been taken. They are also acknowledging that they have reviewed the hazard analysis for operation.

Any deviation from using the Excavation/Utility Permits must be accepted prior to the commencement of the operation, in writing by the NWC-HIC Superintendent. Once the Excavation/Utility Permit have been properly completed, the following documents need to be attached to it before using distributed out to the foreman:

- A copy of the Activity Hazard Analysis.
- A copy of the Utility as-built drawing. This drawing shall show all existing utilities that remain on the project as well as any new utilities (water or temporary electric) that have been installed. Notes and highlights must be made on these drawings to indicate which runs have been installed.
- A copy of the Drainage Plan sheets for the work zone that the permit covers. Notes and highlights will be made on these drawings to indicate which drainage items (i.e. catch basins, pipe runs, etc.) have been installed.
- A copy of the Utility Plan sheets for the work zone the permit covers. Notes and highlights will be made on these drawings to indicate which utilities (water, gravity sanitary sewer, force main) have been installed.

APPENDIX X SAMPLE REASONABLE SUSPICION FORM

Employee Name:

Employee ID Number:

Date of Observation: TIME: FROM TIME: TO

Location / Activity:

1. Presence of Drugs, Drug Odor and / or Drug Paraphernalia (Specify)

2. Presence of Alcohol Odor and / or Alcohol Itself or Containers (Specify)

3. Appearance: ☐ Normal ☐ Flushed ☐ Puncture Marks / Tracks
☐ Disheveled ☐ Bloodshot Eyes ☐ Inappropriate Wearing of Sunglasses
☐ Dilated / Constricted Pupils ☐ Profuse Sweating ☐ Tremors
☐ Dry-Mouth Symptoms ☐ Runny Nose /Sores ☐ Other:

4. Behavior Speech: ☐ Normal ☐ Incoherent ☐ Slurred ☐ Silent
☐ Confused ☐ Slowed ☐ Whispering ☐ Other:

Awareness: ☐ Normal ☐ Confused ☐ Mood Swings ☐ Euphoria ☐ Lethargic
☐ Lack of Coordination ☐ Paranoid ☐ Disoriented ☐ Other:

5. Motor Skills Balance: ☐ Normal ☐ Swaying ☐ Falling ☐ Staggering ☐ Other:

Walking & Turning: ☐ Normal ☐ Swaying ☐ Arms Raised For Balance
☐ Stumbling ☐ Falling ☐ Reaching for Support ☐ Other:

6. Other Observed Actions or Behavior (Specify)

Witnessed By (If Available:

_____ Title Date Time:
Signature

_____ Title Date Time:
Signature

This Document must be presented and signed by the witnesses within 24 hours of the observed behavior or before the results of the test are released, whichever is earlier. (49 CFR 382.307 (F)).

APPENDIX Y CCD OSHA Inspection Procedures

An OSHA Compliance Officer may show up for an inspection based on complaints, accidents, programmed inspections, referrals, or drive-by observations. The Health, Safety & Security Program Manager and/or the CCD ROCIP Safety Manager must be present during the opening conference, during the actual inspection, and during the closing conference. The Compliance Officer can be made to wait a reasonable amount of time for these individuals to make it to the office for the opening conference. Safety personnel may decide to inform other management officials of the inspection, such as the Superintendent or Project Manager. It is the policy of CCD to cooperate fully with OSHA Compliance Officers and to treat them with respect and courtesy.

Opening Conference:

1. Ask for the Compliance Officer's credentials (badge or business card). It is important to verify that the person is actually an OSHA inspector.
2. Ask the reason for the inspection - the Compliance Officer is required to tell you this. The most common reason is an employee complaint.
3. Ask the Compliance Officer which construction site they need to visit and if any other individuals need to be present (such as site-specific contractor representatives). When possible, pre-select these representatives to ensure that they understand the inspection process and how to interact with an OSHA Compliance Officer.
4. Document the Compliance Officer's name and address if you do not receive a business card. Also note the date and time arrived, the employees who will accompany the inspector, and the scope of the investigation.

Inspection:

1. Escort the Compliance Officer to the work area to be inspected. Take the shortest route possible to site. Remember that OSHA may issue a citation for any violation they observe on route to the actual inspection site.
2. Ensure that the Compliance Officer has all the required PPE to enter the site.
3. If the Compliance Officer asks to expand the scope of the inspection, it is the employer's right to ask for justification.
4. Safety and management personnel may be present if a supervisor or manager is interviewed by the Compliance Officer. However, the Compliance Officer may ask for a private interview with a front-line employee, which must be permitted. The employer may tell the employee why they are being interviewed and should tell the employee that the company appreciates their cooperation and to be truthful. Keep in mind that OSHA is very sensitive to any attempt by the employer to intimidate the hourly employee or to threaten retaliation. Employees have the right to representation during an OSHA interview upon request.
5. Document everything that happens during the inspection. If the Compliance Officer takes notes, readings, measurements or photos, the employer should do the same.
6. Do not speculate, admit fault, or volunteer information during the inspection or the closing conference.

Closing Conference:

1. Determine if there were any violations observed.
2. Do not agree to any hazard abatement recommendations from the Compliance Officer, as this could be considered an admission of guilt.
3. If the Compliance Officer states that no citations will be issued, ask for a Notice of No Violation.
4. Document the date and time the Compliance Officer leaves the site.

Following an OSHA Inspection:

1. Complete a written summary of the event, including all notes taken, photos, conversations and interviews, sample readings and measurements. Also document any violations the Compliance Officer noted, along with all subcontractors, work areas, activities and equipment inspected.
2. Citations may be mailed to the project. Inform project staff to watch the mail closely for anything from the Department of Labor or OSHA. Note that citations may be issued up to six months following an OSHA inspection.
3. Contractors have only 15 working days to request an informal hearing with the OSHA Director to contest violations, penalties and abatement periods. If a notice of contest is filed, the case will be assigned to an Administrative Law Judge who is independent of OSHA. The case will either be settled by the attorney and a company representative before a scheduled hearing, or a hearing will be held and the Administrative Law Judge may affirm, modify or eliminate any contested items of the citations or penalties.

Exhibit G

Insurance Certificates

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 07/06/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Denise Hill-Holligan	
Flood and Peterson PO Box 578 Greeley CO 80632	PHONE (A/C, No, Ext): (970) 356-0123	FAX (A/C, No): (970) 330-1867
	E-MAIL ADDRESS: Dhillholligan@floodpeterson.com	

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A :	Zurich American Insurance Company	16535
INSURER B :	American Guarantee and Liability Company	26247
INSURER C :	Steadfast Insurance Company	26387
INSURER D :	AXA XL	24554
INSURER E :		
INSURER F :		

INSURED
Hensel Phelps Construction Co.
Plains District
12121 Grant Street, Ste 410
Thornton CO 80241

COVERAGES **CERTIFICATE NUMBER:** CL19112132403 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER:			GLO369726415	01/01/2020	01/01/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 5,000,000 $ 500,000 $ $ 5,000,000 $ 10,000,000 $ 10,000,000
A	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [X] HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY			BAP369726115	01/01/2020	01/01/2021	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 5,000,000 $ $ $
B	[X] UMBRELLA LIAB [X] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $			AUC928038418	01/01/2020	01/01/2021	EACH OCCURRENCE AGGREGATE (Addt'l Limits Attached)	$ 10,000,000 $ 10,000,000 $
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		WC369726516	01/01/2020	01/01/2021	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
C	Professional and Pollution Liability			EOC937461716	01/01/2020	01/01/2021	Each Occurrence Aggregate	$50,000,000 $50,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: CONTRACT NO. TBD - COLORADO CONVENTION CENTER EXPANSION PROJECT
As required by written contract, the City and County of Denver, its Elected and Appointed Officials, Employees and Volunteers are included as Additional Insureds as respects the Commercial General Liability and Business Auto.

CERTIFICATE HOLDER

CITY AND COUNTY OF DENVER
201 W Colfax Ave
Denver CO 80202

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Nancy Keiser

AGENCY CUSTOMER ID: 00001312

LOC #:

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Flood and Peterson	Hensel Phelps Construction Co. Plains District 12121 Grant Street, Suite 410 Thornton, CO 80241
POLICY NUMBER Various	
CARRIER Various / NAIC CODE	EFFECTIVE DATE: 01/01/2020

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 **FORM TITLE:** Certificate of Liability

2 - D) AXA XL Umbrella US00095537LI20A $15,000,000 Each Occurrence / Aggregate

3 - B) American Guarantee and Liability AEC422694500 $15,000,000 Each Occurrence / Aggregate

4 - D) AXA XL US00068961LI20A $10,000,000 Each Occurrence / Aggregate

TOTAL UMBRELLA POLICY LIMITS: $50,000,000 EACH OCCURRENCE / $50,000,000 AGGREGATE

Additional Insured – Automatic – Owners, Lessees Or Contractors

Policy No.	Eff. Date of Pol.	Exp. Date of Pol.	Eff. Date of End.	Producer No.	Add'l. Prem	Return Prem.
GLO369726415	1/01/2020	1/01/2021	1/01/2020			

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

Named Insured: Hensel Phelps Construction Co.

Address (including ZIP Code):

This endorsement modifies insurance provided under the:

Commercial General Liability Coverage Part

A. Section **II – Who Is An Insured** is amended to include as an additional insured any person or organization whom you are required to add as an additional insured on this policy under a written contract or written agreement**.** Such person or organization is an additional insured only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or

2. The acts or omissions of those acting on your behalf,

in the performance of your ongoing operations or "your work" as included in the "products-completed operations hazard", which is the subject of the written contract or written agreement.

However, the insurance afforded to such additional insured:

1. Only applies to the extent permitted by law; and

2. Will not be broader than that which you are required by the written contract or written agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following additional exclusion applies:

This insurance does not apply to:

"Bodily injury", "property damage" or "personal and advertising injury" arising out of the rendering of, or failure to render, any professional architectural, engineering or surveying services including:

a. The preparing, approving or failing to prepare or approve maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or

b. Supervisory, inspection, architectural or engineering activities.

This exclusion applies even if the claims against any insured allege negligence or other wrongdoing in the supervision, hiring, employment, training or monitoring of others by that insured, if the "occurrence" which caused the "bodily injury" or "property damage", or the offense which caused the "personal and advertising injury", involved the rendering of or the failure to render any professional architectural, engineering or surveying services.

C. The following is added to Paragraph **2.** Duties In The Event Of Occurrence, Offense, Claim Or Suit of Section **IV – Commercial General Liability Conditions**:

The additional insured must see to it that:

1. We are notified as soon as practicable of an "occurrence" or offense that may result in a claim;

2. We receive written notice of a claim or "suit" as soon as practicable; and

3. A request for defense and indemnity of the claim or "suit" will promptly be brought against any policy issued by another insurer under which the additional insured may be an insured in any capacity. This provision does not apply to insurance on which the additional insured is a Named Insured if the written contract or written agreement requires that this coverage be primary and non-contributory.

D. For the purposes of the coverage provided by this endorsement:

1. The following is added to the Other Insurance Condition of Section **IV – Commercial General Liability Conditions**:

Primary and Noncontributory insurance

This insurance is primary to and will not seek contribution from any other insurance available to an additional insured provided that:

a. The additional insured is a Named Insured under such other insurance; and

b. You are required by written contract or written agreement that this insurance be primary and not seek contribution from any other insurance available to the additional insured.

2. The following paragraph is added to Paragraph **4.b.** of the Other Insurance Condition of Section **IV – Commercial General Liability Conditions**:

This insurance is excess over:

Any of the other insurance, whether primary, excess, contingent or on any other basis, available to an additional insured, in which the additional insured on our policy is also covered as an additional insured on another policy providing coverage for the same "occurrence", offense, claim or "suit". This provision does not apply to any policy in which the additional insured is a Named Insured on such other policy and where our policy is required by a written contract or written agreement to provide coverage to the additional insured on a primary and non-contributory basis.

E. This endorsement does not apply to an additional insured which has been added to this policy by an endorsement showing the additional insured in a Schedule of additional insureds, and which endorsement applies specifically to that identified additional insured.

F. With respect to the insurance afforded to the additional insureds under this endorsement, the following is added to Section **III – Limits Of Insurance**:

The most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the written contract or written agreement referenced in Paragraph **A.** of this endorsement; or

2. Available under the applicable Limits of Insurance shown in the Declarations,

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

All other terms and conditions of this policy remain unchanged.

Waiver Of Subrogation (Blanket) Endorsement

ZURICH

Policy No.	Eff. Date of Pol.	Exp. Date of Pol.	Eff. Date of End.	Producer	Add'l. Prem.	Return Prem.
GLO3697264 15	1/01/2020	1/01/2021	1/01/2020			

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

This endorsement modifies insurance provided under the:

Commercial General Liability Coverage Part

The following is added to the **Transfer Of Rights Of Recovery Against Others To Us Condition**:

If you are required by a written contract or agreement, which is executed before a loss, to waive your rights of recovery from others, we agree to waive our rights of recovery. This waiver of rights shall not be construed to be a waiver with respect to any other operations in which the Insured has no contractual interest.

POLICY NUMBER: BAP369726

COMMERCIAL AUTO
CA 20 48 10 13

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

DESIGNATED INSURED FOR COVERED AUTOS LIABILITY COVERAGE

This endorsement modifies insurance provided under the following:

AUTO DEALERS COVERAGE FORM
BUSINESS AUTO COVERAGE FORM
MOTOR CARRIER COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by this endorsement.

This endorsement identifies person(s) or organization(s) who are "insureds" for Covered Autos Liability Coverage under the "Who Is An Insured" provision of the Coverage Form. This endorsement does not alter coverage provided in the Coverage Form.

This endorsement changes the policy effective on the inception date of the policy unless another date is indicated below.

Named Insured: Hensel Phelps Construction C

Endorsement Effective Date: /01/2020

SCHEDULE

Name Of Person(s) Or Organization(s): ANY PERSON OR ORGANIZATION TO WHOM OR WHICH YOU ARE REQUIRED TO PROVIDE ADDITIONAL INSURED STATUS OR ADDITIONAL INSURED STATUS ON A PRIMARY, NON-CONTRIBUTORY BASIS, IN A WRITTEN CONTRACT OR WRITTEN AGREEMENT EXECUTED PRIOR TO LOSS, EXCEPT WHERE SUCH CONTRACT OR AGREEMENT IS PROHIBITED BY LAW.

Each person or organization shown in the Schedule is an "insured" for Covered Autos Liability Coverage, but only to the extent that person or organization qualifies as an "insured" under the "Who Is An Insured" provision contained in Paragraph A.1. of Section II – Covered Autos Liability Coverage in the Business Auto and Motor Carrier Coverage Forms and Paragraph D.2. of Section I – Covered Autos Coverages of the Auto Dealers Coverage Form.

POLICY NUMBER: BAP369726115

COMMERCIAL AUTO
CA 04 44 10 13

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US (WAIVER OF SUBROGATION)

This endorsement modifies insurance provided under the following:

AUTO DEALERS COVERAGE FORM
BUSINESS AUTO COVERAGE FORM
MOTOR CARRIER COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by the endorsement.

This endorsement changes the policy effective on the inception date of the policy unless another date is indicated below.

Named Insured: ensel Phelps Construction C

Endorsement Effective Date: /01/2020

SCHEDULE

Name(s) Of Person(s) Or Organization(s):
ALL PERSONS AND/OR ORGANIZATIONS THAT ARE REQUIRED BY WRITTEN CONTRACT OR AGREEMENT WITH THE INSURED, EXECUTED PRIOR TO THE ACCIDENT OR LOSS, THAT WAIVER OF SUBROGATION BE PROVIDED UNDER THIS POLICY.

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

The Transfer Of Rights Of Recovery Against Others To Us condition does not apply to the person(s) or organization(s) shown in the Schedule, but only to the extent that subrogation is waived prior to the "accident" or the "loss" under a contract with that person or organization.

WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

This agreement shall not operate directly or indirectly to benefit anyone not named in the Schedule.

Schedule

ALL PERSONS AND/OR ORGANIZATIONS THAT ARE REQUIRED BY WRITTEN CONTRACT OR AGREEMENT WITH THE INSURED, EXECUTED PRIOR TO THE ACCIDENT OR LOSS, THAT WAIVER OF SUBROGATION BE PROVIDED UNDER THIS POLICY FOR WORK PERFORMED BY YOU FOR THAT PERSON AND/OR ORGANIZATION.

This endorsement changes the policy to which it is attached and is effective on the date issued unless otherwise stated.

(The information below is required only when this endorsement is issued subsequent to preparation of the policy.)

Endorsement Effective Policy No. WCO369726516 Endorsement No.

Insured: Hensel Phelps Construction Co. Premium $ N/A

Insurance Company: American Zurich Insurance Company Countersigned by Nancy Keiser, Account Manager

Exhibit H

Approved M/WBE Compliance Plan (incorporated herein by reference)

Exhibit I

Prevailing Wage Rate Schedule

(as issued in RFQ 7/12/2019)

DENVER
THE MILE HIGH CITY

TO: All Users of the City and County of Denver Prevailing Wage Schedules
FROM: Ryland Feno, Classification & Compensation Technician II
DATE: May 13, 2019
SUBJECT: Latest Change to Prevailing Wage Schedules

The effective date for this publication will be **Friday, May 10, 2019** and applies to the City and County of Denver for **HEAVY CONSTRUCTION PROJECTS** in accordance with the Denver Revised Municipal Code, Section 20-76(c).

General Wage Decision No. CO190002
Superseded General Decision No. CO20180012
Modification No. 4
Publication Date: 05/10/2019
(6 pages)

Unless otherwise specified in this document, apprentices shall be permitted only if they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor (DOL). The employer and the individual apprentice must be registered in a program which has received prior approval by the DOL. Any employer who employs an apprentice and is found to be in violation of this provision shall be required to pay said apprentice the full journeyman scale.

Attachments as listed above.

Office of Human Resources
201 W. Colfax Ave. Dept. 412 | Denver, CO 80202
p: 720.913.5751 | f: 720.913.5720
www.denvergov.org/humanresources

General Decision Number: CO190002 05/10/2019 CO2

Superseded General Decision Number: CO20180012

State: Colorado

Construction Type: Heavy

Counties: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, El Paso, Jefferson, Larimer, Mesa, Pueblo and Weld Counties in Colorado.

HEAVY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/04/2019
1	02/01/2019
2	02/22/2019
3	04/12/2019
4	05/10/2019

ASBE0028-001 07/01/2018

	Rates	Fringes
Asbestos Workers/Insulator (Includes application of all insulating materials, protective coverings, coatings and finishings to		

all types of mechanical systems)	$ 31.73	14.23

BRCO0007-004 01/01/2019

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS, JEFFERSON AND WELD COUNTIES

	Rates	Fringes
BRICKLAYER	$ 29.52	10.48

BRCO0007-006 05/01/2018

EL PASO AND PUEBLO COUNTIES

	Rates	Fringes
BRICKLAYER	$ 25.88	10.34

ELEC0012-004 09/01/2018

PUEBLO COUNTY

	Rates	Fringes
ELECTRICIAN		
Electrical contract over $1,000,000	$ 27.70	12.30+3%
Electrical contract under $1,000,000	$ 24.85	12.30+3%

ELEC0068-001 06/01/2018

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS, JEFFERSON, LARIMER, AND WELD COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 35.80	15.45

ELEC0111-001 03/01/2019

	Rates	Fringes
Line Construction:		
Groundman	$ 20.41	13.75%+$6.20
Line Equipment Operator	$ 28.98	13.75%+$6.20
Lineman and Welder	$ 44.92	25.25%+$5.75

ELEC0113-002 06/01/2018

EL PASO COUNTY

	Rates	Fringes

ELECTRICIAN	$ 31.80	15.90

ELEC0969-002 01/01/2019

MESA COUNTY

	Rates	Fringes
ELECTRICIAN	$ 24.80	9.84

* ENGI0009-001 05/01/2018

	Rates	Fringes
Power equipment operators:		
Blade: Finish	$ 28.57	10.70
Blade: Rough	$ 28.25	10.70
Bulldozer	$ 28.25	10.70
Cranes: 50 tons and under	$ 28.40	10.70
Cranes: 51 to 90 tons	$ 28.57	10.70
Cranes: 91 to 140 tons	$ 29.55	10.70
Cranes: 141 tons and over	$ 31.07	10.70
Forklift	$ 27.87	10.70
Mechanic	$ 28.73	10.70
Oiler	$ 27.49	10.70
Scraper: Single bowl under 40 cubic yards	$ 28.40	10.70
Scraper: Single bowl, including pups 40 cubic yards and over and tandem bowls	$ 28.57	10.70
Trackhoe	$ 28.40	10.70

IRON0024-003 01/01/2019

	Rates	Fringes
Ironworkers: Structural	$ 29.85	21.76

LABO0086-001 05/01/2009

	Rates	Fringes
Laborers:		
Pipelayer	$ 18.68	6.78

PLUM0003-005 06/01/2017

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS, JEFFERSON, LARIMER AND WELD COUNTIES

	Rates	Fringes
PLUMBER	$ 39.08	16.44

PLUM0058-002 07/01/2018

EL PASO COUNTY

	Rates	Fringes
Plumbers and Pipefitters.....	$ 32.75	14.85

PLUM0058-008 07/01/2018

PUEBLO COUNTY

	Rates	Fringes
Plumbers and Pipefitters.....	$ 32.75	14.85

PLUM0145-002 07/01/2016

MESA COUNTY

	Rates	Fringes
Plumbers and Pipefitters.....	$ 35.17	11.70

PLUM0208-004 06/01/2016

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS, JEFFERSON, LARIMER AND WELD COUNTIES

	Rates	Fringes
PIPEFITTER.....	$ 37.10	16.62

SHEE0009-002 07/01/2018

	Rates	Fringes
Sheet metal worker.....	$ 34.02	17.49

TEAM0455-002 07/01/2018

	Rates	Fringes
Truck drivers:		
Pickup.....	$ 21.41	4.32
Tandem/Semi and Water.....	$ 22.04	4.32

SUCO2001-006 12/20/2001

	Rates	Fringes
BOILERMAKER.....	$ 17.60	
Carpenters:		
Form Building and Setting...	$ 16.97	2.74

All Other Work	$ 15.14	3.37
Cement Mason/Concrete Finisher	$ 17.31	2.85
IRONWORKER, REINFORCING	$ 18.83	3.90
Laborers:		
Common	$ 11.22	2.92
Flagger	$ 8.91	3.80
Landscape	$ 12.56	3.21
Painters:		
Brush, Roller & Spray	$ 15.81	3.26
Power equipment operators:		
Backhoe	$ 16.36	2.48
Front End Loader	$ 17.24	3.23
Skid Loader	$ 15.37	4.41

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Office of Human Resources
Supplemental Rates
(Specific to the Denver Projects)
(Supp #74, Date: 02-03-2012)

Classification		Base	Fringe
Ironworker	Ornamental	$24.80	$10.03
Laborer	Group 1	$18.18	$8.27
	Group 2	$21.59	$8.61
Laborer (Janitor)	Janitor/Yardmen	$17.68	$8.22
Laborer (Asbestos)	Removal of Asbestos	$21.03	$8.55
Laborer (Tunnel)	Group 1	$18.53	$8.30
	Group 2	$18.63	$8.31
	Group 3	$19.73	$8.42
	Group 4	$21.59	$8.61
	Group 5	$19.68	$8.42
Line Construction	Lineman, Gas Fitter/Welder	$36.88	$9.55
	Line Eq Operator/Line Truck Crew	$25.74	$8.09
Millwright		$28.00	$10.00
Power Equipment Operator	Group 1	$22.97	$10.60
	Group 2	$23.32	$10.63
	Group 3	$23.67	$10.67
	Group 4	$23.82	$10.68
	Group 5	$23.97	$10.70
	Group 6	$24.12	$10.71
	Group 7	$24.88	$10.79
Power Equipment Operator (Tunnels above and below ground, shafts and raises):	Group 1	$25.12	$10.81
	Group 2	$25.47	$10.85
	Group 3	$25.57	$10.86
	Group 4	$25.82	$10.88
	Group 5	$25.97	$10.90
	Group 6	$26.12	$10.91
	Group 7	$26.37	$10.94
Truck Driver	Group 1	$18.42	$10.00
	Group 2	$19.14	$10.07
	Group 3	$19.48	$10.11
	Group 4	$20.01	$10.16
	Group 5	$20.66	$10.23
	Group 6	$21.46	$10.31

Go to http://www.denvergov.org/Auditor to view the Prevailing Wage Clarification Document for a list of complete classifications used.

DENVER
THE MILE HIGH CITY

TO: All Users of the City and County of Denver Prevailing Wage Schedules
FROM: Ryland Feno, Classification and Compensation Technician II
DATE: May 13, 2019
SUBJECT: Latest Change to Prevailing Wage Schedules

The effective date for this publication will be **Friday, May 10, 2019** and applies to the City and County of Denver for **BUILDING CONSTRUCTION PROJECTS** (does not include residential construction consisting of single family homes and apartments up to and including 4 stories) in accordance with the Denver Revised Municipal Code, Section 20-76(c).

General Wage Decision No. CO190020
Superseded General Decision No. CO20180030
Modification No. 3
Publication Date: 05/10/2019
(6 pages)

Unless otherwise specified in this document, apprentices shall be permitted only if they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor (DOL). The employer and the individual apprentice must be registered in a program which has received prior approval by the DOL. Any employer who employs an apprentice and is found to be in violation of this provision shall be required to pay said apprentice the full journeyman scale.

Attachments as listed above.

Office of Human Resources
201 W. Colfax Ave. Dept. 412 | Denver, CO 80202
p: 720.913.5751 | f: 720.913.5720
www.denvergov.org/humanresources

General Decision Number: CO190020 05/10/2019 CO20

Superseded General Decision Number: CO20180030

State: Colorado

Construction Type: Building

County: Denver County in Colorado.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/04/2019
1	02/01/2019
2	02/22/2019
3	05/10/2019

ASBE0028-002 07/01/2018

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR - MECHANICAL (Duct, Pipe & Mechanical System Insulation)	$ 31.73	14.23

CARP0055-002 11/01/2018

	Rates	Fringes

CARPENTER (Drywall Hanging
Only).....$ 29.45 9.64

CARP1607-001 06/01/2018

	Rates	Fringes
MILLWRIGHT	$ 32.99	14.02

ELEC0068-012 06/01/2018

	Rates	Fringes
ELECTRICIAN (Includes Low Voltage Wiring)	$ 35.80	15.45

ELEV0025-001 01/01/2019

	Rates	Fringes
ELEVATOR MECHANIC	$ 45.05	34.125

FOOTNOTE:
a.Vacation: 6%/under 5 years based on regular hourly rate for all hours worked. 8%/over 5 years based on regular hourly rate for all hours worked.
b. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday after Thanksgiving Day; and Christmas Day.

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* ENGI0009-017 05/01/2018

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Crane)		
141 tons and over	$ 31.07	10.70
50 tons and under	$ 28.40	10.70
51 to 90 tons	$ 28.57	10.70
91 to 140 tons	$ 29.55	10.70

IRON0024-009 01/01/2019

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 29.85	11.42

IRON0024-010 01/01/2019

	Rates	Fringes
IRONWORKER, STRUCTURAL	$ 29.85	11.42

PAIN0079-006 08/01/2017

	Rates	Fringes
PAINTER (Brush, Roller and Spray; Excludes Drywall Finishing/Taping)	$ 20.50	8.41

PAIN0079-007 08/01/2017

	Rates	Fringes
DRYWALL FINISHER/TAPER	$ 21.20	8.41

PAIN0419-001 07/01/2016

	Rates	Fringes
SOFT FLOOR LAYER (Vinyl and Carpet)	$ 20.00	10.83

PAIN0930-002 07/01/2018

	Rates	Fringes
GLAZIER	$ 31.52	10.13

PLUM0003-009 06/01/2018

	Rates	Fringes
PLUMBER (Excludes HVAC Duct, Pipe and Unit Installation)	$ 35.48	15.94

PLUM0208-008 06/01/2018

	Rates	Fringes
PIPEFITTER (Includes HVAC Pipe and Unit Installation; Excludes HVAC Duct Installation)	$ 37.55	14.95

SFCO0669-002 04/01/2017

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers)	$ 36.73	20.47

SHEE0009-004 07/01/2018

	Rates	Fringes
SHEET METAL WORKER (Includes HVAC Duct Installation; Excludes HVAC Pipe and Unit Installation)	$ 34.02	17.49

SUCO2013-006 07/31/2015

	Rates	Fringes
BRICKLAYER	$ 21.96	0.00
CARPENTER (Acoustical Ceiling Installation Only)	$ 22.40	4.85
CARPENTER (Metal Stud Installation Only)	$ 17.68	0.00
CARPENTER, Excludes Acoustical Ceiling Installation, Drywall Hanging, and Metal Stud Installation	$ 21.09	6.31
CEMENT MASON/CONCRETE FINISHER	$ 20.09	7.03
LABORER: Common or General	$ 14.49	5.22
LABORER: Mason Tender - Brick	$ 15.99	0.00
LABORER: Mason Tender - Cement/Concrete	$ 16.00	0.00
LABORER: Pipelayer	$ 16.96	3.68
OPERATOR: Backhoe/Excavator/Trackhoe	$ 20.78	5.78
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 19.10	3.89
OPERATOR: Grader/Blade	$ 21.50	0.00
ROOFER	$ 16.56	0.00
TRUCK DRIVER: Dump Truck	$ 17.34	0.00
WATERPROOFER	$ 12.71	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Office of Human Resources
Supplemental Rates
(Specific to the Denver projects)
Revision Date: 11-28-2016

Classification		Base	Fringe
Boilermaker		$30.97	$21.45
Iron Worker, Reinforcing		$18.49	$3.87
Laborer: Concrete Saw		$13.89	-
Paper Hanger		$20.15	$6.91
Plasterer		$24.60	$12.11
Plaster Tender		$10.79	-
Power Equipment Operator	Concrete Mixer - Less than 1 yd	$23.67	$10.67
	Concrete Mixer - 1 yd and over	$23.82	$10.68
	Drillers	$23.97	$10.70
	Loader - up to and incl 6 cu yd	$23.67	$10.67
	Loaders - over 6 cu yd	$23.82	$10.68
	Mechanic	$18.48	-
	Motor Grader	$23.97	$10.70
	Oilers	$22.97	$10.70
	Roller	$23.67	$10.67
Tile Finisher		$20.87	$8.42
Tile Setter		$26.83	$8.48
Truck Driver	Flatbed	$19.14	$10.07
	Semi	$19.48	$10.11

Go to www.denvergov.org/Auditor to view the Prevailing Wage Clarification Document for a list of complete classifications used.

DENVER
THE MILE HIGH CITY

TO: All Users of the City and County of Denver Prevailing Wage Schedules
FROM: Ryland Feno, Classification & Compensation Technician II
DATE: May 13, 2019
SUBJECT: Latest Change to Prevailing Wage Schedules

Please be advised prevailing wage rates for some building, heavy, highway, and residential construction trades have not been updated by the United States Department of Labor (DOL) since March 1, 2002. The Career Service Board, in their meeting held on April 21, 2011, approved the use of the attached supplemental wage rates until prevailing wage rates for these classifications of work are again published by the United States Department of Labor in accordance with the Davis-Bacon Act.

The effective date for this publication will be **Friday, May 10, 2019** and applies to the City and County of Denver for **HIGHWAY CONSTRUCTION PROJECTS** in accordance with the Denver Revised Municipal Code, Section 20-76(c).

General Wage Decision No. CO190009
Superseded General Decision No. CO20180019
Modification No. 1
Publication Date: 05/10/2019
(6 pages)

Unless otherwise specified in this document, apprentices shall be permitted only if they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor (DOL). The employer and the individual apprentice must be registered in a program which has received prior approval by the DOL. Any employer who employs an apprentice and is found to be in violation of this provision shall be required to pay said apprentice the full journeyman scale.

Attachments as listed above.

Office of Human Resources
201 W. Colfax Ave. Dept. 412 | Denver, CO 80202
p: 720.913.5751 | f: 720.913.5720
www.denvergov.org/humanresources

General Decision Number: CO190009 05/10/2019 CO9

Superseded General Decision Number: CO20180019

State: Colorado

Construction Type: Highway

Counties: Denver and Douglas Counties in Colorado.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/04/2019
1	05/10/2019

CARP9901-008 05/01/2018

	Rates	Fringes
CARPENTER (Form Work Only).....	$ 25.50	9.47

ELEC0068-016 03/01/2011

	Rates	Fringes
TRAFFIC SIGNALIZATION:		
Traffic Signal Installation		
Zone 1.....	$ 26.42	4.75%+8.68
Zone 2.....	$ 29.42	4.75%+8.68

TRAFFIC SIGNAL INSTALLER ZONE DEFINITIONS

Zone 1 shall be a 35 mile radius, measured from the following addresses in each of the following cities:
Colorado Springs - Nevada & Bijou
Denver - Ellsworth Avenue & Broadway
Ft. Collins - Prospect & College
Grand Junction - 12th & North Avenue
Pueblo - I-25 & Highway 50
All work outside of these areas shall be paid Zone 2 rates.

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* ENGI0009-008 05/01/2018

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
(3)-Hydraulic Backhoe (Wheel Mounted, under 3/4 yds), Hydraulic Backhoe (Backhoe/Loader combination), Drill Rig Caisson (smaller than Watson 2500 and similar), Loader (up to and including 6 cu. yd.)	$ 28.25	10.70
(3)-Loader (under 6 cu. yd.) Denver County	$ 28.25	10.70
(3)-Motor Grader (blade-rough) Douglas County	$ 28.25	10.70
(4)-Crane (50 tons and under), Scraper (single bowl, under 40 cu. yd)	$ 28.40	10.70
(4)-Loader (over 6 cu. yd) Denver County	$ 28.40	10.70
(5)-Drill Rig Caisson (Watson 2500 similar or larger), Crane (51-90 tons), Scraper (40 cu.yd and over),	$ 28.57	10.70
(5)-Motor Grader (blade-finish) Douglas County	$ 28.57	10.70
(6)-Crane (91-140 tons)	$ 29.55	10.70

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	Rates	Fringes
CARPENTER (Excludes Form Work)	$ 19.27	5.08
CEMENT MASON/CONCRETE FINISHER		
Denver	$ 20.18	5.75
Douglas	$ 18.75	3.00

ELECTRICIAN (Excludes Traffic Signal Installation)	$ 35.13	6.83
FENCE ERECTOR (Excludes Link/Cyclone Fence Erection)	$ 13.02	3.20
GUARDRAIL INSTALLER	$ 12.89	3.20
HIGHWAY/PARKING LOT STRIPING:Painter		
Denver	$ 12.62	3.21
Douglas	$ 13.89	3.21
IRONWORKER, REINFORCING (Excludes Guardrail Installation)	$ 16.69	5.45
IRONWORKER, STRUCTURAL (Includes Link/Cyclone Fence Erection, Excludes Guardrail Installation)	$ 18.22	6.01
LABORER		
Asphalt Raker	$ 16.29	4.25
Asphalt Shoveler	$ 21.21	4.25
Asphalt Spreader	$ 18.58	4.65
Common or General		
Denver	$ 16.76	6.77
Douglas	$ 16.29	4.25
Concrete Saw (Hand Held)	$ 16.29	6.14
Landscape and Irrigation	$ 12.26	3.16
Mason Tender-Cement/Concrete		
Denver	$ 16.96	4.04
Douglas	$ 16.29	4.25
Pipelayer		
Denver	$ 13.55	2.41
Douglas	$ 16.30	2.18
Traffic Control (Flagger)	$ 9.55	3.05
Traffic Control (Sets Up/Moves Barrels, Cones, Install Signs, Arrow Boards and Place Stationary Flags)(Excludes Flaggers)	$ 12.43	3.22
PAINTER (Spray Only)	$ 16.99	2.87
POWER EQUIPMENT OPERATOR:		
Asphalt Laydown		
Denver	$ 22.67	8.72
Douglas	$ 23.67	8.47
Asphalt Paver		
Denver	$ 24.97	6.13
Douglas	$ 25.44	3.50
Asphalt Roller		
Denver	$ 23.13	7.55

Douglas	$ 23.63	6.43
Asphalt Spreader	$ 22.67	8.72
Backhoe/Trackhoe		
Douglas	$ 23.82	6.00
Bobcat/Skid Loader	$ 15.37	4.28
Boom	$ 22.67	8.72
Broom/Sweeper		
Denver	$ 22.47	8.72
Douglas	$ 22.96	8.22
Bulldozer	$ 26.90	5.59
Concrete Pump	$ 21.60	5.21
Drill		
Denver	$ 20.48	4.71
Douglas	$ 20.71	2.66
Forklift	$ 15.91	4.68
Grader/Blade		
Denver	$ 22.67	8.72
Guardrail/Post Driver	$ 16.07	4.41
Loader (Front End)		
Douglas	$ 21.67	8.22
Mechanic		
Denver	$ 22.89	8.72
Douglas	$ 23.88	8.22
Oiler		
Denver	$ 23.73	8.41
Douglas	$ 24.90	7.67
Roller/Compactor (Dirt and Grade Compaction)		
Denver	$ 20.30	5.51
Douglas	$ 22.78	4.86
Rotomill	$ 16.22	4.41
Screed		
Denver	$ 22.67	8.38
Douglas	$ 29.99	1.40
Tractor	$ 13.13	2.95
TRAFFIC SIGNALIZATION:		
Groundsman		
Denver	$ 17.90	3.41
Douglas	$ 18.67	7.17
TRUCK DRIVER		
Distributor		
Denver	$ 17.81	5.82
Douglas	$ 16.98	5.27
Dump Truck		
Denver	$ 15.27	5.27
Douglas	$ 16.39	5.27
Lowboy Truck	$ 17.25	5.27
Mechanic	$ 26.48	3.50
Multi-Purpose Specialty & Hoisting Truck		
Denver	$ 17.49	3.17
Douglas	$ 20.05	2.88
Pickup and Pilot Car		
Denver	$ 14.24	3.77
Douglas	$ 16.43	3.68

Semi/Trailer Truck	$ 18.39	4.13
Truck Mounted Attenuator	$ 12.43	3.22
Water Truck		
Denver	$ 26.27	5.27
Douglas	$ 19.46	2.58

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Office of Human Resources
Supplemental Rtes
(Specific to the Denver Projects)
Revised 4/11/2017)

Classification		Base	Fringe
Ironworker (Ornamental)		$26.05	$12.00
Laborer	Removal of Asbestos	$21.03	$8.55
Line Construction	Lineman, Gas Fitter/Welder	$36.88	$9.55
	Line Eq Operator/Line Truck Crew	$25.74	$8.09
Millwright		$28.00	$10.00
Pipefitter		$30.45	$12.85
Plumber		$30.19	$13.55
Power Equipment Operator (Tunnels Above and Below Ground, shafts and raises):	Group 1	$25.12	$10.81
	Group 2	$25.47	$10.85
	Group 3	$25.57	$10.86
	Group 4	$25.82	$10.88
	Group 5	$25.97	$10.90
	Group 6	$26.12	$10.91
	Group 7	$26.37	$10.94
Power Equipment Operator	Group 1	$22.97	$10.60
	Group 2	$23.32	$10.63
	Group 3	$23.67	$10.67
	Group 4	$23.82	$10.68
	Group 5	$23.97	$10.70
	Group 6	$24.12	$10.71
	Group 7	$24.88	$10.79
Truck Driver	Group 1	$18.42	$10.00
	Group 2	$19.14	$10.07
	Group 3	$19.48	$10.11
	Group 4	$20.01	$10.16
	Group 5	$20.66	$10.23
	Group 6	$21.46	$10.31

Go to http://www.denvergov.org/Auditor to view the Prevailing Wage Clarification Document for a list of complete classifications used.

Exhibit J

City and County of Denver Equal Employment Opportunity Provisions

City and County of Denver Equal Employment Opportunity Provisions

RULES AND REGULATIONS REGARDING EQUAL EMPLOYMENT OPPORTUNITY

Promulgated and adopted by the Manager of Public Works pursuant to and by authority of Article III, Division 2, Chapter 28 of the Revised Municipal Code of the City and County of Denver, and for the purpose of insuring that contractors, subcontractors and suppliers soliciting and receiving compensation for contract work from or through the City and County of Denver provide equal opportunity in employment without regard to race, color, creed, sex, national origin, age, religion, marital status, political opinion or affiliation or mental or physical handicap and meet certain requirements for the hiring, training, promotion, and treatment during employment of members of ethnic groups subject to differential treatment, including persons of African descent (Black), Spanish-surnamed (Hispanic), Asian-American and American Indian Groups.

RULE I - *DEFINITIONS*

A. "City" means the City and County of Denver.

B. "Manager" shall mean the Manager of Public Works for the City and County of Denver.

C. "Contract" means a contract entered into with the City and County of Denver, financed in whole or in part by local resources or funds of the City and County of Denver, for the construction of any public building or prosecution or completion of any public work.

D. "Contractor" means the original party to a contract with the City and County of Denver, also referred to as the "general" or "prime" contractor.

E. "Director" means the Director of the Division of Small Business Opportunity.

F. "Subcontractor" means any person, company, association, partnership, corporation, or other entity, which assumes by subordinate agreement some or all of the obligations of the general or prime contractor.

G. The phrase "Bidding Specifications" as used in Article III, Division 2 of Chapter 28 of the Revised Municipal Code shall include BID CONDITION, INVITATION TO BID, and NOTICE OF PROPOSAL.

H. "Affirmative Action Program" means a set of specific and result-oriented procedures or steps to which a contractor commits himself to apply every good faith effort to employ members of ethnic minority groups, to include persons of African descent (Black), Spanish surnamed (Hispanic), Asian-American, American Indians, and persons with mental or physical handicap.

I. "Division of Small Business Opportunity" means the City agency established pursuant to Article III, Division 1 of Chapter 28 of the Denver Revised Municipal Code.

RULE II - *NOTICE OF HEARING*

When results of conciliation efforts are unsatisfactory to the Manager and he is informed in accordance with Article III, Division 2 of Chapter 28 of the Revised Municipal code that a contractor or subcontractor has apparently failed to meet affirmative action and equal employment opportunity requirements after a reasonable period of notice to correct deficiencies, the Manager will, prior to imposition of any sanctions, afford the general contractor a hearing in order to determine whether the contractor or his subcontractors have failed to comply with the affirmative action and equal employment opportunity requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code or of the contract. Written notice of such hearing shall be delivered personally or sent by certified mail, return receipt requested, to the contractor and to any subcontractor involved, at least ten (10) days prior to the date scheduled for the hearing.

RULE III - *HEARING*

A. Contractors will appear at hearings and may be represented by counsel, and may present testimony orally and other evidence.

B. Hearings shall be conducted by one or more hearing examiners designated as such by the Manager.

C. The Director of the Division of Small Business Opportunity may participate in hearings as a witness.

D. Hearings shall be held at the place specified in the notice of hearing.

E. All oral testimony shall be given under oath or affirmation and a record of such proceedings shall be made.

F. All hearings shall be open to the public.

G. The hearing officer shall make recommendations to the Manager who shall make a final decision.

REGULATIONS

REGULATION NO. 1 - ORDINANCE:

The Rules and Regulations of the Manager shall be inserted in the bidding specifications for every contract for which bidding is required.

REGULATION NO. 2 - EXEMPTIONS:

Each contract and subcontract, regardless of the dollar amount, shall be subject to affirmative action requirements unless specifically exempted in writing individually by the Manager. Exemptions apply only to "affirmative action" in equal employment opportunity, and are not to be construed as condonation in any manner of "discrimination" or "discriminatory practices" in employment because of race, color, creed, sex, age, national origin, religion, marital status, political opinion or mental or physical handicap.

REGULATION NO. 3 - DIRECTOR OF CONTRACT COMPLIANCE:

The Director of the Division of Small Business Opportunity shall perform the duties assigned to such official by Article III, Division 2 Chapter 28 of the Revised Municipal Code and by the Manager. (1) The Director of the Division of Small Business Opportunity or designated representatives shall inform bidders and contractors of affirmative action procedures, programs, and goals in accordance with the Ordinance at pre-bid and pre-construction conference; (2) make regular on-site inspections; (3) supply contractors and subcontractors with report forms to be completed by them when requested, and furnished to the Director of the Division of Small Business Opportunity; and (4) review payroll records, employment records and practices of general contractors and their subcontractors and suppliers during the performance of any contract. The Director of the Division of Small Business Opportunity shall promptly report apparent affirmative action deficiencies to the Manager.

REGULATION NO. 4 - GOALS AND TIMETABLES:

In general, goals and timetables should take into account anticipated vacancies and the availability of skills in the market place from which employees should be drawn. In addition, where discrimination in employment by a general contractor or any of his subcontractors is indicated, a corrective action program will take into account the need by the general contractor and his subcontractors to correct past discriminatory practices and reach goals of minority manpower utilization on a timely basis through such recruiting and advertising efforts as are necessary and appropriate.

REGULATION NO. 5 - AWARD OF CONTRACTS:

It shall be the responsibility of the Director of the Division of Small Business Opportunity to determine the affirmative action capability of bidders, contractors and subcontractors and to recommend to the Manager the award

of contracts to those bidders, contractors and subcontractors and suppliers who demonstrate the ability and willingness to comply with the terms of their contract.

REGULATION NO. 6 - PUBLICATION AND DUPLICATION:

Copies of these Rules and Regulations as amended by the Manager from time to time, shall as soon as practicable and after Notice being published will be made a part of all City Contracts.

REGULATION NO. 7 - NOTICE TO PROCEED:

Prior to issuance of the Notice to Proceed a sign-off will be required of the Director of the Division of Small Business Opportunity or his designee.

REGULATION NO. 8 - CONTRACTS WITH SUBCONTRACTORS:

To the greatest extent possible, the contractor shall make a good faith effort to contract with minority contractors, subcontractors and suppliers for services and supplies by taking affirmative actions, which include but are not limited to the following:

1. Advertise invitations for subcontractor bids in minority community news media.
2. Contact minority contractor organizations for referral of prospective subcontractors.
3. Purchase materials and supplies from minority material suppliers.

REGULATION NO. 9 - AGENCY REFERRALS:

It shall be no excuse that the union with which the contractor or subcontractor has an agreement providing for referral, exclusive or otherwise, failed to refer minority employees.

REGULATION NO. 10 - CLAUSES:

The Manager shall include the appropriate clauses in every contract and the contractor shall cause to be inserted in every subcontract the appropriate clauses:

1. APPENDIX A: City and County of Denver Equal Opportunity Clause - ALL CONTRACTS funded only with City and County of Denver monies.
2. APPENDIX B: Equal Opportunity Clause (11246) - ALL FEDERAL ASSISTED.
3. APPENDIX C: Section 3 - Assurance of Compliance - HUD ASSISTED PROJECTS.
4. APPENDIX D: Section 3 - Clause - HUD ASSISTED PROJECTS.

All amendments to the appendices shall be included by reference.

REGULATION NO. 11 - SHOW CAUSE NOTICES:

When the Manager has reasonable cause to believe that a contractor has violated Article III, Division 2 of Chapter 28 of the Denver Revised Municipal Code, he may issue a notice requiring the contractor to show cause, within fifteen (15) days why enforcement procedures, or other appropriate action to insure compliance, should not be instituted.

REGULATION NO. 12 - BID CONDITIONS - AFFIRMATIVE ACTION REQUIREMENTS - EQUAL EMPLOYMENT OPPORTUNITY:

1. APPENDIX E: The Bid Conditions - Affirmative Action Requirements - Equal Employment Opportunity as amended and published by the U.S. Department of Labor Employment Standards Administration, Office of Federal Contract Compliance, shall be inserted verbatim for bidding specification for every non-exempt contract involving the use of Federal funds.

2. APPENDIX F: The Bid Conditions - Affirmative Action Requirements - Equal Employment Opportunity as published by the Department of Public Works, City and County of Denver, shall be inserted verbatim as bidding specifications for every non-exempt contract using City funds.

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

APPENDIX A

CITY AND COUNTY OF DENVER EQUAL OPPORTUNITY CLAUSE - ALL CONTRACTS

1. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap.

3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided, advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

4. Each Contractor will comply with all provisions of Article III, Division 2 of Chapter 28 of the Revised Municipal Code, and the rules, regulations, and relevant orders of the Manager and the Director.

5. The Contractor will furnish all information and reports required by Article III, Division 2 of Chapter 28 of the Revised Municipal Code, and by rules, regulations and orders of the Manager and Director or pursuant thereto, and will permit access to his books, records, and accounts by the Manager, Director, or their designee for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further City contracts in accordance with procedures authorized in Article III, Division 2, Chapter 28 of the Revised Municipal Code, or by rules, regulations, or order of the Manager.

7. The Contractor will include Regulation 12, Paragraph 2 and the provisions of paragraphs (1) through (6) in every subcontract of purchase order unless exempted by rules, regulations, or orders of the Manager issued pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code, so that such provisions will be binding on each subcontractor or supplier. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.

   The applicant further agrees to be bound by the above equal opportunity clauses with respect to its own employment practices when it participates in City contracts. The Contractor agrees to assist and cooperate actively with the Manager and the Director in obtaining compliance of subcontractors and suppliers with the equal opportunity clause and the rules, regulations and relevant orders of the Manager, and will furnish the Manager and the Director such information as they may require for the supervision of compliance, and will otherwise assist the Manager and

Director in the discharge of the City's primary responsibility for securing compliance. The Contractor further agrees to refrain from entering into any contract or contract modification subject to Article III, Division 2 of Chapter 28 of the Revised Municipal Code with a contractor debarred from, or who has not demonstrated eligibility for, City contracts.

The Contractor will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the Manager and Director. In addition, the Contractor agrees that failure or refusal to comply with these undertakings the Manager may take any or all of the following actions:

A. Cancellation, termination, or suspension in whole or in part of this contract.

B. Refrain from extending any further assistance to the applicant under the program with respect to which the failure occurred until satisfactory assurance of future compliance has been received from such applicant.

C. Refer the case to the City Attorney for appropriate legal proceedings.

SUBCONTRACTS: Each prime Contractor or Subcontractor shall include the equal opportunity clause in each of its subcontracts.

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

APPENDIX F

AFFIRMATIVE ACTION REQUIREMENTS

EQUAL EMPLOYMENT OPPORTUNITY

For All Non-Exempt Construction Contracts to Be Awarded by the
City and County of Denver, Department of Public Works.

NOTICE

EACH BIDDER, CONTRACTOR OR SUBCONTRACTOR (HEREINAFTER THE CONTRACTOR) MUST FULLY COMPLY WITH THE REQUIREMENTS OF THESE BID CONDITIONS AS TO EACH CONSTRUCTION TRADE IT INTENDS TO USE ON THIS CONSTRUCTION CONTRACT, AND ALL OTHER CONSTRUCTION WORK (BOTH CITY AND NON-CITY) IN THE DENVER AREA DURING THE PERFORMANCE OF THIS CONTRACT OR SUBCONTRACT. THE CONTRACTOR COMMITS ITSELF TO THE GOALS FOR MINORITY MANPOWER UTILIZATION, AS APPLICABLE, AND ALL OTHER REQUIREMENTS, TERMS AND CONDITION OF THESE BID CONDITIONS BY SUBMITTING A PROPERLY SIGNED BID.

THE CONTRACTOR SHALL APPOINT A COMPANY EXECUTIVE TO ASSUME THE RESPONSIBILITY FOR THE IMPLEMENTATION OF THE REQUIREMENTS, TERMS AND CONDITIONS OF THESE BID CONDITIONS.

/s/ _____

Manager of Public Works
City and County of Denver

A. REQUIREMENTS - AN AFFIRMATIVE ACTION PLAN:

Contractors shall be subject to the provisions and requirements of these bid conditions including the goals and timetables for minority* and female utilization, and specific affirmative action steps set forth by the Office of Contract Compliance. The contractor's commitment to the goals for minority, and female utilization as required constitutes a commitment that it will make every good faith effort to meet such goals.

1. GOALS AND TIMETABLES:

The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade are as follows:

GOALS FOR MINORITY PARTICIPATION FOR EACH TRADE	GOALS FOR FEMALE PARTICIPATION FOR EACH TRADE
From January 1, 1982 to Until Further Notice	From January 1, 1982 to Until Further Notice
21.7% - 23.5%	**6.9%**

The goals for minority and female utilization above are expressed in terms of hours of training and employment as a proportion of the total number of hours to be worked by the contractor's aggregate workforce, which includes all supervisory personnel, in each trade, on all projects for the City and County of Denver during the performance of its contract (i.e., The period beginning with the first day of work on the City and County of Denver funded construction contract and ending with the last day of work).

The hours of minority and female employment and training must be substantially uniform throughout the length of the contract in each trade and minorities and females must be employed evenly on each of a contractor's projects. Therefore, the transfer of minority or female employees from contractor to contractor or from project to project for the purpose of meeting the contractor's goals shall be a violation of these Bid Conditions.

If the Contractor counts the nonworking hours of apprentices they must be employed by the Contractor during the training period; the Contractor must have made a commitment to employ apprentices at the completion of their training subject to the availability of employment opportunities; and the apprentices must be trained pursuant to training programs approved by the Bureau of Apprenticeship and Training.

* "Minority" is defined as including, Blacks, Spanish Surname Americans, Asian Americans, and American Indians, and includes both men and minority women.

2. SPECIFIC AFFIRMATIVE ACTION STEPS:

No contractor shall be found to be in noncompliance solely on account of its failure to meet its goals, but will be given an opportunity to demonstrate that the contractor has instituted all the specific affirmative action steps specified and has made every good faith effort to make these steps work toward the attainment of its goals within the timetables, all to the purpose of expanding minority and female utilization in its aggregate workforce. A contractor, who fails to comply with its obligation under the Equal Opportunity Clause of its contract and fails to achieve its commitments to the goals for minority and female utilization has the burden of proving that it has engaged in an Affirmative Action Program directed at increasing minority and female utilization and that such efforts were at least as extensive and as specific as the following:

a. The Contractor should have notified minority and female organizations when employment opportunities were available and should have maintained records of the organization's response.

b. The Contractor should have maintained a file of the names and addresses of each minority and female referred to it by any individual or organization and what action was taken with respect to each such referred individual, and if the individual was not employed by the Contractor, the

reasons. If such individual was sent to the union hiring hall for referral and not referred back by the union or if referred, not employed by the Contractor, the file should have documented this and their reasons.

c. The Contractor should have promptly notified the Department of Public Works, and the Division of Small Business Opportunity when the union or unions with which the Contractor has collective bargaining agreements did not refer to the contractor a minority or female sent by the contractor, or when the Contractor has other information that the union referral process has impeded efforts to meet its goals.

d. The Contractor should have disseminated its EEO policy within its organization by including it in any employee handbook or policy manual; by publicizing it in company newspapers and annual reports and by advertising such policy at reasonable intervals in union publications. The EEO policy should be further disseminated by conducting staff meetings to explain and discuss the policy; by posting of the policy; and by review of the policy with minority and female employees.

e. The Contractor should have disseminated its EEO policy externally by informing and discussing it with all recruitment sources; by advertising in news media, specifically including minority and female news media; and by notifying and discussing it with all subcontractors.

f. The Contractor should have made both specific and reasonably recurrent written and oral recruitment efforts. Such efforts should have been directed at minority and female organizations, schools with substantial minority and female enrollment, and minority and female recruitment and training organizations within the Contractor's recruitment area.

g. The Contractor should have evidence available for inspection that all tests and other selection techniques used to select from among candidates for hire, transfer, promotion, training, or retention are being used in a manner that does not violate the OFCCP Testing Guidelines in 41 CFR Part 60-3.

h. The Contractor should have made sure that seniority practices and job classifications do not have a discriminatory effect.

i. The Contractor should have made certain that all facilities are not segregated by race.

j. The Contractor should have continually monitored all personnel activities to ensure that its EEO policy was being carried out including the evaluation of minority and female employees for promotional opportunities on a quarterly basis and the encouragement of such employees to seek those opportunities.

k. The Contractor should have solicited bids for subcontracts from available minority and female subcontractors engaged in the trades covered by these Bid Conditions, including circulation of minority and female contractor associations.

NOTE: The Director and the Division of Small Business Opportunity will provide technical assistance on questions pertaining to minority and female recruitment sources, minority and female community organizations, and minority and female news media upon receipt of a request for assistance from a contractor.

3. NON - DISCRIMINATION:

In no event may a contractor utilize the goals and affirmative action steps required in such a manner as to cause or result in discrimination against any person on account of race, color, religion, sex, marital status, national origin, age, mental or physical handicap, political opinion or affiliation.

4. COMPLIANCE AND ENFORCEMENT:

In all cases, the compliance of a contractor will be determined in accordance with its obligations under the terms of these Bid Conditions. All contractors performing or to perform work on projects subject to these

Bid Conditions hereby agree to inform their subcontractors in writing of their respective obligations under the terms and requirements of these Bid Conditions, including the provisions relating to goals of minority and female employment and training.

B. CONTRACTORS SUBJECT TO THESE BID CONDITIONS:

In regard to these Bid Conditions, if the Contractor meets the goals set forth therein or can demonstrate that it has made every good faith effort to meet these goals, the Contractor shall be presumed to be in compliance with Article III, Division 2 of Chapter 28 of the Revised Municipal Code, the implementing regulations and its obligations under these Bid Conditions. In the event, no formal sanctions or proceedings leading toward sanctions shall be instituted unless the contracting or administering agency otherwise determines that the contractor is violating the Equal Opportunity Clause.

1. Where the Office of Contract Compliance finds that a contractor failed to comply with the requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code or the implementing regulations and the obligations under these Bid Conditions, and so informs the Manager, the Manager shall take such action and impose such sanctions, which include suspension, termination, cancellation, and debarment, as may be appropriate under the Ordinance and its regulations. When the Manager proceeds with such formal action it has the burden of proving that the Contractor has not met the goals contained in these Bid Conditions. The Contractor's failure to meet its goals shall shift to it the requirement to come forward with evidence to show that it has met the good faith requirements of these Bid Conditions.

2. The pendency of such proceedings shall be taken into consideration by the Department of Public Works in determining whether such contractor can comply with the requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code, and is therefore a "responsible prospective contractor".

3. The Division of Small Business Opportunity shall review the Contractor's employment practices during the performance of the contract. If the Division of Small Business Opportunity determines that the Contractor's Affirmative Action Plan is no longer an acceptable program, the Director shall notify the Manager.

C. OBLIGATIONS APPLICABLE TO CONTRACTORS:

It shall be no excuse that the union with which the Contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority or female employees. Discrimination in referral for employment, even if pursuant to provisions of a collective bargaining agreement, is prohibited by the National Labor Relations Act, as amended, Title VI of the Civil Rights Act of 1964, as amended, and Article III, Division 2 of Chapter 28 of the Revised Municipal Code. It is the policy of the Department of Public Works that contractors have a responsibility to provide equal employment opportunity, if they wish to participate in City and County of Denver contracts. To the extent they have delegated the responsibility for some of their employment practices to a labor organization and, as a result, are prevented from meeting their obligations pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code, such Contractors cannot be considered to be in compliance with Article III, Division 2, Chapter 28 of the Revised Municipal Code, or its implementing rules and regulations.

D. GENERAL REQUIREMENTS:

Contractors are responsible for informing their subcontractors in writing regardless of tier, as to their respective obligations. Whenever a Contractor subcontracts a portion of work in any trade covered by these Bid Conditions, it shall include these Bid Conditions in such subcontracts and each subcontractor shall be bound by these Bid Conditions to the full extent as if it were the prime contractor. The Contractor shall not, however, be held accountable for the failure of its subcontractors to fulfill their obligations under these Bid Conditions. However, the prime contractor shall give notice to the Director of any refusal or failure of any subcontractor to fulfill the obligations under these Bid Conditions. A subcontractor's failure to comply will be treated in the same manner as such failure by a prime contractor.

1. Contractors hereby agree to refrain from entering into any contract or contract modification subject to Article III, Division 2, Chapter 28 of the Revised Municipal Code with a contractor debarred from, or who is determined not to be a "responsive" bidder for the City and County of Denver contracts pursuant to the Ordinance.

2. The Contractor shall carry out such sanctions and penalties for violation of these Bid Conditions and the Equal Opportunity Clause including suspension, termination and cancellation of existing subcontracts and debarment from future contracts as may be ordered by the Manager pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code and its implementing regulations.

3. Nothing herein is intended to relieve any contractor during the term of its contract from compliance with Article III, Division 2, Chapter 28 of the Revised Municipal Code, and the Equal Opportunity Clause of its contract with respect to matters not covered in these Bid Conditions.

4. Contractors must keep such records and file such reports relating to the provisions of these Bid Conditions as shall be required by the Office of Contract Compliance.

5. Requests for exemptions from these Bid Conditions must be made in writing, with justification, to the Manager of Public Works, 201 W. Colfax, Dept. 608, Denver, Colorado 80202, and shall be forwarded through and with the endorsement of the Director.

EXHIBIT J

Contract Drawings and Technical Specifications (incorporated herein by reference upon City acceptance)

Exhibit K

Approved Workforce Plan (incorporated herein by reference)

Exhibit L

Targeted Areas

Exhibit L – Targeted Areas

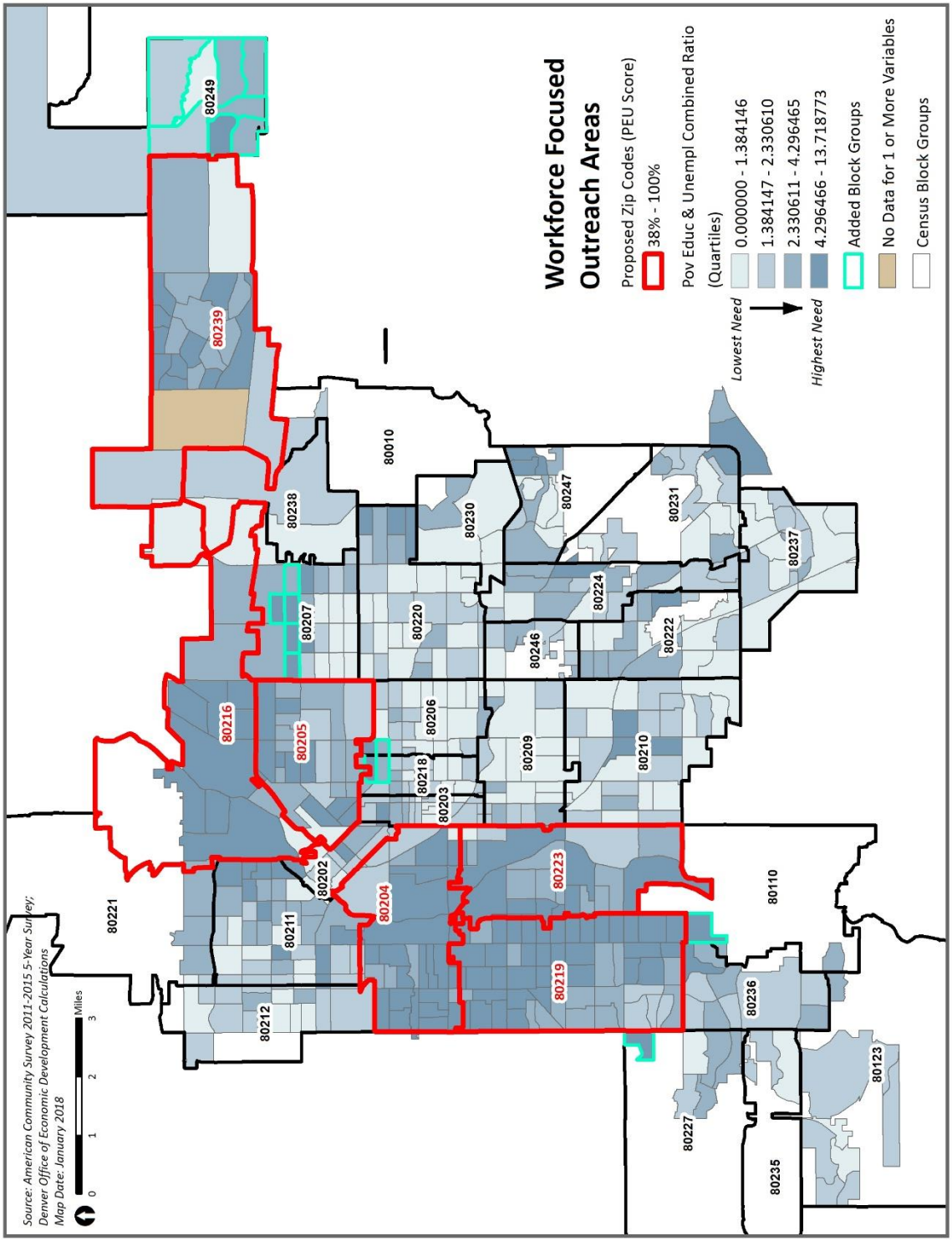

Exhibit M

Payment and Performance Bond

Bond No. 107235406

CITY AND COUNTY OF DENVER
DEPARTMENT OF TRANSPORTATION AND INFRASTRUCTURE

PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned **HENSEL PHELPS CONSTRUCTION CO.**, a General Partnership organized and existing under and by virtue of the laws of the State of **Delaware**, hereafter referred to as the "Contractor", and **Travelers Casualty and Surety Company**, a corporation organized and existing under and by virtue of the laws of the State of **Connecticut**, and authorized to transact business in the State of Colorado, as Surety, are held and firmly bound unto the **CITY AND COUNTY OF DENVER**, a municipal corporation of the State of Colorado, hereinafter referred to as the "City", in the penal sum of **TWO HUNDRED AND THIRTY-THREE MILLION DOLLARS AND NO CENTS ($233,000,000.00)**, lawful money of the United States of America, for the payment of which sum, well and truly to be made, we bind ourselves and our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents;

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH THAT:

WHEREAS, the above bounden Contractor has entered into a written contract with the aforesaid City for furnishing all labor and tools, supplies, equipment, superintendence, materials and everything necessary for and required to do, perform and complete the construction of **Contract No. DOTI-202055290, COLORADO CONVENTION CENTER EXPANSION PROJECT**, Denver, Colorado, and has bound itself to complete the project within the time or times specified or pay liquidated damages, all as designated, defined and described in the said Contract and Conditions thereof, and in accordance with the Plans and Technical Specifications therefore, a copy of said Contract being made a part hereof;

NOW, THEREFORE, if the said Contractor shall and will, in all particulars well and truly and faithfully observe, perform and abide by each and every Covenant, Condition and part of said Contract, and the Conditions, Technical Specifications, Plans, and other Contract Documents thereto attached, or by reference made a part thereof and any alterations in and additions thereto, according to the true intent and meaning in such case, then this obligation shall be and become null and void; otherwise, it shall remain in full force and effect;

PROVIDED FURTHER, that if the said Contractor shall satisfy all claims and demands incurred by the Contractor in the performance of said Contract, and shall fully indemnify and save harmless the City from all damages, claims, demands, expense and charge of every kind (including claims of patent infringement) arising from any act, omission, or neglect of said Contractor, its agents, or employees with relation to said work; and shall fully reimburse and repay to the City all costs, damages, and expenses which it may incur in making good any default based upon the failure of the Contractor to fulfill its obligation to furnish maintenance, repairs or replacements for the full guarantee period provided in the Contract Documents, then this obligation shall be null and void; otherwise it shall remain in full force and effect;

PROVIDED FURTHER, that if said Contractor shall at all times promptly make payments of all amounts lawfully due to all persons supplying or furnishing it or its subcontractors with labor and materials, rental machinery, tools or equipment used or performed in the prosecution of work provided for in the above Contract and that if the Contractor will indemnify and save harmless the City for the extent of any and all payments in connection with the carrying out of such Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect;

PROVIDED FURTHER, that if the said Contractor fails to duly pay for any labor, materials, team hire, sustenance, provisions, provender, gasoline, lubricating oils, fuel oils, grease, coal, or any other supplies or materials used or consumed by said Contractor or its subcontractors in performance of the work contracted to be done, or fails to pay any person who supplies rental machinery, tools or equipment, all amounts due as the result of the use of such machinery, tools or equipment in the prosecution of the work, the Surety

will pay the same in any amount not exceeding the amount of this obligation, together with interest as provided by law;

PROVIDED FURTHER, that the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to contracts with others in connection with this project, or the work to be performed thereunder, or the Technical Specifications and Plans accompanying the same, shall in any way affect its obligation on this bond and it does hereby waive notice of any change, extension of time, alteration or addition to the terms of the Contract, or contracts, or to the work, or to the Technical Specifications and Plans.

IN WITNESS WHEREOF, said Contractor and said Surety have executed these presents as of this _____ day of _____, 20_____.

HENSEL PHELPS CONSTRUCTION CO
Contractor

Attest:

By: _____
Vice President Allan J. Bliesmer

_____
Secretary

_____
Surety Kelly T. Urwiller, Attorney-in-Fact for Travelers Casualty and Surety Company

(Accompany this bond with Attorney-in-Fact's authority from the Surety to execute bond, certified to include the date of the bond).

APPROVED AS TO FORM:
Attorney for the City and County of Denver

By: _____
Assistant City Attorney

APPROVED FOR THE CITY AND COUNTY DENVER

By: _____
MAYOR

By: _____
EXECUTIVE DIRECTOR OF THE DEPARTMENT OF TRANSPORTATION AND INFRASTRUCTURE

Flood and Peterson

PERFORMANCE AND PAYMENT BOND
SURETY AUTHORIZATION

July 10, 2020

City and County of Denver
Assistant City Attorney
201 W. Colfax Ave. Dept 1207
Denver, CO 80202

Re: Hensel Phelps Construction Co.

Contract No: DOTI-202055290
Project Name: COLORADO CONVENTION CENTER EXPANSION PROJECT
Contract Amount: $233,000,000.00
Performance and Payment Bond No: 107235406

Dear Assistant City Attorney:

The Performance and Payment Bonds covering the above captioned project were executed by this agency, through Travelers Casualty and Surety Company, on July 10, 2020.

We hereby authorize the City and County of Denver, the Department of Transportation and Infrastructure, to date all bonds and powers of attorney to coincide with the date of the contract.

If you should have any questions or concerns, please don't hesitate to give me a call at 970-506-3204.

Thank you.

Sincerely,

Kelly T. Urwiller

Kelly T. Urwiller
Attorney-in-Fact
Travelers Casualty and Surety Company

Denver
2000 S. Colorado Blvd. 1-4000
Denver, CO 80222
(720) 977-7110

Fort Collins
4821 Wheaton Drive
Fort Collins, CO 80525
(970) 266-8710

Greeley
4687 W 18th Street
Greeley, CO 80634
(970) 356-0123

TRAVELERS

Travelers Casualty and Surety Company of America
Travelers Casualty and Surety Company
St. Paul Fire and Marine Insurance Company

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company are corporations duly organized under the laws of the State of Connecticut (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint **Kelly T Urwiller** of **GREELEY**, **Colorado**, their true and lawful Attorney-in-Fact to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed, and their corporate seals to be hereto affixed, this **17th** day of **January, 2019.**

State of Connecticut

City of Hartford ss.

By: _____
Robert L. Raney, Senior Vice President

On this the **17th** day of **January, 2019**, before me personally appeared **Robert L. Raney**, who acknowledged himself to be the Senior Vice President of Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of said Companies by himself as a duly authorized officer.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My Commission expires the **30th** day of **June, 2021**

_____
Anna P. Nowik, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, **Kevin E. Hughes**, the undersigned, Assistant Secretary of Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which remains in full force and effect.

Dated this day of , .

_____
Kevin E. Hughes, Assistant Secretary

To verify the authenticity of this Power of Attorney, please call us at 1-800-421-3880.
Please refer to the above-named Attorney-in-Fact and the details of the bond to which this Power of Attorney is attached.

Exhibit N

Appropriation and Encumbrance Form

Appropriation and Encumbrance Form

Department of Infrastructure and Transportation
201 W. Colfax Avenue, Dept 506, Denver, CO 80202

Contractor: _____ Project Name: _____
Contract No.: _____ Vendor ID: _____
Appropriation and Encumbrance Form No.:_____ Project Manager: _____
(Forms to be numbered sequentially)

It is hereby mutually agreed that when this APPROPRIATION AND ENCUMBRANCE FORM has been fully executed by the contracting parties it provides the notice required by the Appropriation and Encumbrance requirements of the above referenced Contract and satisfies all appropriation and encumbrance notification requirements imposed by Colorado law including those found in C.R.S §24-91-103.6. Contractor agrees that any work performed, or costs incurred by Contractor exceeding the Total Appropriation & Encumbrance Amount stated below is done without authorization and at Contractor's sole risk.

The current request will fund Work that includes the (scope, phase or duration as appropriate) identified below:

Total Appropriation & Encumbrance Amount[5] $_____

The Total Appropriation & Encumbrance Amount includes City contingency totaling $_____

Accepted for Contractor by_____Title_____Date_____

Appropriation History

1. Initial contract appropriation & encumbrance amount: $_____[1]
   (as stated in the Contract)
2. Total increases approved to date: $_____[2]
   (sum of all previously approved appropriation & encumbrance forms)
3. Total amount previously appropriated and encumbered: $_____[3]
   (1 + 2)

Current Appropriation

4. Amount of current request: $_____[4]
5. Revised Total Appropriation & Encumbrance Amount: $_____[5]
   (3 + 4):

_____
Approved –Department of Finance, Chief Financial Officer or delegate Date

_____
Approved – DOTI – Executive Director or delegate Date

_____
Approved – DOTI - Director Date

_____
Approved – Using Agency (If non-DOTI) Date

_____
Approved – Project Manager Date

Exhibit O

Notice to Proceed

(Sample)

DENVER
THE MILE HIGH CITY

NOTICE TO PROCEED
(SAMPLE)

Current Date

Name
Company
Street
City/State/Zip

CONTRACT NO. DOTI-202055290

In accordance with General Contract Condition 302 of the Standard Specifications for Construction, General Contract Conditions, 2011 Edition, you are hereby authorized and directed to proceed on _____ with the work of constructing contract number **DOTI-202055290**, as set forth in detail in the contract documents for the City and County of Denver.

With a contract time of «Period_of_Performance» calendar days, the project must be complete on or before _____.

If you have not already done so, you must submit your construction schedule, in accordance with General Contract Condition 306.2.B, to the Project Manager within 10 days. Additionally, you must submit your tax-exempt certificate, and copies of your subcontractors' certificates, in accordance with General Contract Condition 323.5, to the Project Manager as soon as possible. Failure to submit these certificates will delay processing of payment applications.

Sincerely,

By:_____
Lesley B. Thomas
City Engineer

cc: