



DEPARTMENT OF PUBLIC WORKS

Contract Document

Contract No. 201737536

**4330 E. 48TH E WAREHOUSE ROOF AND HVAC
REPLACEMENT**

NOVEMBER 6, 2017



NOTICE OF APPARENT LOW BIDDER

W. E. O'Neil Construction Co.
229 Vallejo Street
Denver, CO 80223

The EXECUTIVE DIRECTOR OF PUBLIC WORKS has considered the Bids submitted on December 14, 2017, for work to be done and materials to be furnished in and for:

CONTRACT #201737536 4330 E. 48th E. Warehouse Roof and HVAC Replacement

as set forth in detail in the Contract Documents for the City and County of Denver, Colorado. It appears that your Bid is fair, equitable, and to the best interest of the City and County; therefore, said Bid is hereby accepted at the bid price contained herein, subject to the approval and execution of the Contract Documents by the City in accordance with the Charter of the City and County of Denver, and to your furnishing the items specified below. The award is based on the lump sum amount the total estimated cost thereof being: **One Million Thirty Two Thousand Thirty Six Dollars and No Cents (\$1,032,036.00).**

It will be necessary for you to appear forthwith at the office of the Department of Public Works, Contract Administration, 201 W. Colfax Ave., Dept 614, Denver, Colorado 80202, to receive the said Contract Documents, execute the same and return them to the Department of Public Works, Contract Administration within the time limit set forth in the Bid Package Documents.

In accordance with the requirements set forth in the Contract Documents, you are required to furnish the following documents:

- a. Insurance Certificates: General Liability and Automotive Liability, Workman's Compensation and Employer Liability;
- b. Payment and Performance Bond along with One original Power of Attorney relative to Performance and/or Payment Bond; and,

All construction Contracts made and entered into by the City and County of Denver are subject to Affirmative Action and Equal Opportunity Rules and Regulations, as adopted by the Manager of Public Works, and each contract requiring payment by the City of one-half million dollars (\$500,000.00) or more shall first be approved by the City Council acting by ordinance and in accordance with Section 3.2.6 of the Charter of the City and County of Denver.

Prior to issuance of Notice to Proceed, all Equal Opportunity requirements must be completed. Additional information may be obtained by contacting the Director of Contract Compliance at (720)913-1700).



NOTICE OF APPARENT LOW BIDDER

CONTRACT NO. 201737356

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The Bid Security submitted with your Bid, will be returned upon execution of the Contract and furnishing of the Performance Bond. In the event you should fail to execute the Contract and to furnish the performance Bond within the time limit specified, said Bid Security will be retained by the City and County of Denver as liquidated damages, and not as a penalty for the delay and extra work caused thereby.

Dated at Denver, Colorado this 29th day of January 2018.

CITY AND COUNTY OF DENVER

By



Eulois Cleckley
Executive Director of Public Works

cc: (CAO), (Treasury/Tax Compliance), Cindy Ackerman, (DSBO), Elizabeth Hamilton, (PM), (PW-Aud), File.

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202

www.denvergov.org/dpw

p. 720.865.8630 | f. 720.865.8795



DEPARTMENT OF PUBLIC WORKS

BID FORM SUBMITTAL PACKAGE

Contract No. 201737536

**4330 E. 48TH E WAREHOUSE ROOF AND HVAC
REPLACEMENT**

NOVEMBER 6, 2017

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division**

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This Checklist is provided solely for the assistance of the bidders, and need not be returned by Bidders with your BID FORM PACKAGE.

BIDDER'S CHECKLIST

These forms comprise the Bid Form and Submittal Package. Designated forms must be completed and turned in at the time of Bid Opening. Bidders should refer to the Contract Documents, particularly the Instructions to Bidders, accompanying this package, in completing these forms.

FORM/ PAGE NO.	COMMENTS	COMPLETE
BF-4 – BF-5	a.) Legal name, address. Acknowledgment signature and attestation (if required.)	<input checked="" type="checkbox"/>
BF-6+	a.) Fill in individual bid item dollars and totals in Numerical figures only b.) Complete all blanks c.) Legal name required	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
BF-7	a.) Write out bid total or bid totals in words and figures in the blank form space(s) provided b.) Calculate Textura® Construction Payment Management System Fee from chart on pg. BF-3 and write % and fee in the space provided	<input checked="" type="checkbox"/>
BF-8	a.) List all subcontractors who are performing work on this project	<input checked="" type="checkbox"/>
BF-9 – BF-10	a.) Fully complete List of Proposed Minority /Woman Business Enterprise Bidders, Subcontractors, Suppliers, Manufacturers, or Brokers – check appropriate boxes.	<input checked="" type="checkbox"/>
BF-11	a.) Complete all blanks b.) If Addenda have been issued, complete bottom section.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
BF-12	a.) Complete appropriate sections - signature(s) required. b.) If corporation, then corporate seal required.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
BF-13	a.) Fully complete Commitment to Participation	<input checked="" type="checkbox"/>
BF-16	a.) If applicable, fully complete Joint Venture Affidavit (Submit 10 days prior to Bid Opening date)	<input checked="" type="checkbox"/>
BF-17 – BF-19	a.) If applicable, fully complete Joint Venture Eligibility Form (Submit 10 days prior to Bid Opening date)	<input checked="" type="checkbox"/>
BF-20	a.) Fill in all Bid Bond blanks b.) Signatures required c.) Corporate Seal if required d.) Dated e.) Attach Surety Agents Power of Attorney or Certified or cashier's check made out to the Manager of Revenue referencing Bidder's Company and Contract Number.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
BF-21- BF-24	a.) Each bidder, as a condition of responsiveness to this solicitation, shall <u>complete and return</u> the "Diversity and Inclusiveness in City Solicitations Information Request Form" with their Bid.	<input checked="" type="checkbox"/>

Textura® Construction Payment Management System (CPM System)

Contractor recognizes and agrees that it shall be required to use the Textura® Construction Payment Management System (CPM System) for this Project. All fees associated with the CPM System are to be paid by the Contractor for billings for work performed. Bidders are required, when preparing a bid, to enter the price of the CPM service on the line provided for the service. The fee is all inclusive of all subcontractor, project and subscription fees associated with the CPM system. The bidder will calculate the fee based on a percentage of their total bid, and then should include it on the line item provided in the bid form labeled “Textura® Construction Payment Management System Fee”. This expense becomes part of the contract and billable to the City. All costs including but not limited to costs associated with training, entering data or utilizing Textura other than the Textura Construction Payment Management System Fee are overhead and shall not be reimbursed by the City. Contractor is responsible for any tax on Textura fee. As with other taxes, the City will not reimburse Contractor for this cost and therefore this cost should be included in Contractor’s bid. Textura will invoice the awarded contractor directly.

PROJECT SIZE	FEE (% OF BID)
< \$1,000,000	0.22% (.0022)
\$1,000,001 - \$5,000,000	0.17% (.0017)
\$5,000,001 - \$20,000,000	0.12% (.0012)
\$20,000,001 - \$50,000,000	0.10% (.0010)
\$50,000,001 - \$100,000,000	0.08% (.0008)
\$100,000,001 - \$500,000,000	0.05% (.0005)
> \$500,000,000	CONTACT TEXTURA FOR PROGRAM PRICING

For more information:

<http://www.denvergov.org/content/denvergov/en/contract-administration/bidding-process.html>

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division**

BID FORM AND SUBMITTAL PACKAGE ACKNOWLEDGMENT

CONTRACT NO. 201737356

4330 E. 48th E Warehouse Roof and HVAC Replacement

BIDDER: W.E. O'Neil Construction Co. of Colorado
(Legal Name per Colorado Secretary of State)

ADDRESS: 229 Vallejo St., Denver, Colorado 80223

The undersigned bidder states that the undersigned bidder has received and had an opportunity to fully and thoroughly examine a complete set of the Contract Documents for **Contract No. 201737356, 4330 E. 48th E Warehouse Roof and HVAC Replacement**, made available to the undersigned bidder pursuant to Notice of Invitation for Bids dated November 6, 2017.

The undersigned bidder acknowledges that a complete and final set of the Contract Documents for the referenced Project, the components of which are identified below, are bound and maintained as the record set of Contract Documents by the Contract Administration Division of the Department of Public Works and that this Record Set is available for examination by the undersigned bidder.

The undersigned bidder, having thoroughly examined each of the components identified below and contained in Contract Documents, **HEREBY SUBMITS THIS BID FORM AND SUBMITTAL PACKAGE**, fully understanding that the Contract Documents, as defined in Paragraph 1 of the contract, including this executed Bid Form and Submittal Package, constitute all of the terms, conditions and requirements upon which this submission is based and further understanding that, by submission of this Bid Form and Submittal Package, the City shall rely on the representations and commitments of the undersigned bidder contained herein.

The following completed documents comprising this Bid Form and Submittal Package will be included with and, by this reference, are expressly incorporated into the Contract Documents specified at Paragraph 1 of the Contract:

- Bid Form and Submittal Package Acknowledgment Form
- Bid Form
- List of Proposed Minority/Woman Owned Business Enterprise(s)
- Commitment to Minority/Woman Owned Business Enterprise Participation
- Minority/Woman Owned Business Enterprise(s) of Intent
- Joint Venture Affidavit (if applicable)
- Joint Venture Eligibility Form (if applicable)
- Bid Bond
- Certificate of Insurance

The following designated documents constitute that portion of the Contract Documents made available by the Notice of Invitation for Bids, but not included in the Bid Form and Submittal Package:

- Notice of Invitation for Bids
- Instructions to Bidders
- Addenda (as applicable)
- Equal Employment Opportunity Provisions (Appendix A and Appendix F)
- Contract Form
- General Contract Conditions
- Special Contract Conditions
- Performance and Payment Bond
- Notice to Apparent Low Bidder
- Notice to Proceed
- Contractor's Certification of Payment Form
- Final/Partial Lien Release Form
- Final Receipt
- Change Orders (as applicable)
- Federal Requirements (as applicable)
- Prevailing Wage Rate Schedule(s)
- Technical Specifications
- Contract Drawings
- Accepted Shop Drawings

The undersigned bidder expressly assumes responsibility for the complete contents of these designated documents as bound together with the Bid Form and Submittal Package submitted herewith and designated the Contract Documents.

IN WITNESS WHEREOF, the undersigned bidder has signed personally or by duly authorized officer or agent and duly attested.

BIDDER:

Name: Todd Guthrie
 By: *Todd Guthrie*
 Title: President

ATTEST:

By: *Stuart M. Elliot*
 Stuart M. Elliot, Secretary

[SEAL]



**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division**

BID FORM

**CONTRACT NO. 201737356
4330 E. 48th E Warehouse Roof and HVAC Replacement**

BIDDER W.E. O'Neil Construction Co. of Colorado
(Legal Name per Colorado Secretary of State)

TO: The Manager of Public Works
City and County of Denver
c/o Contract Administration
201 West Colfax, Dept. 614
Denver, Colorado 80202

The Undersigned Bidder, having examined the plans, technical specifications, and remainder of the proposed Contract Documents as designated and enumerated in the General and Special Contract Conditions and any and all addenda thereto; having investigated the location of and conditions affecting the proposed Work; and being acquainted with and fully understanding the extent and character of the Work covered by this bid, and all factors and conditions affecting or which may be affected by Work, **HEREBY SUBMITS THIS BID**, pursuant to an advertisement of a Notice of Invitation for Bids as published on **November 6, 2017**, to furnish all required materials, tools, appliances, equipment and plant; to perform all necessary labor and to undertake and complete: **CONTRACT NO. 201737356, 4330 E. 48th E Warehouse Roof and HVAC Replacement**, in Denver, Colorado, in full accordance with and conformity to the Plans, Technical Specifications, and Contract Documents hereto attached or by reference made a part hereof, at and for the following price(s) set forth on this Bid Form.

The following documents, which taken as a whole constitute the Contract Documents for this Project, and which are incorporated herein, by reference, were made available to the Bidder as provided in the Advertisement of Notice of Invitation for Bids, were received by the bidder, and form the basis for this bid:

Advertisement of Notice of Invitation for Bids
Instructions to Bidders
Commitment to M/WBE Participation
Article III, Divisions 1 and 3 of Chapter 28, D.R.M.C.
Bid Bond
Addenda (as applicable)
Equal Employment Opportunity Provisions (Appendix A and Appendix F)
Bid Form
Contract Form
General Contract Conditions
Special Contract Conditions
Performance and Payment Bond
Notice to Apparent Low Bidder
Notice to Proceed
Contractor's Certification of Payment Form
Final/Partial Lien Release Form
Final Receipt
Change Orders (as applicable)
Federal Requirements (as applicable)
Prevailing Wage Rate Schedule(s)
Technical Specifications
Contract Drawing
Accepted Shop Drawings
Certificate of Insurance

Lump Sum Bid Amount	\$ <u>1,030,284</u>
Textura® Fee from table on Page BF-3 <u>.22</u> % of Lump Sum Bid Total Amount	\$ <u>1,751</u>
Lump Sum Bid Amount plus Textura® Fee equals Total Bid Amount	\$ <u>1,032,036</u>

Total Bid Amount:
One Million, Thirty-two thousand, thirty-six dollars and NO CENTS
 _____ Dollars (\$ 1,032,036)

If the Manager mails a written Notice of Apparent Low Bidder, addressed to the Bidder's business address stated on this Bid Form, the Undersigned Bidder shall, in accordance with the Contract Documents, be ready to, and shall, within five (5) days after the date of the Notice: (i) execute the attached form of Contract in conformity with this bid; (ii) furnish the required proofs of insurance; and (iii) furnish the required bond or bonds in the sum of the full amount of this bid, executed by a surety company acceptable to the Manager.

The Continental Casualty Company, a corporation of the State of Illinois, is hereby offered as Surety on said bond. If such surety is not approved by the Manager, another and satisfactory surety company shall be furnished.

Enclosed with this bid is a bid guarantee, as defined in the attached Instructions to Bidders, in the amount of 5%. The Undersigned Bidder agrees that the entire amount of this bid guarantee is to be paid to and become the property of the City as liquidated damages, and not as a penalty, if: (i) the bid is considered to be the best by the City; (ii) the City notifies the Undersigned Bidder that it is the Apparent Low Bidder; and (iii) the Undersigned Bidder fails to execute the Contract in the form prescribed or to furnish the required bond and proofs of insurance, within five (5) days after the date of such notification.

The following persons, firms or corporations are interested with the Undersigned Bidder in this bid:

Name: N/A Name: N/A
 Address: N/A Address: N/A

If there are no such persons, firms, or corporations, please so state in the following space:



**List of Proposed
MWBE
Bidders, Subcontractors,
Suppliers (Manufacturers) or
Brokers**

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 W. Colfax Ave. Dept. 907
Denver, CO 80202
Phone: 720-913-1999
DSBO@denvergov.org

City & County of Denver Contract No.: 201737356

The undersigned Bidder proposes to utilize all listed firms. The following MWBE(s) firms listed are CURRENTLY certified by the City and County of Denver. Only the level of MWBE participation listed at the bid opening will count toward satisfaction of the project goal. Only bona fide commissions may be counted for Brokers. MWBE prime bidders must detail their bid information below. Please copy and attach this page to list additional MWBE.

Prime Bidder

Business Name: W.E. O'Neil Construcion Co. of Colorado		
Address: 229 Vallejo St., Denver, CO 80223	Contact Person: Todd Guthrie	
Type of Service: General Contractor	Dollar Amount: \$:	Percent of Project:

Certified MWBE Prime Bidder

Business Name: N/A		
Address: N/A	Contact Person: N/A	
Type of Service: N/A	Dollar Amount: \$: N/A	Percent of Project: N/A

Subcontractors, Suppliers Manufacturers or Brokers (check one box)

<input type="checkbox"/> Subcontractor (✓) X	<input type="checkbox"/> Supplier (✓)	<input type="checkbox"/> Manufacturer (✓)	<input type="checkbox"/> Broker (✓)
Business Name: Diamond Plumbing, Inc.			
Address: 5300 Vallejo St., Denver, CO 80221	Type of Service: Plumbing		
Contact Person: Gene Juarez	Dollar Amount: \$: 233,079	Percent of Project: 22.58	
<input type="checkbox"/> Subcontractor (✓) X	<input type="checkbox"/> Supplier (✓)	<input type="checkbox"/> Manufacturer (✓)	<input type="checkbox"/> Broker (✓)
Business Name: Innovative Mechanical Solutions			
Address: 10650 Irma Dr., Unit 9, Northglenn, CO 80233		Type of Service: HVAC	
Contact Person: Jeff Kinder		Dollar Amount: \$:	Percent of Project:
<input type="checkbox"/> Subcontractor (✓) X	<input type="checkbox"/> Supplier (✓)	<input type="checkbox"/> Manufacturer (✓)	<input type="checkbox"/> Broker (✓)
Business Name:			
Address:		Type of Service:	
Contact Person:		Dollar Amount: \$:	Percent of Project:

Rev 031816JE

Subcontractors, Suppliers Manufacturers or Brokers (check one box)							
<input checked="" type="checkbox"/>	Subcontractor (✓) X	<input type="checkbox"/>	Supplier (✓)	<input type="checkbox"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
Business Name:							
Address:				Type of Service:			
Contact Person:				Dollar Amount: \$:		Percent of Project:	
<input checked="" type="checkbox"/>	Subcontractor (✓) X	<input type="checkbox"/>	Supplier (✓)	<input type="checkbox"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
Business Name:							
Address:				Type of Service:			
Contact Person:				Dollar Amount: \$:		Percent of Project:	
<input checked="" type="checkbox"/>	Subcontractor (✓) X	<input type="checkbox"/>	Supplier (✓)	<input type="checkbox"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
Business Name:							
Address:				Type of Service:			
Contact Person:				Dollar Amount: \$:		Percent of Project:	
<input checked="" type="checkbox"/>	Subcontractor (✓) X	<input type="checkbox"/>	Supplier (✓)	<input type="checkbox"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
Business Name:							
Address:				Type of Service:			
Contact Person:				Dollar Amount: \$:		Percent of Project:	
<input checked="" type="checkbox"/>	Subcontractor (✓) X	<input type="checkbox"/>	Supplier (✓)	<input type="checkbox"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
Business Name:							
Address:				Type of Service:			
Contact Person:				Dollar Amount: \$:		Percent of Project:	
<input checked="" type="checkbox"/>	Subcontractor (✓) X	<input type="checkbox"/>	Supplier (✓)	<input type="checkbox"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
Business Name:							
Address:				Type of Service:			
Contact Person:				Dollar Amount: \$:		Percent of Project:	
<input checked="" type="checkbox"/>	Subcontractor (✓) X	<input type="checkbox"/>	Supplier (✓)	<input type="checkbox"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
Business Name:							
Address:				Type of Service:			
Contact Person:				Dollar Amount: \$:		Percent of Project:	

Rev 031816JE

The undersigned Bidder hereby certifies that the aforementioned subcontractors and suppliers have full knowledge that their names have been offered as subcontractors and suppliers for the work, and the Bidder further certifies that the dollar amount of work to be performed by the aforementioned M/WBE(s) was furnished to the Bidder prior to the bid opening. The undersigned Bidder agrees that after the bid opening, it shall submit to the City an executed and completed W/MBE "Letter of Intent" in three working days (3) on each of its M/WBE subcontractors. The "Letter of Intent" form is contained in the Contract Documents.

The undersigned Bidder acknowledges the right of the City to reject any or all bids submitted, to waive informalities in bids and to re-advertise this Project for bids.

The undersigned certifies that it has carefully checked all works and figures and all statements made in these Bid Forms.

This bid is submitted upon the declaration that neither, I (we), nor, to the best of my (our) knowledge, none of the members of my (our) firm or company have either directly or indirectly entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this bid.

Business Address of Bidder: 229 Vallejo St

City, State, Zip Code: Denver, Colorado 80223

Telephone Number of Bidder: (303) 238-7900 Fax No. (303) 462-2128

Social Security or Federal Employer ID Number of Bidder: 36-4279241

Name and location of the last work of this kind herein contemplated upon which the Bidder was engaged:
Hadley Library Renovation 1890 S. Grove St., Denver, Colorado

For information relative thereto, please refer to:

Name: Rohini Saksena

Title: Senior Architect

Address: Rohini.Saksena@denvergov.org

The undersigned acknowledges receipt, understanding, and full consideration of the following addenda to the Contract Documents:

Addenda Number 1 Date 11/29/2017

Addenda Number 2 Date 12/1/2017

Addenda Number _____ Date _____

Dated this 14 day of December, 2017.

Signature of Bidder:

If an Individual: _____ N/A _____ doing business
as _____ N/A _____.

If a Partnership: _____ N/A _____
by: _____ N/A _____ General Partner.

If a Corporation: W.E. O'Neil Construction Co. of Colorado _____
a _____ C _____ Corporation.
by: Todd Guthrie _____, its President.
Todd Guthrie

Attest:
Stuart M. Elliot
Secretary Stuart M. Elliot (Corporate Seal)



If a Joint Venture, signature of all Joint Venture participants.

Firm: _____ N/A _____
Corporation (). Partnership () or () Limited Liability Company

By: _____ (If a Corporation)
Attest: _____
Title: _____
Secretary (Corporate Seal)

Firm: _____ N/A _____
Corporation (), Partnership () or () Limited Liability Company

By: _____ (If a Corporation)
Attest: _____
Title: _____
Secretary (Corporate Seal)

Firm: _____ N/A _____
Corporation (), Partnership () or () Limited Liability Company

By: _____ (If a Corporation)
Attest: _____
Title: _____
Secretary (Corporate Seal)



**COMMITMENT TO MWBE
PARTICIPATION**

The undersigned has satisfied the MWBE participant requirements in the following manner (Please check the appropriate box):

The Bidder/Proposer is committed to the minimum 22.58 % **MWBE** utilization on the project, and will submit Letters of Intent (LOI) for each subcontractor/subconsultant listed in the Bid Forms as follows:
Hard Bids: **Three (3)** business days after the bid opening.
Request for Proposals/Qualifications: With the proposal when due.
Compliance Plans: With each task/work order

The Bidder/Proposer is unable to meet the project goal of _____% **MWBE**, but is committed to a minimum of _____% **MWBE** utilization on the project. The Bidder/Proposer understands that they must submit a detailed statement of their good faith effort under sealed bid procedures, as a matter of responsiveness, or with initial proposals, under contract negotiation procedures; or no later than **three (3)** days after bid opening as a matter of responsibility as in accordance with DRMC Section 28-62 and 28-67 of Ordinance 85 to the Division of Small Business Opportunity.

The Bidder/Proposer is a certified **MWBE** in good standing with the City and is committed to self-perform a minimum of _____% of the work on the contract.

Bidder/Proposer (Name of Firm): W E O'Neil Construction Co. of Colorado

Firm's Representative (Please print): Todd Guthrie

Signature (Firm's Representative): 

Title: President

Address: 229 Vallejo St.

City: Denver

State: CO

Zip: 80223

Phone: (303) 238-7900

Fax: (303) 462-2128

Email: tguthrie@weoneil.com

A copy of the MWBE Certification letter must be attached to each Letter of Intent (LOI).



DENVER
OFFICE OF ECONOMIC
DEVELOPMENT

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 West Colfax Ave., Dept. 907
Denver, CO 80202
Phone: 720-913-1999

LETTER OF INTENT (LOI)
INSTRUCTIONS FOR COMPLETION & SUBMISSION:

- All lines must be completed or marked N/A for Not Applicable
- Certification Letter must be submitted with LOI
- Submit the attached completed checklist with this letter
- Email to dobo@denvergov.org,
- FOR RFPs and RFQs: LOIs should be included with Submittal

Contract No.: 201737356		Project Name: 4330 E. 48th E Warehouse Roof and HVAC Replacement					
A. The Following Section Is To Be Completed by the Bidder/Consultant This Letter of Intent Must be Signed by the Bidder/Consultant and M/WBE, SBE, EBE or DBE							
Name of Bidder/Consultant: W.E. O'Neil Construction Co. of Colorado				Self-Performing: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Phone: (303) 238-7900	
Contact Person: Todd Guthrie			Email: tguthrie@weoneil.com			Fax: (303) 462-2128	
Address: 229 Vallejo St.			City: Denver			State: CO	Zip: 80223
B. The Following Section is To Be Completed by the M/WBE, SBE, EBE or DBE, at any Tier This Letter of Intent Must be Signed by the M/WBE, SBE, EBE or DBE and Bidder/Consultant							
Name of Certified Firm:						Phone:	
Contact Person:			Email:			Fax:	
Address:			City:			State:	Zip:
Please check the designation which applies to the certified firm.		M/WBE (√)		SBE (√)		EBE (√)	DBE (√)
Indirect Utilization: If this M/WBE, SBE, EBE or DBE is not a direct first tier subcontractor/subconsultant, supplier or broker to the Bidder/ Consultant, please indicate the name of the subcontractor/subconsultant, supplier or broker which is utilizing the participation of this firm:							
A Copy of the M/WBE, SBE, EBE or DBE Letter of Certification must be Attached							
Identify the scope of the work to be performed or supply item that will be provided by the M/WBE/SBE/DBE. On unit price bids only, identify which bid line items the M/WBE/SBE/EBE/DBEs scope of work or supply corresponds to.							
Subcontractor/Subconsultant (√)		Supplier (√)		Broker (√)			
Bidder intends to utilize the aforementioned M/WBE, SBE, EBE or DBE for the Work/Supply described above. The cost of the work and percentage of the total subcontractor M/WBE, SBE, EBE or DBE bid amount is:							
\$				%			
Consultant intends to utilize the aforementioned M/WBE, SBE, EBE or DBE for the Work/Supply described above. The percentage of the work of the total sub consultant M/WBE, SBE, EBE or DBE will perform is:							
				%			
If the fee amount of the work to be performed is requested, the fee amount is:							
				\$			
Bidder/Consultant's Signature:						Date:	
Title:							
M/WBE, SBE, EBE or DBE or Self-Performing Firm's Signature:						Date:	
Title:							
If the above named Bidder/Consultant is not determined to be the successful Bidder/Consultant, this Letter of Intent shall be null and void.							



DENVER
OFFICE OF ECONOMIC
DEVELOPMENT

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 West Colfax Ave., Dept. 907
Denver, CO 80202
Phone: 720-913-1899

LETTER OF INTENT (LOI)
INSTRUCTIONS FOR COMPLETION & SUBMISSION:

- All lines must be completed or marked N/A for Not Applicable
- Certification Letter must be submitted with LOI
- Submit the attached completed checklist with this letter
- Email to dsbo@denvergov.org,
- FOR RFPs and RFQs: LOIs should be included with Submittal

Contract No.: 201737356		Project Name: 4330 E. 48th E Warehouse Roof and HVAC Replacement	
A. The Following Section Is To Be Completed by the Bidder/Consultant This Letter of Intent Must be Signed by the Bidder/Consultant and M/WBE, SBE, EBE or DBE			
Name of Bidder/Consultant: W.E. O'Neil Construction Co. of Colorado		Self-Performing: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Phone: (303) 238-7900
Contact Person: Todd Guthrie		Email: tguthrie@weoneil.com	Fax: (303) 462-2128
Address: 229 Vallejo St.		City: Denver	State: CO Zip: 80223
B. The Following Section Is To Be Completed by the M/WBE, SBE, EBE or DBE, at any Tier This Letter of Intent Must be Signed by the M/WBE, SBE, EBE or DBE and Bidder/Consultant			
Name of Certified Firm: Diamond Plumbing Inc		Phone: 303-964-9929	
Contact Person: Gene Suarez		Email:	
Address: 5300 Vallejo St.		City: Denver	State: CO Zip: 80221
Please check the designation which applies to the certified firm.		M/WBE (v) <input checked="" type="checkbox"/>	SBE (v) <input type="checkbox"/>
		EBE (v) <input type="checkbox"/>	DBE (v) <input type="checkbox"/>
Indirect Utilization: If this M/WBE, SBE, EBE or DBE is not a direct first tier subcontractor/subconsultant, supplier or broker to the Bidder/Consultant, please indicate the name of the subcontractor/subconsultant, supplier or broker which is utilizing the participation of this firm:			
A Copy of the M/WBE, SBE, EBE or DBE Letter of Certification must be Attached			
Identify the scope of the work to be performed or supply item that will be provided by the M/WBE/SBE/DBE. On unit price bids only, identify which bid line items the M/WBE/SBE/EBE/DBEs scope of work or supply corresponds to.			
Plumbing + HVAC			
<input checked="" type="checkbox"/>	Subcontractor/Subconsultant (v)	<input checked="" type="checkbox"/>	Supplier (v)
			Broker (v)
Bidder intends to utilize the aforementioned M/WBE, SBE, EBE or DBE for the Work/Supply described above. The cost of the work and percentage of the total subcontractor M/WBE, SBE, EBE or DBE bid amount is:			
\$ 233,079.00		22.58 %	
Consultant intends to utilize the aforementioned M/WBE, SBE, EBE or DBE for the Work/Supply described above. The percentage of the work of the total subconsultant M/WBE, SBE, EBE or DBE will perform is: %			
If the fee amount of the work to be performed is requested, the fee amount, is: \$			
Bidder/Consultant's Signature: Todd Guthrie		Date: 12/18/17	
Title: President			
M/WBE, SBE, EBE or DBE or Self-Performing Firm's Signature: Gene Suarez		Date: 12/14/17	
Title: PRES			
If the above named Bidder/Consultant is not determined to be the successful Bidder/Consultant, this Letter of Intent shall be null and void.			

Letter of Intent (LOI) Checklist

*All lines must be completed or marked N/A for Not Applicable
Submit the attached completed checklist with this letter.*

Completed ✓	
<input type="checkbox"/>	Project Number & Project Name
<input type="checkbox"/>	Section A: Name of Bidder/Consultant, Contact Person, Address, City, State, Zip, Phone, Email
<input type="checkbox"/>	Section B: Name of Certified Firm, Contact Person, Address, City, State, Zip, Phone, Email
<input type="checkbox"/>	Designation checked for MBE/WBE, SBE, EBE or DBE
<input type="checkbox"/>	Indirect Utilization: Name of subcontractor/subconsultant, supplier or broker is indicated if using the participation of a 2 nd tier subcontractor/subconsultant, supplier or broker.
<input type="checkbox"/>	Scope of work performed or item supplied by M/WBE, SBE, EBE or DBE
<input type="checkbox"/>	Line items performed, if line-item bid.
<input type="checkbox"/>	Copy of M/WBE, SBE, EBE or DBE Letter of Certification Attached
<input type="checkbox"/>	Designation checked for Subcontractor/Subconsultant, Supplier or Broker
	If project is a hard bid...
<input type="checkbox"/>	Bidder has indicated dollar amount for value of work going to Subcontractor/ Subconsultant, Supplier or Broker
<input type="checkbox"/>	Bidder has indicated percentage for value of work going to Subcontractor/ Subconsultant, Supplier or Broker
	If project is an RFP/RFQ...
<input type="checkbox"/>	Consultant has indicated percentage for value of work going to Subcontractor/ Subconsultant, Supplier or Broker Name & contact name for MWBE.
<input type="checkbox"/>	Fee amount if fee amount of work to be performed is requested.
<input type="checkbox"/>	Bidder/Consultant's Signature, Title & Date
<input type="checkbox"/>	M/WBE, SBE, EBE or DBE Firm's Signature, Title and Date

Select One ✓	SUBMITTED VIA... For Construction Hard Bids ONLY, Bidders are strongly urged to deliver the LOI via one of the methods below. (The preferred method is to scan/email completed forms to email address below. Delivery to any other point cannot be guaranteed timely delivery.)
<input type="checkbox"/>	Email to DSBO@denvergov.org

The complete and accurate information that is required for the Letter of Intent is based on the following sections of the Ordinance 85: Section 28-63 and Section 28-68. Failure to complete this information on the Letter of Intent (LOI) may automatically deem a bid or proposal non-responsive.



Joint Venture Affidavit

N/A

The Undersigned swears that the foregoing statements are correct and include all material information necessary to identify and explain the terms and operation of our joint venture and the intended participation by each joint venturer in the undertaking. Further, the Undersigned covenant and agree to provide the City current, complete, and accurate information regarding actual joint venture work and the payment thereof and any proposed changes in any of the joint venture arrangements and to permit the audit and examination of the books, records, and files of the joint venture, by authorized representatives of the City or Federal funding agency, if applicable. Any material misrepresentation will be grounds for terminating any contract which may be awarded and for initiating action under Federal or State laws concerning false statements.

Name of Firm: _____

Print Name: _____

Title _____

Signature: _____

Date: _____

Notary Public

County of _____

State of _____

My Commission Expires: _____

Subscribed and sworn before me this

_____ day of _____, 20_____

Notary Seal

Notary Signature: _____

Notary Commission #: _____

Address: _____

Name of Firm: _____

Print Name: _____

Title _____

Signature: _____

Date: _____

Notary Public

County of _____

State of _____

My Commission Expires: _____

Subscribed and sworn before me this

_____ day of _____, 20_____

Notary Seal

Notary Signature: _____

Notary Commission #: _____

Address: _____



JOINT VENTURE ELIGIBILITY FORM

N/A

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 W. Colfax Ave. Dept. 807
Denver, CO 80202
Phone: 720-913-1999
DSBO@denvergov.org

Joint Venture means an association of two (2) or more business enterprises to constitute a single business enterprise to perform a City construction or professional design and construction services contract for which purpose they combine their property, capital, efforts, skills and knowledge, and in which each joint venturer is responsible for a distinct, clearly defined portion of the work of the contract, performs a commercially useful function, and whose share in the capital contribution, control, management responsibilities, risks and profits of the joint venture are equal to its ownership interest. Joint ventures must have an agreement in writing specifying the terms and conditions of the relationships between the joint venturers and their relationship and responsibility to the contract.

The Division of Small Business Opportunity (DSBO) requires the following information be provided from participants of a prospective joint venture, to assist DSBO in evaluating the proposed joint venture. This Joint Venture Eligibility form and the Joint Venture Affidavit apply if SBEs, EBEs, MBEs, WBEs or DBEs participate in this joint venture.

Please return this form, the Joint Venture Affidavit, and a copy of your Joint Venture Agreement to: Division of Small Business Opportunity, 201 West Colfax Avenue, Denver, CO 80202, at least ten (10) working days prior to bid opening or proposal.

If you have questions regarding this process, please contact DSBO at 720-913-1999.

Joint Venture Information

Name:		Contact Person:	
Address:			
City:	State:	Zip:	Phone:

Joint Venture Participants

Name:		Contact Person:	
Address:			
City:	State:	Zip:	Phone:
% Ownership:	Certifying Entity:	Type Certification & Date: (S/E/M/W or DBE)	
Type of Work for which Certification was granted:			

Name:		Contact Person:	
Address:			
City:	State:	Zip:	Phone:
% Ownership:	Certifying Entity:	Type Certification & Date: (S/E/M/W or DBE)	
Type of Work for which Certification was granted:			

General Information

SBE/EBE/MBE/WBE/DBE Initial Capital Contributions: \$	%
Future capital contributions (explain requirements) (attach additional sheets if necessary):	
Source of Funds for the SBE/EBE/MBE/WBE/DBE Capital Contributions:	
Describe the portion of the work or elements of the business controlled by the SBE/EBE/MBE/WBE or DBE: (attach additional sheets if necessary)	

Describe the portion of the work or elements of the business controlled by non-SBE/EBE/MBE/WBE or DBE: (attach additional sheets if necessary)

JOINT VENTURE ELIGIBILITY FORM

General information

Describe the SBE/EBE/MBE/WBE or DBE's involvement in the overall management of the joint venture (e.g., participation on a management committee or managing board voting rights, etc.) (attach additional sheets if necessary)

Describe the SBE/EBE/MBE/WBE or DBE's share in the profits of the joint venture:

Describe the SBE/EBE/MBE/WBE or DBE's share in the risks of the joint venture:

Describe the roles and responsibilities of each joint venture participant with respect to managing the joint venture (use additional sheets if necessary):

a. SBE/EBE/MBE/WBE or DBE joint venture participant:

b. Non- SBE/EBE/MBE/WBE or DBE joint venture participant:

Describe the roles and responsibilities of each joint venture participant with respect to operation of the joint venture (use additional sheets if necessary):

a. SBE/EBE/MBE/WBE or DBE joint venture participant:

b. Non- SBE/EBE/MBE/WBE or DBE joint venture participant:

Which firm will be responsible for accounting functions relative to the joint venture's business?

Explain what authority each party will have to commit or obligate the other to insurance and bonding companies, financing institutions, suppliers, subcontractors, and/or other parties?

Please provide information relating to the approximate **number** of management, administrative, support and non-management employees that will be required to operate the business and indicate whether they will be employees of the S/E/MWBE/DBE, non- S/E/MWBE/DBE or joint venture:

	Non- SBE/EBE/MWBE/DBE	SBE/EBE/MWBE/DBE	Joint Venture
Management			
Administrative			
Support			
Hourly Employees			

JOINT VENTURE ELIGIBILITY FORM

General Information

Please provide the name of the person who will be responsible for hiring employees for the joint venture.

Who will they be employed by?

Are any of the proposed joint venture employees currently employees of any of the joint venture partners? Yes (✓) No (✓)

If yes, please list the number and positions and indicate which firm currently employs the individual(s), (use additional sheets if necessary)

Number of employees	Position	Employed By

Attach a copy of the proposed joint venture agreement, promissory note or loan agreement (if applicable), and any and all written agreements between the joint venture partners.

List all other business relationships between the joint venture participants, including other joint venture agreements in which the parties are jointly involved.

If there are any significant changes in or pertaining to this submittal, the joint venture members must immediately notify the Division of Small Business Opportunity.

COMP-FRM-015

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

BID BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT W.E. O'Neil Construction Company of Colorado, as Principal, and Continental Casualty Company, a corporation organized and existing under and by virtue of the laws of the State of Illinois, and authorized to do business within the State of Colorado, as Surety, are held and firmly bound unto the City and County of Denver, Colorado, as Oblige, in full and just sum of 5% of Amount Bid Dollars, (\$ 5% of Amount Bid), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents:

WHEREAS, the said Principal is herewith submitting its bid, dated December 7, 2017, for the construction of: **Contract No. 201737356, 4330 E. 48TH E WAREHOUSE ROOF AND HVAC REPLACEMENT**, as set forth in detail in the Contract Documents for the City and County of Denver, Colorado, and said Oblige has required as a condition for receiving said bid that the Principal deposit specified bid security in the amount of not less than five percent (5%) of the amount of said bid, as it relates to work to be performed for the City, conditioned that in event of failure of the Principal to execute the Contract, for such construction and furnish required Performance and Payment Bond if the contract is offered him that said sum be paid immediately to the Oblige as liquidated damages, and not as a penalty, for the Principal's failure to perform.

The condition of this obligation is such that if the aforesaid Principal shall, within the period specified therefore, on the prescribed form presented to him for signature, enter into a written contract with the Oblige in accordance with his bid as accepted and give Performance and Payment Bond with good and sufficient surety or sureties, upon the form prescribed by the Oblige, for the faithful performance and the proper fulfillment of said Contract, or in the event of withdrawal of said bid within the time specified, or upon the payment to the Oblige of the sum determined upon herein, as liquidated damages and not as penalty, in the event the Principal fails to enter into said contract and give such Performance and Payment Bond within the time specified, then this Obligation shall be null and void, otherwise to remain in full force and effect.

Signed, sealed and delivered this 30th day of November, 2017.

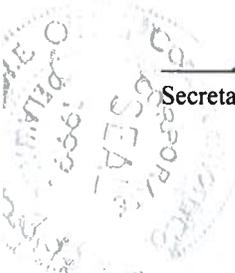
ATTEST

Anna M. Cleod
Secretary

W.E. O'Neil Construction Company of Colorado
Principal
By *Todd Coma*
Title *President*

Surety Continental Casualty Company
By *myca*
Amy C. Homer, Attorney-in-Fact
[SEAL]

Seal if Bidder is Corporation
(Attach Power-of-Attorney)



POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company (herein called "the CNA Companies"), are duly organized and existing insurance companies having their principal offices in the City of Chicago, and State of Illinois, and that they do by virtue of the signatures and seals herein affixed hereby make, constitute and appoint

Joseph A Maderak, Robert H Walker, Patrick R O'Sullivan, David L Jennings, H Donald Peterson, Amy C Homer, Philip C Reimer, David A Kotula, Susan M Preissing, Doug P O'Neill, George F Manikas Jr, Meredith C Covelli, Individually

of Chicago, IL, their true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on their behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind them thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of their insurance companies and all the acts of said Attorney, pursuant to the authority hereby given is hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law and Resolutions, printed on the reverse hereof, duly adopted, as indicated, by the Boards of Directors of the insurance companies.

In Witness Whereof, the CNA Companies have caused these presents to be signed by their Vice President and their corporate seals to be hereto affixed on this 28th day of July, 2015.

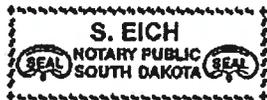


Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

Paul T. Bruflat
Vice President

State of South Dakota, County of Minnehaha, ss:

On this 28th day of July, 2015, before me personally came Paul T. Bruflat to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is a Vice President of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company described in and which executed the above instrument; that he knows the seals of said insurance companies; that the seals affixed to the said instrument are such corporate seals; that they were so affixed pursuant to authority given by the Boards of Directors of said insurance companies and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said insurance companies.



My Commission Expires February 12, 2021

S. Eich
Notary Public

CERTIFICATE

I, D. Bult, Assistant Secretary of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company do hereby certify that the Power of Attorney herein above set forth is still in force, and further certify that the By-Law and Resolution of the Board of Directors of the insurance companies printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said insurance companies this 30th day of November, 2017.



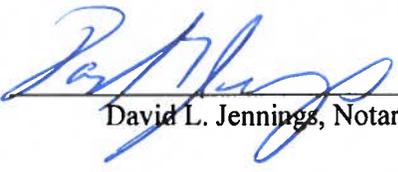
Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

D. Bult
Assistant Secretary

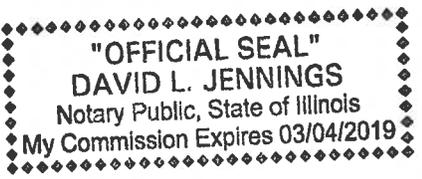
STATE OF Illinois
COUNTY OF Lake

I, David L. Jennings Notary Public of Lake County, in the State of Illinois, do hereby certify that Amy C. Homer Attorney-in-fact, of the Continental Casualty Company who is personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that she signed, sealed and delivered said instrument, for and on behalf of the Continental Casualty Company for the uses and purposes therein set forth.

Given under my hand and notarial seal in said County, this 30th day of November, 2017.



David L. Jennings, Notary Public





Office of Economic Development
 Division of Small Business Opportunity
 201 W. Colfax Ave, Dept. 907
 Denver, CO 80202
 p: 720.913.1999
 f: 720.913.1809
www.denvergov.org/dsbo

Diversity and Inclusiveness * in City Solicitations Information Request Form

Type in your response, print out, sign and date; or print out and complete manually. Please print legibly.

Denver Executive Order No. 101 establishes strategies between the City and private industry to use diversity and inclusiveness to promote economic development in the City and County of Denver and to encourage more businesses to compete for City contracts and procurements. The Executive Order requires, among other things, the collection of certain information regarding the practices of the City's contractors and consultants toward diversity and inclusiveness and encourages/requires City agencies to include diversity and inclusiveness policies in selection criteria where legally permitted in solicitations for City services or goods.

Answer each question below. Missing or incomplete responses will be recorded as "no", "not applicable", or "none". **A proposal or response to a solicitation by a contractor/consultant that does not include this completed form shall be deemed non-responsive and rejected.**

Business Email Address: tguthrie@weoneil.com

Please include the Email address of the contact person facilitating this solicitation for the City and County of Denver: _____

Agency Name:

- | | | |
|---|---|--|
| <input type="checkbox"/> Arts and Venue | <input type="checkbox"/> Purchasing Division | <input type="checkbox"/> Sheriff Department |
| <input type="checkbox"/> Auditor Office | <input type="checkbox"/> Human Services | <input type="checkbox"/> Technology Services |
| <input type="checkbox"/> Community Planning | <input type="checkbox"/> Economic Development | <input checked="" type="checkbox"/> Other |
| <input type="checkbox"/> Denver International Airport | <input type="checkbox"/> Parks and Recreation | |
| <input type="checkbox"/> Environmental Health | <input type="checkbox"/> Police Department | |
| <input type="checkbox"/> Fire Department | <input type="checkbox"/> Public Works | |

Project Name: 4330 E 48th E Warehouse Roof and HVAC Replacement

BID / RFP No.: 201737356

Name of Contractor/Consultant: W E O'Neil Construction Co. of Colorado

What industry is your business? General Contractor

Address:

229 Vallejo St

Denver, Colorado 80223

Business Phone No.: (303) 238-7900

Business Facsimile No.: (303) 462-2128

OED - Executive Order No. 101
 Diversity and Inclusiveness in City Solicitations Information Request Form
 Rev. 12/29/2015

1. How many employees does your company employ?

- 1-10 51-100
 11-50 over 100

1.1. How many of your company's employees are:

Full-time 100% Part-Time _____

2. Do you have a Diversity and Inclusiveness Program? Yes No

If No, and your company size is less than 10 employees continue to question 11. Complete and sign the form.

If Yes, does it address:

- 2.1 Employment and retention? Yes No
2.2 Procurement and supply chain activities? Yes No
2.3 Customer service? Yes No

3. Provide a detailed narrative of your company's diversity and inclusiveness principles and programs. This may include, for example, (i) diversity and inclusiveness employee training programs, equal opportunity policies, and the budget amount spent on an annual basis for workplace diversity; or (ii) diversity and inclusiveness training and information to improve customer service.

WEO Diversity Program consists of Outreach social events, Prequalification assessment, Sharing of Best Practices, Management Support, Partnership Opportunities, Certification Assistance and Special Payment Terms.

4. Does your company regularly communicate its diversity and inclusiveness policies to employees?

If Yes, how does your company regularly communicate its diversity and inclusiveness policies to employees? (select all that apply)

- Employee Training
 Pamphlets
 Public EEO postings
 Other
 Not Applicable

5. If you responded that you do not have a diversity and inclusiveness program, describe any plans your company may have to adopt such a program.

N/A

6. How often do you provide training in diversity and inclusiveness principles?

- Monthly Annually
 Quarterly Not Applicable Other _____

6.1 What percentage of the total number of employees generally participate?

- 0 - 25% 51 - 75%
 26 - 50% 76 - 100% Not Applicable

7. State how you achieve diversity and inclusiveness in supply and procurement activities. This may include, for example, narratives of training programs, equal opportunity policies, diversity or inclusiveness partnership programs, mentoring and outreach programs, and the amount and description of budget spent on an annual basis for procurement and supplier diversity and inclusiveness.

We solicit Diverse subs through ITB's and phone calls, we encourage non diverse subs to work with diverse vendors, we hold "Open House" events to cater to MBE/WBE/SBE companies, we publish ads in The Daily Journal to notify subs of our projects. We notify of opportunities with the Chambers and Associations, and we use the City and County of Denver's MWDSBE and Contract Management Systems to maximize opportunities.

8. Do you have a diversity and inclusiveness committee? Yes No

8.1 If Yes, how often does it meet?

- Monthly Annually No Committee
 Quarterly Other _____

8.2 If you responded that you do not have a diversity and inclusiveness committee, describe any plans your company may have to establish such a committee.

N/A

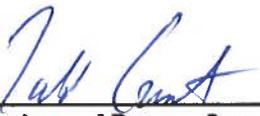
9. Do you have a budget for diversity and inclusiveness efforts? Yes No

10. Does your company integrate diversity and inclusion competencies into executive/manager performance evaluation plans? Yes No

11. Would you like information detailing how to implement a Diversity and Inclusiveness program? Yes No

If yes, please email XO101@denvergov.org.

I attest that the information represented herein is true, correct and complete, to the best of my knowledge.



Signature of Person Completing Form

12/5/17

Date

Todd Guthrie, President

Printed Name of Person Completing Form

NOTE: Attach additional sheets or documentation as necessary for a complete response.

*"Diversity and inclusiveness program" means a program that invites values, perspectives and contributions of people from diverse backgrounds, and integrates diversity into its hiring and retention policies, training opportunities, and business development methods to provide an equal opportunity for each person to participate, contribute, and succeed within the organization's workplace. "Diversity" encompasses a wide variety of human differences, including differences such as race, age, gender, gender identity, sexual orientation, ethnicity, physical disabilities, appearance, historically underutilized and disadvantaged persons, as well as social identities such as religion, marital status, socio-economic status, lifestyle, education, parental status, geographic background, language ability, and veteran status."

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division**

CONTRACT NO. 201737356

PROJECT NAME: 4330 E. 48th E Warehouse Roof and HVAC Replacement

ADDENDUM NO. 1 TO CONTRACT DOCUMENTS

Bidders are hereby instructed that the drawings, specifications, and other contract documents are modified, corrected, supplemented and/or superseded for the above mentioned project as hereinafter described in the following attachments:

Questions and Answers

Q1- Will the new ballot issue for 2018 buildings apply to this contract?

A1- A permit application will be submitted prior to the 2018 Green Roof requirement.

Q2- Can you confirm that the material required is not “20 year white EPDM roof membrane”?

A2- The specified product is for black EPDM.

Q3- Who is responsible for obtaining and paying for the permits?

A3 - The GC is responsible for obtaining and paying for permits.

Q4-Has there been asbestos testing done on the existing roofs?

A4- The City tests roofing for asbestos for bidding purposes assume there is no asbestos

Q5- I don't see the wage determination in the bidding documents.

A5- Prevailing Wage rates are included in the Bid Documents – Building Construction Projects issued 8/18/17

Q6- Is the new taper design correct? It seems that some of the roof areas have sloping sub straight.

A6- The new taper design is correct. The roof ponds water severely. At this time the roof slope down from east to west a total of 3” over a distance of 132’. This does not provide the code required slope. The tapered insulation to be installed will easily offset that tiny amount of slope built into the decking.

Q7- Is there a detail to “fill in” where existing primary scuppers are eliminated?

A7 – There is no detail. A note will be added to “Infill old scupper openings with wood nailers”.

Q8- The spec and the detail contradict each other. At Sumps detail say ½” slope but spec says 1” slope.

A8- The roof detail states that the slope shall be 1/12 which equates to a 1” per foot slope.

Q9- Should the drains be set flush to the deck or 1.5” above to accommodate double Q panels in sumps plus cover board? (assuming 1” slope)

A9- The drains should be set flush on the deck.

Q10- Actually there is no cover board in the sumps, can we get a 20 year Mfg. warranty without one?

A10- A cover board is to be added over the tapered edge strip insulation at the drain sumps.

Q11- What details do we use on the three outside walls of deck 1?

A11- Use Details A1/A521 and A2/A521.

Q12- D2-A521 shows the overflow approximately 6⁷/₈" above the primary drain. Do we need to cut the pre-stress wall at these locations to get proper O. F. drainage?

A12 - If the drain plugs, the only water that will get ~7" deep will be right at the sump. The scupper outlet will activate shortly after water backs up onto the roof. The scupper outlet is ~2" above the edge of the drain sump at the wall.

Q13 – Should the Control Join and all Perimeter walls on Decks 2 and 3 all finish at the same elevation?

A13 - Yes. Taper joint down as required to meet perimeter flashing elevation.

Q14- Same question for Deck 3 at all 4 walls?

A14- Yes. Taper joint down as required to meet perimeter flashing elevation.

Q15 – Verifying insulation is ASTM C 1289, Type II, Class 1, Grade 1.

A15- Switch from Grade 1 to Grade 2.

Q16 – Detail A1-521 – These edges will have varying heights due to the tapered system. Can you give us a detail to show the design of this detail?

A16-Refer to Detail A2/A521. Make smooth transition with tapered edge strip until the reinforced rubber flashing strip can be installed.

Q17 – Daikin is the only rooftop equipment listed on the schedule. Are there approved equals? (Trane, Carrier, York, etc...).

A17- We are open to other RTU's that meet the specs. They do need to be IECC 2015 compliant (multiple stage, economizer fault detection, etc.)

Q18 – Are the temperature sensors for the RTU's required to be run in conduit?

A18 – The temperature sensor cables shouldn't need to be in conduit since it's not a plenum, unless the owner would like them that way.

Q19 – Per the ductwork system insulation spec on M-0.1 all new and existing round ductwork is to be wrapped. Since this appears to be exposed is this required?

A19 – The ductwork is open to the space and should not be insulated. The supply and return drops from the RTU, the rectangular sections, should be lined for acoustics.

This **ADDENDUM** shall be attached to, become a part of, and be returned with the Bid Proposal.

Lesley B. Thomas
Lesley B. Thomas
City Engineer
11.30.17
Date

The undersigned bidder acknowledges receipt of this Addendum. The Proposal submitted herewith is in accordance with the stipulations set forth herein.

W.E. O'Neil Construction Co. of Colorado
Contractor

ADDENDUM NO. 1

DATE: December 1, 2017

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

CONTRACT NO. 201737356
PROJECT NAME: 4330 E. 48th E Warehouse Roof and HVAC Replacement

ADDENDUM NO. 2 TO CONTRACT DOCUMENTS

Bidders are hereby instructed that the drawings, specifications, and other contract documents are modified, corrected, supplemented and/or superseded for the above mentioned project as hereinafter described in the following attachments:

Contract No. 201737356
4330 E. 48th E Warehouse Roof and HVAC Replacement

Notice is hereby given that Sealed Bids for Contract No. 201737356 – 4330 E. 48th E Warehouse Roof and HVAC Replacement is hereby postponed. Sealed bids will be received in Room 6.G.7, 201 West Colfax., Denver, CO 80202, no later than:

11:00 a.m., Local Time

December 14, 2017

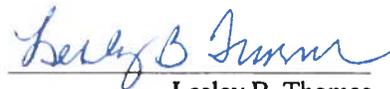
Bids will also be opened in Room 6.G.7

Prior to submitting a bid, the bidder shall consult the Contractor's bulletin board, located on the 2nd floor at 201 W. Colfax Avenue, Denver, CO 80202 and www.work4denver.com.

George Delaney
Interim Acting Manager of Public Works

Published in the Daily Journal: December 5, 6, 7, 2017

This ADDENDUM shall be attached to, become a part of, and be returned with the Bid Proposal.



Lesley B. Thomas
City Engineer

12-1-17

Date

The undersigned bidder acknowledges receipt of this Addendum. The Proposal submitted herewith is in accordance with the stipulations set forth herein.

W.E. O'Neil Construction Co. of Colorado
Contractor

ADDENDUM NO. 2

DATE: December 1, 2017

Contract No. 2017373556
Warehouse Roof & HVAC

ADD #2

December 1, 2017



DEPARTMENT OF PUBLIC WORKS

BID DOCUMENTS PACKAGE

Contract No. 201737536

**4330 E. 48TH E WAREHOUSE ROOF AND HVAC
REPLACEMENT**

NOVEMBER 6, 2017

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

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CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

NOTICE FOR INVITATION FOR BIDS
FOR CONTRACT NO. 201737536

4330 E. 48TH E WAREHOUSE ROOF AND HVAC REPLACEMENT

BID SCHEDULE:
11:00 A.M., Local Time
DECEMBER 07, 2017

Sealed bids will be received in Room 6.G.7, 201 W. Colfax Ave., Denver, CO 80202, beginning at 10:30 a.m., no later than 11:00 a.m., on bid day. All properly delivered bids will then be publicly opened and read aloud.

Bids submitted prior to 10:30 a.m. on the specified bid opening date/time shall be presented at the Office of Contract Administration, Attention: Public Works Contract Administration, 201 W. Colfax Ave., Department 614, Denver, CO 80202.

Prior to submitting a bid, the bidder shall consult the Contractor's Bulletin Board located at 201 W. Colfax Ave., 2nd Floor, Denver, CO 80202 and/or www.work4denver.com.

GENERAL STATEMENT OF WORK:

Replacement of the roof from the deck up with new 20 year white EPDM roof membrane or Built-Up-Roof and roof insulation to conform to the 2015 IECC. Replacement of the roof top units for heating and cooling.

ESTIMATED CONSTRUCTION COST:

The estimated cost of construction for this project is between \$1,146,000 and \$1,400,000.

TEXTURA CONSTRUCTION PAYMENT MANAGEMENT:

Bidders are required, when preparing a bid, to agree that it shall use the Textura® Construction Payment Management System (CPM System) for this Project and recognizes that all fees associated with the CPM System are to be paid by the awarded Contractor for billings for work performed. Use the pricing scale provided in Instructions to Bidders to price the Textura service appropriately. For details on the company and service contact the Textura® Corporation 866-TEXTURA or www.texturacorp.com.

DOCUMENTS AND BID INFORMATION AVAILABLE:

Contract Documents complete with Technical Specifications and, if applicable, construction drawings will be available on the first day of publication at: www.work4denver.com. To download digital Contract Documents at a cost of \$10.00 per download, reference eBid Document Number #5417484. Contact QuestCDN at 952-233-1632 or info@questcdn.com for assistance.

PRE-BID CONFERENCE:

A pre-bid conference will be held for this Project at 10:00 a.m., local time, on November 16, 2017. This meeting will take place at 201 W. Colfax Ave., Room 4.I.3, Denver, CO 80202

DEADLINE TO SUBMIT QUESTIONS: November 28, 2017 by 2:00 p.m. local time.

SPECIAL INSTRUCTIONS: Secure and store all materials and tools during construction as the building will be occupied at night.

PREQUALIFICATION REQUIREMENTS:

Each bidder must be prequalified as a 2A General Building in the \$1.5M monetary level in accordance with the City's Rules and Regulations Governing Prequalification of Contractors. Each bidder must have submitted a prequalification application a minimum of ten (10) calendar days prior to the bid opening date. Applications must be submitted to the

Department of Public Works, Prequalification Section, 201 W. Colfax Ave., Department 614, Denver, CO 80202. To view the Rules and Regulations and to obtain a prequalification application, please visit our website at www.denvergov.org/prequalification or call 720-865-2539 for prequalification information ONLY.

MINORITY AND WOMAN BUSINESS ENTERPRISE PARTICIPATION:

Construction, reconstruction and remodeling contracts made and entered into by the City and County of Denver are subject to Article III, Divisions 1 and 3 of Chapter 28 of the Denver Revised Municipal Code, (Sections 28-31 to 28-36 and 28-52 to 28-90 D.R.M.C) and all Minority and Woman Business Enterprise and Equal Employment Opportunity Rules and Regulations adopted by the Director of the Division of Small Business Opportunity.

Article III, Division 3 of Chapter 28 of the D.R.M.C. directs the Director of the Division of Small Business Opportunity to establish a project goal for expenditures on construction, reconstruction, and remodeling work contracted by the City and County of Denver. The specific goal for this project is:

13% Minority and Woman Business Enterprise (M/WBE) Participation

Project goals must be met with certified participants as set forth in Section 28-60, D.R.M.C. or through the demonstration of a sufficient good faith effort under Section 28-62 D.R.M.C. For compliance with good faith requirements under Section 28-62(b), **the M/WBE percentage solicitation level required for this project is 100%.**

The Director of the Division of Small Business Opportunity urges all participants in City construction, reconstruction and remodeling projects to assist in achieving these goals.

MISCELLANEOUS:

Contracts for construction, reconstruction, and remodeling are subject to the City prevailing wage rate requirements established pursuant to Section 20-76, D.R.M.C.

As its best interest may appear, the City and County of Denver reserves the right to reject any or all bids and to waive informalities in bids.

A modified version of this Notice of Invitation for Bids and the project's Statement of Quantities is available on the City and County of Denver's website at: www.work4denver.com.

Publication Dates: November 6, 7, 8, 2017
Published In: The Daily Journal

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

INSTRUCTIONS TO BIDDERS

IB-1 INSTRUCTION TO BIDDERS

These Instructions to Bidders are a part of the Contract Documents and are intended to serve as a guide to bidders. They are general in nature and may be amended or supplemented as needed to support any one specific invitation to bid. Each bidder shall prepare its bid in strict compliance with all requirements of the Contract Documents and by careful application of these instructions.

IB-2 BIDDING

The copy of the Contract Documents contains the Bid Form and Submittal Package for this Project, which must be used to submit a bid hereunder. The bidder must fully complete, execute and submit this Bid Form and Submittal Package, along with any other specified components of the Contract Documents, as its bid for the referenced Project.

A bidder is not required to submit as part of its bid the entire set of Contract Documents distributed by the City pursuant to the Notice of Invitation for Bids, if the bidder executes and submits the Bidder Acknowledgment Form included with the Bid Form and Submittal Package as part of its bid. However, each bidder, by submitting its bid, shall be conclusively presumed to have received and reviewed all of the information contained in the Contract Documents as this term is further defined herein.

Each bid must be enclosed in a sealed envelope, must be addressed to the Manager and must show on the face of the envelope the full name of the bidder, the City Project number, and descriptive title of the Project for which the bid is made.

The advertisement for Notice of Invitation for Bids will identify where and when the bid must be delivered.

IB-3 CONTRACT DOCUMENTS AS PUBLISHED BY CITY

Each bidder shall be responsible for, and shall be deemed to have received, all the information contained in the Contract Documents as distributed by the City pursuant to the Notice of Invitation for Bids, including addenda, whether or not such bidder has reviewed all or part of the Contract Documents in either its hard copy form or in any other format. If organizations or companies other than the City or its design professional distribute the City's Contract Documents for review by prospective bidders, whether in hard copy or via electronic or other media, neither the City nor its design professional shall be responsible for the content, completeness or accuracy of any information distributed or transmitted by any such organization or company.

IB-4 COMPLETING AND SIGNING THE BID FORMS

The bidder must complete the Bid Form by legibly writing or printing in ink, in words and figures as required, all the bidder's prices offered for the Work to be performed. All blank spaces, which require a response of the bidder, must be properly completed in full. If in the process of evaluating a bid, words and figures, as written on the Bid Form by the bidder, do not agree, the written words will govern.

For Bid Forms requiring unit price bids, the bidder shall write in the Bid Form spaces provided a unit price for each item for which a quantity is given and shall also write the product of each unit price and the quantity specified in the "Amount" or "Total" space provided.

Each bidder must sign the Bid Form and give the bidder's current business address. If an individual, the signature must be of the individual offering the bid; if a partnership, the signature must be that of a general partner; and if a corporation, both the president and the secretary must sign and the seal of the corporation must be affixed. Signatures of other persons may be acceptable if the bid contains sufficient evidence, satisfactory to the City in its sole discretion, to indicate that the other persons are authorized to bind the bidder.

IB-5 UNACCEPTABLE BIDS

The City will not accept bids from Bidders not prequalified with the Department of Public Works (if prequalification is required for this project), in arrears to the City upon debt or contract, or which are defaulters (as surety or otherwise) upon any obligation to the City.

IB-6 INFORMAL AND UNBALANCED BIDS

Any alteration, interlineations, erasure, omission, deletion or addition by the bidder to the Bid Form and Submittal Package or other parts of the Contract Documents submitted with the Bid Form and Submittal Package, as originally issued to the bidder, shall render the accompanying bid informal and may constitute cause for rejection.

Any unauthorized addition, conditional or alternate bids, failure to provide a unit price, lump sum amount or authorized alternate item specified or other irregularities of any kind which tend to render the bid incomplete, indefinite or ambiguous shall render the bid informal and may constitute cause for rejection.

Bids that are unbalanced so that each item does not reasonably carry its own proportion of cost or that contain inadequate or unreasonable prices for any item may be rejected. Bids, which have not acknowledged all addenda to the Contract Documents issued for this bid, may also be rejected.

The right is reserved by the City to reject any or all bids and to waive any informalities where it is deemed by the City to be in the best interests of the City to do so.

IB-7 ONLY ONE BID ACCEPTED

The City will accept only one bid for the same work from any one bidder. This includes bids that may be submitted under different names by one business enterprise.

IB-8 BID GUARANTEE

As a guarantee of good faith on the part of the bidder, each bid must be accompanied by a bid guarantee, consisting of either a certified or cashier's check made payable without condition to the order of the City and County of Denver or a bid bond written by an approved corporate surety in favor of the City and County of Denver. If the bid of a bidder is acceptable and the bidder is notified by the Manager that it is considered to be the Apparent Low Bidder and said bidder fails to execute a contract in the form prescribed or to furnish a performance and payment bond with a legally responsible and approved surety or to furnish the required evidence of insurance or satisfy all conditions precedent to contract execution within five (5) days after such notice is made by the City, said bid guarantee shall be forfeited to the City as liquidated damages and not as a penalty.

The bid guarantee shall be in the amount of five percent (5%) of the total bid unless otherwise specified in the Notice of Invitation for Bids and on the form appearing in the Contract Documents in the Bid Form and Submittal Package. Failure to submit a properly executed bid guarantee, on the form provided herein may, in the City's sole discretion, constitute cause for rejection.

Following award and execution of the Contract by the Apparent Low Bidder, or earlier in the sole discretion of the City, bid guarantees of all but the Apparent Low Bidder will be returned. When the Apparent Low Bidder executes the Contract and delivers to the City satisfactory performance and payment bonds, required insurance documentation, and has satisfied all conditions precedent to contract execution by the City, and after approval, if any, by the Council of the City of the proposed Contract with the Apparent Low Bidder, the bid guarantee of the Apparent Low Bidder shall be returned. Such return shall be made within one hundred twenty (120) days from date bids are opened unless otherwise specified in the Special Contract Conditions.

IB-9 SITE INSPECTION AND INVESTIGATIONS

Prior to submitting a bid, the bidder is invited to inspect the work site and its surroundings. Although the bidder is not required to make such an inspection before bidding, for purposes of the Contract it shall be conclusively presumed that by failing to make such an inspection, the bidder has waived the right to later claim additional compensation or time extensions for conditions which would have been evident had the site been inspected.

Drawings and Technical Specifications, defining the Work to be done, were prepared on the basis of interpretation by the design professionals of information derived from investigations of the work site. Such information and data are subject to sampling errors, and the interpretation of the information and data depends to a degree on the judgment of the design professional. In view of this, the bidder is invited to make such additional investigations as the bidder's judgment dictates the need for such investigations. Information about the degree of difficulty of the Work to be done cannot totally be derived from either the Drawings or Technical Specifications or from the Manager or his representatives.

Since the bid information cannot be guaranteed, the Contractor shall have assumed the risks attendant to successful performance of the Work and shall never make claim for additional compensation or time extensions on the grounds that the nature or amount of work to be done was not understood by the bidder at the time of the bidding.

IB-10 INCONSISTENCIES

Any seeming inconsistencies or ambiguities between different provisions of the Contract Documents or any point which the bidder believes requires a decision or interpretation by the City must be inquired into by the bidder by addressing a formal written communication to the Manager of Public Works and sending or delivering it to the offices of the Division of Public Works advertising this Project for bid at least forty-eight (48) hours, excluding Saturdays, Sundays, and holidays, before the time set for the opening of bids

Information about the decision or interpretation made in response to any inquiry will be posted on the Contractor's Bulletin Board (refer to IB-12 CONTRACTOR'S BULLETIN BOARD, for the location of the Contractor's Bulletin Board). If the matter raised requires, in the sole discretion of the Manager, that an addendum to the bid documents be issued, such addendum will be published and each bidder shall be required to acknowledge the addendum by signing and identifying it in the Bid Form when submitting the bid.

After bids are opened, all bidders must abide by the formal response of the Manager, as to any interpretation. The City shall not be bound and the bidder shall not rely on any oral communication, interpretation clarification or determination of the Contract Documents prior to bid opening.

IB-11 WITHDRAWAL OF BID

A bidder may withdraw its bid at any time prior to the time for receipt of bids set forth in the Notice of Invitation for Bids by making written request upon the Manager of Public Works. After such time, no bid may be withdrawn or modified.

Such request must be signed by the persons authorized to bind the bidder as defined in IB-3, COMPLETING AND SIGNING BID FORMS.

IB-12 CONTRACTOR'S BULLETIN BOARD

It shall be conclusively presumed that the bidder has, before submitting any bid, read and shall take full responsibility for all addenda, posted decisions, and other information relevant to the bid posted by the City on the Contractor's Bulletin Board. The Contractor's Bulletin Board is located at 201 W. Colfax, 2nd Floor, Denver, CO 80202, in the Wellington E. Webb Municipal Office Building.

IB-13 PRE-BID MEETING

Bidders are urged to attend the pre-bid meeting(s) scheduled for this Project. Attendance is not mandatory; however, bidders will be held responsible for all information presented at such meeting(s).

IB-14 ADDENDA

As its best interests may require, the City may issue addenda to the Contract Documents. Such addenda shall be posted on the Contractor's Bulletin Board and made available to all persons having purchased a set of Contract Documents as set forth in the Notice of Invitation for Bids contained herein. All bidders must acknowledge receipt of all addenda on the Bid Form at the time of submission of the bid.

IB-15 BID OPENING

Bidders are invited to be present at the bid opening. Unless otherwise suspended, delayed or canceled by posted notice from the Manager, bid opening will occur at the time and place designated in the Notice of Invitation for Bid.

IB-16 EVALUATION OF BIDS AND BASIS OF BID SELECTION

Bids will be evaluated after being read in open meeting at the place designated for such bid opening. All low bidders' bids will be reviewed for responsiveness to the requirements of the Contract Documents and whether or not the bids contain irregularities which could give any bidder an unfair advantage.

Selection will be made on the basis of the lowest, total, responsive, qualified bid, which bid shall include the total base bid set forth on the Bid Form, plus the total of any alternates set forth on the Bid Form and selected by the City during evaluation. Alternates, if any are included in the bid, will be selected in the priority shown on the Bid Form, subject to the limits of available funds. Bid selection will be subject to all requirements and special bidder qualifications contained herein and subject to approval of such resulting Contract in accordance with the Charter and Revised Municipal Code of the City and County of Denver. In addition to all other specified requirements, the City will correct arithmetical errors in all bids and corrected totals only will be considered as the basis of selection.

Upon concluding that the bid is, in fact, the lowest, total, responsive bid to the bidding conditions and that of a responsible, qualified bidder, the City will notify the Apparent Low Bidder.

As its best interests may appear, the City and County of Denver reserves the right to waive informalities in bids, to reject any and all bids and to rebid the Project.

IB-17 NOTICE TO APPARENT LOW BIDDER

The Notice to Apparent Low Bidder, a form of which is included in the Contract Special Conditions Section of the Contract Documents, is issued by the City directly to the selected bidder and informs the bidder that the Manager intends to seek approval of the execution of the Contract by the City in accordance with the Charter and Revised Municipal Code of the City and County of Denver. Specifically, it informs the bidder of its obligations with respect to execution of the Contract and instructs the bidder on how to proceed toward execution of the Contract. The City reserves the right to notify the Apparent Low Bidder, at any time within one hundred twenty (120) days from the date of the opening of the bids, that approval to contract with the Apparent Low Bidder shall be sought in accordance with the Charter and Revised Municipal Code of the City and County of Denver.

In accordance with the terms and conditions contained in the Bid Form and Submittal Package and any additional requirements set forth in the Notice to Apparent Low Bidder or elsewhere in the Contract Documents, the Apparent Low Bidder shall execute the Contract Form contained in the Contract Documents made available by the City for execution in the appropriate number of counterparts. The Apparent Low Bidder shall return the fully executed Contract Document sets, along with any supplemental documents required herein, to the City and shall comply with all other conditions precedent to Contract execution within five (5) days of the date of issuance of the Notice to Apparent Low Bidder by the City. Failure to comply with each of these requirements within five (5) days of the date of issuance of the Notice to Apparent Low Bidder by the City shall render the bid nonresponsive and may constitute cause for rejection.

Issuance of such Notice shall not, however, constitute a commitment on the part of the City or create any rights in the Apparent Low Bidder to any contract with the City.

IB-18 EXECUTION OF CONTRACT

The process of executing a contract requires action by both the apparent low bidder and the City. After it notifies the Apparent Low Bidder, the City will prepare the Contract Documents by incorporating all of the documents submitted by the Apparent Low Bidder into one or more executable copies. Upon notification that contracts documents are ready for execution the Apparent Low Bidder shall execute the contract documents. At this time, the successful bidder shall also provide certain supplemental documents for incorporation into the Contract Documents. These supplemental documents shall include: the properly executed Certificate of Insurance Forms evidencing the apparent low bidder's satisfactory compliance with

the insurance requirements set forth in the Contract Documents; a properly executed Payment and Performance Bond Form and appropriate Power of Attorney evidencing the Apparent Low Bidder's satisfactory compliance with the bonding requirements set forth in the Contract Documents; and documentation of compliance with any other conditions precedent to execution of the Contract by the City set forth in the Contract Documents. The insurance and bond forms contained in the Contract Special Conditions Section of the Contract Documents must be used in satisfying these supplemental document requirements.

These documents are then delivered to the City within the prescribed time period for examination of the documents to determine whether or not the Contractor has correctly executed the Contract and has correctly provided the required supplemental documents and that these documents are satisfactorily and properly completed. From here, all of the documents are forwarded to the City Attorney who will, if the insurance and bonding offered is acceptable and if all other elements of the Contract Documents are in order, recommend that the Manager and the Mayor approve the documents and, when required by the City Charter, prepare an ordinance for submittal to City Council authorizing the execution of the Contract. The City Attorney shall in all applicable instances submit the proposed contract and ordinance to City Council. After City Council approval, the Contract shall be reviewed by the City Attorney and routed for execution by the Mayor, the Clerk for attestation and the Auditor for countersignature and registration. When the total process of contract execution is complete, a Notice to Proceed will be issued and a single executed copy of the Contract will be delivered to the Contractor. Any work performed or a material purchased prior to the issuance of Notice to Proceed is at the Contractor's risk.

IB-19 BONDING REQUIREMENTS

In accordance with the provisions of General Contract Conditions, Title 15, PERFORMANCE AND PAYMENT BONDS, the minimum bonding requirements for this Contract are set forth in the form **CITY AND COUNTY OF DENVER PERFORMANCE AND PAYMENT BOND** contained in the Special Conditions Section of the Contract Documents. Upon receipt of Notice to Apparent Low Bidder, the apparent low bidder must cause this form bond to be purchased, executed and furnished, along with appropriate Powers of Attorney and a surety authorization letter (in form similar to the one attached), to the City in accordance with the instructions contained herein.

IB-20 INSURANCE REQUIREMENTS

The minimum insurance requirements for this Contract are set forth in the Special Conditions Section of the Contract Documents. Bidders are urged to consider, in preparing a bid hereunder, that each condition, requirement or specification set forth in the form certificate must be complied with by the Contractor and all subcontractors performing Work on the Project, unless such requirements are specifically accepted in writing by the City's Risk Management Office. The Contractor must either include all subcontractors performing work hereunder as insureds under each required policy or furnish a separate certificate for each subcontractor. In either case, the Contractor shall insure that each subcontractor complies with all of the coverage requirements.

IB-21 PERMITS AND LICENSES

All permits, licenses and approvals required in the prosecution of the work shall be obtained and paid for by the Contractor.

IB-22 PREVAILING WAGE REQUIREMENTS

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 request for qualifications/proposals was advertised: November 6, 2017.

Prevailing wage and fringe rates will adjust on, and only on, the anniversary of the date the Contract was fully executed. Unless expressly provided for in this Agreement, Contractor will receive no additional compensation for increases in prevailing wages or fringe benefits.

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

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

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.

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.

IB-23 TAX REQUIREMENTS

General. Bidders are referred to the General Contract Condition 323, TAXES, as to taxes to which they may be subject in performing the Work under this Contract, including but not limited to sales and use taxes and the Denver Occupational Privilege Tax. The following instructions are to be considered along with the General Contract Conditions and not in lieu of them.

Sales and Use Tax. Construction and building materials sold to contractors and subcontractors for use on structures, roads, streets, highways, and other public works owned by the City and County of Denver are exempt from state, RTD, and Cultural Facilities District sales and use taxes. However, such materials will be subject to sales and use taxes imposed by the City and County of Denver.

It is the responsibility of the Contractor and its subcontractors to apply to the Colorado Department of Revenue (“CDOR”) for a certificate, or certificates, of exemption indicating that their purchase of construction or building materials is for a public project, and to deliver to the City copies of such applications as soon as possible after approval by the CDOR. Bidders shall not include in their bid amounts the exempt state, RTD, and Cultural Facilities District Sales and Use Taxes.

Denver Occupational Privilege Tax. Any employee working for a contractor, or a subcontractor, who earns over \$500 working in Denver during a calendar month, is subject to the payment of the Employee Occupational Privilege Tax. The Contractor and any subcontractor must pay the Business Occupational Privilege Tax for each of its employees who are subject to such tax.

IB-24 DIVERSITY AND INCLUSIVENESS IN CITY SOLICITATIONS

Each bidder shall, as a condition of responsiveness to this solicitation, complete and return the “Diversity and Inclusiveness in City Solicitations Information Request Form” with their Bid.

Using the “Diversity and Inclusiveness in City Solicitations Information Request Form” provided, please state whether you have a diversity and inclusiveness program for employment and retention, procurement and supply chain activities, or customer service and provide the additional information requested on the form. The information provided on the “Diversity and Inclusiveness in City Solicitations Information Request Form” will provide an opportunity for City contractors to describe their own diversity and inclusiveness practices. Contractors are not expected to conduct intrusive examinations of its employees, managers, or business partners in order to describe diversity and inclusiveness measures. Rather, the City simply seeks a description of the contractor’s current practices, if any.

Diversity and Inclusiveness information provided by City contractors in response to City solicitations for services or goods will be collated, analyzed, and made available in reports consistent with City Executive Order No. 101. However, no personally identifiable provided by or obtained from contractor’s will be in such reports.

IB-25 MINORITY AND WOMAN BUSINESS ENTERPRISE (M/WBE) REQUIREMENTS

Article III, Divisions 1 and 3 of Chapter 28, Denver Revised Municipal Code (D.R.M.C.), designated as Sections 28-31 – 28-36 and 28-52 – 28-90 D.R.M.C. and referred to in these Bid Documents as the “M/WBE Ordinance” and any Rules or Regulations promulgated pursuant thereto apply to this Project and are incorporated into these Bid Documents by reference. Generally, the M/WBE Ordinance provides for the adoption of a good faith goals program, to be administered by the Division of Small Business Opportunity (DSBO), devised to provide increased bidding opportunities for Minority and Woman Business Enterprises (M/WBEs). As such, each bidder must comply with the terms and conditions of the M/WBE Ordinance in making its bid and, if awarded the Contract, in performing all Work thereunder. A bidder’s failure to comply with the M/WBE Ordinance, any Rules or Regulations promulgated pursuant thereto, or any additional requirement contained herein shall render the bid non-responsive and shall constitute cause for rejection. Failure by the contractor awarded the contract to comply with M/WBE Ordinance requirements during the performance of the contract is a material breach of the contract, which may result in the imposition of sanctions on the Contractor, as deemed appropriate by DSBO. Copies of the M/WBE Ordinance and its accompanying Rules and Regulations are available for the use and review of bidders from DSBO. In order to comply with the bid requirements of the M/WBE Ordinance, a bidder shall either meet the established project goal or, in the alternative, demonstrate that the bidder has made sufficient good faith efforts to meet the goal in accordance with the M/WBE Ordinance.

Meeting Established Goal

In preparing a bid to meet the established Project goal, bidders should consider the following instructions relating to compliance with the M/WBE Ordinance:

1. Under the M/WBE Ordinance, the Director of DSBO (“Director”) is directed to establish project goals for expenditures on construction, reconstruction, and remodeling work performed for the City and County of Denver. The specific goal for this project is stated in the Notice of Invitation for Bids bound herein.
2. In preparing its bid, each bidder shall list on the Bid Form pages entitled "List of Proposed MWBE Bidders, Subcontractors, Suppliers, Manufacturers, Manufacturers' Representatives or Brokers" the name, address, work description/supply, committed level of participation and other required information for each M/WBE of any tier which the bidder intends to use in performing the work on this Project. **Only the M/WBEs identified and the precise levels of participation listed for each on the Bid Form page, at the time of bid opening, will be considered in determining whether the bidder has met the designated participation goal. Additional, revised or corrected participation submitted after bid opening will not be considered.** M/WBE bidders may count self-performance or joint venture activity in meeting the M/WBE project goal, but only for the scope of work performed as a commercially useful function and at a percentage level the M/WBE will be performing itself.
3. Any agreement between a bidder or proposer and an MBE or WBE in which the bidder or proposer requires that the MBE or WBE not provide subcontracting quotations to other bidders or proposers is prohibited and shall render a bidder's bid or proposer's proposal nonresponsive. D.R.M.C. 28-63(f)
4. If a bidder/proposer is participating in a joint venture with a certified M/WBE firm, complete the Joint Venture Eligibility Form and Joint Venture Affidavit contained in this bid document/RFP. Submit the aforementioned forms with the firm’s Joint Venture Agreement, to the DSBO Director, **at least 10 working days prior to the proposal submittal.** The Joint Venture must be approved prior to the bid opening or proposal submittal by the DSBO Director. Approval by the DSBO Director includes determining the amount the Joint Venture will count towards meeting the project goal.
5. All M/WBEs listed on the Bid Form must be properly certified by the City on or before the date bids are opened in order to count towards meeting the designated goal. DSBO maintains an M/WBE Directory (“Directory”), which is a current listing of M/WBEs that have been certified by the City. A copy of the DSBO Directory is located at DSBO web site at <https://www.denvergov.org/dsbo>.

Bidders are encouraged to use the Directory to assist in locating M/WBEs for the work and supplies required on the Project. Bidders are reminded that changes may be made to the Directory at anytime in accordance with the City's M/WBE Ordinance and procedures established to administer this program and a current copy of the Directory must always be used in preparing a bid. M/WBE certification or listing in the Directory is not a representation or warranty by the City as to the qualifications of any listed M/WBE.

6. In accordance with the provisions of the M/WBE Ordinance, DSBO will evaluate each bid to determine the responsiveness of the bid to the requirements of the M/WBE Ordinance. In determining whether a bidder's committed level of participation meets or exceeds the stated M/WBE goal, DSBO shall base its calculation of applicable amounts and percentages on the total base bid amount, not including any listed alternates, of each bid as follows:
 - a. The bid information provided by the agency will be used to determine the total base bid amount of each bid. Each bidder's total base bid amount will be multiplied by the M/WBE percentage established for the project to determine the exact dollar amount of required M/WBE participation for the Project. This amount will then be compared against the exact dollar amounts for the M/WBE committed for participation by the bidder. If the total dollar amount of participation listed meets or exceeds the established M/WBE dollar amount goal listed, then DSBO will determine that the goal has been met.
 - b. In addition, DSBO will determine the exact commitment percentage for each listed M/WBE by dividing the dollar amount listed for each M/WBE by the total base bid dollar amount submitted by the bidder. These individual percentages, when totaled for all listed M/WBE, will establish the total committed percentage level of M/WBE participation that the bidder must comply with during the life of the contract. In all cases, the committed percentage level of M/WBE participation must equal or exceed the assigned M/WBE goal for the Project.
 - c. In providing the exact dollar amount of participation for each listed M/WBE, a bidder should take care never to round up in determining whether or not the total of these amounts meets or exceeds the established percentage goal. The goal must be met or exceeded by dollar amounts and percentages in order for DSBO to determine that the bidder has met or exceeded the applicable M/WBE goal.
 - d. As previously mentioned, compliance with the M/WBE goal will be determined on the base bid alone. If a bid contains alternates, participation contained in any alternate will not count towards satisfaction of the Project goal. However, should any designated alternate be selected by the City for inclusion in the contract ultimately awarded, the M/WBE goal percentage level submitted at bid time, on the base bid, will also apply to the selected alternates and must be maintained for the life of the contract on the total contract amount, including any alternate work. Thus, even though such participation will not be considered in evaluating bids, bidders are urged to consider participation in preparing bids for designated alternates.
 - e. On projects where force account or allowance bid items have been included, bidders must meet the M/WBE goal percentage based upon the total base bid, including all such items that are submitted to the City. However, when a force account or allowance is designated by the City to be either performed or purchased from a specific company, the bidder may back out the dollar amount of the force account or allowance from the total base bid and meet the M/WBE goal on the remaining reduced amount.
 - f. On bids which, at the time of bid opening, are equal to or exceed Five Million Dollars (\$5,000,000.00), including any alternates which may be selected, only sixty percent (60%) of the value of the commercially useful function performed by M/WBE suppliers shall count toward satisfaction of the Project goal. On Projects under Five Million (\$5,000,000.00) the value of the commercially useful function of M/WBE supplier(s) will

count at a one hundred percent (100%) level. Manufacturer's representatives and packagers shall be counted in the same manner as brokers.

- g. In utilizing the M/WBE participation of a Broker only the bona fide commissions earned by such Broker for its performance of a commercially useful function will count toward meeting the Project goals. The bidder must separate the bona fide brokerage commissions from the actual cost of the supplies or materials provided to determine the actual dollar amount of participation that can be counted towards meeting the goal.
7. On or before the third (3rd) working day after bid opening, all of the Bidders are required to submit an executed "Letter of Intent" for each M/WBE listed on the Bid Form as a joint venture member, subcontractor, supplier, manufacturer, manufacturers' representative or broker of any tier. **An MBE or WBE Prime Bidder needs to submit a Letter of Intent for itself for self performed work**, and must identify their level of participation on the designated M/WBE participation page bound herein. A Letter of Intent shall be submitted only for the M/WBEs listed at the time of bid opening, since this is the only participation that will be counted toward satisfaction of the project goal. A form for the M/WBE Letter of Intent is included with the Bid Form. The M/WBE Letter of Intent is a written communication from the Bidder to the City evidencing an understanding that the Bidder has or will enter into a contractual relationship with the M/WBE or that its subcontractor(s) and supplier(s), manufacturer(s), manufacturers' representative(s) and broker(s) will do so. Each M/WBE Letter of Intent shall be accompanied by a copy of the City and County of Denver's M/WBE certification letter for each proposed M/WBE identified at bid time. Bidders are urged to carefully review these Letters before submission to the City to ensure that they are properly completed and executed by the appropriate parties.

Good Faith Effort.

In preparing a bid to demonstrate a good faith effort, bidders should consider the following instructions relating to compliance with the M/WBE Ordinance:

1. If the bidder or proposer has not fully met the project goal as provided in section 28-60, then it shall demonstrate that it has made good faith efforts to meet such goal. The bidder or proposer shall furnish to the director, within three (3) working days after bid opening by the City or on or before the time of the final project-specific proposal submitted to and authorized by the City pursuant to a competitive selection process, or bid selection by a private owner, a detailed statement of its good faith efforts to meet the project goal set by the director. This statement shall address each of the items in subsection (b) and any additional criteria that the director may establish by rule or regulation consistent with the purposes of this division 3. Good faith efforts must be demonstrated to be meaningful and not merely for formalistic compliance with this Division 3. The scope and intensity of the efforts will be considered in determining whether the bidder or proposer has achieved a good faith effort.
2. The statement of good faith efforts shall include a specific response and verification with respect to each of the following good faith effort categories, which may be further defined by rule or regulation. A bidder or proposer may include any additional information it believes may be relevant. Failure of a bidder or proposer to show good faith efforts as to any one (1) of the following categories shall render its overall good faith effort showing insufficient and its bid or proposal non-responsive:
 - a. If prebid or preselection meetings are scheduled by the City at which MBEs and WBEs may be informed of subcontracting or joint venture opportunities under a proposed contract to be bid, or procured pursuant to the competitive selection process, attendance at such prebid or preselection meetings is not mandatory; however, bidders and proposers are responsible for the information provided at these meetings.
 - b. The bidder or proposer must solicit through all reasonable and available means, the interest of all MBEs and WBEs certified in the scopes of work of the contract. The bidder or proposer must solicit the interest of such MBEs and WBEs within sufficient time, prior to the bid opening or date of final project-specific proposal in the case of a competitive selection process, to allow such MBEs and WBEs to respond to the solicitation. The bidder or proposer must determine with certainty

- if the MBEs and WBEs are interested by demonstrating appropriate steps to follow up initial solicitations.
- c. The bidder or proposer must select portions of the work of the contract to be performed by MBEs and WBEs in order to increase the likelihood that the project goal will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MBE and WBE participation as subcontractors or joint venturers, and for bidder or proposer self-performed work, as suppliers, manufacturers, manufacturer's representatives and brokers, all reasonably consistent with industry practice, even when the bidder or proposer would otherwise prefer to perform these work items with its own forces. The bidder or proposer must identify what portions of the contract will be self-performed and what portions of the contract will be opened to solicitation of bids, proposals and quotes from MBE and WBEs. All portions of the contract not self-performed must be solicited for MBE and WBE participation. The ability or desire of a bidder or proposer to perform the work of a contract with its own forces does not relieve the bidder or proposer of the responsibility to meet the project goal or demonstrate good faith efforts to do so.
 - d. The bidder or proposer, consistent with industry practice, must provide MBEs and WBEs at a clearly stated location with timely, adequate access to and information about the plans, specifications, and requirements of the contract, including bonding and insurance requirements, if any, to assist them in responding to a solicitation.
 - e. The bidder or proposer must negotiate in good faith with interested MBEs and WBEs and provide written documentation of such negotiation with each such MBE or WBE.
 - f. For each MBE or WBE which contacted the bidder or proposer or which the bidder or proposer contacted or attempted to subcontract or joint venture with, consistent with industry practice, the bidder or proposer must supply a statement giving the reasons why the bidder or proposer and the MBE or WBE did not succeed in negotiating a subcontracting, supplier, manufacturer, manufacturer's representative, broker or joint venture agreement, as applicable.
3. The bidder or proposer must provide verification that it rejected each non-utilized MBE and WBE because the MBE or WBE did not submit the lowest bid or it was not qualified. Such verification shall include a verified statement of the amounts of all bids received from potential or utilized subcontractors, suppliers, manufacturers, manufacturer's representatives, brokers or joint venturers on the contract, whether or not they are MBEs or WBEs. In making such a determination of not being qualified, the bidder or proposer shall be guided by the definition of qualified in section 28-54(42), but evidence of lack of qualification must be based on factors other than solely the amount of the MBE's or WBE's bid. For each MBE or WBE found not to be qualified by the bidder or proposer, the verification shall include a statement giving the bidder's or proposer's reasons for its conclusion. A bidder's or proposer's industry standing or group memberships may not be the cause of rejection of an MBE or WBE. A bidder or proposer may not reject an MBE or WBE as being unqualified without sound reasons based on a reasonably thorough investigation and assessment of the MBE's or WBE's capabilities and expertise.
 4. If requested by a solicited MBE or WBE, the bidder or proposer must make reasonable efforts to assist interested MBEs and WBEs in obtaining bonding, lines of credit, or insurance as required by the City or by the bidder or proposer, provided that the bidder or proposer need not provide financial assistance toward this effort.
 5. If requested by a solicited MBE or WBE, the bidder or proposer must make reasonable efforts to assist interested MBEs and WBEs in obtaining necessary and competitively priced equipment, supplies, materials, or related assistance or services for performance under the contract, provided that the bidder or proposer need not provide financial assistance toward this effort.

6. The bidder or proposer must use the DSBO MBE/WBE directories to identify, recruit, and place MBEs and WBEs.
7. In determining whether a bidder or proposer has satisfied good faith efforts as to a project goal, the success or failure of other bidders or proposers on the contract in meeting such project goal may be considered.

Continuing Commitments.

In accordance with the provisions of the M/WBE Ordinance, the bidder agrees that it is committed to meeting either the M/WBE participation goal or the M/WBE participation set forth in its statement of good faith. This commitment must be expressly indicated on the "Commitment to MWBE SBE Participation" form included with the Bid Form. This commitment includes the following understandings:

1. The bidder understands it must maintain M/WBE goals throughout the performance of the Contract pursuant to the requirements set out in D.R.M.C. 28-72.
2. The bidder understands that it must establish and maintain records and submit regular reports, as required, which will allow the City to assess progress in achieving the M/WBE participation goal.
3. The bidder understands that if change orders or any other contract modifications are issued under the contract, the bidder shall have a continuing obligation to immediately inform DSBO in writing of any agreed upon increase or decrease in the scope of work of such contract, upon any of the bases discussed in Section 28-73 of the M/WBE Ordinance, regardless of whether such increase or decrease in scope of work has been reduced to writing at the time of notification.
4. The bidder understands that if change orders or other contract modifications are issued under the contract, that include an increase in scope of work of a contract for construction, reconstruction, or remodeling, whether by amendment, change order, force account or otherwise which increases the dollar value of the contract, whether or not such change is within the scope of work designated for performance by an M/WBE at the time of contract award, such change orders or contract modification shall be immediately submitted to DSBO for notification purposes. Those amendments, change orders, force accounts or other contract modifications that involve a changed scope of work that cannot be performed by existing project subcontractors or by the contractor shall be subject to a goal for M/WBEs equal to the original goal on the contract which was included in the bid. The contractor shall satisfy such goal with respect to such changed scope of work by soliciting new M/WBEs in accordance with Section 28-73 of the M/WBE Ordinance as applicable, or the contractor must show each element of modified good faith set out in Section 28-75(c) of the M/WBE Ordinance. The contractor shall supply to the director the documentation described in Section 28-75(c) of the M/WBE Ordinance with respect to the increased dollar value of the contract.

All bidders are charged with knowledge of and are solely responsible for complying with each and every provision of the M/WBE Ordinance in making a bid and, if awarded, in performing the work described in the Contract Documents. Failure to comply with these provisions could constitute cause for rejection of a bid or subject the selected contractor to sanctions set forth in the M/WBE Ordinance. These instructions are intended only to generally assist the bidder in preparing and submitting a compliant bid. Should any questions arise regarding specific circumstances, bidders must consult the M/WBE Ordinance or contact the Project's designated DSBO representative at (720) 913-1999.

IB- 26 DISCLOSURE OF INFORMATION

All submissions and other materials provided or produced pursuant to this Invitation for Bids may be subject to the Colorado Open Records Law, C.R.S. 24-72-201, et seq. As such, bidders are urged to review these disclosure requirements and any exceptions to disclosure of information furnished by another party and, prior to submission of a bid to the City, appropriately identify materials that are not subject to disclosure. In the event of a request to the City for disclosure of such information, the City shall advise the bidder of such request to give the bidder an opportunity to object to the disclosure of designated confidential materials furnished to the City. 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 each bidder agrees to intervene in such lawsuit to protect and assert its claims of privilege against disclosure of such material. Each

bidder 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 bidder's intervention to protect and assert its claims of privilege against disclosure under the Open Records Law 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.

IB-27 GENERAL BIDDING INFORMATION

Bidders are instructed to contact the Contract Administrator designated below for this Project for pre-bid, post-bid and general City bidding information. Bidders can also visit www.work4denver.com for information, both general and project specific. The Contract Administrator assigned to this project is Debby Gibson who can be reached via email at PW.Procurement@denvergov.org.

IB-28 PAYMENT PROCEDURE REQUIREMENTS

Contractor recognizes and agrees that it shall be required to use the Textura® Construction Payment Management System (CPM System) for this Project. All fees associated with the CPM System are to be paid by the Contractor for billings for work performed. Bidders are required, when preparing a bid, to enter the price of the CPM service on the line provided for the service. The fee is all inclusive of all subcontractor, project and subscription fees associated with the CPM system. The bidder will calculate the fee based on a percentage of their total bid, and then should include it on the line item provided in the bid form labeled **“Textura® Construction Payment Management System Fee”**. This expense becomes part of the contract and billable to the City. Textura will invoice the awarded contractor directly. All costs including but not limited to costs associated with training, entering data or utilizing Textura other than the Textura Construction Payment Management System Fee are overhead and shall not be reimbursed by the City. Contractor is responsible for tax on Textura fee. As with other taxes, the City will not reimburse Contractor for this cost and therefore this cost should be included in Contractor's bid. Textura will invoice the awarded contractor directly.

PROJECT SIZE	FEE (% OF BID)
< \$1,000,000	0.22% (.0022)
\$1,000,001 - \$5,000,000	0.17% (.0017)
\$5,000,001 - \$20,000,000	0.12% (.0012)
\$20,000,001 - \$50,000,000	0.10% (.0010)
\$50,000,001 - \$100,000,000	0.08% (.0008)
\$100,000,001 - \$500,000,000	0.05% (.0005)
> \$500,000,000	CONTACT TEXTURA FOR PROGRAM PRICING

For more information:

<http://www.denvergov.org/content/denvergov/en/contract-administration/bidding-process.html>

**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
Engineering Division

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
Engineering Division

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 Division of Small Business Opportunity (DSBO). 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.

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

CONTRACT NO. 201737536

4330 E. 48th E Warehouse Roof and HVAC Replacement

CONTRACT

THIS CONTRACT AND AGREEMENT, made and entered into by and between the City and County of Denver, a municipal corporation of the State of Colorado, hereinafter referred to as the "City," party of the first part, and, hereinafter referred to as the "Contractor," party of the second part,

W.E. O'Neil Construction Co.
229 Vallejo Street
Denver, CO 80223

WITNESSETH, Commencing on **November 6, 2017**, and for at least three (3) days the City advertised that sealed bids would be received for furnishing all labor, tools, supplies, equipment, materials, and everything necessary and required for the following:

CONTRACT NO. 201737536

4330 E. 48th E Warehouse Roof and HVAC Replacement

WHEREAS, bids pursuant to said advertisement have been received by the Manager of Public Works, who has recommended that a Contract for said work be made and entered into with the above named Contractor who was the lowest, responsive, qualified bidder therefore, and

WHEREAS, said Contractor is now willing and able to perform all of said work in accordance with said advertisement and its bid.

NOW THEREFORE, in consideration of the compensation to be paid the Contractor, the mutual agreements hereinafter contained, and subject to the terms hereinafter stated, it is mutually agreed as follows:

1. CONTRACT DOCUMENTS

It is agreed by the parties hereto that the following list of documents, instruments, technical specifications, plans, drawings and other materials which are attached hereto and bound herewith, incorporated herein by reference or otherwise referenced in these documents constitute and shall be referred to either as the "Contract Documents" or the "Contract," and all of said documents, instruments, technical specifications, Plans, Drawings and other materials taken together as a whole constitute the Contract between the parties hereto, and they are as fully a part of this agreement as if they were set out verbatim and in full herein:

Advertisement of Notice of Invitation for Bids
Instructions to Bidders
Commitment to M/WBE Participation
Article III, Divisions 1, 2, and 3 of Chapter 28, D.R.M.C.
Bid Bond
Addenda (as applicable)

Equal Employment Opportunity Provisions (Appendix A and Appendix F)
Bid Form
Contract Form
General Contract Conditions
Special Contract Conditions
Performance and Payment Bond
Notice to Apparent Low Bidder
Notice to Proceed
Contractor's Certification of Payment Form
Final/Partial Lien Release Form
Certificate of Contract Release
Change Orders (as applicable)
Federal Requirements (as applicable)
Prevailing Wage Rate Schedule(s)
Technical Specifications
Contract Drawings
Accepted Shop Drawings

2. SCOPE OF WORK

The Contractor agrees to and shall furnish all labor, tools, supplies, equipment, materials and everything necessary for and required to do, perform and complete all of the Work described, drawn, set forth, shown and included in said Contract Documents.

3. TERMS OF PERFORMANCE

The Contractor agrees to undertake the performance of the Work under this Contract within ten (10) days after being notified to commence work by issuance of a Notice to Proceed in substantially the form contained herein from the Manager and agrees to fully complete said Work within **180 (One Hundred Eighty Days)** consecutive calendar days from the effective date of said Notice, plus such extension or extensions of time as may be granted in accordance with the provisions of the General Contract Conditions and any applicable Special Contract Conditions.

4. TERMS OF PAYMENT

The City agrees to pay the Contractor for the performance of all of the Work required under this Contract, and the Contractor agrees to accept as the Contractor's full and only compensation therefore, such sum or sums of money as may be proper in accordance with the price or prices set forth in the Contractor's Bid Form hereto attached and made a part hereof for **lump sum**, the total estimated cost thereof being **One Million Thirty Two Thousand Thirty Six Dollars and No Cents (\$1,032,036.00)**. Adjustments to said Contract Amount and payment of amounts due hereunder shall be made in accordance with the provisions of the General Contract Conditions and any applicable Special Contract Conditions.

5. NO DISCRIMINATION IN EMPLOYMENT

In connection with the performance of work under this contract, the Contractor 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 Contractor shall insert the foregoing provision in all subcontracts.

6. COMPLIANCE WITH M/WBE REQUIREMENT

This Contract is subject to all applicable provisions of Divisions 1 and 3 of Article III, of Chapter 28, Denver Revised Municipal Code (D.R.M.C.), designated as Sections 28-31 – 28-36 and 28-52 – 28-90 D.R.M.C. and referred to in this Contract as the "M/WBE Ordinance". Without limiting the general applicability of the foregoing, the Contractor acknowledges its continuing duty, pursuant to Sections 28-72, 28-73 and 28-75 of the D.R.M.C., to maintain throughout the duration of this Contract, compliance with the level of minority and Woman business enterprise participation, upon which the City approved the award of this Contract to the Contractor and the Contractor further acknowledges that failure to maintain such participation commitments or otherwise comply with the requirements of the M/WBE Ordinance shall subject the

Contractor to sanctions in accordance with Section 28-77 of the D.R.M.C. Nothing contained in this provision or in the M/WBE Ordinance shall negate the City's right to prior approval of subcontractors, or substitutes therefore, under this Contract

7. WAGE RATE REQUIREMENTS

In performance of all Work hereunder, the Contractor agrees to comply with and be bound by all requirements and conditions of the City's Payment of Prevailing Wages Ordinance, Sections 20-76 through 20-79, D.R.M.C. and any determinations made by the City pursuant thereto.

8. APPLICABILITY OF LAWS

The Agreement between the Contractor 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 by or in accordance with the laws of the State of Colorado and the Charter, Revised Municipal Code, Rules, Regulations, Executive Orders and fiscal rules of the City. As such, the Contractor 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 those State of Colorado and Federal Laws, Rules and Regulations, which in any manner limit, control or apply to the actions or operations of the Contractor, any subcontractors, employees, agents or servants of the Contractor 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. The Charter and Revised Municipal Code of the City and County of Denver, as the same may be amended from time to time, are hereby expressly incorporated into this Agreement as if fully set out herein by this reference.

9. APPROPRIATION

The amount of money, which has been appropriated and encumbered for the purpose of this contract, to date, is equal to or in excess of the Contract Amount. The Manager, upon reasonable written request, will advise the Contractor in writing of the total amount of appropriated and encumbered funds, which remain available for payment for all Work under the Contract.

The issuance of any change order or other form or order or directive by the City which would cause the aggregate payable under the contract to exceed the amount appropriated for the contract 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 aggregate amount available under the Contract to exceed the amount appropriated and encumbered for this Contract, unless and until such time as the Contractor has been advised in writing by the Manager that a lawful appropriation, sufficient to cover the entire cost of such additional work, has been made.

It shall be the responsibility of the Contractor to verify that the amounts already appropriated for this Contract are sufficient to cover the entire cost of such work, and any work undertaken or performed in excess of the amount appropriated is undertaken or performed in violation of the terms of this contract, without the proper authorization for such work, and at the Contractor's own risk.

10. APPROVALS

In the event this Contract calls for the payment by the City of five hundred thousand dollars (\$500,000.00) or more, approval by the Board of Councilmen 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 contract.

11. ASSIGNMENT

The Contractor shall not assign any of its rights, benefits, obligations or duties under this Contract except upon the prior written consent and approval of the Manager to such assignment.

12. DISPUTES RESOLUTION PROCESS

It is the express intention of the parties to this Contract that all disputes of any nature whatsoever regarding the Contract including, but not limited to, any claims for compensation or damages arising out of breach or default under this Contract, shall be resolved by administrative hearing pursuant to the provisions of Section 56-106, D.R.M.C., or, as applicable, Section 28-33 D.R.M.C. for Minority and Woman Business Enterprise disputes. The Contractor expressly agrees that this dispute resolution process is the only dispute resolution

mechanism that will be recognized by the parties for any claims put forward by the Contractor, notwithstanding any other claimed theory of entitlement on the part of the Contractor or its subcontractors or suppliers.

13. CONTRACT BINDING

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

14. PARAGRAPH 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.

15. SEVERABILITY

It is understood and agreed by the parties hereto that, if any part, term, or provision of this Contract, except for the provisions of this 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 Contract did not contain the particular part, term or provision held to be invalid.

16. 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.

IN WITNESS WHEREOF, the parties have executed this agreement and affixed their seals at Denver, Colorado as of the day first above written.

Contract Control Number: 201737536

Vendor Name: W.E. O'Neil Construction Co.

By: *Tom Gurnea*

Name: *Tom Gurnea*
(please print)

Title: *President*
(please print)

ATTEST: [if required]

By: _____

Name: _____
(please print)

Title: _____
(please print)



Contract Control Number:

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:

REGISTERED AND COUNTERSIGNED:

By _____

By _____

By _____



**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS**

General Contract Conditions

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CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

SPECIAL 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 Management Division

– *Standard Detail Drawings*

– *Public Works Wastewater Capital Projects Management Standard Construction Specifications*

Colorado Department of Transportation:

Standard Specifications for Road and Bridge Construction
(Sections 200 through 700 of the 2011 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 2015 Series, City and County of Denver Amendments 2016)

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 DEPUTY MANAGER / CITY ENGINEER

General condition 109 DEPUTY MANAGER is hereby deleted in its entirety and replaced with the following:

The “Deputy Manager” means the official who reports directly to the Manager and exercises supervisory responsibility in the City agency defined in Title 2 herein that is responsible for the Project. The Manager hereby designates the City Engineer as the Deputy Manager for purposes of this Contract. The City Engineer shall have responsibility for this Project and shall undertake all duties, responsibilities, rights and authority, including specific actions and decisions, delegated to the Deputy Manager under the various terms and conditions of this Contract.

SC-3 ENGINEERING DIVISION / CITY ENGINEER

The Engineering Division is a unit of the Department of Public Works and is supervised by the City Engineer, who is subordinate to the Manager of Public Works. This Division is responsible for the planning, design, construction, operation and maintenance of all of the City's transportation facilities and the planning, design and construction of all of the City’s wastewater facilities, except for the City's Municipal Airport System. All other references to the Transportation Division or the Deputy Manager of Public Works for Transportation are deleted and replaced with references to the Engineering Division and City Engineer, respectively.

SC-4 WASTEWATER MANAGEMENT DIVISION

The Wastewater Management Division is a unit of the Department of Public Works and is supervised by the Deputy Manager of Public Works for Wastewater Management, who is subordinate to the Manager of Public Works. This Division is responsible for the operation and maintenance of the City's wastewater facilities.

SC-5 CITY DELEGATION OF AUTHORITY

With reference to General Contract Condition 109, DEPUTY MANAGER and General Contract Condition 212, CITY’S CONTRACT ADMINISTRATION LINE OF AUTHORITY, the Manager hereby designates the City Engineer as the City official responsible for those certain actions and decisions designated as the responsibility of the Deputy Manager under the General Conditions and delegates to the City Engineer the authority necessary to undertake those responsibilities under this Contract. The Director shall have supervisory responsibility over the Project Manager. Additionally, Contractor questions concerning the Plans and Technical Specifications shall be directed to:

Denver Department of Public Works / Engineering Division,

Project Manager
City Project Manager

Elizabeth Hamilton

Telephone
(720) 913-8814

Consultant
Design Consultant
Page Southerland Page

Telephone
(720) 390-3003

SC-6 LIQUIDATED DAMAGES

Should the Contractor fail to complete all Work within the Contract Time allocated under the Contract Form at Paragraph 3, TERMS OF PERFORMANCE, the Contractor shall become liable to the City and County of Denver for liquidated damages, and not as a penalty, at the rate of \$500.00 for each Day that the Contractor exceeds the time limits herein specified, all in accordance with provisions of General Contract Condition 602, LIQUIDATED DAMAGES; ADMINISTRATIVE COSTS; ACTUAL DAMAGES.

Representative hourly rates for the City administrative costs described in General Contract Condition 602.2 shall be as follows for this Project:

Project Manager	\$69 per hour
Project Engineer	\$63 per hour
Inspector	\$49 per hour
Surveying, if necessary	\$100 per hour

SC-7 SUBCONTRACTS

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-8 RESERVED

SC-9 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 for this Project. Contractor further agrees that, to the fullest extent possible within the CPM System, 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 the CPM System, including, but not limited to, information related to Contractor and subcontractor billings. To that end, Contractor agrees that it will activate any available settings within the CPM System that are 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:

<u>Agency/Firm</u>	<u>Name</u>	<u>Telephone</u>
Public Works/Engineering Division	Elizabeth Hamilton	(720) 913-8814

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 shall also submit to the Auditor and other appropriate officials of the City in a timely fashion, information required by General Contract Condition 1004, REPORTING WAGES PAID.
4. Applications for Payment must be accompanied by completed Partial or Final Claim Release Form, as appropriate, from EACH subcontractor and supplier, **AND** the Contractors' Certification of Payment Form (CCP), unless an exception is approved pursuant to General contract condition 907.

The forms, Final/Partial 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.

**DEPARTMENT OF PUBLIC WORKS
Engineering Division**

**FINAL/PARTIAL RELEASE AND CERTIFICATE OF PAYMENT
(SUBCONTRACTOR/SUPPLIER)**

(PROJECT NO. and NAME)	Date: _____, 20__.
(NAME OF CONTRACTOR)	Subcontract #: _____.
(NAME OF SUBCONTRACTOR/SUPPLIER)	Subcontract Value: \$ _____.
Check Applicable Box:	Last Progress Payment: \$ _____.
<input type="checkbox"/> MBE <input type="checkbox"/> WBE	Date: _____.
	Total Paid to Date: \$ _____.
	Date of Last Work: _____.

The Undersigned hereby certifies that all costs, charges or expenses incurred by the undersigned or on behalf of the undersigned for any work, labor or services performed and for any materials, supplies or equipment provided on the above referenced Project or used in connection with the above referenced Subcontract (the "Work Effort") have been duly paid in full.

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.

In consideration of \$_____ representing the Last Progress Payment referenced above and in further consideration of the Total Paid to Date, also referenced above, and other good and valuable consideration received and accepted by the undersigned this ____ day of _____, 20__, the Undersigned hereby releases and discharges the City and County of Denver (the "City"), the above referenced City Project, the City's premises and property and the above referenced Contractor from all claims, liens, rights, liabilities, demands and obligations, whether known or unknown, of every nature arising out of or in connection with the performance of the work effort.

As additional consideration for the payments referenced above, the undersigned 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.

It is acknowledged that this release is for the benefit of and may be relied upon by the City and the referenced Contractor.

The foregoing shall not relieve the undersigned of any obligation under the provisions of the Undersigned's subcontract, as the subcontract may have been amended, which by their nature survive completion of the Undersigned's work effort including, without limitation, warranties, guarantees, insurance requirements and indemnities.

STATE OF COLORADO) ss. CITY OF _____)	_____ (Name of Subcontractor)
Signed and sworn before me this day of _____, 20__.	By: _____
_____ Notary Public/Commissioner of Oaths My Commission Expires	Title: _____



Instructions for Completing the Contractor/Consultant Certification of Payment Form

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 W. Colfax Ave. Dept. 907
Denver, CO 80202
Phone: 720-913-1999
DSBO@denvergov.org

Note: The attached Contractor/Consultant Certification of Payment form must be completed by the Contractor/ Subconsultant and all subcontractors/subconsultant or suppliers used on the project at **any tier** and submitted with each pay application. The Contractor/Consultant is responsible for the accuracy of all information provided and is required to have each subcontractor/subconsultant or supplier fill out the appropriate forms. Please be sure to complete all information requested at the top of the form, including the name of the person who prepared this form.

If you reproduce this form, you must continue to list each of the originally listed firms, as well as any additional firms used during the performance period of the contract. Please complete an additional CCP if there is second tier-ing involved.

If you have any questions, please call the Compliance Unit of DSBO at 720.913.1999.

Instructions for Completing the Contractor/Consultant Certification of Payment Form, per Column

Contractor/Subcontractor or Subconsultant/Supplier Name: In the space provided, list all subcontractors/ subconsultants and suppliers used on the project. For all M/W/S/E/DBEs use the exact name listed in the DSBO Directory.

M/W/S/E/DBE/NON: For each name listed, indicate whether the entity is a certified M/W/S/E/DBE.

- Column A:** Provide the contract amount, as listed at bid time, for the Contractor/Consultant and each subcontractor/subconsultant or supplier.
- Column B:** Provide the percentage portion of each listed subcontractor/subconsultant or supplier contract amount (Column A) compared to the total original contract amount in (I).
- Column C:** Provide the original contract amount (Column A) for each subcontractor/subconsultant or supplier plus any awarded alternate and/or change order amounts applicable. If an alternate/change order does not apply to the listed firm, re-enter the original contract amount (Column A).
- Column D:** Provide the percent portion of each listed subcontractor/subconsultant or supplier contract amount (Column C) compare to the current total contract amount in (II).
- Column E:** Provide the amount requested for work performed or materials supplied by each listed subcontractor/subconsultant or supplier for this pay application. The sum of the items in this column should equal the estimated amount requested for this pay application.
- Column F:** Provide the amount paid to each subcontractor/subconsultant or supplier on the previous pay application. Enter the previous pay application number in the column heading. The sum of the items listed in this column should equal the warrant amount paid to the Contractor/Consultant on the previous pay application. The amounts paid to the subcontractor/subcontractor or suppliers should be the actual amount of each check issued.
- Column G:** Provide the net paid to date for the Contractor/Subconsultant and each listed subcontractor/subconsultant or supplier.
- Column H:** Provide the percent portion of the net paid to date (Column G) for the Contractor/Subconsultant and each listed subcontractor/subconsultant or supplier of the current total contract amount in (II).

Rev 031816

SC-10 CONTRACT FORMS

In accordance with the terms and conditions of the Contract Documents, the City requires the use of certain form documents in complying with or satisfying various obligations, notifications and conditions in contracting with the City or performing Work hereunder. These form documents are referenced by title throughout the Contract Documents for mandatory use as directed. The following are the forms that shall be detached and utilized in accordance with the Contract Documents:

1. Performance and Payment Bond
2. Performance and Payment Bond Surety Authorization Letter (Sample)
3. Final/Partial Lien Release.

The following are forms that will be issued by the City during construction:

1. Notice to Apparent Low Bidder (Sample)
2. Notice to Proceed (Sample)
3. Certificate of Contract Release (Sample)

SC-11 CONSTRUCTION INSPECTION BY THE CITY

General Condition 1701, CONSTRUCTION INSPECTION BY THE CITY, is modified 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 General Contractor's warranties and guarantees. The General 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 Guaranteed Maximum Price. In addition, General 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 General Contractor of any of its quality control responsibilities or any other obligations under the 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 General 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 General Contractor shall immediately notify the Project Manager and confirm such notification with formal correspondence no later than forty-eight (48) hours after the occurrence.

.3 When any unit of government or political subdivision, utility or Railroad Corporation is to pay a portion of the cost of the Work, its respective representatives shall have the right to inspect the Work. This inspection shall not make any unit of government or political subdivision, utility or Railroad Corporation a party to the Contract, and shall not interfere with the rights of either party.

SC-12 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 bidder 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-13 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-14 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-15 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-16 INSURANCE

General Condition 1601 is hereby deleted in its entirety and replaced with the following:

(1) **General Conditions:** Contractor agrees to secure, at or before the time of execution of this Agreement, the following insurance covering all operations, goods or services provided pursuant to this Agreement. Contractor shall keep the required insurance coverage in force at all times during the term of the Agreement, or any extension thereof, during any warranty period, and for eight (8) years after termination of the Agreement. The required insurance shall be underwritten by an insurer licensed or authorized to do business in Colorado and rated by A.M. Best Company as "A-"VIII or better. Each policy shall contain a valid provision or endorsement requiring notification to the City in the event any of the required policies be canceled or non-renewed before the expiration date thereof. Such written notice shall be sent to the parties identified in the Notices section of this Agreement. Such notice shall reference the City contract number listed on the signature page of this Agreement. Said notice shall be sent thirty (30) days prior to such cancellation or non-renewal unless due to non-payment of premiums for which notice shall be sent ten (10) days prior. If such written notice is unavailable from the insurer, contractor shall provide written notice of cancellation, non-renewal and any reduction in coverage to the parties identified in the Notices section by certified mail, return receipt requested within three (3) business days of such notice by its insurer(s) and referencing the City's contract number. If any policy is in excess of a deductible or self-insured retention, the City must be notified by the Contractor. Contractor shall be responsible for the payment of any deductible or self-insured retention. The insurance coverages specified in this Agreement are the minimum requirements, and these requirements do not lessen or limit the liability of the Contractor. The Contractor shall maintain, at its own expense, any additional kinds or amounts of insurance that it may deem necessary to cover its obligations and liabilities under this Agreement.

(2) **Proof of Insurance:** Contractor shall provide a copy of this Agreement to its insurance agent or broker. Contractor may not commence services or work relating to the Agreement prior to placement of coverage. Contractor certifies that the certificate of insurance attached as part of the Contract Documents, preferably an ACORD certificate, complies with all insurance requirements of this Agreement. 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 Agreement shall not act as a waiver of Contractor's breach of this Agreement or of any of the City's rights or remedies under this Agreement. The City's Risk Management Office may require additional proof of insurance, including but not limited to policies and endorsements.

(3) **Additional Insureds:** For Commercial General Liability and Auto Liability, Contractor and subcontractor's insurer(s) shall name the City and County of Denver, its elected and appointed officials, employees and volunteers as additional insured.

(4) **Waiver of Subrogation:** For all coverages, Contractor's insurer shall waive subrogation rights against the City.

(5) **Subcontractors and Subconsultants:** All subcontractors and subconsultants (including independent contractors, suppliers or other entities providing goods or services required by this Agreement) shall be subject to all of the requirements herein and shall procure and maintain the same coverages required of the Contractor. Contractor 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. Contractor agrees to provide proof of insurance for all such subcontractors and subconsultants upon request by the City.

(6) **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. Contractor expressly represents to the City, as a material representation upon which the City is relying in entering into this Agreement, that none of the Contractor's officers or employees who may be eligible under any statute or law to reject Workers' Compensation Insurance shall effect such rejection during any part of the term of this Agreement, and that any such rejections previously effected, have been revoked as of the date Contractor executes this Agreement.

(7) **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.

(8) **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

(9) **Additional Provisions:**

- (a) For Commercial General 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); and
 - (iv) A provision that coverage is primary and non-contributory with other coverage or self-insurance maintained by the City.
- (b) For claims-made coverage:
 - (i) 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
- (c) Contractor shall advise the City in the event any general aggregate or other aggregate limits are reduced below the required per occurrence limits. At their own expense, and where such general aggregate or other aggregate limits have been reduced below the required per occurrence limit, the Contractor will procure such per occurrence limits and furnish a new certificate of insurance showing such coverage is in force.

(10) **Builder's Risk or Installation Floater:** Contractor shall maintain limits equal to the completed value of the project. Coverage shall be written on an all risk, replacement cost basis including coverage for soft costs, flood and earth movement, if in a flood or quake zone, and, if applicable, equipment breakdown including testing. The City and County of Denver, Contractor, and subcontractors shall be Additional Named Insureds under the policy. Policy shall remain in force until acceptance of the project by the City.

SC-17 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-12.

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>

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned W.E. O'Neill Construction Co., a corporation organized and existing under and by virtue of the laws of the State of Colorado, hereafter referred to as the "Contractor", and Continental Casualty Company, a corporation organized and existing under and by virtue of the laws of the State of Illinois, 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 One Million Thirty Two Thousand Thirty Six Dollars and No Cents (\$1,032,036.00), 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. 201737536 4330 E. 48TH E WAREHOUSE ROOF AND HVAC REPLACEMENT**, 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 8th day of March, 2018.

Attest:

[Signature]
Secretary

W.E. O'Neil Construction Company of Colorado

Contractor
By: [Signature]
President

Continental Casualty Company

Surety
By: [Signature]
Attorney-In-Fact

Amy C. Homer

(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: Robert Wheeler

[Signature]
Assistant City Attorney

APPROVED FOR THE CITY AND COUNTY OF
DENVER

By: [Signature]
MAYOR

By: [Signature]
EXECUTIVE DIRECTOR OF PUBLIC WORKS

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company (herein called "the CNA Companies"), are duly organized and existing insurance companies having their principal offices in the City of Chicago, and State of Illinois, and that they do by virtue of the signatures and seals herein affixed hereby make, constitute and appoint

Joseph A Maderak, Robert H Walker, Patrick R O'Sullivan, David L Jennings, H Donald Peterson, Amy C Homer, Philip C Reimer, David A Kotula, Susan M Preissing, Doug P O'Neill, George F Manikas Jr, Meredith C Covelli, Individually

of Chicago, IL, their true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on their behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind them thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of their insurance companies and all the acts of said Attorney, pursuant to the authority hereby given is hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law and Resolutions, printed on the reverse hereof, duly adopted, as indicated, by the Boards of Directors of the insurance companies.

In Witness Whereof, the CNA Companies have caused these presents to be signed by their Vice President and their corporate seals to be hereto affixed on this 28th day of July, 2015.

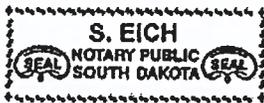


Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

Paul T. Bruflat
Paul T. Bruflat Vice President

State of South Dakota, County of Minnehaha, ss:

On this 28th day of July, 2015, before me personally came Paul T. Bruflat to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is a Vice President of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company described in and which executed the above instrument; that he knows the seals of said insurance companies; that the seals affixed to the said instrument are such corporate seals; that they were so affixed pursuant to authority given by the Boards of Directors of said insurance companies and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said insurance companies.



My Commission Expires February 12, 2021

S. Eich
S. Eich Notary Public

CERTIFICATE

I, D. Bult, Assistant Secretary of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company do hereby certify that the Power of Attorney herein above set forth is still in force, and further certify that the By-Law and Resolution of the Board of Directors of the insurance companies printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said insurance companies this _____ day of _____.



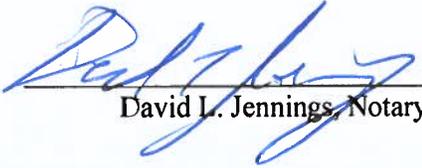
Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

D. Bult
D. Bult Assistant Secretary

STATE OF Illinois
COUNTY OF Lake

I, David L. Jennings Notary Public of Lake County, in the State of Illinois, do hereby certify that Amy C. Homer Attorney-in-fact, of the Continental Casualty Company who is personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that she signed, sealed and delivered said instrument, for and on behalf of the Continental Casualty Company for the uses and purposes therein set forth.

Given under my hand and notarial seal in said County, this _____ day of _____ 2018.



David L. Jennings, Notary Public



RECEIVED MAR 02 2018

THE **ROCKWOOD** COMPANY
20 N Wacker Drive ♦ Suite 960 ♦ Chicago, IL 60606

March 1, 2018

Assistant City Attorney
201 W. Colfax Avenue
Department 1207
Denver, CO 80202

Re: W.E. O'Neil Construction Company of Colorado
Contract #201737536
Project Name: 4330 E. 48th E. Warehouse Roof and HVAC Replacement
Contract Amount: \$1,036,032.00
Performance & Payment Bond No.: 30030791

Dear Assistant City Attorney:

The Performance and Payment Bonds covering the above captioned project were executed by this agency, through Continental Casualty Company, on March 1, 2018.

We hereby authorize the City and County of Denver, Department of Public Works, to date all bonds and powers of attorney to coincide with the date of contract.

If you should have any additional questions or concerns, please do not hesitate to contact me at 312/621-2277.

Thank you,



Daniel J Berman
President



ADDITIONAL REMARKS SCHEDULE

AGENCY Willis of Illinois, Inc.		NAMED INSURED W.E. O'Neil Construction Company of Colorado 229 Vallejo Street Denver, CO 80223	
POLICY NUMBER See Page 1		EFFECTIVE DATE: See Page 1	
CARRIER See Page 1	NAIC CODE See Page 1		

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,
 FORM NUMBER: 25 FORM TITLE: Certificate of Liability Insurance

Re: WEO Project #1417523 - Contract #201737356 -Warehouse Roof & HVAC - Removal and reinstallation of EPDM roofing, inclusive of new insulation and metal flashing along with HVAC upgrades to existing building.
 Location: 4330 E 48th Ave Denver Co 80216.

The City and County of Denver, its Elected and appointed officials, employees and volunteers are included as Additional Insureds with respect to Commercial General Liability and Automobile Liability if and only if required by written contract or agreement.

Commercial General Liability policy shall be Primary and Non-Contributory with any other insurance in force for or which may be purchased by the Additional Insureds if and only if required by written contract or agreement.

Waiver of Subrogation applies in favor of the City & County of Denver with respect to Commercial General Liability, Auto Liability and Workers Compensation as permitted by law if and only if required by written contract or agreement.

INSURER AFFORDING COVERAGE: Travelers Property Casualty Company of America NAIC#: 25674
 POLICY NUMBER: QT-660-0H524539-TIL - 17 EFF DATE: 03/31/2017 EXP DATE: 03/31/2018

TYPE OF INSURANCE:	LIMIT DESCRIPTION:	LIMIT AMOUNT:
Blanket Builder's Risk	Blanket under \$5M	\$5,000,000
In Transit	In Transit	\$2,500,000
Temporary Storage	Temporary Storage	\$2,500,000



**PERFORMANCE AND PAYMENT BOND
SURETY AUTHORIZATION
(SAMPLE)**

FAX NUMBER: 720-913-3183
TELEPHONE NUMBER: 720-913-3267

Assistant City Attorney
201 W. Colfax Ave. Dept 1207
Denver, Colorado 80202

RE: (Company name)

Contract No: 201737536
Project Name: 4330 E. 48th E Warehouse Roof and HVAC Replacement
Contract Amount:
Performance and Payment Bond No.:

Dear Assistant City Attorney,

The Performance and Payment Bonds covering the above captioned project were executed by this agency, through _____ insurance company, on _____, 20__.

We hereby authorize the City and County of Denver, Department of Public Works, to date all bonds and powers of attorney to coincide with the date of the contract.

If you should have any additional questions or concerns, please don't hesitate to give me a call at _____.

Thank you.

Sincerely,

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795

311 | POCKETGOV.COM | DENVERGOV.ORG | DENVER 8 TV



NOTICE OF APPARENT LOW BIDDER
(SAMPLE)

Current Date

To:

Gentlemen:

The MANAGER OF PUBLIC WORKS has considered the Bids submitted on December 07, 2017 for work to be done and materials to be furnished in and for:

CONTRACT No. 201737536 4330 E. 48TH E WAREHOUSE ROOF AND HVAC REPLACEMENT

as set forth in detail in the Contract Documents for the City and County of Denver, Colorado. It appears that your Bid is fair, equitable, and to the best interest of the City and County; therefore, said Bid is hereby accepted at the bid price contained herein, subject to execution of the Contract Documents and your furnishing the items specified below, the total cost thereof (Contract Amount Written), (Contract Amount Numeric).

It will be necessary for you to appear forthwith at the office of the Department of Public Works, Finance and Administration, 201 W. Colfax Ave. Dept 614, Denver, Colorado 80202, to receive the said Contract Documents, execute the same and return them to the Department of Public Works, Finance and Administration, within the time limit set forth in the Bid Proposal.

In accordance with the requirements set forth in the Contract Documents, you are required to furnish the following documents:

- a. Insurance Certificates: General Liability and Automotive Liability, Workman's Compensation and Employer Liability; or any other coverage required by the contract; and
- b. One original plus four copies of the Power of Attorney relative to Performance and/or Payment Bond;

All construction Contracts made and entered into by the City and County of Denver are subject to Affirmative Action and Equal Opportunity Rules and Regulations, as adopted by the Manager of Public Works, and each contract requiring payment by the City of one-half million dollars (\$500,000.00) or more shall first be approved by the City Council acting by ordinance and in accordance with Section 3.2.6 of the Charter of the City and County of Denver.

Prior to issuance of Notice to Proceed, all Equal Opportunity requirements must be completed. Additional information may be obtained by contacting the Director of Contract Compliance at (720-913-1700).

**NOTICE OF APPARENT LOW BIDDER
(SAMPLE)**

CONTRACT NO. 201737536

Page 2

The Bid Security submitted with your Bid, will be returned upon execution of the Contract and furnishing of the Performance Bond. In the event you should fail to execute the Contract and to furnish the performance Bond within the time limit specified, said Bid Security will be retained by the City and County of Denver as liquidated damages, and not as a penalty for the delay and extra work caused thereby.

Dated at Denver, Colorado this _____ day of _____ 20____.

CITY AND COUNTY OF DENVER

By _____
Executive Director of Public Works

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795

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Current Date

**NOTICE TO PROCEED
(SAMPLE)**

Name
Company
Street
City/State/Zip

**CONTRACT NO. 201737536, 4330 E. 48TH E WAREHOUSE ROOF AND HVAC
REPLACEMENT**

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 201737536, as set forth in detail in the contract documents for the City and County of Denver.

With a contract time of _____ 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,

Lesley B. Thomas
City Engineer

cc:

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795

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Certificate of Contract Release
(SAMPLE)

Date

Name
Company
Street
City/State/Zip

RE: Certificate of Contract Release for
201737536, 4330 E. 48TH E WAREHOUSE ROOF AND HVAC REPLACEMENT

Received this date of 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 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.

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 is the last or final payment.

Contractor's Signature

Date Signed

If there are any questions, please contact me by telephone at (720) 913-XXXX. Please return this document via facsimile at (720) 913-1805 and mail to original to the above address.

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795

311 | POCKETGOV.COM | DENVERGOV.ORG | DENVER 8 TV



DEPARTMENT OF PUBLIC WORKS

Addendum

Contract No. 201737536

**4330 E. 48TH E WAREHOUSE ROOF AND HVAC
REPLACEMENT**

NOVEMBER 6, 2017

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division**

CONTRACT NO. 201737356 PROJECT NAME: 4330 E. 48th E Warehouse Roof and HVAC Replacement ADDENDUM NO. <u>1</u> TO CONTRACT DOCUMENTS

Bidders are hereby instructed that the drawings, specifications, and other contract documents are modified, corrected, supplemented and/or superseded for the above mentioned project as hereinafter described in the following attachments:

Questions and Answers

Q1- Will the new ballot issue for 2018 buildings apply to this contract?

A1- A permit application will be submitted prior to the 2018 Green Roof requirement.

Q2- Can you confirm that the material required is not “20 year white EPDM roof membrane”?

A2- The specified product is for black EPDM.

Q3- Who is responsible for obtaining and paying for the permits?

A3 - The GC is responsible for obtaining and paying for permits.

Q4-Has there been asbestos testing done on the existing roofs?

A4- The City tests roofing for asbestos for bidding purposes assume there is no asbestos.

Q5- I don't see the wage determination in the bidding documents.

A5- Prevailing Wage rates are included in the Bid Documents – Building Construction Projects issued 8/18/17

Q6- Is the new taper design correct? It seems that some of the roof areas have sloping sub straight.

A6- The new taper design is correct. The roof ponds water severely. At this time the roof slope down from east to west a total of 3” over a distance of 132’. This does not provide the code required slope. The tapered insulation to be installed will easily offset that tiny amount of slope built into the decking.

Q7- Is there a detail to “fill in” where existing primary scuppers are eliminated?

A7 – There is no detail. A note will be added to “Infill old scupper openings with wood nailers”.

Q8- The spec and the detail contradict each other. At Sumps detail say 1/2” slope but spec says 1” slope.

A8- The roof detail states that the slope shall be 1/12 which equates to a 1” per foot slope.

Q9- Should the drains be set flush to the deck or 1.5” above to accommodate double Q panels in sumps plus cover board? (assuming 1” slope)

A9- The drains should be set flush on the deck.

Q10- Actually there is no cover board in the sumps, can we get a 20 year Mfg. warranty without one?

A10- A cover board is to be added over the tapered edge strip insulation at the drain sumps.

Q11- What details do we use on the three outside walls of deck 1?

A11- Use Details A1/A521 and A2/A521.

Q12- D2-A521 shows the overflow approximately 6’/8” above the primary drain. Do we need to cut the pre-stress wall at these locations to get proper O. F. drainage?

A12 - If the drain plugs, the only water that will get ~7” deep will be right at the sump. The scupper outlet will activate shortly after water backs up onto the roof. The scupper outlet is ~2” above the edge of the drain sump at the wall.

Q13 – Should the Control Join and all Perimeter walls on Decks 2 and 3 all finish at the same elevation?

A13 - Yes. Taper joint down as required to meet perimeter flashing elevation.

Q14- Same question for Deck 3 at all 4 walls?

A14- Yes. Taper joint down as required to meet perimeter flashing elevation.

Q15 – Verifying insulation is ASTM C 1289, Type II, Class 1, Grade 1.

A15- Switch from Grade 1 to Grade 2.

Q16 – Detail A1-521 – These edges will have varying heights due to the tapered system. Can you give us a detail to show the design of this detail?

A16-Refer to Detail A2/A521. Make smooth transition with tapered edge strip until the reinforced rubber flashing strip can be installed.

Q17 – Daikin is the only rooftop equipment listed on the schedule. Are there approved equals? (Trane, Carrier, York, etc...).

A17- We are open to other RTU’s that meet the specs. They do need to be IECC 2015 compliant (multiple stage, economizer fault detection, etc.)

Q18 – Are the temperature sensors for the RTU’s required to be run in conduit?

A18 – The temperature sensor cables shouldn’t need to be in conduit since it’s not a plenum, unless the owner would like them that way.

Q19 – Per the ductwork system insulation spec on M-0.1 all new and existing round ductwork is to be wrapped. Since this appears to be exposed is this required?

A19 – The ductwork is open to the space and should not be insulated. The supply and return drops from the RTU, the rectangular sections, should be lined for acoustics.

This **ADDENDUM** shall be attached to, become a part of, and be returned with the Bid Proposal.

Lesley B. Thomas

Lesley B. Thomas
City Engineer

11.30.17

Date

The undersigned bidder acknowledges receipt of this Addendum. The Proposal submitted herewith is in accordance with the stipulations set forth herein.

Contractor

ADDENDUM NO. 1

DATE: _____

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division**

**CONTRACT NO. 201737356
PROJECT NAME: 4330 E. 48th E Warehouse Roof and HVAC Replacement**

ADDENDUM NO. 2 TO CONTRACT DOCUMENTS

Bidders are hereby instructed that the drawings, specifications, and other contract documents are modified, corrected, supplemented and/or superseded for the above mentioned project as hereinafter described in the following attachments:

Contract No. 201737356
4330 E. 48th E Warehouse Roof and HVAC Replacement

Notice is hereby given that Sealed Bids for Contract No. 201737356 – 4330 E. 48th E Warehouse Roof and HVAC Replacement is hereby postponed. Sealed bids will be received in Room 6.G.7, 201 West Colfax., Denver, CO 80202, no later than:

11:00 a.m., Local Time

December 14, 2017

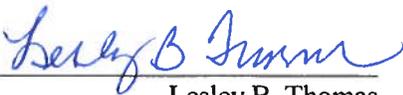
Bids will also be opened in Room 6.G.7

Prior to submitting a bid, the bidder shall consult the Contractor's bulletin board, located on the 2nd floor at 201 W. Colfax Avenue, Denver, CO 80202 and www.work4denver.com.

George Delaney
Interim Acting Manager of Public Works

Published in the Daily Journal: December 5, 6, 7, 2017

This **ADDENDUM** shall be attached to, become a part of, and be returned with the Bid Proposal.



Lesley B. Thomas
City Engineer

12.1.17

Date

The undersigned bidder acknowledges receipt of this Addendum. The Proposal submitted herewith is in accordance with the stipulations set forth herein.

ADDENDUM NO. 2

Contractor
DATE: _____

Contract No. 2017373556
Warehouse Roof & HVAC

ADD #2

December 1, 2017



PREVAILING WAGE RATES

Contract No. 201737536

**4330 E. 48TH E WAREHOUSE ROOF AND HVAC
REPLACEMENT**

NOVEMBER 6, 2017



DENVER
THE MILE HIGH CITY

Office of Human Resources
Denver's Human Resource Agency

201 W. Colfax, Department 412

Denver, CO 80202

p: 720.913.5751

f: 720.913.5720

www.denvergov.org/humanresources

TO: All Users of the City of Denver Prevailing Wage Schedules
FROM: Susan Keller, Human Resources Technician II
DATE: Wednesday, August 30, 2017
SUBJECT: Latest Change to Prevailing Wage Schedules

Please be advised, prevailing wage rates for some building, heavy, and highway 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.

The attached Prevailing Wage Schedule is effective as of **Friday, August 18, 2017** 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. CO170030
Superseded General Decision No. CO20160030
Modification No. 12
Publication Date: 8/18/17
(4 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.

For questions call (720) 913-5726.

Attachments as listed above.

General Decision Number: CO170030 08/18/2017 CO30

Superseded General Decision Number: CO20160030

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 \$10.20 for calendar year 2017 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 \$10.20 (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 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2017
1	01/13/2017
2	01/27/2017
3	02/03/2017
4	04/07/2017
5	04/21/2017
6	05/19/2017
7	05/26/2017
8	06/02/2017
9	06/09/2017
10	07/21/2017
11	08/04/2017
12	08/18/2017

ASBE0028-002 07/01/2016

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR - MECHANICAL (Duct, Pipe & Mechanical System Insulation).....	\$ 29.73	13.93

CARP0055-002 11/01/2016

	Rates	Fringes
CARPENTER (Drywall Hanging		

Only).....\$ 26.25 8.64

CARP1607-001 06/01/2016

	Rates	Fringes
MILLWRIGHT.....	\$ 31.38	12.70

ELEC0068-012 06/01/2017

	Rates	Fringes
ELECTRICIAN (Includes Low Voltage Wiring).....	\$ 34.70	14.97

ELEV0025-001 01/01/2017

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 42.35	31.58

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.

ENGI0009-017 05/01/2017

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Crane)		
141 tons and over.....	\$ 29.82	10.10
50 tons and under.....	\$ 27.75	10.10
51 to 90 tons.....	\$ 27.92	10.10
91 to 140 tons.....	\$ 28.55	10.10

IRON0024-009 05/01/2017

	Rates	Fringes
IRONWORKER, ORNAMENTAL.....	\$ 26.30	12.25

IRON0024-010 05/01/2017

	Rates	Fringes
IRONWORKER, STRUCTURAL.....	\$ 26.30	12.25

* 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 07/01/2017		
	Rates	Fringes
GLAZIER.....	\$ 31.02	9.37

PLUM0003-009 06/01/2017		
	Rates	Fringes
PLUMBER (Excludes HVAC Duct, Pipe and Unit Installation).....	\$ 34.53	16.44

PLUM0208-008 06/01/2017		
	Rates	Fringes
PIPEFITTER (Includes HVAC Pipe and Unit Installation; Excludes HVAC Duct Installation).....	\$ 33.30	17.65

SFCO0669-002 04/01/2017		
	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....	\$ 36.73	20.47

SHEE0009-004 07/01/2017		
	Rates	Fringes
SHEET METAL WORKER (Includes HVAC Duct Installation; Excludes HVAC Pipe and Unit Installation).....	\$ 33.26	16.61

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)
Supp #101, Date: 11-28-2016

<u>Classification</u>		<u>Base</u>	<u>Fringe</u>
Boilermakers		\$30.97	\$21.45
Iron Worker, Reinforcing		\$18.49	\$3.87
Journeyman Tile Setter		\$26.83	\$8.48
Laborers: Concrete Saw		\$13.89	-
Paper Hanger		\$20.15	\$6.91
Plasters		\$24.60	\$12.11
Plaster Tenders		\$10.79	-
Power Equipment Operators (Concrete Mixers):			
	Less than 1 yd	\$23.67	\$10.67
	1 yd and over	\$23.82	\$10.68
Power Equipment Operators:			
	Loader up to and incl 6 cu yd	\$23.67	\$10.67
	Motor Grader	\$23.97	\$10.70
	Roller	\$23.67	\$10.67
	Drillers	\$23.97	\$10.70
	Loaders over 6 cu yd	\$23.82	\$10.68
	Oilers	\$22.97	\$10.70
	Mechanic	\$18.48	
Tile Finisher-Floor Grinder- Base Grinder		\$20.87	\$8.42
Truck Drivers	Flatbed	\$19.14	\$10.07
	Semi	\$19.48	\$10.11

- Caulkers—Receive rate prescribed for craft performing operation to which caulking is incidental .i.e. glazier, painter, brick layer, cement mason.
- Use the “Carpenters, Excludes Acoustical Ceiling Installation, Drywall Hanging, and Metal Stud Installation” rates published by the Federal Davis-Bacon rates for batt insulation, pre-stress concrete and tilt up concrete walls.
- Use the “Laborer—Common”, for General Housekeeping, Demolition, Final Cleanup and Indoor Fence Installer.
- Trade classification workers cannot be classified as common laborers for performing incidental cleanup from the installation of their craft. Common Laborers perform final cleanup of the entire jobsite.
- Go to www.denvergov.org/Auditor to view the Prevailing Wage Clarification Document for a list of complete classifications used.



TECHNICAL SPECIFICATIONS

Contract No. 201737356

**4330 E. 48TH E WAREHOUSE ROOF AND HVAC
REPLACEMENT**

NOVEMBER 6, 2017

Project Manual

**City and County of Denver
4330 E 48th Avenue
Reroofing and
HVAC Improvements**

**4330 E 48th Avenue
Denver, Colorado 80216**

ISSUE FOR PERMIT

September 15, 2017

Page Project No. 816019.06

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SECTION 010100 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work specified in this contract consists of furnishing all management, supervision, labor, materials, tools, equipment, services, testing and incidentals for the construction of the Work indicated in the contract documents including lump sum items and unit price items.
- B. Reference: City and County of Denver Standard Specifications for Construction General Contract Conditions 2011 Edition (the yellow book) Contract General Conditions, GC 301 Consideration, GC 306 Working Hours and Schedule, GC Title 8 Protection of Persons and Property and GC Title 14 Site Conditions
- C. Project Description: Reroof all existing roofs of 4330 E. 48th Ave. from the roof deck up. Provide a new fully adhered 60 mil EPDM single-ply roof membrane over 1/2 inch thick wind resistant cover board over an R-30 rigid roof insulation. Furnish and install a thermally broken roof hatch 30" x 54" and a steel alternating tread stair at 68 degrees. Furnish and install all new MEP equipment mounted on the roof as shown on the drawings. Remove all abandoned and non-working MEP equipment from the roof, cap all utility lines as required, and provide weather tight flashing over any existing roof openings.
- D. Project Team Members:

Keith Conrad, Project Manager	Page, 1530 15 th Street, Denver, CO 80202	720-390-3003	kconrad@pagethink.com
Ron Scott, PE	RoofTech Consultants, Inc., 14828 W. 6 th Ave., Unit B-8, Golden, CO 80401	303-233-1092 x101	ron@rooftechconsultants.com
Jason Dahnke, PE	HCL Engineers and Surveyors	303-773-1605 x111	jdahnke@hclengineering.com
Bryce Clark, PE	MDP Engineering Group	720-460-2655	bclark@mdpeg.com

1.02 SITE CONDITIONS

- A. The Contractor acknowledges that he has reviewed sections 1401 and 1402 of Title 14 of City and County of Denver Standard Specifications for Construction General Contract Conditions 2011 Edition (the yellow book). The Contractor warrants that as a result of examination and investigation of all the aforesaid data and the site, that the Contractor can perform the Work in a good and workmanlike manner and to the satisfaction of the City. The City assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this contract unless such representation is expressly stated in the contract.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 CONTRACTOR'S DUTIES

- A. Except as otherwise specified, furnish the following to the full extent required by the contract:
 - 1. Labor, superintendence, supervision and products.
 - 2. Construction equipment, tools, machinery and materials.
 - 3. Utilities required for construction and related activities.
 - 4. Other facilities and services necessary to properly execute and complete the Work, including security for worksite, and storage and protection of all materials awaiting incorporation into the Work, providing a safe working environment for workers, City and County of Denver representatives, and the public in accordance with all local, state and federal requirements.
- B. Prosecute the Work as specified and in a timely manner. Submit a schedule of Work in accordance with GC 306 Working Hours and Schedule.

3.02 COORDINATION

- A. Coordinate prosecution of the Work in accordance with GC 801 Safety of Persons and GC 802 Protective Devices and Safety Precautions; GC 803 Protection of Property and Work in Progress; and GC 804 Protection of Municipal Public Service and Utility Systems with those ongoing City and County of Denver operations, public utilities, governmental bodies, private utilities and other contractors performing work on and adjacent to the worksites. Eliminate or minimize delays in the Work and conflicts with those operations, utilities, bodies and contractors. Schedule governmental, private utility and public utility work that relies upon survey points, lines and grades established by the Contractor to occur immediately after those points, lines and grades have been established. Confirm coordination measures for each individual case with the City in writing.
- B. In the coordination effort of work by others, the Contractor shall obtain and refer to equipment locations and other layouts, as available, to avoid interface problems.
- C. The City reserves the right to permit access to the site of the Work for the performance of work by other contractors and persons at such times that the City deems proper. The exercise of such reserved right shall in no way or to any extent relieve the Contractor from liability for loss and damage to the work due to or resulting from its operations or from responsibility for complete execution of the Contract. The Contractor shall cooperate with other contractors and persons in all matters requiring common effort.

3.03 CONTRACTOR USE OF WORKSITE

- A. Confine worksite operations to areas permitted by law, ordinances, permits and the contract.
- B. Per GC 801, consider the safety of the Work and that of the people and property on and adjacent to the worksite when determining amount, location, movement and use of materials and equipment on worksite.
- C. Do not load worksite with equipment and products that would interfere with the Work. Only equipment, tools or materials required for this Work may be stored at the worksite.
- D. Per GC 803, Protect products, equipment and materials stored on worksite.

- E. Relocate stored products, equipment and materials which interfere with operations of City, government bodies, public and private utilities, and other contractors.

END OF SECTION

SECTION 010500 - LAYOUT OF WORK AND SURVEYS

PART 1 - GENERAL

1.01 SCOPE

- A. This Section covers the procedures and accuracy requirements for survey services for layout of work and field measurement of work quantities to be determined by surveys.
- B. Reference Contract General Conditions, GC 318 and GC 319

1.02 SUBMITTAL

- A. Refer to Technical Specifications Section 013000 for submittal requirements.
 - 1. Copies of original pages of field notes.
 - 2. Original field notebooks when filled and at end of contract.
 - 3. As-built measurements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 CONSTRUCTION LINES AND GRADES

- A. The Contractor shall make surveys and layouts as necessary to delineate the work. The Contractor shall review GC 318 and CG 319 to assure construction surveys for the proper performance of the Work. The City will provide all reference points shown on the contract documents. The Contractor shall accurately transfer the survey control information to the points of application and maintain in good order survey control points that may be required for the completion of the Work subject as to their location, sufficiency and adequacy. The Contractor shall furnish skilled labor, instrument platforms, ladders and such other temporary structures as may be necessary for making and maintaining points and lines in connection with the surveys required.
- B. The City may draw the Contractor's attention to errors or omissions in lines or grades, but the failure to point out such errors or omissions shall not give the Contractor any right or claim nor shall in any way relieve the Contractor of his obligations according to the terms of this contract.
- C. The Contractor's instruments and other survey equipment shall be accurate, suitable for the surveys required in accordance with recognized professional standards and in proper condition and adjustment at all times. Surveys shall be performed under the direct supervision of a Colorado licensed surveyor.

3.02 AS-BUILT MEASUREMENTS

- A. As-built measurement for items that will be hidden or visible including all civil, mechanical, electrical, control work and all utilities that are placed in concrete, earth or behind walls shall be made. Items located within five feet beyond a building shall be referenced to building column lines and finish floor elevations. Special attention shall be paid to items requiring service, sensors, items with moving parts, access points and locations of junctions, elevation changes and directional changes.

END OF SECTION

SECTION 010600 - REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section identifies primary compliance with the State, City and County of Denver's regulatory requirements outlined in Special Contract conditions SC-1 Construction Specifications and SC-13 Construction Inspection by the City.
- B. Reference: City and County of Denver Standard Specifications for Construction General Contract Conditions 2011 Edition (the yellow book) Contract General Conditions, GC 205 Building Inspection and GC 317 Permits and Licenses

1.02 BUILDING AND FIRE CODES

- A. All design and construction work shall be governed by the Building Code for the City and County of Denver, latest edition. This is based upon the International Building Code of the International Code Council with Denver Amendments to this code. See Special Contract Conditions, Construction Specifications.

1.03 DENVER BUILDING DEPARTMENT

- A. For review and approval of all construction documents for compliance to the International Building Code 2006 and City and County and Denver Amendments 2006 or later approved editions.
- B. City and County of Denver
Community Planning and Development
Building Inspection Division
201 West Colfax Avenue, Dept 205
Denver, Colorado 80202
Telephone 720-865-2720
Fax 720-865-2880

1.04 DENVER FIRE DEPARTMENT

- A. For review and approval of plans for compliance with the Denver Fire Department's requirements as they apply to projects for the Department of Public Works:
- B. Denver Fire Department
745 W. Colfax Ave.
Denver, Colorado 80204 Telephone: 720-913-3474, or
E-mail: denfpb@denvergov.org
Fax 720-865-2833
- C. The Contractor is advised that the Denver Fire Department – Fire Prevention Bureau requires permitting for the following activities as they apply to the scope of work. The Contractor is responsible for obtaining the appropriate permits necessary to complete the work. All costs associated with this permitting and policy compliance shall be the responsibility of the Contractor. The policies all reference the International Fire Code (IFC).
 - 1. “Hot work”, which is defined as the operation of any equipment or tool that creates

- sparks, hot slag, or radiant or convective heat as a result of the work. This includes, but is not limited to, welding, cutting, brazing, or soldering.
2. Use and storage of compressed gas for both temporary storage and permanent facility installation. This includes, but is not limited to, flammable gas (excluding propane-LPG), oxidizer (including oxygen), and inert and/or simple asphyxiates.
 3. Tank installation, which includes above-ground storage tanks (AST) and underground storage tanks (UST) for both temporary tanks and permanent facility installations.
- D. In addition to the above permits, the Denver Fire Department may require other permits that are associated with the specific work in the Contract Documents. Policies provided by the Denver Fire Department are meant to provide basic information for the most common conditions and situations. In any given occupancy, many other International Fire Code (IFC) requirements may be enforced. These should be addressed with the Denver Fire Department before construction begins and during construction with premise inspection(s). Any questions can be addressed to the Fire Prevention Bureau between 6:30 AM and 9:00 AM Monday-Friday at 720-913-8242 or -8237.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PERMITS AND CERTIFICATIONS

- A. The Contractor shall maintain records on site of all permits acquired by federal, state, and local agencies. Posting of permits shall conform to requirements of the respective agencies.
- B. At the time of Substantial Completion and Final Acceptance, the Contractor shall forward to the Project Manager a copy of the Temporary Certificate of Occupancy and the final Certificate of Occupancy.

END OF SECTION

SECTION 010950 - DEFINITIONS AND CONVENTIONS

NOT USED

SECTION 011100 - CONSTRUCTION SAFETY

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Work specified in this Section includes construction safety precautions and programs by the Contractor
- B. Reference Contract General Conditions, GC 801 Safety of Persons, GC 802 Protective Devices and Safety, GC 803 Protection of Property and Work in Progress.

1.02 RESPONSIBILITY

- A. The General Conditions make it clear in section 801 that all safety precautions during the construction process are the responsibility of the Contractor. The Contractor is responsible for the health and safety of his employees, agents, subcontractors and their employees, and other persons on the worksite; for the protection and preservation of the work and all materials and equipment to be incorporated therein; and for the worksite and the area surrounding the worksite. The Contractor shall take all necessary and reasonable precautions and actions to protect all such persons and property.

1.03 SUBMITTAL

- A. Refer to Technical Specifications 01 3000 for submittal requirements. A safety plan shall be submitted by the General Contract prior to commencing any work.

PART 2 - PRODUCTS

2.01 CONTRACTOR'S SAFETY PLAN

- A. Provide a Contractor's Safety Program that as a minimum meets all applicable federal, state and local government requirements.

PART 3 - EXECUTION

3.01 IMPLEMENT CONTRACTOR'S SAFETY PLAN

- A. Implement the approved Contractor's Operational Safety Plan as described in this Technical Specifications

END OF SECTION

SECTION 012000 - PROJECT MEETINGS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work specified in this Section requires the Contractor's Project Manager, Superintendent and Quality Control representative to attend meetings scheduled by the City for the collection and dissemination of information related to the subject contract.
- B. The Contractor will prepare the minutes of each construction meeting and distribute them to each of the participants.

1.02 OTHER MEETINGS

- A. The Contractor will be advised of times, dates and places of City initiated meetings.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PRECONSTRUCTION MEETING

- A. A Preconstruction Meeting will be scheduled by the City after the Contract has been signed by all parties. The purpose of this meeting is to introduce the City's representatives to their counterparts in the Contractor's organization and to establish lines of communication between these representatives and outline some contract requirements. The Contractor's Superintendent and Quality Control Representative(s) shall attend this meeting.
- B. The Project Manager will distribute a notice of this meeting, along with an agenda of the subjects to be addressed.
- C. The Project Manager will explain and discuss the responsibilities and authorities of the City, the Designer, and the Project Manager's organization.
- D. The City will provide highlights of the following information at this meeting:
 - 1. Minority Business Enterprise (MBE) and Women Business Enterprise (WBE) or Small Business Enterprise (SBE) if such was a specifically designated requirement.
 - 2. Insurance and permit requirements.
 - 3. Procedures for processing change orders.
 - 4. Procedures for submitting shop and working drawings, product data and samples.
 - 5. Monthly pay estimate cutoff dates.
 - 6. Payment procedures.
 - 7. Request for information procedures.
 - 8. Communication procedures.
 - 9. Contractor-required Daily Report
 - 10. Scheduling and coordination requirements including utility outage notifications
 - 11. Site and building access, staging areas, and parking for contractors
 - 12. Any concerns for public interface during the execution of the work

13. Quality control/assurance procedures.
 14. Environmental requirements regarding finding potentially contaminated materials during the execution of the work..
 15. As-built documents.
 16. Project closeout requirements.
- E. The Contractor will introduce the Contractor's representatives and briefly describe each person's responsibilities. The Contractor will provide the following:
1. A list of all subcontractors.
 2. Office, storage areas and construction area layouts, along with temporary easements.
 3. Safety, first aid, emergency actions and security procedures including the name of the Contractor's insurance company.
 4. 60 day preliminary milestone schedule.
 5. Sequence of work.
 6. Construction worksite waste stream sorting and haul plan.
 7. Housekeeping procedures.
 8. The Contractor's general erosion and sedimentation control plans, noise, hazardous material, air and water pollution control plans.
 9. Coordination and notification for utility work and utility outages
 10. Deliveries and priorities of major equipment.
 11. Submittal Schedule
- F. Explanations provided by the City will not amend, supersede or alter the terms or meaning of any contract document and the Contractor shall not claim reliance on such explanations as a defense to any breach or failure by the Contractor to perform as specified in the contract.

3.02 CONSTRUCTION PROGRESS MEETINGS

- A. Progress meetings will be scheduled weekly. The meetings will be held at the worksite or at a location selected by the Team. Meetings will be chaired by the Contractor.
- B. The Contractor's personnel shall attend and the Contractor will be responsible for publishing minutes of the meetings.
- C. At a minimum, the following items will be addressed at each meeting. The items addressed in the meeting do not waive notification or submittal requirements as required elsewhere in the contract.
1. Safety: Contractor shall report any safety issues
 2. Quality Control
 - a. The Contractor's Quality Control Representative shall report on inspections by other agencies and any follow-up activity required.
 - b. The Project Manager and/or the Designer will present and discuss issues regarding quality control.
 3. Quality Assurance

- a. The Contractor will present and discuss issues regarding quality assurance.
4. Design activities: open discussion
5. Shop drawings/submittals/material procurement
 - a. The Contractor shall provide and review the Contractor's submittal schedule and provide any updated information and/or changes to the schedule.
 - b. The Contractor shall provide information on the status of submittals requiring re-submittal.
 - c. The Contractor shall review any accepted submittals that the Contractor plans to re-submit with changes.
 - d. Contract shall provide the status of material procurement for long-lead items. All long-lead items shall be identified with a separate activity on the approved CPM project schedule.
6. Construction activities: Open discussion to include coordination items with other Contractors and or agencies.
7. Schedule
 - a. The Contractor shall provide the attendees with the Contractor's three week look-ahead schedule and review the items on the schedule. The schedule shall be in bar chart format and coordinated with the approved CPM.

END OF SECTION

SECTION 013000 - SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work specified in this Section summarizes the requirements for the submittal of documents to the City that are defined in these Specifications. It also describes the procedures for "supplemental" submittals.
- B. Reference Contract General Conditions, GC 309 and GC 405.

PART 2 - PRODUCTS

2.01 SUBMITTAL SCHEDULE

- A. The Contractor shall provide a submittal schedule within 14 days after Notice to Proceed. The Submittal Schedule shall be directly related to the CPM schedule, shall identify all the submittals, and shall include the following information for each submittal item:
 - 1. Specification section, contract article, or special condition
 - 2. Specification Subparagraph
 - 3. Item description
 - 4. Date the submittal shall be submitted
 - 5. Name of subcontractor or supplier
- B. The submittal schedule shall be updated every two weeks by the Contractor and reviewed with the Project Manager at the regular project meetings.

2.02 ELECTRONIC SUBMITTALS

- A. All submittals shall be delivered to the Project Manger and Designer in electronic format, whenever possible See Technical Specifications Section 01 3400 for additional information.
 - 1. Acceptable electronic formats
 - a. Adobe Acrobat 90 or newer. All files shall be fully compatible with Adobe Acrobat 9.0. File shall have no security and bookmark every applicable submittal.
 - 2. Formats are acceptable only with written permission of the project manager or required by individual spec sections:
 - a. Microsoft Office 2007 or newer. All files shall be fully compatible with Microsoft Office 2007.
 - b. AutoDesk AutoCAD 2007 or newer. All files shall be fully compatible with AutoDesk AutoCAD 2007.
 - 1) AutoCAD files shall be self contained with no external x-references.
 - c. Other files pre-approved by the Project Manager.
 - 3. Electronic file names: Each electronic document shall have a unique file name. File name convention shall be as follows unless otherwise agreed to by Project Manager: - AAA-BBBBB-CCC-RZ
 - a. AAA = sequential submittal number starting at 001.
 - b.BBBBB = specification section containing submittal requirements
 - c. CCC = sequential specification submittal number starting at 001.

- d. RZ = sequential revision number. RZ not required on initial submittals.
- e. Example A:005-013700-002", five submittals have been logged overall with two submittals made to specification section 013700.
- f. Example B: 009-013700-002-R3, nine submittals made overall and three revisions to submittal 013700-002.

2.03 INITIAL SUBMITTAL

- A. Each submittal document shall include a title block showing the following information:
 - 1. Date of submittal and revision dates.
 - 2. Contract title and number.
 - 3. The names of Contractor, subcontractor, supplier, manufacturer and when applicable, the seal and signature of an engineer registered in the State of Colorado, for the involved discipline.
 - 4. Identification of product by either description, model number, style number or lot number.
 - 5. Subject identification by contract drawing or specification reference.
- B. On each submitted drawing, include a blank space on each sheet, three inches by four inches, in the lower right corner, just above the title block, the Designer of Record may indicate the action taken.
- C. Make submissions sufficiently in advance so that the Designer review may be completed before any material procurement or Work represented by those submittals is scheduled to be performed.
- D. Allow a minimum cycle of 10 working days for review of each submittal by the Designer of Record.
- E. The Contractor shall at the time of submission describe variations from the contract documents in writing, separate from the submittal document. If the Project Manager approves any such variations, an appropriate contract change order shall be issued except that, if the variation is minor and does not involve a change in price or in time of performance, a modification need not be issued. If a submission contains variations and the variation column is not marked on the transmittal form, it will not be considered for review and acceptance. Along with marking the transmittal as a variation, a description must be included which outlines all the differences including maintenance and utility services along with any cost savings from an item not containing the variation.
- F. Changes in accepted submittal documents will not be permitted unless those changes have been accepted, in writing, by the City.
- G. The form and quality of submittal documents shall comply with Technical Specifications Section 013400.

2.04 SUPPLEMENTAL SUBMITTALS

- A. Supplemental submittal documents initiated by the Contractor for consideration of corrective procedures shall contain sufficient data for review. Make supplemental submittals in the same manner as initial submittals with the appropriate primary transmittal referenced.

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW

- A. The Contractor shall review submittal documents, stamp and sign as reviewed and approved as complying with contract documents prior to submission to the Designer of Record.

3.02 CITY REVIEW

- A. Submittal documents will be reviewed by the Designer for conformance to requirements of the contract drawings and specifications. Review of a separate item will not constitute review of an assembly in which the item functions. The Designer or the Project Manager will withhold approval of submittals that depend on other submittals not yet submitted. Review and acceptance will not relieve the Contractor from his responsibility for accuracy of submittals, for conformity of submittal document to requirements of contract drawings and specifications, for compatibility of described product with contiguous products and the rest of the system, or for protection and completion of the contract in accordance with the contract drawings and specifications.
- B. The Designer, will review the submittal documents for general conformance with the contract documents and mark the Action Code, sign and date the transmittal.
- C. The Action Codes have the following meanings:
 - 1. **A - ACCEPTED** is an approval, and means that the illustration and description appears to conform to the respective requirements of the contract documents.
 - 2. **B - ACCEPTED AS NOTED** is an approval, and means that the illustration and description will conform to the respective requirements of the contract documents after changes in recognition of the reviewer's comments. Submittals so marked need not be resubmitted.
 - 3. **C - REVISE AND RESUBMIT** means that the submittal is unacceptable and must be revised and resubmitted.
 - 4. **E - NOT ACCEPTED** means that the submittal is not approved and that a new submittal in accordance with the contract documents shall be made.
 - 5. **F - RECEIPT ACKNOWLEDGED**, means an item is received by the Designer but no review was made. This mark is for use in resubmitting items that were previously Accepted as Noted and the Contractor has incorporated the notes and wants the Project Managers' staff to have the same material that the Contractor's field staff is using.

3.03 CONTRACTOR'S RESPONSIBILITIES

- A. Coordinate each submittal document with the requirements of the Work; place particular emphasis upon ensuring that each submittal of one trade is compatible with other submittals of that trade and submittals of other trades including producing as needed drawings showing the relationship of the work of different trades.
- B. Contractor's responsibility for errors and omissions in submittal documents and associated calculations is not relieved by the City's review, correction and acceptance of submittals.
- C. Contractor's liability to the City, in case of variations in the submittal document from the requirements of the contract documents, is not relieved by the City's review and acceptance of submittals containing variations unless the City expressly approves the deviation in writing, in which the City describes the variation.

- D. The Contractor shall maintain a file of all approved submittal documents at the worksite. The complete file of approved submittal documents shall be turned over to the City with the as-built documents at the end of the job.
- E. Schedule impact due to resubmittal requirements is the responsibility of the Contractor.

END OF SECTION

SECTION 013100 - SCHEDULE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section specifies the preparation of a preliminary schedule, construction schedule, related narratives and monthly progress reports, all encompassing complete performance of contract requirements.
- B. The Contractor shall schedule and coordinate the work of all of its subcontractors and suppliers including their use of the worksite. The Contractor shall keep the subcontractors and suppliers informed of the project construction schedule to enable the subcontractors and suppliers to plan and perform their work properly.
- C. The Contractor shall, in accordance with the requirements of the technical specifications, submit a construction schedule that shall provide for the expeditious and practicable execution of the Work within the Contract Time
- D. The construction schedule for the performance of the Work shall be a Critical Path Method (CPM) system in bar chart format, unless an alternate system is specifically identified in the technical specifications, with reasonable detail..
- E. Float or slack is defined as the amount of time between the early start date and the late start date or the early finish date and the late finish date of any activities in the schedule. Float or slack is not time for the exclusive use or benefit of either the Contractor or the City.
- F. The Contractor shall submit a monthly progress report and schedule update.
- G. The Contractor shall complete the Work within the Contract Time and in accordance with the most recent schedule submittal that has been reviewed and approved by the Project Manager during regular project meetings.
- H. Reference Special Contract Conditions, Liquidated Damages, and Contract General Conditions, GC 306, GC 603, GC 909, GC 1103, GC 1202, GC704

1.02 PLANNING

- A. The schedule shall show total contract time, including project milestones as follow or as established elsewhere in the contract documents:
 - a. [Insert list of milestones]
- B. The Contractor shall prepare a work plan to complete the work within the contract time and complete those portions of work relating to each milestone date and other contract requirements. The Schedule shall be submitted electronically to the Project Manager in a dynamic format which will allow review and manipulation of any part of the schedule, and in PDF format. Upon the request of the Project Manager, the schedule activities shall be resource loaded showing labor man hours by crafts, major construction equipment by type and value of the work.
- C. In addition to the construction activities the schedule shall include activities for furnishing materials and equipment and vendor shop drawing preparation. The construction schedule,

a supporting narrative, and the overall progress curve shall be submitted for approval within 30 days after Notice to Proceed. Within 30 days the City will respond with approval or direction to revise and resubmit within ten days. Failure of the Contractor to have a construction schedule approved by the City will be considered cause for withholding progress payment(s).

- D. To the extent that the construction schedule or any revisions thereof contains anything not jointly agreed upon in writing, or fails to show anything jointly agreed upon in writing, it shall not be considered to have the approval of the City. Failure to include any work item required for performance of this contract shall not excuse the Contractor from completing all work within applicable completion dates, regardless of the City's approval of the schedule.
- E. Failure of the Contractor to comply with this Section will be considered cause for withholding progress payment(s) or termination for default.

1.03 SUBMITTALS

- A. Refer to Technical Specifications Section 01 3000 for submittal procedures. Submit the following as indicated:
 - a. Preliminary schedule Construction schedule data and work plan Monthly progress report
 - b. As built construction schedule.

PART 2 - PRODUCT (NOT USED)

PART 3 - EXECUTION

3.01 PRELIMINARY SCHEDULE

- A. The Contractor shall prepare a preliminary schedule covering the first 90 calendar days of the contract. This preliminary schedule shall be submitted at the Preconstruction Meeting and shall be accompanied by a narrative description of the work plan. The preliminary schedule shall show all significant work tasks that occur in the first 90 days, including planning, mobilization, shop submittals and approvals, procurement, fabrication and construction. It shall identify work items or milestones that affect or are affected by the City, other Contractor's work, utilities and other third parties, and it shall list major data submittals required by the contract.

3.02 CONSTRUCTION SCHEDULE

- A. The construction schedule shall be a computerized CPM schedule that includes:
 - a. The order, sequence and interdependence of all significant work items including construction, procurement, fabrication, testing, startup and inspection and delivery of critical or special materials and equipment, submittals and approvals of critical samples, shop drawings, procedures, or other documents that could have a schedule impact.
 - b. Work items by the City, other Contractors, utilities and other third parties that may affect or be affected by Contractor's activities.
 - c. Proper referencing of all work items to identify applicable subcontractors or other performing parties.
 - d. The construction schedule shall be prepared to include the data for the total contract duration, and the critical path shall be identified, including critical paths for interim completion dates. Scheduled start or completion dates imposed on the schedule by the Contractor shall be consistent with contract milestone dates.

Milestone events shall be the schedule dates specified in the Special Conditions and shall be prominently identified and connected to the appropriate work item, denoting its start or completion. Work items related to any interim milestones shall be coded for that milestone.

3.03 PROGRESS REPORTING

- A. The Contractor shall submit a monthly progress report at the end of each month following the Notice to Proceed. At the end of each month, the Contractor and Project Manager shall agree on the progress of the work and the Contractor shall update the construction schedule accordingly. The updated construction schedule is a prerequisite to the submittal of the Contractor's application for progress payment. The schedule shall be made in accordance with Technical Specifications Section 013100-3.02. This review does not constitute an approval of the construction schedule and shall not be used for the purposes of modifying the initially approved construction schedule.
- B. The latest completion time for any work item does not fall within the time allowed by the construction schedule, the sequence of work and/or duration shall be revised by the Contractor through concurrent operations, additional manpower, additional shifts or overtime, additional equipment or alternative construction methods until the schedule produced indicates that all significant contract completion dates, occupancy dates and milestones will be met.

3.04 SCHEDULE CHANGES

- A. The Contractor's request for construction schedule changes shall be made on the latest approved construction schedule and shall be accompanied by a narrative description and justification for the change, and shall be submitted in accordance with the General Conditions Title 1105 on changes in time. Minor revisions submitted at monthly progress review meetings are not considered as changes in this context.
- B. The construction schedule may be changed when one or more of the following occur:
 - a. When a change order significantly affects the contract completion date or sequence of work items.
 - b. When the Contractor elects to change the sequence or duration of work items affecting the critical path.
 - c. When the City directs a change that affects a milestone date(s) specified in the Special Conditions or alters the length of a critical path.

3.05 CONTRACT EXTENSIONS

- A. If the Contractor is granted an extension of time for completion of any milestone or contract completion date under the provisions of the contract, the determination of the total number of extended days will be based upon the current analysis of the schedule and upon all data relevant to the extension. Such data shall be incorporated in the next monthly update of the schedule.
- B. The Contractor acknowledges and agrees that delays in work items which, according to schedule analysis do not affect any milestone dates or contract completion date shown on the CPM network at the time of the delay will not be the basis for a contract extension.

3.06 AS-BUILT CONSTRUCTION SCHEDULE

- A. After all contract work items are complete, the Contractor shall submit an as built construction schedule showing actual start and finish dates for all work items and milestones.

END OF SECTION

SECTION 013400 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work specified in this Section consists of preparing and submitting shop and working drawings, product data, samples and record documents required by other technical specifications sections.
 - 1. The Contractor shall submit all shop drawings, working drawings, product data and samples, as defined in Title 1 of the General Conditions, to the Designer and Project Manager, if requested, in accordance with the requirements in the technical specifications. The Designer will return one copy of the shop drawings, working drawings and product data to the Contractor with a written transmittal within the time periods noted in the technical specifications.
- B. Reference Contract General Conditions, GC 110, GC 116, GC 117, GC 303, GC 324, GC 401, GC 402, and GC 405.

1.02 SUBMITTALS

- A. Refer to Technical Specifications Section 013000 for submittal procedures.
- B. Submittals shall be delivered to the Designer and Project Manager in electronic format, whenever possible. All submittals must be of a consistent format (all Acrobat or all Word, etc). No combination of electronic file types will be allowed unless required by a specific specification section..
 - 1. Acceptable electronic formats
 - a. Adobe Acrobat 9.0 or newer. All files shall be fully compatible with Adobe Acrobat 9.0
 - b. Formats are acceptable only with written permission of the Project Manager or required by individual spec sections:
 - 1) Microsoft Office 2007 or newer. All files shall be fully compatible with Microsoft Office 2007.
 - 2) AutoDesk AutoCAD 2007 or newer. All files shall be fully compatible with AutoDesk AutoCAD 2007.
 - a) AutoCAD files shall be self contained with no external x-references.
 - 3) Other files pre-approved by the Project Manager
 - 2. Adobe Acrobat Requirements:
 - a. Drawings shall have security set to “No Security”. Commenting, printing, adding photos, form fields and document signing must be allowed.
 - b. PDF submittals shall be one continuous file. No external links are allowed.
 - c. All individual components of submittals shall be bookmarked inside the PDF file.
 - d. All original documents shall be directly converted from the original electronic format to PDF. Failure to comply with these requirements will result in a return of file to the Contractor for immediate revision.
- 1. Electronic file names: Each electronic document shall have a unique file name. File name convention shall be as follows unless otherwise agreed to by Project Manager: - AAA-BBBBB-CCC-RZ

- a. AAA = sequential submittal number starting at 001.
- b. BBBB = specification section containing submittal requirements
- c. CCC = sequential specification submittal number starting at 001.
- d. RZ = sequential revision number. RZ not required on initial submittals.
- e. Example A:005-013700-002”, five submittals have been logged overall with two submittals made to specification section 013700.
- f. Example B: 009-013700-002-R3, nine submittals made overall and three revisions to submittal 013700-002.

C. Quantities

1. Post electronic submittals as PDF electronic files directly to Designer’s FTP, Contractors FTP site or a site specifically established for the Project.
 - a. The Contractor should send an email for each submittal posted to all parties notifying them the submittal is available for review.
 - b. The Project Manager or Designer will send an email to the Contractor when the submittal review is complete.
2. Contractor can submit electronic submittals via email as PDF electronic files if approved by the Project Manager.
3. Three samples of each item specified in the various specification sections, unless otherwise specified.
4. Note: If manufacturer’s printed information is in color, all copies of submittals must be in color.
 - a. Printed information is only allowed when electronic copies are not possible.

D. Review

1. Submittal review comments by the Designer will be in electronic form and incorporated into the electronic submittal file.
2. Resubmittals of electronic documents shall modify the original electronic file with new information and include the Designer’s comments with appropriate responses and additional information.

1.03 CHANGES

- A. Changes in products for which shop or working drawings, product data or samples have been submitted will not be permitted unless those changes have been accepted and approved in writing by the City and County of Denver.

PART 2 - PRODUCTS

2.01 SHOP AND WORKING DRAWINGS

- A. Include the following as they apply to the subject:
1. Contract title, work order and number.
 2. Respective contract drawing numbers.
 3. Applicable specification section numbers.
 4. Relation to adjacent structure or materials.
 5. Field dimensions clearly identified as such.

6. Applicable standards such as ASTM or Federal Specification number, and pertinent authority specifications or standards.
 7. Identification of deviations from the contract drawings and specifications.
 8. Drawing name, number and revision.
 9. Contractor's stamp, initialed or signed, certifying:
 - a. Verification of field measurements.
 - b. Review of submittals for compliance with contract requirements.
 - c. Compatibility of the Work shown thereon with that of affected trades.
 10. Blank space on each sheet per Technical Specifications Section 01300, paragraph 2.02.B.
- B. Drawings of equipment and other items that contain multiple parts shall include exploded views showing the relationship of parts and the description of the parts into the smallest units that may be purchased or serviced.

2.02 PRODUCT DATA

- A. Modify manufacturer's standard and/or schematic drawings to delete information which is not applicable to the contract. Supplement standard information with additional information applicable to this contract.
- B. Modify manufacturer's standard(s), diagrams, schedules, performance charts, illustrations, calculations and other descriptive data to delete information which is not applicable to the contract. Indicate dimensions, clearances, performance characteristics and capacities. Include with the submittal electrical, plumbing, HVAC and any other diagrams, as applicable.
- C. Modify erection, application and placing instructions to delete information that is not applicable to the contract or work order.
- D. Include the following:
 1. Contract title, work order and number
 2. Respective contract drawing numbers
 3. Applicable contract technical specification section numbers
 4. Applicable standards such as ASTM or Federal Specification number, and pertinent authority specification or standards
 5. Identification of deviations from the contract drawings and specifications
 6. Contractor's stamp, initialed or signed, certifying:
 - a. Dimensional compatibility of the product with the space in which it is intended to be used
 - b. Review of submittals for compliance with contract requirements
 - c. Compatibility of the product with other products with which it is to perform or which will be next to it.
 - d. The products electrical, plumbing, control and HVAC requirements conform to contract documents and the necessary utilities are provided for in the contract documents.
- E. Certificates of compliance shall be submitted for all products. The certificates shall:

1. State that the product complies with the respective specification and contract drawing requirements
2. Be accompanied by a certified copy of test results pertaining to the product
3. Show the submittals date, Contractor's name and address, contract title and number, product represented and its location in the contract, producer's name, product trade name and catalog number, place of product origin, test date, testing organization's name and address, quantity of the product to be furnished and related contract drawing and specification section numbers
4. Be signed by an officer or another authorized representative of the producer and notarized
5. Submit one electronic copy.
6. Be received by the City not later than 30 days before the acceptance is needed of the products for ordering.

2.03 SAMPLES

- A. Submit samples of sizes and quantities to clearly illustrate full color range and functional characteristics of products and materials including attachment devices.
- B. Erect field samples and mock ups at the worksite as specified in the several technical specifications sections and at locations acceptable to the Project Manager. All field samples shall be erected in a location that will be readily visible throughout the life of the contract to allow comparison of the work as it progresses to the field sample.
- C. The Contractor shall verify, through appropriate inspections and tests, that the samples submitted meet the specifications and shall provide inspection and test data with the samples. The review and comments on the sample shall not relieve the Contractor of his responsibility for completion of the contract.
- D. Show the following information:
 1. Contract title and number
 2. Respective contract drawing numbers
 3. Applicable technical specification section numbers
 4. Applicable standards such as ASTM or Federal Specification number
 5. Identification of deviations from the contract drawings and specifications
 6. Contractor's stamp, initialed or signed, certifying:
 - a. Dimensional compatibility of the product with the space in which it is intended to be used
 - b. Review of submittals for compliance with contract requirements
 - c. Compatibility of the product with other products with which it is to perform or which will be next to it
 7. If multiple samples are submitted and the Designer is requested to make a choice, each sample shall have a unique identification number attached to it so the returned transmittal can state the identification number of the accepted sample and the Contractor will know which one it is.

PART 3 - EXECUTION

3.01 CONTRACTOR RESPONSIBILITIES

- A. Verify field measurements, catalog numbers and similar data.
- B. The Contractor shall not start work for which submittals are required until a transmittal has been received by the Contractor showing acceptance or acceptance as noted by the Designer Before making submittals ensure that products will be available in the quantities and at the times required by the contract.
- C. Submit final, corrected, electronic drawings of contract and shop and working drawings showing the Work as actually installed, placed, erected and applied. Refer to Technical Specification Section 017000, Contract Closeout.

3.02 REVIEW BY THE CITY

- A. One electronic copy of the marked-up shop and working drawing and one electronic copy of the product data will be returned to the Contractor by the Designer. Only the transmittal form, appropriately marked, and two samples will be returned on sample submittals. Contractor shall maintain one approved sample onsite for the duration of the project.
- B. Contractor's responsibility for errors and omissions in submittals for compatibility will not be reduced, waived or otherwise limited by the review and acceptance of submittals by the City's Designer of Record.

END OF SECTION

SECTION 013700 - SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work specified in this Section consists of preparing and submitting the Schedule of Values as referenced in the General Conditions. The Schedule of Values will be built upon a breakdown of the Work using specification sections and milestones. The Work also includes the preparing and submitting of updated copies of the Schedule of Values if the Schedule of Values is affected by change orders. The Project Manager may require additional breakdowns of information, or separate Schedules of Values for portions of work based upon project's funding requirements.
- B. A Schedule of Stored Material is a detailed cost breakdown for permanent materials that will be temporarily stored prior to their being installed and for which the Contractor seeks partial payments. The Schedule of Stored Material will be incorporated as a part of the Schedule of Values.
- C. Within 14 calendar days of issuance of the Notice to Proceed, the Contractor shall submit the Schedule of Values including the Schedule of Stored Material if applicable. The Schedule of Values and Schedule of Stored Material used to prepare the work/cost breakdown for the Schedule will be used for the Contractor's billings.
- D. Any contract allowances shall be included in the Schedule of Values. Expenditure of allowances shall be done through the use of the Allowance Authorization form. Use of this form does not increase or decrease the contract value.
- E. Reference Special Contract Conditions, Payment to Contractors, plus Contract General Conditions, GC 902, GC 903, and GC 906.

1.02 RELATED DOCUMENTS

- A. Technical Specifications Section 013000 Submittals

1.03 SUBMITTAL

- A. The Schedule of Values shall be submitted in a format approved by the Project Manager.
- B. Upon request by the City, the Contractor shall support values given with the data which will substantiate the correctness of the values.
- C. The Schedule of Values will be utilized as a basis for review of the Contractor's application for progress payment.

1.04 REVIEW AND RESUBMITTAL

- A. If review by the City indicates that changes to the Schedule of Values are required, the Contractor shall revise and resubmit the Schedule of Values.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

3.01 ALLOWANCE AUTHORIZATION AND PAYMENT

- A. Contractor shall request written approval for expenditure of any contract allowances PRIOR TO performing the Work involved. List work to be performed and estimated cost in the requesting correspondence.
- B. Using the format provided by the City, the Contractor's request for payment of all contract allowances shall be included in the Schedule of Values.

END OF SECTION

SECTION 014000 - CONTRACTOR QUALITY CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section identifies the Quality Control activities to be performed during all phases of the contract by the Contractor.
- B. The Contractor shall have in place his Quality Control Program as necessary to ensure that all materials and work are completed in compliance with contract documents. The Contractor is solely responsible for Quality Control with the exception of those tests and/or audits that will be conducted by the City as defined in the contract documents.
- C. Test schedules and/or testing requirements for materials used on this project are included in the technical specifications. Laboratory and field testing identified in the technical specifications shall be conducted by an Independent Testing Agency (ITA) retained by the City unless stated otherwise.
- D. Reference General Contract Conditions GC 316, GC 702, GC 1801, GC 1902, and GC 2002

1.02 LEVEL OF CONTROL

- A. The intent of this section is to enable the Contractor to establish a necessary level of control that will:
 - 1. Adequately provide for the production of acceptable quality materials
 - 2. Provide sufficient information to ensure both the Contractor and the Designer of Record that the specification requirements are being met
 - 3. Allow the Contractor as much latitude as possible to develop his or her own standards of control.

1.03 SUBMITTALS

- A. Refer to Technical Specification Section 013000 and 013400 for submittal requirements.
- B. Quality Control Plan: Within 14 days after Notice to Proceed, the Contractor shall submit a Quality Control Plan for review and acceptance. Acceptance by the Project Manager does not relieve the Contractor of compliance with the contract requirements. The Contractor Quality Control Plan shall address the following as a minimum:
 - 1. Provide a general description of Quality Control monitoring to be performed until final acceptance by the City. Include securing of project site and staging areas and monitoring of the worksite during times no construction activity is scheduled to take place.
 - 2. The Contractor shall designate an employee as the Quality Control Manager qualified to perform quality control monitoring of the Work. The designated individual shall have the authority to direct work changes required to bring the Work into conformance with contract requirements including stopping non-conforming work in progress.
 - 3. Provide methodology of monitoring, testing and exercising of all equipment, valves and/or assemblies to ensure the Work installed is in proper working order.

4. The Contractor shall submit a list of suppliers and subcontractors. This list shall include items to be supplied by each supplier and/or subcontractor and shall identify work to be performed by each subcontractor. The list shall be updated and resubmitted as required.
 5. Provide emergency contact information including name, company, title, work phone number, cell phone number and other means of contact. The Emergency Contact list shall include at least four individuals. In the event there is any change in any of the information, the Contractor shall forward the updated list to the Project Manager. The Emergency Contact list shall include the project address, project title and date of issue.
- C. Daily Quality Control Report:
1. The Daily Quality Control Report shall be submitted daily in the format detailed in Technical Specifications Section 01999. The report shall address as a minimum the following: identify number of workers on site each day by trade, identify notifications and discussions with/by Quality Assurance Inspectors and other agency inspectors, identify quality of work placed that day and any deviations and/or corrections required to bring the Work into conformance with the contract. Daily reporting may be computerized or typed, but must contain a legible signature. Scanned copies of daily reports are acceptable.
 2. Submit one electronic copy of the Daily Quality Control Report to the Project Manager the day following the work. The report shall be signed by the Contractor's Quality Control Representative and the Contractor's Superintendent.
- D. Corrective Action Report (CAR)
1. Conditions adverse to quality will be reviewed by the Contractor to determine the cause and to recommend a corrective action that will preclude recurrence. The condition, its cause and the corrective action planned shall be reported to the Project Manager prior to implementation. Follow-up action shall be taken to verify implementation of the corrective action. The Contractor will document the corrective action and a copy of the Corrective Action Report (CAR) will be transmitted to the Project Manager.

1.04 DOCUMENTATION

- A. The Contractor shall not change or alter approved submittals, procedures, specifications, drawings or other pertinent documentation without the Project Manager's written authorization.
- B. All records and documents that are quality related shall be prepared, identified and maintained by the Contractor and shall be made available to the City upon request. Records shall be protected from damage, deterioration or loss.
- C. The Contractor shall maintain records at the actual worksite and at Contractor's office to show the inspection status of materials and items installed in order to ensure that the required inspections and tests have been performed in a timely and correct manner.

1.05 INSPECTIONS AND TESTS

- A. Inspections, tests and system shut down requests, conducted by persons or agencies other than the Contractor, shall not in any way relieve the Contractor of his responsibility and obligation to meet all specifications and the referenced standards. The Contractor's designated Quality Control Representative shall inspect the work and shall ensure the work

complies with the contract requirements prior to any requests for inspection or testing.

- B. When the specifications, laws, ordinances, rules, regulations or orders of any public agency having jurisdiction require the ITA's surveillance of inspections or tests, the Contractor shall notify the ITA of the place, date and time 48 hours prior to the inspection and/or test. The Contractor shall be responsible for notifying and requesting inspection by other agencies including but not limited to the Denver Building Inspection Division, Denver Fire Department and Denver Water Department. Prior to request for other agency inspections, the Contractor shall meet and plan inspection times with the Project Manager and or the Project Manager's designated representative.
- C. Special inspections or tests may be required by the technical specifications, City, State and/or Federal Agencies in addition to those tests already performed. The Contractor shall notify the Project Manager at least 48 hours in advance of the additional inspections or tests.

1.06 INSPECTION PLAN

- A. The Contractor shall utilize the following six-point inspection plan to ensure the conformance of the Work performed by the Contractor meets the requirements of the contract drawings and specifications, the referenced codes and standards and the approved submittals:
 - 1. **Pework Coordination:** Prior to the start of construction work on the contract and prior to the start of work under each separate specification section and prior to the start of work where a change in a construction operation is contemplated by the Contractor and prior to a new subcontractor starting work, a coordination meeting will be held with the Contractor's superintendent, Quality Control and Safety representative(s). Some portions of the work may require coordination with the Project Manager, facility operator, Designer of Record, ITA and/or commissioning agent; this would be included as an activity in the regularly updated schedules and specific invitations will be issued by the Contractor. The Contractor's Quality Control Representative shall chair, prepare and distribute minutes of Quality Control meetings. Meeting minutes shall be electronically distributed within 48 hours of the meeting.
 - 2. The purpose of the meeting is to ensure that the Contractor's personnel and sub-contractors have no misunderstandings regarding their safety and quality procedures as well as the technical requirements of the contract.
 - 3. **Initial Inspection:** Upon completion of a representative sample of a given feature of the Work and no later than two weeks after the start of a new or changed operation, the Project Manager's designated representatives will meet with the Contractor's Quality Control representative and applicable subcontractor's supervisor and their Quality Control representatives to check the following items, as a minimum:
 - a. Workmanship to established quality standards
 - b. Conformance to contract drawings, specifications and the accepted shop drawings
 - c. Adequacy of materials and articles utilized
 - d. Results of inspection and testing methods
 - e. Adequacy of as-built drawings maintained daily.
 - 4. Once accepted, the representative sample will become the physical baseline by which ongoing work is compared for quality and acceptability. To the maximum practical extent, approved representative samples of work elements shall remain visible until all work in the appropriate category is complete. Acceptance of a sample does not waive or alter any contract requirements or show acceptance of any deviation from the

contract not approved in writing by a fully executed change order.

5. Follow-up Inspection: The Contractor's Quality Control representative will monitor the work to review the continuing conformance of the work to the workmanship standards established during the preparatory and initial inspections.
6. Pre-Final Acceptance Inspection: Prior to requesting a Pre-Final Acceptance Inspection by the City, all work and operational systems to be inspected shall be satisfactorily completed and tested by the Contractor. The Contractor's written request for this inspection shall be made 72 hours in advance. With the request shall come a list of any known deficiencies and when they will be corrected. If the list is too large or contains too many significant items, in the opinion of the Project Manager, no inspection will be held because of the incompleteness of the work.
7. The Project Manager will schedule the Pre-Final Acceptance Inspection and will prepare a list of deficient items (punch list) discovered during the inspection. If during the inspection the list becomes too large or too many significant items are on the list, the inspection will be canceled. After the inspection is completed, the Deficiency List will be transmitted to the Contractor for correction of the deficient items.
8. Final Acceptance Inspection: After the Contractor has completed all items on the Deficiency List (generated from the Pre-Final Acceptance Inspection) he shall request a Final Acceptance Inspection. The request shall be made in writing at least 72 hours in advance of the inspection. All areas must be cleaned and ready for turnover prior to this inspection. The Project Manager, the design consultant, the facility operator, a representative of the funding agency (if applicable) and other interested parties will inspect the subject Work to ensure that all deficiencies have been satisfactorily attended to and that no new deficiencies have appeared and that all systems are completely functional. Any outstanding or additional deficient items will be noted and handled per the requirements of the Pre-Final Acceptance Inspection noted above until the Work is acceptable to the Project Manager.

1.07 SAMPLES

- A. The Contractor shall maintain at the worksite a copy of all samples submitted and accepted by the City. Samples shall be made available to the designer or the Project Manager's designated representatives for review and comparison in the field. The Project Manager prior to use on the project must accept all items and materials.
- B. The installed work will be compared to the samples and if any of the work is not of the same quality, material, finish, color, texture or appearance as the sample, that portion that is not the same will be considered defective and in nonconformance.
- C. Contractor selection of samples will only be considered if taken at random. The Contractor shall permit representatives of the City to witness the selection of samples. Inspection or tests of items or materials that fail shall be sufficient cause to terminate further inspections/tests of the same brand, make or source of that product.
- D. The Contractor is obligated to correct any item deemed deficient.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 REQUIREMENTS

- A. All materials required for the contract shall be new except where specified otherwise. Inspections and tests performed by the City shall not relieve the Contractor from the

responsibility to meet the specifications, nor shall such inspections/tests be considered a guarantee for acceptance of materials that will be delivered at a later time.

- B. The Contractor is obligated to correct or remove non-conforming materials, whether in place or not. If necessary, the Project Manager will send written notification to the Contractor to correct or remove the defective materials from the project. If the Contractor fails to respond, the Project Manager may order correction, removal and/or replacement of defective materials by others, in which case the Contractor shall bear all costs incurred by such actions.
- C. Materials accepted on the basis of a Certificate of Compliance may be sampled and inspected/tested by the City Project Manager or its Designer at any time. The fact that the materials were accepted on the basis of such certification shall not relieve the Contractor of his responsibility to use materials that conform to the specifications.
- D. The Contractor shall impose upon his suppliers the same quality control requirements, including inspection and test procedures, as imposed upon him by the specifications and referenced standards. The Contractor shall apply appropriate controls, designed to ensure that all materials supplied meet the requirements and specifications.

END OF SECTION

SECTION 014020 - QUALITY ASSURANCE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section identifies inspection activities to be performed by inspectors employed by the City and/or working under the direction of the City Project Manager.
- B. Inspection and tests, conducted by persons or agencies other than the Contractor, shall not in any way relieve the Contractor of his responsibility and obligation to meet all specifications and the referenced standards.
- C. The inspection and approval of work by other agencies above does not constitute inspection or acceptance of work required by the City. Technical specifications may contain requirements more stringent than Building Inspection Division or other code agency requirements.
- D. Reference Contract General Conditions, GC 1701, GC 1702, GC 1703, GC 1704, GC 1705, GC 1706

1.02 RELATED DOCUMENTS

- A. Technical Specifications Section 014000 – “Contractor Quality Control”
- B. Technical Specifications Section 013000 – “Submittals”
- C. Technical Specifications Section 013400 – “Shop and Working Drawings, Product Data and Samples”

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 CONTRACTOR'S QUALITY CONTROL SYSTEM

- A. The Contractor is responsible for quality control of the Construction. All acquisition of materials, sequence of construction (except as otherwise indicated), and means and methods of construction shall be the responsibility of the Contractor. Establish system to perform sufficient inspection and tests of all items of work, including that of subcontractors, to ensure conformance to Contract Documents for materials, workmanship, construction, finish, functional performance and identification.
 - 1. Control System: Establish for all construction except where Contract Documents provide for specific compliance tests by testing laboratories and engineers employed by the City.
 - 2. Control System: Specifically include all testing required by various sections of Specifications.
 - 3. Quality Control System: Means by which Contractor assures himself that construction complies with requirements of Contract Documents.
 - a. Controls: Adequate to cover all construction operations and keyed to proposed construction schedule.
- B. The Contractor shall be responsible for assuring compliance with the quality standards as

indicated in the Contract Documents. In addition, the Contractor shall be responsible for:

1. Review of submittals prior to their being forwarded to the Designer for review. The Contractor shall mark submittals with comments and shall indicate the date and party conducting the Contractor's review of each submittal.
 2. Final inspection of the project prior to calling for the City to conduct a final inspection. The Contractor shall provide his inspection comments to the Designer and City prior to the scheduled final inspection.
 3. Verification of completion of punch-list items prior to calling for verification inspection by the Designer and the City.
- C. Records: Maintain correct records on appropriate form for all inspections and tests performed, instructions received from the Designer or Independent Testing Agency (ITA) and actions taken as result of those instructions.
1. Records: Include evidence that required inspections or tests have been performed (including type and number of inspections or tests, nature of defects, causes for rejection, etc.) proposed or directed remedial action, and corrective action taken.
 2. Document inspections and tests as required by each section of Specifications.
- D. The Contractor is responsible for complying with the requirements of the Contract Documents. Testing performed by the City's Agents shall not be relied upon by the Contractor as sufficient to assure compliance with the Contract Documents. The Contractor shall procure and pay for testing necessary to assure that the construction is in compliance with the Contract Documents.

3.02 STANDARDS

- A. Generally accepted Construction Industry standards for materials, products, quality, and workmanship shall supplement the Specifications.
1. Where industry standards are less than the Specifications and Drawings require, the Contract Documents shall govern.
 2. The Contractor shall provide materials and products which conform to industry standards of quality.
- B. Construction tasks shall be performed by craftsmen skilled and experienced in the trades required. Work shall be subject to review by the City and the Designer.
- C. Work and/or materials which fail to meet accepted industry standards of performance, quality, and/or appearance will be rejected and shall be brought into compliance or replaced by the Contractor at no additional cost to the City.

3.03 MATERIAL AND WORKMANSHIP

- A. Unless otherwise specified, or indicated on the Drawings, material shall be new, of best quality, and without flaws, and delivered upon completion in an undamaged condition.
- B. Workmanship shall be the best of its respective kind. Labor shall be performed in a thorough workmanlike manner by qualified, efficient, and skilled mechanics, acceptable to the City, Designer and other trades involved on the job requiring acceptable substrate for the performance of their work.

3.04 TESTING – GENERAL

- A. Testing Laboratory and/or Engineering services are required for quality control in portions of the work identified in other sections of these specifications.
- B. Tests required by these Specifications shall be performed in strict accordance with referenced testing methods, procedures, and conditions. Pertinent data shall be included in clear, comprehensive written forms according to the Designer's or Engineer's requirements.
- C. Contractor: Provide equipment and facilities as required for testing at no additional cost, subject to City's review, for conducting field tests and for collecting and forwarding samples.
 - 1. Do not use materials or equipment represented by samples until tests, if required, have been made and materials or equipment found to be acceptable.
 - 2. Do not incorporate any product into work which becomes unfit for use after acceptance thereof.
- D. Testing: Materials or equipment proposed to be used may be tested at any time during their preparation or use. Furnish required samples without charge and give sufficient notice of placing of orders to permit testing. Products may be sampled either prior to shipment or after being received at site of work.
- E. Tests: Made by accredited testing laboratory selected by City. Except as otherwise provided, sampling and testing of materials and laboratory methods and testing equipment shall be in accordance with latest standards and tentative methods of ASTM.

3.05 COST OF TESTING

- A. Unless indicated otherwise, City's testing shall be performed by the City's authorized agents, at the City's expense.
- B. Costs for re-testing of non-complying work shall be borne by the Contractor.
- C. According to the judgment of the City and/or Designer, ANY portion of the work in this contract may be tested at any time for any reason. Costs for such testing shall be borne by the Contractor only if such tests indicate that work does not meet Contract Document requirements.

3.06 OTHER TESTING

- A. Following Testing: Performed at expense of Contractor:
 - 1. Any additional tests required because of any tests that fail subject to following conditions:
 - a. Quantity and Nature of Tests: Determined by the Designer.
 - b. Tests: Taken in presence of the City and/or the Designer.
 - c. Proof of Noncompliance: Contractor liable for corrective action which the City and/or the Designer feel is required including complete removal and replacement of defective material.
 - 2. Material Substitution: Any tests of material or equipment offered as substitute for specified item on which test may be required in order to prove its compliance with Specifications.
- B. Contractor: May have tests performed on material and equipment for his own information and job control so long as the City does not assume responsibility for costs or for giving them consideration when appraising quality of materials.

3.07 EQUIPMENT TESTING

- A. Equipment testing shall be as determined appropriate by the City to assure proper performance according to the manufacturer's specifications for each equipment item.
- B. After all utility connections to equipment are completed, the Contractor shall conduct final tests of equipment in presence of the City and the Designer.
- C. Unless waived in writing by the City, the requirements of this section shall apply to all installed equipment items having utility connections.

3.08 NOTIFICATION

- A. The Contractor shall be responsible for notifying the City and Designer at least three (3) working days prior to commencing work which is identified as requiring testing in their presence.
- B. The Contractor shall be responsible for scheduling and coordinating all required testing with the City and the City's Independent Testing Agency.

3.09 TEST REPORTS

- A. Test reports, whether performed for the City or the Contractor, shall be submitted to the City, the Designer, and Contractor as soon as results are available. Reports shall be clear, concise, comprehensive written forms containing required test results.
- B. Reports of tests made by testing laboratories shall be distributed via e-mail by testing laboratory as follows: to – City Project Manager, – Contractor, - Applicable Supplier or Subcontractor; – Designer and Applicable Engineer;

3.10 MANUFACTURING AND FABRICATION INSPECTIONS

- A. The Project Manager may elect to perform additional inspections and/or tests at the place of the manufacture, the shipping point or at the destination to verify conformance to applicable specifications. Inspections and tests performed by the City shall not relieve the Contractor from the responsibility to meet the specifications, nor shall such inspections/tests be considered to be a guarantee for acceptance of materials that will be delivered at a later time.
- B. The Project Manager or his authorized representative may inspect at its source any material or assembly to be used in the Work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the Work and to obtain samples for testing and further inspection.
- C. Should the Project Manager conduct plant inspections the following conditions shall exist:
 - 1. The Project Manager shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.
- D. It is understood and agreed that the City shall have the right to re-test at the City's expense any materials that have been tested and accepted at the source of supply after it has been delivered to the site.

END OF SECTION

SECTION 015000 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work specified in this Section consists of furnishing, installing, operating, maintaining and removing temporary construction barriers, enclosures and field facilities including the Contractor's construction offices, staging areas, yards, storage areas, electrical power, telephone, water, fire protection and sanitary service.
- B. Construction Office, Yards and Storage Areas
 - 1. Temporary facilities which the Contractor desires to locate in staging areas adjacent to the Work or within the project limits are subject to approval by the Project Manager.
 - 2. Contractor Field Office may be required based upon size and complexity of project, if required:
 - a. The Contractor shall acquire all necessary permits for installation and construction work related to the Contractor's field office and fencing.
 - b. The Contractor shall provide, as part of his on-site field office, a conference room for weekly meetings. The conference room shall have one available telephone with a speaker phone option.
 - c. Jack the mobile office unit off its wheels and provide support.
 - d. Install tie downs in compliance with code.
 - e. Provide access to the field office and easily accessible space for parking six full size passenger automobiles at a minimum. Grade the field office site, access roadway and parking area for drainage, and surface with gravel paving or crushed stone.
 - f. Water and sewer lines to the field office, if installed, shall be installed so they will not freeze.
- C. Electrical Service
 - 1. Reference Contract General Conditions, GC 327
 - 2. Provide lighting and power for field offices, storage facilities and other construction facilities and areas.
 - 3. Provide power centers for electrically operated and controlled construction facilities including tools, equipment, testing equipment, interior construction lighting, heating, cooling and ventilation equipment.
 - 4. Provide night security lighting at secured areas within construction limits at offices, storage facilities, temporary facilities and excavated areas.
 - 5. Provide battery operated or equivalent emergency lighting facilities at construction areas where normal light failures would cause employees to be subjected to hazardous conditions. Bear all costs of temporary electric and water service permits, fees and deposits required by the governing authorities, and connection charges and temporary easements including installation, maintenance and removal of equipment.
- D. Telephone Service
 - 1. The Contractor shall furnish, field staff cell phones
- E. Internet Service

1. The Contractor shall furnish, install and maintain at least one computer with email in his main field office. This computer should be able to access all email and FTP as part of project submittal process.

F. Water Service

1. Reference Contract General Conditions, GC 327
2. The Contractor shall make all connections and extensions required and shall make use of water in direct support of the Work. The Contractor shall install an approved Water Department tap at the City's water source prior to obtaining any water. The Contractor shall arrange and pay for its supply/distribution system from the City's point of connection. The location and alignment of the Contractor's temporary supply/distribution system must be approved by the Project Manager prior to its installation. The Contractor shall leave in place all above ground and underground water distribution facilities unless otherwise directed by the Project Manager.
3. The Contractor shall not use in place fire hydrants or standpipes as sources for construction water or potable water.

G. Fire Protection

1. Furnish, install and maintain temporary portable fire protection equipment throughout the construction period at all buildings (including the project site), maintenance shops, and fuel storage on all large construction equipment and at the location of any flammable materials or construction materials.

H. Sanitary Service

1. Reference Contract General Conditions, GC 326
2. Furnish, install and maintain temporary sanitary facilities and services throughout the construction period.
3. Ensure that separate or single user toilets shall be provided to ensure privacy between the sexes.
4. Provide general washing facilities adequate for the number of employees.
5. Provide special washing facilities adequate for the number of employees engaged in the application of paints, coating and other volatile or hazardous materials.

1.02 QUALITY CONTROL

- A. Provide products for, and the execution of, the Work of this Section that will satisfy the requirements of the NEC, OSHA and local codes. Provide products that satisfy requirements of NEMA and are UL listed.

1.03 SUBMITTALS

- A. Refer to Technical Specifications Sections 013000 and 013400 for submittal procedures.
 1. Details and layout of temporary installations including fences, roads, parking, buildings, storage areas and drainage plans.
 2. Lighting plan showing temporary lighting facilities, electrical service panel location, electrical circuit diagram and anticipated light level on the working roadway, pathway or construction surface.

PART 2 - PRODUCTS

2.01 ELECTRICAL SERVICE

- A. Provide temporary power and lighting equipment consisting of fixtures, transformers, panel boards, groundings, lamps, switches, poles, conduits and wiring sized and capable of continuous service and having adequate capacity to ensure a complete operating system. Comply with NEMA.
- B. Provide temporary extension cords to supply tools not longer than 200 feet, except that additional length may be used if equipment will be grounded within 200 feet of tool or power.
- C. Portable power generators shall be grounded.

2.02 DRINKING WATER SERVICE

- A. Provide sanitary materials and equipment that satisfies the requirements of codes and regulations pertaining to temporary water systems. Bottled products may be used if those products comply with codes. Clearly label portable containers having a dispensing tap and used only for drinking water. Provide single service disposable cups and a sanitary container for dispensing cups. A trash receptacle shall be provided and maintained beside each portable water supply.

2.03 FIRE PROTECTION

- A. Fire extinguishers shall be UL rated and shall comply with the current City fire code.

2.04 SANITARY SERVICE

- A. Provide materials and equipment adequate for the intended purposes, which will neither create unsanitary conditions nor violate the codes applicable to temporary sanitary facilities. Enclosures for toilet and washing facilities shall be weatherproof, sight proof, ventilated and sturdy.
- B. Provide portable type toilet facilities that satisfy the requirements of OSHA.
- C. Provide washing facilities as needed. Furnish soap, single-service paper towels, towel dispenser and towel receptacle. If paints, coatings and other volatile or hazardous materials injurious to humans will be applied as part of the contract, provide washing facilities with warm water of approximately 120 degrees F.

PART 3 - EXECUTION

3.01 ELECTRICAL SERVICE

- A. The approximate location of primary power lines is shown on the Construction Drawings. The Contractor shall locate electrical service where it will not interfere with equipment, storage spaces, traffic, and prosecution of the Work or the work of others. Installation shall present a neat and orderly appearance and shall be structurally sound. Maintain service in a manner that will ensure continuous electrical service and safe working conditions.

3.02 TELEPHONE SERVICE

- A. Install temporary telephone service in a neat and orderly manner and make structurally and electrically sound to ensure continuous service. Modify, relocate and extend as work progress requires. Place conduit and cable where those products will not interfere with

traffic, work areas, materials, handling equipment, storage areas and the work of other contractors. Service lines may be aerial.

3.03 WATER SERVICE

- A. Install the systems in a neat and orderly manner. Make them structurally and mechanically sound. Provide continuous service. Modify, relocate and extend the systems as the work progresses.
- B. Locate systems where they will be convenient to work stations, sanitary facilities and first aid station but will not interfere with traffic, work areas, materials handling equipment, storage areas or the work of other contractors.
- C. Install vacuum breakers, backflow preventers and similar devices in a manner and location which will prevent temporary water from returning to the water mains.
- D. Do not incorporate any part of temporary water distribution system into the permanent water distribution system.

3.04 FIRE PROTECTION

- A. Install products in conformance with the requirements of the applicable Denver Fire Department and OSHA regulations.
 - 1. Provide functional fire extinguishers that are clearly identified for fire and an accessible supply of water during the period of construction. These fire extinguishers shall remain in place until permanent fire protection systems are functional.
 - 2. Furnish not less than one 20-pound fire extinguisher, type 2A-20ABC within ten feet of cutting and welding operations.
 - 3. Provide 20-pound fire extinguishers, type 2A-20ABC no further then 100 feet apart in buildings.
 - 4. Provide not less than one 20-pound fire extinguisher, type 2A-20ABC on any equipment of 75 horsepower or more.
- B. Instruct construction personnel as to location and use of temporary fire protection equipment.
- C. Fire extinguishers shall be located for easy access. Their location shall be clearly marked so that they can be seen at least 75 feet away.

3.05 SANITARY SERVICE

- A. Place temporary sanitary (and washing) facilities in a neat and orderly manner within the limits of the work and convenient to the work stations. Make these facilities structurally and mechanically sound. Modify, relocate and extend the facilities as required by progress of the work.
- B. Service toilets at those time intervals which will minimize the accumulation of wastes and prevent creation of unsanitary conditions, but not less than once a week.
- C. The waste from the sanitary and wash facilities shall be disposed of in accordance with all applicable rules, regulations and laws and with the least environmental impact.

3.06 FENCING

- A. Contact all utility service companies prior to planning fence location and post locations for certification of current utilities. Locate pothole posts planned within 5 feet of known utilities. Submit fencing plan and typical details to Project Manager at least seven days before planned execution for review and acceptance.

3.07 SIGNAGE

- A. Contractor shall not provide any signage for temporary facilities without prior approval from the Project Manager.

3.08 REMOVAL

- A. The Contractor shall locate all temporary facilities including the underground utilities so they can be completely removed without damaging permanent work or the worksite of other contractors.
- B. The Contractor shall remove all temporary facilities, including all underground utilities, and restore the site to the condition in which the City initially provided it to the Contractor.

END OF SECTION

SECTION 016200 - STORAGE AND PROTECTION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work specified in this Section consists of providing storage and protection of the materials, products and supplies which are to be incorporated into the construction and indicating such storage areas on the working drawings with the location and dates when such areas will be available for each purpose.
- B. Reference Contract General Conditions, GC 803

1.02 SUBMITTALS

- A. Refer to Technical Specifications Sections 013000 and 013400 for submittal procedures. Submit concurrently with submittals required in Section 010500.
- B. Submit working drawings showing locations of storage areas not indicated on the Contract Drawings.
- C. Submit descriptions of proposed methods and locations for storing and protecting products.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Materials required for the storage and protection of the items specified shall be durable, weatherproof and either factory finished or painted to present an appearance acceptable to the City. Storage facilities shall be uniform in appearance with similar materials used to the maximum extent possible.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS OF EXECUTION

- A. Palletize materials, products and supplies which are to be incorporated into the construction and stored off the ground. Store these items in a manner which will prevent damage and which will facilitate inspection. Leave seals, tags and labels intact and legible. Maintain access to products to allow inspection. Protect products that would be affected by adverse environmental conditions.
- B. Periodically inspect stored products to ensure that products are being stored as stipulated and that they are free from damage and deterioration.
- C. Do not remove items from storage until they are to be incorporated into the Work.
- D. The Contractor shall ensure that all protective wrappings and coverings are secure and ballasted to prevent any items from deterioration and/or subsequent dislodgment. All items on the worksite that are subject to becoming windborne shall be ballasted or anchored.

3.02 HANDLING AND TRANSPORTATION

- A. Handling

1. Avoid bending, scraping or overstressing products. Protect projecting parts by blocking with wood, by providing bracing or by other approved methods.
 2. Protect products from soiling and moisture by wrapping or by other approved means.
 3. Package small parts in containers such as boxes, crates or barrels to avoid dispersal and loss. Firmly secure an itemized list and description of contents to each container
- B. Transportation
1. Conduct the loading, transporting, unloading and storage of products so that they are kept clean and free from damage.

3.03 STORAGE

- A. Store items in a manner that shall prevent damage to the owner's property. Do not store hydraulic fluids, gasoline, liquid petroleum, gases, explosives, diesel fuel and other flammables in excavations, except one day's supply of diesel fuel may be stored in open excavations.
- B. Provide sheltered weather-tight or heated weather-tight storage as required for products subject to weather damage.
- C. Provide blocking, platforms or skids for products subject to damage by contact with the ground.
- D. All material shall be stored according to the manufacturer's recommendations. Any material that has to be stored within specified temperature or humidity ranges shall have a 24-hour continuously written recording made of the applicable condition. Should the recording show that the material was not stored within the recommended ranges the material shall be considered defective and in nonconformance. If a certification from the manufacturer's engineering design representative is provided stating that the actual variations are acceptable and will in no way harm the material or affect warranties, then the deficiency will be considered corrected.
- E. Store hazardous material separately, with all material marked with a label showing the hazard and how to treat exposure to the material.

3.04 LABELS

- A. Storage cabinets and sheds that will contain flammable substances and explosive substances shall be labeled **FLAMMABLE--KEEP FIRE AWAY** and **NO SMOKING** with conspicuous lettering and conforming to OSHA requirements.

END OF SECTION

SECTION 016300 - SUBSTITUTIONS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work specified in this Section consists of submitting for the approval of a different material, equipment or process then is described in the Contract Documents.
- B. If the substitution changes the scope of work, contract cost or contract time, a change order is required. As-built drawings and specifications must include all substitutions even if a change order is not issued.
- C. Reference Contract General Conditions, GC 406.

1.02 QUALITY CONTROL

- A. The substitution must provide the same quality as what it is replacing. The level of quality is defined by:
 - 1. Maintenance and operating cost
 - 2. Reliability
 - 3. Durability
 - 4. Life expectancy
 - 5. Ease of cleaning
 - 6. Ability to be upgraded as needed
 - 7. Ease of interacting with other systems or components
 - 8. Ability to be repaired
 - 9. Availability of replacement parts
 - 10. Established history of use in similar environments
 - 11. Performance equal or superior to that which it is replacing.

1.03 SUBMITTAL

- A. Refer to Technical Specifications Sections 01 3000 and 01 3400 for submittal procedures.
- B. A complete request for substitution must be made at least 60 days prior to when an order needs to be placed or a method needs to be changed.
- C. The submittal shall contain, as appropriate, detailed product data sheets for the specified items and the substitution. Samples and shop drawings shall also be submitted of the substitution as applicable. The submittal shall contain all the data required to be submitted for acceptance of the originally specified item or process.
- D. The submittal shall contain all the applicable information required in Technical Specifications Section 01 6300, paragraph 2.01 below.
- E. A signed statement as outlined in Technical Specifications Section 01 6300, paragraph 2.03.B below must accompany the Request for Substitution.

PART 2 - EXECUTION

2.01 INFORMATION

- A. Provide the following information as applicable with the Request for Substitution on the item or process that is being requested to be substituted:
1. A complete description of the item or process
 2. Utility connections including electrical, plumbing, HVAC, fire protection and controls
 3. The physical dimensions and clearances
 4. A parts list with prices
 5. Samples of color and texture
 6. Detailed cost comparisons of the substitution and the contract specified item or process
 7. Manufacturer warranties
 8. Energy consumption over a one-year period
 9. What local organization is certified to maintain the item
 10. Performance characteristics and production rates
 11. A list of any license fees or royalties that must be paid
 12. A list of all variations for the item or method specified
 13. A list of at least three other projects of similar nature to this contract where the products or methods have been in use for at least one year including telephone number and name of the person to contact at these other projects
 14. An analysis of the effect of the substitution on the schedule and contract cost and on the overall project as it relates to adjoining work.

2.02 SUBSTITUTION REQUEST

- A. The formal Request for Substitution will be evaluated by the Project Manager and the Designer of Record based on the following criteria:
1. Compatibility with the rest of the project
 2. Reliability, ease of use and maintenance
 3. Both initial and long term cost
 4. Schedule impact
 5. The willingness of the Contractor to share equally in any cost savings
 6. The ability of the item or process to meet all applicable governing regulations, rules and laws along with funding agency requirements
 7. The cost of evaluating the substitution.
- B. Based upon the above evaluation the Project Manager will make a final determination of what is in the best interest of the City and either approve, disapprove or approve as noted the requested substitution.

2.03 CONDITIONS

- A. As a condition for submitting a Request for Substitution the Contractor waives all rights to claim for extra cost or change in contract time other than those outlined in the request and approved by the Project Manager. The Contractor, by submitting a Request for Substitution, also accepts all liability for cost and scheduling impact on other contractors or the City due to the substitution.
- B. Included with the Request for Substitution shall be the following statement:
 - 1. "The substitution being submitted is equal to or superior in all respects to the contract-required item or process. All differences between the substitution and the contract-required item or process are described in this request along with all cost and scheduling data."
- C. The statement shall be signed and dated by the Contractor's Superintendent.

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 016500 - SYSTEM STARTUP, TESTING AND TRAINING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide complete startup, testing and operator training services to ensure operability of all electrical and electronic equipment supplied.

1.02 SUBMITTAL

- A. Refer to Technical Specifications Sections 01 3000 and 01 3400 for submittal procedures.
 - 1. Test procedures
 - 2. Test report
 - 3. Training outline.

1.03 FIELD TESTS AND ADJUSTMENTS

- A. All electrical and mechanical equipment including the interfaces with control systems and the communication system, and all alarm and operating modes for each piece of equipment shall be tested by the Contractor to the satisfaction of the Project Manager and/or the User Agency and/or Facility Operator before any facility is put into operation. Tests shall be as specified herein and shall be made to determine whether the equipment has been properly assembled, aligned and connected. Any changes, adjustments or replacements required to make the equipment operate as specified shall be carried out by the Contractor as part of the work.
 - 1. At least 7 days before the time allowed in the construction schedule for commencing startup and testing procedures, the Contractor shall submit to the Project Manager an electronic copy in a PDF format of the detailed procedures he proposes for testing and startup of all electrical and mechanical equipment. These procedures are submitted for review and acceptance.
 - 2. The Contractor's startup and testing procedures shall include detailed descriptions of all pre-operational hardware, electrical, mechanical and instrumentation used for testing work. Each control device, item of electrical, mechanical and instrumentation equipment, and all control circuits shall be considered in the testing procedures which shall be designed in a logical sequence to ensure that all equipment has been properly serviced, aligned, connected, wired, calibrated and adjusted prior to operation. Motors shall be tested in accordance with ANSI/IEEE Publication 112. The Contractor is advised that failure to observe these precautions may place the acceptability of the subject equipment in question, and he may either be required to demonstrate that the equipment has not been damaged, or replace it as determined by the Project Manager.
 - 3. Testing procedures shall be designed to duplicate as nearly as possible all conditions of operations and shall be carefully selected to ensure that the equipment is not damaged. All filters shall be in place during startup and testing. Once the Project Manager and/or the User Agency's Representative and/or Facility Operator has accepted the testing procedures, the Contractor shall provide checkout, alignment, adjustment and calibration signoff forms for each item of equipment and each system that will be used. The Contractor and the Project Manager and/or the User Agency's

Representative and/or Facility Operator shall use the signoff forms in the field jointly to ensure that each item of electrical, mechanical and instrumentation equipment and each system has been properly installed and tested. The Contractor shall cooperate with project wide systems contractors where startup and testing is to be conducted concurrently.

4. Any special equipment needed to test equipment shall be provided to the City at no cost for a period of 30 days during startup.
- B. Before starting up the equipment, the Contractor shall properly service it and other items, which normally require service in accordance with the maintenance instructions. The Contractor shall be responsible for lubrication and maintenance of equipment and filters throughout the entire equipment “break-in” period described by the manufacturer.
1. The Contractor shall be responsible for the startup, adjustment, preliminary maintenance and checkout of all equipment and instrumentation. All systems shall be carefully checked for conformance with the design criteria.
 2. If any equipment or system does not operate as specified in the contract, the Contractor shall immediately replace or repair components until it operates properly.
 3. The Contractor shall submit a test report to the Project Manager and/or the User Agency’s Representative and/or Facility Operator within 30 days after completion of the system startup period.

1.04 SYSTEMS STARTUP AND TESTING

- A. The Contractor shall be responsible for a 30-day startup period during which time all hardware, electrical and mechanical equipment, communications, alarm systems and associated devices shall be energized and operated under local and automatic controls. The Contractor shall be present during the startup period with adequate labor and support personnel to adjust equipment and troubleshoot system failures that might arise.
- B. When a piece of electrical or mechanical equipment is found to be in conflict with specific criteria, an experienced representative of the manufacturer shall make an adjustment to the item.
- C. If adjustments fail to correct the operation of a piece of equipment or fixture, the Contractor shall remove the equipment or fixture from the project site and replace it with a workable replacement that meets the specification requirements.
- D. The 30-day startup period shall commence 30 days prior to the contract completion date and shall be completed prior to final payment. If, during the startup, any system fails to operate in accordance with contract requirements, the failure shall be corrected and the startup period shall begin again. At the end of the startup period, all filters shall be replaced with new ones. The City may, at its option, provide a Commissioning Representative to observe or participate in the startup and testing of any system. The Contractor shall coordinate with the Commissioning Representative relating to scheduling, reporting, forms, methods and procedures of the startup and testing.

1.05 FINAL INSTRUCTIONS AND OPERATION TRAINING

- A. After startup and testing is completed, the Contractor 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.

- B. The Contractor 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 Contractor's staff are not available, the Contractor shall arrange with the equipment manufacturer for such instruction at no additional cost to the City.
- C. The Contractor 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 Contractor shall not commence any training courses until the syllabus has been reviewed and approved by the Project Manager.
- D. 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.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 017000 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work specified in this Section includes procedures required prior to Final Acceptance of the Work in addition to those specified in General Conditions Title 20 and Technical Specifications Section 01 7200.
- B. Reference Special Contract Conditions, Liquidated Damages, and Contract General Conditions, GC 602, GC906, GC 909, GC 910, GC 2003.

1.02 PREPARATION FOR FINAL INSPECTION

- A. Before requesting inspection for Final Acceptance of the Work by the City, inspect, clean and repair the Work as required.

1.03 FINAL INSPECTION

- A. When the Contractor considers that the Work is complete, he shall submit written certification that:
 - 1. All punch list items have been completed.
 - 2. All clean up at the project site has been accomplished.
 - 3. Work has been inspected by the Contractor for compliance with contract documents.
 - 4. Work has been completed in accordance with contract documents.
 - 5. Work is ready for final inspection by the City.
 - 6. All as-built required documents have been submitted and accepted.
 - 7. All damaged or destroyed real, personal, public or private property has been repaired or replaced.
 - 8. All operation and maintenance manuals have been submitted and accepted and all training has been completed.
- B. The Project Manager and/or the Designer of Record will inspect to verify the status of completion with reasonable promptness after receipt of such certifications. If the Project Manager and/or the Designer of Record finds incomplete or defective work:
 - 1. The Project Manager may, at the Project Manager's sole discretion, either terminate the inspection or prepare a punch list and notify the Contractor in writing, listing incomplete or defective work.
 - 2. The Contractor shall take immediate steps to remedy stated deficiencies and send a second written certification to the Project Manager that Work is complete.
 - 3. The Project Manager and the Designer of Record will then re-inspect the Work.

1.04 REINSPECTION FEES

- A. Should the Project Manager perform re-inspection due to failure of the Work to comply with the claims of status of completion made by the Contractor:
 - 1. The Contractor shall compensate the City for such additional services at the rate identified in the Special Contract Conditions, Liquidated Damages,

2. The City shall deduct the amount of such compensation from the final payment to the Contractor.

1.05 FINAL CHANGE ORDER

- A. If required, the Project Manager will prepare a final change order, reflecting approved adjustments to the Contract sum which were not previously made by change orders including the following:
 1. Additions and deductions resulting from:
 - a. Allowances.
 - b. Final quantities for unit price items. Along with this statement shall be detailed backup for the quantities.
 - c. Deductions or corrected work.
 - d. Penalties.
 - e. Deductions for liquidated damages.
 - f. Deductions for re-inspection payments.
 - g. City resurveys required due to the Contractor.
 - h. Other adjustments.

1.06 FINAL APPLICATION FOR PAYMENT

- A. The Contractor shall submit the final application for payment in accordance with the procedures and requirements stated in the General Conditions Title 20.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 017100 - CLEANING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work specified in this section consists of maintaining a clean, orderly, hazard free worksite during construction, and final cleaning for the City's Final Acceptance. Failure to maintain the worksite will be grounds for withholding monthly payments until corrected to the satisfaction of the Project Manager and/or. the Project Inspector.
- B. Reference Contract General Conditions, GC 325, GC 803, GC 2001

1.02 JOB CONDITIONS

- A. Safety Requirements
 - 1. Maintain the worksite in a neat, orderly and hazard-free manner in conformance with all federal, state and local rules, codes, regulations and orders, including all OSHA requirements, until Final Acceptance of the Work. Keep catwalks, underground structures, worksite walks, sidewalks, roadways and streets, along with public and private walkways adjacent to the worksite, free from hazards caused by construction activities. Inspect those facilities regularly for hazardous conditions caused by construction activities.
- B. Hazards Control
 - 1. Store volatile wastes in covered metal containers and remove those wastes from worksite daily.
 - 2. Do not accumulate wastes which create hazardous conditions.
 - 3. If volatile and noxious substances are being used in spaces that are not naturally ventilated, provide artificial ventilation.
 - 4. Hazard controls shall conform to the applicable federal, state and local rules and regulations.
 - 5. Provide appropriate waste receptacles in all areas in which employees are working. Waste receptacles shall be kept covered at all times. All materials on site shall be anchored and covered to prevent any objects from becoming wind-borne.
 - 6. Should an incident involving a spill or other encounter of a non-contained hazardous material occur on site, the Contractor shall immediately call 311 and ask to have Environmental Health notified of the event and also immediately notify the City Project Manager.
- C. Access
 - 1. Maintain the worksite to permit access by other City contractors as required and to allow access by emergency personnel.

1.03 SUBMITTALS

PART 2 - PRODUCTS

2.01 CLEANING MATERIALS

- A. Utilize the type of cleaning materials recommended by the manufacturer for the surfaces to be cleaned.
- B. Maintain current Material Safety Data Sheets (MSDS) on site for all chemicals.
- C. Ensure proper disposal of all wastes generated from the use of these materials. Must ensure compliance with all environmental regulations.

PART 3 - EXECUTION

3.01 INTERIM CLEANING

- A. Clean the worksite every shift/workday for the duration of the construction contract. Maintain structures, grounds, storage areas and other areas of worksite, including public and private properties immediately adjacent to worksite, free from accumulations of waste materials caused by construction operations. Place waste materials in covered metal containers. All hard concrete, steel, wood and finished walking surfaces shall be swept clean daily.
- B. Remove or secure loose material on open decks and on other exposed surfaces at the end of each workday or more often in a manner that will maintain the worksite hazard free. Secure material in a manner that will prevent dislodgment by wind and other forces.
- C. Sprinkle waste materials with water or acceptable chemical palliative to prevent blowing of dust.
- D. Promptly empty waste containers when they become full and legally dispose of the contents at dumping areas off the City's property.
- E. Control the handling of waste materials. Do not permit materials to be dropped or thrown from structures.
- F. Immediately remove spillage of construction related materials from haul routes, work site, private property or public rights of way.
- G. Clean only when dust and other contaminants will not precipitate upon newly painted surfaces.
- H. Cleaning shall be done in accordance with manufacturer's recommendation.
- I. Cleaning shall be done in a manner and using such materials as to not damage the Work.
- J. Clean areas prior to painting or applying adhesive.
- K. Clean all heating and cooling systems prior to operations. If the contractor is allowed to use the heating and cooling system it shall be cleaned prior to testing.
- L. Clean all areas that will be concealed prior to concealment.

3.02 FINAL CLEANING

- A. Inspect interior and exterior surfaces, including concealed spaces, in preparation for completion and acceptance.
- B. Remove dirt, dust, litter, corrosion, solvents, discursive paint, stains and extraneous

markings.

- C. Remove surplus materials, except those materials intended for maintenance.
- D. Remove all tools, appliances, equipment and temporary facilities used in the construction.
- E. Remove detachable labels and tags. File them with the manufacturer's specifications for that specific material for the City's records.
- F. Repair damaged materials to the specified finish or remove and replace.
- G. After all trades have completed their work and just before Final Acceptance, all catch basins, manholes, drains, strainers and filters shall be cleaned; roadway, driveways, floors, steps and walks shall be swept. Interior building areas shall be vacuum cleaned and mopped.
- H. Final cleanup applies to all areas within and adjacent to the site.

END OF SECTION

SECTION 017200 - CONTRACT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work specified in this Section consists of maintaining, marking, recording and submitting contract record documents which include shop drawings, warranties, contract documents and contractor records.
- B. Reference Contract General Conditions, GC 324

1.02 RELATED DOCUMENTS

- A. Technical Specifications Section 014000 – “Contractor Quality Control”
- B. Technical Specifications Section 014200 – “Quality Assurance”

1.03 SUBMITTALS

- A. Each submittal of record documents shall contain the following information:
 - 1. Date
 - 2. Project title, address and numbers
 - 3. Contractor's name and address
 - 4. Title and number of each record document
 - 5. Certification that each document as submitted is complete and accurate
 - 6. Signature of the Contractor or his authorized representative.
- B. At the completion of this contract, deliver all record documents including the following:
 - 1. As-built shop drawings, diagrams, illustrations, schedules, charts, brochures and other similar data
 - 2. Warranties, guarantees and bonds
 - 3. Contract documents
 - 4. Contractor records.

1.04 QUALITY CONTROL

PART 2 - RECORD DOCUMENTS SHALL BE PREPARED TO A HIGH STANDARD OF QUALITY PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 MAINTENANCE OF DOCUMENTS

- A. The Contractor shall maintain at the worksite on a current basis one record copy of all drawings, specifications, addenda, change orders, approved shop drawings, working drawings, product data and samples in good order and marked currently to record all changes made during construction.
- B. Maintain at the field office one copy of the following record documents:

1. Contract Documents
 - a. Contract drawings with all clarifications, requests for information, directives, changes and as-built conditions clearly posted.
 - b. Contract specifications with all clarifications, requests for information, changes, directives and record of manufacturer actually used along with product trade name..
 - c. One set of drawings to record the following:
 - 1) Horizontal and vertical location of underground utilities affected by the Work.
 - 2) Location of internal utilities; include valves, controls, conduit, duct work, switches, pressure reducers, size reducers, transitions, crosses, tees, filters, motors, heaters, dampers, regulators, safety devices, sensors, access doors and appurtenances that are concealed in the construction shall be shown with dimensions given from a visible and recognizable reference to the item being located in all three dimensions. The drawing shall also reference the applicable submittal for the item being located.
 - 3) Field changes of dimensions and details including as-built elevations and location (station and offset).
 - 4) Details not on original contract drawings but obtained through requests for information or by other communications with the City or Designer of Record.
2. Contractor Records
 - a. Daily QC Reports
 - b. Certificates of compliance for materials used in construction
 - c. Nonconformance Reports (NCRs)
 - d. Remedial Action Requests (RARs)
 - e. Completed inspection list
 - f. Inspection and test reports
 - g. Test procedures
 - h. Approved submittals
 - i. Material and equipment storage records
 - j. Erosion, sediment, hazardous and quality plans
 - k. Hazardous material records
 - l. First report of injuries

3.02 RECORDING

- A. Keep record documents current daily.
- B. Legibly mark copies of the contract drawings to record actual construction.
- C. Legibly mark up each Section of the technical specifications and contract drawings to record:
 1. Changes made by change orders, requests for information, substitutions and variations approved by submittals.

3.03 DOCUMENT MAINTENANCE

- A. Maintain Documents in a clean, dry and legible condition, which shall be turned over to the City prior to final acceptance.
- B. Do not use record documents for construction purposes.

- C. Make documents available for inspection by the Project Manager and any others having jurisdiction.

3.04 MONTHLY REVIEW

- A. The Project Manager or his designated representative can inspect the record documents to ensure that they are being maintained and contain the most current correct data with particular attention to as-built drawings.
- B. If, the Project Manager determines that the documents are not being maintained and kept current as to as-built conditions, an amount may be withheld from the payment request and deducted from the contract value to cover the City's cost of collecting and recording the as-built contract data. This cost will be determined on the basis of \$75.00 per man-hour of effort.

END OF SECTION

SECTION 017300 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work specified in this Section consists of preparing and submitting operation and maintenance data for mechanical, electrical and other specified equipment.

1.02 SUBMITTALS

- A. Refer to Technical Specifications Section 013000 and 013400 for submittal procedures.
- B. Submit one (1) electronic copy and two (2) bound hard copy of the proposed Operation and Maintenance Data Manual format including a table of contents not less than 30 days prior to acceptance tests and final inspection.
- C. Submit one (1) electronic copy and two (2) bound hard copy of 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.

1.03 CONTINUOUS UPDATING PROGRAM

- A. 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.
 - 1. Contractor 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 Manger.

PART 2 - PRODUCTS

- A. The following products are the requirements of hard copies:
- B. PAPER SIZE 8-½ inches x 11 inches.
- C. PAPER White bond, at least 20 pound weight.
- D. TEXT typewritten.
- E. 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.
- F. DRAWINGS 8-½ inches x 11 inches, 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.
- G. PRINTS OF DRAWINGS black ink on white paper, sharp in detail and suitable for making reproductions.
- H. FLYSHEETS Separate each portion of the manual with colored, neatly prepared flysheets

briefly describing the contents of the ensuing portion.

- I. 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.
- J. BINDINGS Conceal the binding mechanism inside the manual; lockable 3 ring binders shall be provided.

PART 3 - EXECUTION

3.01 COVER

- A. Include the following information on the front cover and on the inside cover sheet:
 - 1. OPERATION AND MAINTENANCE INSTRUCTIONS
 - 2. (TITLE OF STRUCTURE OR FACILITY AND ADDRESS)
 - 3. (TITLE AND NUMBER OF CONTRACT)
 - 4. (CONTRACTOR'S NAME AND ADDRESS)
 - 5. (GENERAL SUBJECT OF THE MANUAL)
 - 6. (Leave spaces for signatures of the City representatives and acceptance date)

3.02 CONTENTS OF THE MANUAL

- A. An index of all volumes in each volume of multiple volume systems.
- B. An index in front of each volume. List and combine the literature for each system in the sequence of operation.
- C. Name, address and telephone numbers of Contractor, suppliers and installers along with the manufacturer's order number and description of the order.
- D. Name, address and telephone numbers of manufacturer's nearest service representatives.
- E. Name, address and telephone number of nearest parts vendor and service agency.
- F. Copy of guaranties and warranties issued to, and executed in the name of, the City.
- G. Anticipated date City assumes responsibility for maintenance.
- H. Description of system and component parts including theory of operation.
- I. Pre operation check or inspection list.
- J. Procedures for starting, operating and stopping equipment.
- K. Post operation check or shutdown list.
- L. Inspection and adjustment procedures.
- M. Troubleshooting and fault isolation procedures for on-site level of repair.
- N. Emergency operating instructions.

- O. Accepted test data.
- P. Maintenance schedules and procedures.
- Q. Test procedures to verify the adequacy of repairs.
- R. One copy of each wiring diagram.
- S. One copy of each piping diagram.
- T. Location where all measurements are to be made.
- U. One copy of each duct diagram.
- V. One copy of control diagram.
- W. One copy of each accepted shop drawing.
- X. One copy of software programs imputable or changeable on site.
- Y. Manufacturer's parts list with catalog names, numbers and illustrations.
- Z. A list of components which are replaceable by the City.
- AA. An exploded view of each piece of the equipment with part designations.
- BB. List of manufacturer's recommended spare parts, current prices and recommended quantities for two years of operation.
- CC. List of special tools and test equipment required for the operation, maintenance, adjustment, testing and repair of the equipment, instruments and components.
- DD. Scale and corrosion control procedures.
- EE. Disassembly and re-assembly instructions.
- FF. Troubleshooting and repair instructions.
- GG. Calibration procedures.
- HH. Ordering information.
- II. Training course material used to train City staff, including DVD, slides and other presentation material.
- JJ. Inventory of all attic stock provided per the Technical Specifications and the specific location to which this was delivered.

END OF SECTION

SECTION 017320 - CUTTING AND PATCHING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Technical Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for cutting and patching.
- B. Cutting and patching includes cutting existing construction to provide for installation or performance of other Work, and subsequent fitting and patching required to restore surfaces to original conditions.
- C. Demolition of selected portions of the building for alterations is included in Technical Specification Section 017360, "Selective Demolition."

1.03 SUBMITTALS

- A. Cutting and Patching Proposal: Where approval of procedures for cutting and patching is required before proceeding, submit a description of proposed procedures well in advance of the time cutting and patching will be performed and request approval to proceed from Project Manager and/or Designer. Include the following information, as applicable, in the proposal:
 - (1) Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.
 - (2) Describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
 - (3) List products to be used and firms or entities that will perform Work.
 - (4) List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
 - (5) Approval by the Project Manager and/or Designer to proceed with cutting and patching does not waive the Designer's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

1.04 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.
 - (1) Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:
 - (a) Foundation construction.

- (b) Bearing walls.
 - (c) Wood beams.
 - (2) Refer to General Contract Conditions Section 316 Cutting and Patching the Work.
- B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.
 - (1) Obtain approval from the Project Manager and/or Designer of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
 - (a) Primary operational systems and equipment.
 - (b) Water, moisture, or vapor barriers.
 - (c) Roofing and flashings.
 - (d) Control systems.
 - (e) Electrical wiring systems.
- C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Designer's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 EXECUTION

3.01 INSPECTION

- A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

3.02 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage.

- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

3.03 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
 - (1) Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.
 - (1) In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Do not cut holes larger than necessary. Temporarily cover openings when not in use.
 - (2) To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
 - (3) Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.
 - (4) Comply with requirements of applicable Technical Specification Sections of Division-2 where cutting and patching requires excavating and backfilling.
 - (5) By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- C. Perform all patching with durable seams that are not discernable from normal viewing distances. Comply with specified tolerances.
 - (1) Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
 - (2) Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

3.04 CLEANING

- A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature.

Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION

SECTION 017360 - SELECTIVE DEMOLITION

1.01 GENERAL

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Technical Specification Sections, apply to this Section.

1.03 SUMMARY

- A. This Section requires the selective removal and subsequent offsite disposal of the following:
 - (1) Portions of existing building indicated on drawings and as required to accommodate the restoration and rehabilitation of the building.
 - (2) Removal of items indicated "remove."
 - (3) Removal and protection of items indicated "remove," "salvage" or "relocate."
- B. Removal work specified elsewhere:
 - (1) Cutting and patching is specified in Technical Specification 017320.
- C. Related work specified elsewhere:
 - (1) Remodeling construction work and patching are included within the respective sections of specifications, including removal of materials for reuse and incorporation into remodeling.

1.04 SUBMITTALS

- A. Schedule indicating proposed sequence of operations for selective demolition work to Project Manager for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.
- B. Photograph existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Project Manager prior to start of work.

1.05 JOB CONDITIONS

- A. Condition of Structures: City assumes no responsibility for actual condition of items to be removed.
 - (1) Conditions existing at time of inspection for bidding purposes will be maintained by City insofar as practicable. However, minor variations within structure may occur by City's removal and salvage operations prior to start of selective demolition work.
- B. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.

- (1) Storage or sale of removed items on site will not be permitted.
- C. Protections: Provide temporary barricades and other forms of protection to protect City's personnel and general public from injury due to selective demolition work.
 - (1) Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.
 - (2) Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
 - (3) Protect floors with suitable coverings when necessary.
 - (4) Construct temporary dustproof partitions where required to separate areas where extensive dirt or dust operations are performed.
 - (5) Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
 - (6) Remove protections at completion of work.
- D. Damages: Promptly repair damages caused to adjacent facilities by demolition work.
- E. Flame Cutting: Do not use cutting torches without obtaining prior permission from the Project Manager and/or Designer.
 - (1) Where permission is granted, do not proceed until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.
- F. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.
 - (1) Maintain fire protection services during selective demolition operations.
- G. Environmental Controls: Use necessary and appropriate methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 INSPECTION

- A. Prior to commencing with selective demolition work, inspect areas in which work will be performed. Photograph existing conditions of structure surfaces, equipment or surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Designer prior to starting work.

3.02 PREPARATION

- A. General: Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of areas to be demolished and adjacent facilities to remain.
 - (1) Cover and protect City's property from soilage or damage when demolition work is performed in areas where such items have not been removed.
 - (2) Locate, identify, stub off, and disconnect utility services that are not indicated to remain.
 - (a) Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Project Manager if shutdown of service is necessary during changeover.

3.03 DEMOLITION

- A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
 - (1) Remove concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
 - (2) Promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.
 - (3) Provide services for effective dust control.
- B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Designer in written, accurate detail. Pending receipt of directive from Designer, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.04 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off site. Coordinate with City all building materials removed from the building for on-site disposal.
 - (1) If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution. Notify Project Manager and obtain specific direction regarding the suspected hazardous material from the City's Environmental Health Division.
 - (2) Burning of removed materials is not permitted on project site or elsewhere within the City and County of Denver.

3.05 CLEANUP AND REPAIR

- A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.
 - (1) Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start of demolition operations. Repair and clean adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION

SECTION 017400 - WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work specified in this Section consists of preparing and submitting warranties and bonds required by these specifications.
- B. Reference Contract General Conditions: GC 111, GC 1501, GC 1502, GC 1503, GC 1801, GC 1802.

1.02 SUBMITTALS

- A. Refer to Technical Specifications Section 013000 for submittal procedures.
- B. Submit executed warranties and bonds.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 WARRANTIES AND BONDS

- A. Execute the warranties and bonds required by the Contract Documents. Prepare and submit all bonds on the forms provided by the City. Deliver the executed warranties in electronic and hard copy format.
- B. Provide warranties or bonds for the materials, labor and time period set forth in the sections of these specifications requiring such documents. All warranties shall be in accordance with the Contract General Conditions. Refer to the Technical Specifications for all specific items requiring longer warranty periods.
- C. Provide all warranties and bonds that the manufacturer or supplier furnishes at no additional cost in regular commercial trade.

END OF SECTION

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Technical Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous demolition waste.
 - 2. Recycling nonhazardous demolition and construction waste.
 - 3. Disposing of nonhazardous demolition and construction waste.
- B. Related Requirements, if applicable:
 - 1. Division 02 Section "Selective Structure Demolition" for disposition of waste resulting from partial demolition of buildings, structures, and site improvements.
 - 2. Division 31 Section "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

1.03 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.04 PERFORMANCE REQUIREMENTS

- A. General: Achieve end-of-Project rates for salvage/recycling of 75 percent by weight of total non-hazardous solid waste generated by the Work. 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:

1. Demolition Waste:
 - a. Asphalt paving.
 - b. Concrete.
 - c. Concrete reinforcing steel.
 - d. Terra cotta/plaster walls.
 - e. Structural and miscellaneous steel.
 - f. Rough hardware.
 - g. Insulation.
 - h. Doors and frames.
 - i. Door hardware.
 - j. Windows.
 - k. Glazing.
 - l. Gypsum board.
 - m. Equipment.
 - n. Cabinets.
 - o. Piping.
 - p. Supports and hangers.
 - q. Valves.
 - r. Mechanical equipment.
 - s. Refrigerants.
 - t. Electrical conduit.
 - u. Copper wiring.
 - v. Lighting fixtures.
 - w. Lamps.
 - x. Ballasts.
 - y. Electrical devices.
2. Construction Waste:
 - a. Lumber.
 - b. Wood sheet materials.
 - c. Metals.
 - d. Insulation.
 - e. Carpet.
 - f. Metal studs.
 - g. Gypsum board.
 - h. Piping.
 - i. Electrical conduit.
 - j. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
 - 1) Paper.
 - 2) Cardboard.
 - 3) Boxes.
 - 4) Plastic sheet and film.
 - 5) Polystyrene packaging.
 - 6) Wood crates.
 - 7) Plastic pails.

1.05 ACTION SUBMITTALS

- A. Waste Management Plan: Submit plan within 7 days of date established for the Notice to Proceed.

1.06 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:
 - 1. Material category.
 - 2. Generation point of waste.
 - 3. Total quantity of waste in tons.
 - 4. Quantity of waste salvaged, both estimated and actual in tons.
 - 5. Quantity of waste recycled, both estimated and actual in tons.
 - 6. Total quantity of waste recovered (salvaged plus recycled) in tons.
 - 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- B. 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.
- C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- E. 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.
- F. 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.
- G. LEED Submittal: (Not applicable)
- H. Qualification Data: For refrigerant recovery technician.
- I. 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.

1.07 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: General Contractor with a record of successful waste management coordination of projects with similar requirements.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
 - 1. Disposal Procedures:
 - a. Location: Denver Arapahoe Disposal Site – DADS. All debris must be disposed of at this location.

- b. Removal and Hauling: All Debris removal and hauling cost shall be part of base bid.
 - c. 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.
- D. 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:
- 1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
 - 2. Review requirements for documenting quantities of each type of waste and its disposition.
 - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 5. Review waste management requirements for each trade.

1.08 WASTE MANAGEMENT PLAN

- A. General: Develop plan consisting of waste identification. Include separate sections in plan to distinguish between demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing, and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: (Not applicable)
- D. Cost/Revenue Analysis: (Not applicable)

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
- B. General Contractor's Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.

- C. Training: Train workers, subcontractors, and suppliers on appropriate separation, handling, and recycling to be used by all parties and proper waste management procedures, as appropriate for the Work occurring at Project site.
 - 1. Distribute waste management plan to everyone concerned within three days of submittal return.
 - 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 - 2. Comply with Technical Specification Section 01500 "Temporary Facilities" for controlling dust and dirt, environmental protection, and noise control.
- E. Waste Management in Historic Zones or Areas: Hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, by 12 inches or more.

3.02 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 - 3. Store items in a secure area until installation.
 - 4. Protect items from damage during transport and storage.
 - 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for Sale and Donation: Not permitted on Project site.
- C. Salvaged Items for Owner's Use: (Not applicable)
- D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.
- E. Lighting Fixtures: Separate lamps by type and protect from breakage.
- F. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

3.03 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Receivers and Processors: List below is provided for information only; available recycling receivers and processors include, but are not limited to, the following:

C. RECYCLING RECEIVERS AND PROCESSORS

D. CO Resource E. Management	F. 400 Marriel Avenue G. Carbondale, CO 81623	H. (970) 963-8900	I. George MacDonal d
J. Oxford Recycling	K. 2400 W. Oxford Avenue L. Englewood, CO 80110	M. (303) 762-1160	N. John Kent
O. Allied Waste	P. 10303 E. Dry Creek Rd #250 Q. Englewood, CO 80112	R. (720) 895-1500	S. Bill Kich
T. Waste-Not	U. 1065 Poplar Street V. Loveland, CO 80534	W. (970) 669-9912	X. Gary Gettman
Y. Bunting Disposal	Z. 3315 State Street AA. Evans, CO 80620	BB. (970) 339-3023	CC. Bryan Bunting
DD. Phoenix Recycling	EE. 2501 Delwood Avenue FF. Durango, CO 81301	GG. (970) 375-1300	HH. Mark Thompson
II. Waste Chasers	JJ. 19 Oak Avenue KK. Eaton, CO 80615	LL. (970) 454-2497	MM. Jason Hawk
NN. Colorado All Waste	OO. 7247 E. County Line Rd PP. Longmont, CO 80504	QQ. (303) 702-9955	RR. Majori McDonald
SS. Patch Construction	TT. 12655 State Hwy 67	VV. (719) 784-6236	WW. David Patch Jr.

	UU. Florence, CO 81226		
XX. Pueblo Disposal	YY. 28900 E. Hwy 96 ZZ. Pueblo, CO 81001	AAA. (719) 948- 0047	BBB.
CCC. Construction Endeavors	DDD. 2255 E. Las Vegas Rd EEE. Colorado Springs, CO	FFF. (303) 375- 0785	GGG.

HHH. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

III. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

3.04 RECYCLING DEMOLITION WASTE

- A. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.
- B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
 1. Pulverize concrete to maximum 4-inch size.
- C. Masonry (Terra Cotta): Remove anchors and ties from masonry and sort with other metals.
 1. Pulverize masonry to maximum 4-inch size.
- D. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, panel products, and treated wood materials.
- E. Metals: Separate metals by type.
 1. Remove and dispose of bolts, nuts, washers, and other rough hardware.

- F. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
- G. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- H. Conduit: Reduce conduit to straight lengths and store by type and size.

3.05 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
 - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 - 2. Polystyrene Packaging: Separate and bag materials.
 - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Site-Clearing Wastes: Chip brush, branches, and trees on-site.
 - 1. Comply with requirements in Division 32 Section "Plants" for use of chipped organic waste as organic mulch.
- C. Wood Materials:
 - 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 - 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
 - a. Comply with requirements in Division 32 Section "Plants." for use of clean sawdust as organic mulch.
- D. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.
 - 1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.06 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials and dispose of at designated spoil areas on Owner's property.
- D. Disposal: Remove waste materials from Owner's property and legally dispose of them.

E.

F. END OF SECTION

SECTION 055133.23 - ALTERNATING TREAD STAIRS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Alternating tread stairs, steel construction.
- B. Related Sections:
 - 1. Section 077200 "Roof Accessories" for roof hatch.

1.2 PERFORMANCE REQUIREMENTS:

- A. Alternating Tread Stair Treads: shall be capable of withstanding a single concentrated 1000 pound load without permanent deformation; or 100 pounds per square foot or 300 pounds on an area of 4 square inches without exceeding the allowable working stress of the material.
- B. Alternating Tread Stair Guard and Handrail: shall be capable of withstanding a single concentrated load of 200 pounds or a uniform load of 50 pounds per linear foot applied in any direction at any point on the rail without exceeding the allowable working stress of the material.
- C. Alternating Tread Stair Stringers: shall be capable of withstanding a single concentrated load of 1000 pounds at any point on the stair without permanent deformation; or a uniform live loading of 100 pounds per square foot applied in a downward direction to all tread surfaces or a 300 pound load on an area of 4 square inches without exceeding the allowable working stress of the material.

1.3 SUBMITTALS

- A. Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- B. Shop Drawings for Stairs:
 - 1. Plan and section of stair installation.
- C. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation. Provide additional deferred submittals as required by the governing authorities.

1.4 QUALITY ASSURANCE

- A. Design metal stairs under direct supervision of a Professional Structural Engineer.

- B. Structural Designer Qualifications: Professional Structural Engineer experienced in design of this work and licensed in the State of Colorado, or personnel under direct supervision of such an engineer.
- C. Welder Qualifications: Show certification of welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.5 DELIVERY STORAGE AND HANDLING

- A. Deliver materials to the job-site in good condition and properly protected against damage to finished surfaces.
- B. Store material in a location and manner to avoid damage. Do not stack components. Lay out components on firm foundation material such that bending can not occur.
- C. Store metal components in a clean dry location, away from uncured concrete, cement, or masonry products, acids, oxidizers, rain water, or any other chemical or substance that might damage the material or finish.
- D. Plan work and storage locations to keep on-site handling to a minimum.
- E. Exercise particular care to avoid damage to material finishes or unprotected surfaces when handling.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. Laperye Stair, Inc.: www.laperye.com.
 - 2. Precision Ladders, LLC: www.PrecisionLadders.com.
- B. Substitutions: As specified in Section 016300.

2.2 STEEL ALTERNATING TREAD STAIR

- A. Steel Alternating Tread Stair and Components: Stair, mounting brackets, and handrails on both sides.
 - 1. Treads: 13 Gauge AISI 1010/15 HRPO per ASTM A569 / A1011 grade 36 (or higher).
 - 2. Landing & Foot Stampings: 11 Gauge AISI 1010/15 per ASTM A569 / A1011 grade 36 (or higher).
 - 3. Top Landing Support Clips: L2 x 2 x 1/4" x 4" lg. with 5/8" Φ round holes and 5/8" x 1" slot holes, ASTM A569/A1011 grade 36 (or higher)
 - 4. Stringers:
 - a. 2" x 1 3/4" x 11 Gauge U section; AISI 1010/15 per ASTM A569/A1011 grade 36 (or higher) for 56 degree stairs under 10 vertical feet and for 68 degree stairs under 12 vertical feet.
 - b. 3" x 1 3/4" x 11 Gauge U section; AISI 1010/15 per ASTM A569/A1011 grade 36 or higher for 56 degree stairs over 10 vertical feet and for 68 degree stairs over 12 vertical feet.

5. Handrails: 1 1/2" OD x 0.095" AISI 1010/15 CS per ASTM A569/A1011 cold drawn, fully annealed tube per ASTM A513 grade 1008 or higher As-welded tubing or ASTM A500 Grade B.

B. Fasteners

1. Bolts: handrail to stringer; Hex Head SAE J429 Grade 5, 1/2" Φ x 13 TPI
2. Landing to structure; Carriage Head A307 or Hex Head SAE J429 Grade 5, 1/2" Φ x 13 TPI
3. Nuts: ASTM A563 Grade 0
4. Washers ASTM F844

C. Miscellaneous Material:

1. Rubber Spine: Hollow neoprene
2. Rubber Foot Divider: Solid neoprene

2.3 FINISHES:

- A. Galvanizing: Hot-dip galvanized after fabrication in accordance with ASTM A 123.

1. Touch up abraded areas after fabrication using specified touch-up primer for galvanized surfaces.

2.4 FABRICATION

- A. General: Fabricate alternating tread aluminum stairs to conform with performance and construction requirements, and in accordance with approved shop drawings or dimensional prints. Fabricate and shop-assemble to greatest extent possible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Coordination: Coordinate installation of stairs with other related and adjacent work. Installation shall not start until conditions and construction to which stairs are to be attached and secured are ready to receive work.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions and approved shop drawings.
- B. Install components plumb and level, accurately fitted, free from distortion or defects.
- C. Provide anchors, plates, angles, hangers, and struts required for connecting stairs to structure.
- D. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

- E. Provide welded field joints where specifically indicated on drawings. Perform field welding in accordance with AWS D1.1.
- F. Other field joints may be either welded or bolted provided the result complies with the limitations specified for jointing quality levels.
- G. Obtain approval prior to site cutting or creating adjustments not scheduled.

3.3 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 075323 – ADHERED EPDM SINGLE-PLY ROOFING

PART 1 - GENERAL

- 1.1 DESCRIPTION: Furnish the labor, administration, materials and equipment to integrate the work into the overall building system so as to provide a leak free, EPDM (Ethylene Propylene Diene Monomer) elastomeric roof system. The system is an assembly of components including the insulation, roofing membrane, metal flashings, and all related parts necessary to complete the assembly.
- 1.2 New insulated adhered EPDM roofing will be installed after the existing roof are removed. A brief description of the major base bid work items follows:
- A. Roof Deck 1:
1. On the low slope area shown on the Drawings, remove the existing roof system, insulation and associated flashings that are not designated to remain.
 2. Set a layer of 2" thick and a layer of 3" thick isocyanurate foam insulation over the metal decking. Secure foam insulation layers with FM Approved screw and plate insulation fasteners.
 3. Cover the base layers of foam insulation with a tapered isocyanurate foam insulation system with a factory formed slope of 0.125/12 (1/8" per foot). Set tapered insulation boards in low rise foam adhesive.
 4. Cover the foam insulation with the membrane manufacturer's recommended 0.5" thick high wind resistant cover board. Set cover board in low rise foam adhesives.
 5. Place an adhered 60 mil EPDM roof membrane over the surface of the cover board.
 6. Install cured and uncured EPDM flashings.
 7. Set new sheet metal flashings and counterflashings.
 8. Provide an MRCA two year leak free contractor's warranty covering material and labor. Provide a manufacturer's written 20 year warranty covering material and labor in a leak free state at a no-dollar-limit.
- B. Roof Decks 2 & 3:
1. On the low slope area shown on the Drawings, remove the existing roof system, insulation and associated flashings that are not designated to remain.
 2. Set a layer of 2" thick and a layer of 3" thick isocyanurate foam insulation over the metal decking. Secure foam insulation layers with FM Approved screw and plate insulation fasteners.
 3. Cover the base layers of foam insulation with a tapered isocyanurate foam insulation system with a factory formed slope of 0.25/12 (1/4" per foot). Set tapered insulation boards in low rise foam adhesive.
 4. Cover the foam insulation with the membrane manufacturer's recommended 0.5" thick high wind resistant cover board. Set cover board in low rise foam adhesives.
 5. Place an adhered 60 mil EPDM roof membrane over the surface of the cover board.
 6. Install cured and uncured EPDM flashings.
 7. Set new sheet metal flashings and counterflashings.
 8. Provide an MRCA two year leak free contractor's warranty covering material and labor. Provide a manufacturer's written 20 year warranty covering material and labor in a leak free state at a no-dollar-limit.
- 1.3 APPLICATOR'S QUALIFICATIONS
- A. Prior to the Notice of Award, the Contractor shall submit evidence that his company is an approved roofer for the membrane material manufacturer providing the membrane and has five

years continuous successful experience in applying EPDM roofing systems.

1.4 QUALITY ASSURANCE

- A. A roofing consultant has been engaged to provide part time inspection of materials and workmanship. The Contractor shall provide a minimum of one weeks notice to the County Project Manager or representative/Engineer prior to the start of roofing operations so that such services can be scheduled.
- B. Except as modified and supplemented herein, follow the published requirements and written recommendations of the EPDM membrane and other material manufacturers. Concerning methods of application industry standards apply only when this contract does not address the matter. Industry Standards shall be pre-defined in the "NRCA (National Roofing Contractors Association) Manual of Roofing and Waterproofing".

1.5 SUBMITTALS

- A. When submitting manufacturer's literature, highlight all items pertaining to this project. See Division 1 for other items.
- B. Submit to the County Project Manager or representative/Engineer the items listed in the Submittal Register found in Division 1, and any other pertinent items not listed but necessary to complete the construction.
- C. Submit current manufacturer's literature for all items shown above. Also submit literature for any other items which may have a direct bearing on the quality of the finished roofing.
- D. Provide certification that materials meet the ASTM and Federal Specifications.

1.6 MATERIAL STORAGE AND HANDLING

- A. Where applicable, the Contractor shall store material in accordance with the material manufacturer's recommendation as to temperature.
- B. All insulation and water sensitive products shall be protected from the elements at all times. Such materials are to be stored in an enclosure or securely covered with a waterproof tarp; the plastic wrappers on the insulation products shall not be used as a means of weather protection.
- C. All materials shall be labeled for ready identification. Labels shall include the name of the manufacturer and product description.
- D. The Contractor shall store only that material on the roof that can be used in one day. Material stored on the roof shall be scattered so as not to apply a concentrated load to the roofing system (greater than 20 psf). No materials shall be stored on new roofing unless a protective layer of plywood with a foam insulation base is used.
- E. The Contractor shall use extreme care when transporting materials to the roof surface. Damaged materials shall not be installed and must be removed from the job site.
- F. The Contractor shall provide all required storage enclosures and safeguards.
- G. Materials shall be delivered in their original, unopened containers, clearly labeled. No materials shall be stored below 40 degrees F. Should any materials be stored below this temperature, they may not be installed until they are restored to a temperature greater than this.
- H. No materials shall be stored on surfaces with slopes greater than 1/2" per foot.
- I. Extreme caution must be used to properly secure the materials from wind.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Roofing materials shall not be installed in rain or snow. Roofing materials shall not be applied when there is heavy dew or frost on the roofing area. Application will not be allowed when the forecasted daily high temperature is less than 50 degrees or the wind speed is greater than 15 MPH.
- B. Do not heat the solvent based materials with an open flame in order to bring to a proper application temperature. Store materials in a heated location overnight if necessary.
- C. Provide drum heaters to properly maintain adhesive materials.

1.8 PROTECTION

- A. Adjacent surfaces shall be protected from stain and disfigurement during the demolition and application of roofing materials.
- B. The Contractor shall keep the building interior protected from the elements at all times. Representatives from the Contractor shall be available in one hours notice should an emergency occur.

1.9 DEFECTS

- A. Conditions which may be detrimental to the completion or performance of the specified work shall be reported in writing to the Architect/Engineer prior to commencing such work. Such work shall not start until defects have been corrected.

PART 2 - PRODUCTS

2.1 ABBREVIATIONS

- A. ASTM American Society for Testing and Materials
- B. AWPB American Wood Preservers Bureau
- C. FM Factory Mutual
- D. FS Federal Specification or Federal Standard
- E. SMACNA Sheet Metal and Air Conditioning Contractors National Assoc., Inc.
- F. UL Underwriters Laboratories
- G. WWPA Western Wood Products Association

2.2 APPLICABLE PUBLICATIONS

- A. The following publications of the issue listed below and referred thereafter by basic designation only form a part of this specification to the extent indicated by the references thereto (use latest publication):

2.3 ASTM PUBLICATIONS:

- A. ASTM A 307 Bolts & Nuts
- B. ASTM A 526 Galvanized Steel
- C. ASTM C 208 Wood Fiber Insulation

2.4 FEDERAL STANDARDS/SPECIFICATIONS:

- A. TT-S 230C Sealing Compound

2.5 ROOF SYSTEM COMPONENTS

- A. Insulation: Install ASTM C 1289, Type II, Class I, Grade I isocyanurate foam with fiberglass facers.
- B. Cover Board: Roof membrane manufacturer's approved 0.5" thick high wind resistant cover board shall be used.
- C. Insulation Attachment - Mechanical: Secure boards with FM Approved screw and plate insulation fasteners. Boards shall be secured to meet FM 1-75 Approval.
- D. Insulation Attachment - Adhesive: Set boards in the manufacturer's approved low rise foam insulation adhesive. Boards shall be secured to meet FM 1-75 Approval.
- E. EPDM Roofing: ASTM D4637, Type I fully adhered 60 mil fire rated EPDM sheet over insulation. Finished construction must provide UL Class A surface. Products from Manville, Firestone and Carlisle are approved.

- F. Seam Tape: Where possible use manufacturer's EPDM seam tape to construct field seams.
- G. Crickets: Tapered isocyanurate foam insulation with a factory slope of 0.5" per foot.
- H. Drain Sumps: Tapered insulation edge strip insulation built to have a slope of 1" per foot.
- I. Sheet Metal Finished: Where prefinished sheet metal is indicated, provide Kynar finish or equivalent.
- J. Accessories: Supply manufacturer required accessory products such as lap sealant in order to fully construct EPDM membrane system.

PART 3 - EXECUTION

3.1 GENERAL

- A. Deliver all materials to the site in a dry condition with labels intact. Either enclose materials in a trailer or cover with a waterproof tarpaulin to protect from the weather and moisture.
- B. For materials delivery in quantity to the site, obtain and submit a certification that the materials meet the required specification.
- C. Work so that each area of the membrane is completed the same day it is begun. This includes all base flashings.
- D. One, thirty-gallon per minute puddle type pump must be available on the job in case water must be removed from the roof surface on an emergency basis.
- E. The workers will not have access to the interior of the building unless it is related to associated interior work.

3.2 OPERATIONAL PROCEDURES

- A. Install temporary tie-ins and water cut-offs at the end of each workday. Remove all temporary tie-ins at the beginning of each workday.
- B. Except for expedient temporary work, do not roof during inclement weather as defined in the General Section of the Specification. Remove all temporary work prior to installing permanent components and materials.
- C. Confine equipment, storage of materials, debris, operations and movement of workers within the limits established for access at the pre-construction conference.
- D. Protect the building, all contents, and surrounding areas from damage, and building occupants from injury during the work. Do not affect the normal conduct of operations of the personnel in the building. Repairs must be made to all damage caused by lack of such protection to the Owner's satisfaction. If they determine that the repairs are beyond the Contractor's ability, then they will have the repairs performed by others and may charge the Contractor for these repairs.
- E. Remove daily all debris from the demolition and installation of the roof.
- F. When wheeled or other traffic over the partially or fully completed roofing is unavoidable, use adequate plywood protection for the membrane.
- G. Provide fifteen pound fire extinguishers at the point of application of any solvent based materials. The extinguishers should be Type A, B, C. No open flames shall be allowed around any of the solvent based products.

3.3 DEMOLITION

- A. Remove the existing roofing system as detailed in Section 02 41 13.
- B. If conditions are uncovered that would be detrimental to the application of the specified work, immediately notify the representative of the Owner.

3.4 INSULATION INSTALLATION

- A. Cut the insulation to fit snugly around penetrations and at the perimeters. No insulation gaps of over 1/4" shall be allowed. If gaps greater than this are created, then they shall be eliminated using trimmed pieces of isocyanurate insulation glued in place.

- B. Insulation boards shall be fully adhered with the 4' dimension staggered if possible.
- C. Follow additional applicable requirements of the roof insulation manufacturer and membrane manufacturer. No wet insulation shall be included in the final construction.

3.5 MEMBRANE INSTALLATION

- A. Except as modified and supplemented herein, apply membrane to meet the requirements and recommendations of the membrane manufacturer.
- B. Surfaces which have been contaminated by bitumen or other products which are not compatible with the membrane, flashings, or adhesives shall be cleaned or covered with plywood prior to the application of any roofing materials.
- C. Lift all mechanical unit and other roof top items as necessary to facilitate the proper installation of the membrane and flashings. Unit must be reset and brought back to proper functioning condition as soon as possible after the application of the roofing system. HVAC and other mechanical units require 96 hours of written notice from the Contractor to the Owner before approval can be given for this type of work.
- D. Over the new insulation system, unroll the EPDM sheet without stretching. Allow sheet to relax for 1/2 hour prior to seaming operations.
- E. Work with largest sheets possible.
- F. Use seam tape at all field formed rubber to rubber membrane seams unless indicated otherwise by manufacturer.
- G. After waiting at least two hours, but prior to leaving the job for the day, the Contractor shall apply lap sealant as recommended by the manufacturer.

3.6 FLASHING INSTALLATION

- A. Clean all surfaces to be flashed prior to the application of any new materials.
- B. Bond the specified flashing materials to the substrate in such a manner as to avoid loose spots, sags, and wrinkles. Flash all items in the configuration shown on the Drawings.

3.7 SEALANT

- A. Clean the substrate as best possible so no contaminants such as bitumen and dust remain.
- B. If required, prime the surface with the primer recommended by the manufacturer. Also, use sealant backing if required by manufacturer.

END OF SECTION

SECTION 076000 – SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work included: Provide flashings and sheet metal not specifically described in other Sections of these Specifications but required to prevent penetration of water through the exterior shell of the building.
- B. This Section covers sheet metal accessories needed for the project but are not sold by the roof system manufacturer.
- C. Related work: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. In addition to complying with pertinent codes and regulations, comply with pertinent recommendations contained in current edition of "Architectural Sheet Metal Manual" published by the Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
- C. Standard commercial items may be used for flashing, trim, reglets, and similar purposes provided such items meet or exceed the quality standards specified.

1.3 SUBMITTALS

- A. When submitting manufacturer's literature, highlight all items pertaining to this project.
- B. Submit to the Roofing Consultant the manufacturer's latest published materials and samples along with any other items necessary for construction.
- C. Submit current manufacturer's literature for all items proposed to be provided under this Section.
- D. Provide certification that materials meet the state ASTM and Federal specifications.
- E. Shop Drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the work of adjacent trades.
- F. Manufacturer's recommended installation procedures which, when approved by the Roofing Consultant, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.4 PRODUCT HANDLING

- A. Comply with pertinent sections of Division 7.

PART 2 - PRODUCTS

2.1 MATERIALS AND GAGES

- A. Where sheet metal is required, and no material or gage is indicated on the Drawings, provide the highest quality and gage commensurate with the referenced standards.

2.2 GALVANIZED IRON

- A. Provide sheet metal or sheet iron of a standard brand of open-hearth copper-bearing steel, copper-molybdenum iron, or pure iron sheets.
- B. Zinc coating:
 - 1. Where galvanizing is required, provide zinc coating by hot-dip galvanize to all surfaces.
- C. Weight:
 - 1. Provide not less than 1-1/4 oz. per sq. ft., nor more than 1-1/2 oz. per sq. ft., to surfaces required to be galvanized.
 - 2. Comply with ASTM A93.

2.3 PRE-FINISHED SHEET METAL

- A. Provide factory applied Kynar 500 or equal finish.

2.4 NAILS, RIVETS AND FASTENERS

- A. Use only soft iron rivets having rust-resistive coating, galvanized nails, and cadmium plated screws and washers in connection with galvanized iron and steel.

2.5 ALUMINUM

- A. Where aluminum is shown, use flat stock of 6063-T5 alloy in thicknesses indicated. Use appropriate fasteners so as not to create galvanic action.

2.6 FLUX

- A. Where flux is required, use raw muriatic acid.

2.7 SOLDER

- A. Where solder is required, comply with ASTM B32.

2.8 SCREWS

- A. Provide new stainless steel screw fasteners at wall panels where existing screws are to be removed for installation of new flashings and counterflashings. Screw shall be of same type and size and shall integral washer flanges with neoprene washers.
- B. At all other locations where new fasteners are called out, provide fastener of same type of material as that to be fastened. Do not use screws smaller than #10.

2.9 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Roofing Consultant.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 WORKMANSHIP

A. General:

1. Form sheet metal accurately and to the dimensions and shapes required, finishing molded and broken surfaces with true, sharp, and straight lines and angles and, where intercepting other members, coping to an accurate fit and soldering securely.
2. Unless otherwise specifically permitted by Architect, turn exposed edges back with 1/2" hem.
3. Form, fabricate, and install sheet metal to adequately provide for expansion and contraction in the finished Work.

B. Weatherproofing:

1. Finish watertight and weathertight where so required.
2. Make lock seam work flat and true to line, sweating full of solder.
3. Make lock seams and lap seams, when soldered, at least 1/2" wide.
4. Where lap seams are not soldered, lap according to pitch, but in no case less than 3".
5. Make flat and lap seams in the direction of flow.

C. Joints:

1. Provide 3" splice joint at perimeter trim metal and at counterflashings. Set lap in 2 beads

of sealant. Secure with ½" splice into hem and two pop rivets of same type of metal as flashing material.

2. Join other parts with rivets or sheet metal screws where necessary for strength and stiffness.
3. Provide suitable watertight expansion joints for runs of more than 40'-0", except where closer spacing is indicated on the Drawings or required for proper installation.

D. Fastening:

1. For fastening into brick or concrete use soft metal jacketed pre-drilled drive-pins, 1/4" in diameter.

3.3 EMBEDMENT

- A. Embed metal in connection with roofs in a solid bed of sealant, using materials and methods which may be described in sections of Division 7.

3.4 TESTS

- A. Upon request of the Roofing Consultant, demonstrate by hose or standing water that the flashing and sheet metal are completely watertight.

END OF SECTION 07 60 00

SECTION 077200 - ROOF ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Roof hatches.

1.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.
 - 1. Design Loads: Refer to Structural Drawings.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of roof accessory indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For roof accessories. Include plans, elevations, keyed details, and attachments to other work. Indicate dimensions, loadings, and special conditions. Distinguish between plant- and field-assembled work.
- C. Samples: For each exposed product and for each color and texture specified, prepared on Samples of size to adequately show color.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Roof plans, drawn to scale, and coordinating penetrations and roof-mounted items. Show the following:
 - 1. Size and location of roof accessories specified in this Section.
 - 2. Method of attaching roof accessories to roof or building structure.
 - 3. Other roof-mounted items including mechanical and electrical equipment, ductwork, piping, and conduit.
 - 4. Required clearances.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For roof accessories to include in operation and maintenance manuals.

1.6 COORDINATION

- A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.

- B. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

PART 2 - PRODUCTS

2.1 METAL MATERIALS

- A. Aluminum Sheet: ASTM B 209, manufacturer's standard alloy for finish required, with temper to suit forming operations and performance required, mill finish.
- B. Aluminum Extrusions and Tubes: ASTM B 221, manufacturer's standard alloy and temper for type of use, mill finish.

2.2 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.
- B. Wood Nailers: Softwood lumber, preservative treated.
- C. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.
- D. Underlayment:
 - 1. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
 - 2. Polyethylene Sheet: 6-mil- thick polyethylene sheet complying with ASTM D 4397.
 - 3. Slip Sheet: Building paper, 3-lb/100 sq. ft. minimum, rosin sized.
- E. Fasteners: Roof accessory manufacturer's recommended fasteners suitable for application and metals being fastened. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners. Furnish the following unless otherwise indicated:
 - 1. Fasteners for Zinc-Coated or Aluminum-Zinc Alloy-Coated Steel: Series 300 stainless steel or hot-dip zinc-coated steel according to ASTM A 153/A 153M or ASTM F 2329.
 - 2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
 - 3. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
- F. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, PVC, or silicone or a flat design of foam rubber, sponge neoprene, or cork.
- G. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant as recommended by roof accessory manufacturer for installation indicated; low modulus; of type, grade, class, and use classifications required to seal joints and remain watertight.
- H. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for expansion joints with limited movement.
- I. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.7 ROOF HATCHES, MANUAL OPERATION

- A. Manufacturers - Roof Hatches:
 - 1. Bilco Co.: www.bilco.com
 - 2. Dur-Red Products: www.dur-red.com.
 - 3. Milcor Inc: www.milcorinc.com.
 - 4. Substitutions: See Section 012500 - Substitution Procedures.
- B. Roof Hatches: Factory-assembled aluminum frame and cover, thermally-broken and insulated, complete with operating and release hardware.
 - 1. Style: Provide flat metal covers unless otherwise indicated.
 - 2. Mounting: Provide frames and curbs suitable for mounting on flat roof deck.
 - 3. Size: 30 x 54 inches, single-leaf style, for access by ship's stair.
- C. Frames/Curbs: One-piece curb and frame with integral cap flashing to receive roof flashings; extended bottom flange to suit mounting.
 - 1. Material: Mill finished aluminum, 11 gage, 0.125 inch thick.
 - 2. Insulation: Polyisocyanuarate, minimum R-20.
 - 3. Curb Height: 12 inches from finished surface of roof, minimum.
- D. Metal Covers: Flush, insulated, hollow metal construction.
 - 1. Capable of supporting 40 psf live load.
 - 2. Material: Mill finished aluminum; outer cover 0.125 inch thick, liner 0.04 inch thick.
 - 2. Insulation: Polyisocyanuarate, minimum R-20.
 - 4. Gasket: EPDM, continuous around cover perimeter.
- E. Hardware: Type 316 stainless steel, unless otherwise indicated or required by manufacturer.
 - 1. Lifting Mechanisms: Compression or torsion spring operator with shock absorbers that automatically opens upon release of latch; capable of lifting covers despite 10 psf load.
 - 2. Hinges: Heavy duty pintle type.
 - 3. Hold open arm with vinyl-coated handle for manual release.
 - 4. Latch: Upon closing, engage latch automatically and reset manual release.
 - 5. Manual Release: Pull handle on interior.
 - 7. Locking: Padlock hasp on interior.

2.8 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- C. Verify dimensions of roof openings for roof accessories.

- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install roof accessories according to manufacturer's written instructions.
 - 1. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.
 - 2. Anchor roof accessories securely in place so they are capable of resisting indicated loads.
 - 3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof accessories and fit them to substrates.
 - 4. Install roof accessories to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
 - 1. Coat concealed side of uncoated aluminum roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
 - 2. Underlayment: Where installing roof accessories directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet, or install a course of polyethylene sheet.
 - 3. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof accessories for waterproof performance.
- C. Roof-Hatch Installation: Verify that roof hatch operates properly. Clean, lubricate, and adjust operating mechanism and hardware.
- D. Seal joints with elastomeric or butyl sealant as required by roof accessory manufacturer.

3.3 REPAIR AND CLEANING

- A. Clean exposed surfaces according to manufacturer's written instructions.
- B. Clean off excess sealants.
- C. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION



DEPARTMENT OF PUBLIC WORKS

Drawings

Contract No. 201737356

**4330 E. 48TH E WAREHOUSE ROOF AND HVAC
REPLACEMENT**

NOVEMBER 6, 2017

CITY AND COUNTY OF DENVER

RE: ELIZABETH HAMILTON
201 W COLFAX AVE #506
DENVER, CO 80202

Page Project No. 816019.06
ISSUE FOR PERMIT
09/15/2017



DENVER

PUBLIC WORKS

PROJECT DESCRIPTION

Reroof all existing roofs of 4330 E. 48th Ave. from the roof deck up. Provide a new fully adhered 60 mil EPDM single-ply roof membrane over 1/2" wind resistant cover board over an R-30 rigid roof insulation. Furnish and install a thermally broken roof hatch 30" x 54" and a steel alternating tread stair at 68 degrees. Furnish and install all new MEP equipment mounted on the roof as shown on the drawings. Remove all abandoned and non-working MEP equipment from the roof, cap all utility lines as required, and provide weather tight flashing over any existing roof openings.

APPLICABLE CODES CITY AND COUNTY OF DENVER

1. International Building Code 2015
2. International Existing Building Code 2015
3. International Fire Code 2015
4. International Mechanical Code 2015
5. International Plumbing Code 2015
6. International Energy Conservation Code 2015
7. National Electrical Code 2017
8. Denver Building and Fire Code Amendments 2016

ARCHITECTURAL - INDEX OF DRAWINGS			
SHEET NO	SHEET TITLE	ISSUE DATE	
		ORIGINAL ISSUE	LAST REVISION
GENERAL			
G-000	COVER SHEET	09/15/2017	
G-001	SITE PLAN - FOR INFORMATION ONLY	09/15/2017	
A-104	ARCHITECTURAL - ROOF PLAN	09/15/2017	
A-521	ARCHITECTURAL - ROOF DETAILS	09/15/2017	
A-522	ARCHITECTURAL - ROOF DETAILS	09/15/2017	
S-001	GENERAL NOTES	09/15/2017	
S-002	SPECIAL INSPECTIONS	09/15/2017	
S-100	ROOF FRAMING PLAN AND DETAILS	09/15/2017	
M-6.1	GENERAL NOTES	09/15/2017	
M-6.2	SCHEDULES, LEGEND AND DETAILS	09/15/2017	
M-6.3	COMCHECK	09/15/2017	
MP-1.0A	FIRST FLOOR MECHANICAL PLAN - PART A	09/15/2017	
MP-1.0B	FIRST FLOOR MECHANICAL PLAN - PART B	09/15/2017	
MP-2.0A	ROOF MECHANICAL PLAN - PART A	09/15/2017	
MP-2.0B	ROOF MECHANICAL PLAN - PART B	09/15/2017	
E0.1	ELECTRICAL GENERAL NOTES	09/15/2017	
E0.2	ELECTRICAL LEGEND	09/15/2017	
E1.0	ELECTRICAL ONE-LINE DIAGRAM	09/15/2017	
E2.0A	FIRST FLOOR POWER PLAN - PART A	09/15/2017	
E2.0B	FIRST FLOOR POWER PLAN - PART B	09/15/2017	
E2.1A	ROOF POWER PLAN - PART A	09/15/2017	
E2.1B	ROOF POWER PLAN - PART B	09/15/2017	
Grand total: 22			

REROOF & HVAC IMPROVEMENTS

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CITY AND COUNTY OF DENVER
REROOF & HVAC IMPROVEMENTS
4330 EAST 48TH AVE
DENVER, CO 80216

REVISION HISTORY table with columns for REVISION, DESCRIPTION, and DATE.

PROFESSIONAL SEALS

GENERAL NOTES

Table with columns for DRAWN BY, CHECKED BY, PROJECT NUMBER, PROJECT ABBREVIATION, ORIGINAL DATE, and ISSUED FOR PERMIT.

S-001
SHEET NUMBER

01-GENERAL REQUIREMENTS

- 1. GOVERNING DESIGN CODES:
A. INTERNATIONAL BUILDING CODE (IBC-2015)
B. CITY AND COUNTY OF DENVER (CCD) AMENDMENTS TO THE 2015 INTERNATIONAL BUILDING CODE
C. AISC MANUAL OF STEEL CONSTRUCTION (14TH EDITION)
MEMBER DESIGN BASIS IS LOAD AND RESISTANCE FACTOR DESIGN (LRFD)
CONNECTION DESIGN BASIS IS LOAD AND RESISTANCE FACTOR DESIGN (LRFD)
D. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14)
E. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE7-10)
F. NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS (ANSI S100-12)
2. SPECIAL INSPECTION REQUIREMENTS AND QUALITY CONTROL:
A. SEE STATEMENT OF SPECIAL INSPECTIONS FOR REQUIREMENTS.
3. DEFERRED SUBMITTALS:
A. DEFERRED SUBMITTALS ARE REQUIRED FOR THE FOLLOWING ITEMS, THE CONTRACTOR SHALL SUBMIT COPIES OF THESE ITEMS TO THE BUILDING DEPARTMENT AFTER REVIEW BY THE STRUCTURAL ENGINEER OF RECORD:
a. SIGNED AND SEALED SHOP DRAWINGS WITH CALCULATIONS.
4. BUILDING CONSTRUCTION INFORMATION:
A. BUILDING CONSTRUCTION TYPE: SEE SHEET G001
B. FIRE RESISTIVE RATINGS: SEE SHEET G001
C. RESTRAINED CONSTRUCTION: THE BUILDING SUPERSTRUCTURE INCLUDING ROOF AND FLOOR CONSTRUCTION IS CONSIDERED RESTRAINED PER THE DEFINITION OF RESTRAINED CONSTRUCTION GIVEN IN ASTM E119, APPENDIX X3, TABLE X3.1:
1. STEEL FRAMING: STEEL BEAMS WELDED, RIVETED OR BOLTED TO THE FRAMING MEMBERS.
D. DESCRIPTION OF LATERAL LOAD-RESISTING SYSTEM:
a. THE LATERAL LOAD-RESISTING ELEMENTS THAT PROVIDE LATERAL STRENGTH AND STABILITY OF THE COMPLETED STRUCTURE ARE AS FOLLOWS:
1. WALKWAY LATERAL (SHORT) DIRECTION: STEEL MOMENT FRAMES
2. WALKWAY LONGITUDINAL (LONG) DIRECTION: PLYWOOD SHEAR WALLS
b. THE DIAPHRAGM ELEMENTS WITHIN THE LATERAL LOAD-RESISTING SYSTEM ARE AS FOLLOWS:
1. WALKWAY ROOF BARE STEEL DECK, INCLUDING THE CONNECTIONS OF THE DECK TO THE LATERAL LOAD-RESISTING ELEMENTS.
2. WALKWAY DRAG STRUTS OF STEEL FRAMING AND ASSOCIATED CONNECTIONS.
c. SEE DETAILS FOR SPECIAL ERECTION CONSIDERATIONS AND LATERAL LOAD-RESISTING SYSTEM COMPONENTS NOT LISTED HERE.
d. TEMPORARY BRACING: DURING BUILDING ERECTION, THE STEEL ERECTOR SHALL DETERMINE, FURNISH AND INSTALL ALL TEMPORARY SUPPORTS AND BRACINGS NECESSARY FOR LATERAL STABILITY OF THE SUPERSTRUCTURE UNTIL THE LATERAL LOAD-RESISTING ELEMENTS AND DIAPHRAGMS ARE IN PLACE AND ALL CONNECTIONS ARE COMPLETE.
5. DESIGN LOAD CRITERIA (EXISTING ROOF STRUCTURE):
A. DEAD LOADS:
1. EXISTING ROOF
METAL DECK 2 PSF
PROPOSED INSULATION 4 PSF
MAIN STEEL FRAMING SELF WEIGHT
UTILITIES 4 PSF
TOTAL 10 PSF + SELF WEIGHT
2. MISCELLANEOUS LOADS
NA
B. FLOOR LIVE LOAD NOT APPLICABLE
C. ROOF LIVE LOADS 20 PSF (REDUCIBLE)
D. BUILDING OCCUPANCY RISK CATEGORY III
E. SNOW LOADS:
1. GROUND SNOW LOAD, P_g 35 PSF
2. REQUIRED FLAT ROOF SNOW LOAD, P_f 27 PSF
3. SNOW EXPOSURE FACTOR, C_e 0.9
4. THERMAL FACTOR, C_t 1.0
5. SNOW LOAD IMPORTANCE FACTOR, I_s 1.2
6. ADDITIONAL SNOW LOAD DUE TO DRIFTING AND SLIDING SNOW PER ASCE 7 HAS BEEN CONSIDERED WHERE APPLICABLE
F. SEISMIC LOADS:
SEISMIC IMPORTANCE FACTOR, I_e 1.25
S_p 0.178
S_d 0.086
SITE CLASS D
S_s 0.19
S_1 0.092
DESIGN SEISMIC FORCE RESISTING SYSTEM H, NOT DETAILED FOR SEISMIC
SEISMIC RESPONSE COEFFICIENT, C_s 0.119
RESPONSE MODIFICATION FACTOR, R 5.00
ANALYSIS PROCEDURE USED EQUIVALENT LATERAL FORCE ANALYSIS
G. WIND LOADS (ASCE7 SECTION 12.8)
BASIC WIND SPEED 120 MPH
EXPOSURE C
RISK CATEGORY III

02-STEEL

- 1. STRUCTURAL STEEL:
A. REFERENCE STANDARDS: STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION AND THE AISC CODE OF STANDARD PRACTICE (REFERENCED EDITIONS) WITH EXCEPTIONS NOTED IN THE PROJECT SPECIFICATIONS.
B. OSHA REQUIREMENTS:
a. THE CONTRACTOR SHALL PROVIDE ALL ADDITIONAL BOLTS, ANCHORS, STIFFENERS, STABILIZERS, BRIDGING, BRACING, OPENING CLOSURES, ETC. AS NECESSARY TO COMPLY WITH CURRENT OSHA REGULATIONS.
b. ALL RIGGING FOR SAFETY CABLES, LIFTING DEVICES, AND TEMPORARY BRACING SHALL BE CONNECTED TO ANGLES, PLATES OR OTHER MEMBERS DESIGNED AND DETAILED BY THE STEEL SUPPLIER AND SHALL BE SHOP WELDED TO STRUCTURAL MEMBERS. DO NOT PROVIDE HOLES IN STRUCTURAL MEMBERS FOR CONNECTION OF RIGGING CABLES, LIFTING DEVICES OR TEMPORARY BRACING UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL ADDED MEMBERS WHERE THEY INTERFERE WITH OTHER WORK OR ARE EXPOSED TO VIEW.
C. MATERIAL REQUIREMENTS: STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING DESIGNATIONS UNLESS NOTED OTHERWISE ON THE DRAWINGS OR IN THE SPECIFICATIONS:
a. WIDE FLANGE SHAPES: ASTM A992, GRADE 50
b. ANGLES, CHANNELS AND PLATES: ASTM A36 OR ASTM A572, GRADE 50
c. RECTANGULAR HSS SECTIONS: ASTM A500, GRADE "C" (FY=50KSI)
d. ROUND HSS SECTIONS: ASTM A500, GRADE "C" (FY=46KSI)
e. STRUCTURAL PIPES: ASTM A53, GRADE "B" (FY=58KSI)
f. HIGH-STRENGTH BOLTS: ASTM A325 OR ASTM A490
g. ANCHOR BOLTS: ASTM F1554, GRADE 36 (WELDABLE)
h. HIGH-STRENGTH ANCHOR BOLTS: ASTM F1554, GRADE 105
i. HEADED ANCHOR STUDS (H.A.S.): ASTM A108 AND AWS D1.1
j. DEFORMED BAR ANCHORS (D.B.A.): ASTM A496, GRADE 70 AND AWS D1.1
k. WELDING ELECTRODES: AWS D1.1 E70 SERIES
l. GALVANIZED FINISH: ASTM A123

- D. SHOP PRIMING OF STEEL: STRUCTURAL STEEL SCHEDULED TO BE SPRAYED WITH FIRE RESISTIVE MATERIAL SHALL NOT BE SHOP PRIMED UNLESS NOTED OTHERWISE. ALL OTHER STEEL SHALL BE PAINTED WITH FABRICATOR'S STANDARD, ZINC CHROMATE OR RED OXIDE PRIMER. OMIT PRIMER ON SURFACES ENCLOSED IN CONCRETE, SURFACES TO BE WELDED, CONTACT SURFACES IN SLIP CRITICAL CONNECTIONS AND TOPS OF BEAMS IN COMPOSITE CONSTRUCTION.
E. CONNECTIONS:
a. BEAM CONNECTIONS SHALL BE STANDARD FRAMED CONNECTIONS AS SHOWN IN PART 10 OF THE AISC "MANUAL OF STEEL CONSTRUCTION" FOURTEENTH EDITION.
b. SEE SPECIFICATIONS FOR ADDITIONAL CONNECTION SUBMITTAL REQUIREMENTS FOR ALTERNATE CONNECTIONS AND FOR CONNECTIONS NOT COMPLETELY DETAILED OR NOT INDICATED ON THE DRAWINGS.
c. ALL CONNECTIONS SHALL BE DESIGNED TO SUPPORT A MINIMUM UNFACTORED SERVICE LOAD OF 12 KIPS.
d. BOLTED CONNECTIONS:
1. MINIMUM CONNECTION REQUIREMENT: USE 3/4" DIAMETER, ASTM A325 HIGH-STRENGTH BOLTS UNLESS NOTED OTHERWISE ON DRAWINGS.
2. FOR ALL HIGH-STRENGTH BOLTED CONNECTIONS, APPROPRIATE NUTS AND HARDENED WASHERS SHALL BE PROVIDED PER PROJECT SPECIFICATIONS.
3. ALL CONNECTIONS SHALL BE TYPE (P7) PRE-TENSIONED WITH TENSION CONTROL BOLTS UNLESS NOTED ON THE DRAWINGS AS TYPE SC (SLIP CRITICAL) OR TYPE N (BEARING OR SNUG-TIGHTENED) CONNECTIONS.
4. UNLESS NOTED OTHERWISE ON THE DRAWINGS PROVIDE DOUBLE CLIP ANGLE CONNECTIONS FOR ALL FRAME MEMBERS ACCORDING TO THE CRITERIA IN THE FOLLOWING TABLE
TABLE: NUMBER OF BOLTS, FRAMING MEMBER SIZES, MIN CLIP ANGLE THICKNESS, MIN WELD SIZE.
e. WELDED CONNECTIONS:
1. ALL WELDERS SHALL HAVE EVIDENCE OF PASSING THE AWS STANDARD QUALIFICATION TESTS.
2. WELD SIZES AND LENGTHS ARE SHOWN ON THE DRAWINGS. WELD SIZES ARE THE NET EFFECTIVE SIZE REQUIRED. INCREASE WELD SIZE IF GAPS EXIST AT FAYING SURFACE. MINIMUM FILLET WELD SIZE IS 3/16".
3. WELDS SHALL BE CONTINUOUS UNLESS SHOWN OTHERWISE.
4. GROOVE WELDS SHALL BE FULL PENETRATION WELDS UNLESS NOTED OTHERWISE. BACKING BARS SHALL BE REMOVED AFTER WELDING IS COMPLETE.
f. ANCHOR RODS: PROVIDE ANCHOR RODS WITH HEX NUT TACK WELDED TO EMBEDDED END OF BOLT.
F. GALVANIZING OF STEEL:
a. ALL STEEL PERMANENTLY EXPOSED TO WEATHER SHALL BE GALVANIZED OR PAINTED WITH A HIGH PERFORMANCE PAINT SYSTEM PER PROJECT SPECIFICATIONS.
b. STEEL LINTELS SUPPORTING ANCHORED VENEER SHALL BE GALVANIZED UNLESS NOTED OTHERWISE ON DRAWINGS OR IN SPECIFICATIONS.
G. FIELD MODIFICATION OF STEEL: STRUCTURAL STEEL SHALL NOT BE CUT IN FIELD OR MODIFIED WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER. SPlicing STEEL MEMBERS IS NOT PERMITTED EXCEPT WHERE SHOWN ON THE DRAWINGS OR WHERE APPROVED BY THE STRUCTURAL ENGINEER. WHERE APPROVED, SPLICES SHALL NOT OCCUR AT LOCATIONS OF MAXIMUM STRESS AND SHALL DEVELOP THE FULL CAPACITY OF THE MEMBER. SPlice DETAILS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO BEGINNING THE WORK.
H. BEAMS SHALL BE FABRICATED SUCH THAT AFTER ERECTION, ANY CAMPER DUE TO ROLLING IS UPWARDS.

MISCELLANEOUS STRUCTURAL STEEL:

- A. MISCELLANEOUS STRUCTURAL STEEL IS DEFINED FOR THE PURPOSE OF THIS SECTION AS STEEL ITEMS OTHER THAN THE MAIN SUPERSTRUCTURE FRAMING (COLUMNS, BEAMS, JOISTS, GIRDERS, TRUSSES AND LATERAL BRACING).
B. THE STEEL SUPPLIER SHALL PROVIDE ALL MISCELLANEOUS STRUCTURAL STEEL ITEMS NECESSARY TO FULFILL THE INTENT OF THE STRUCTURAL DRAWINGS WHETHER OR NOT THE ITEMS ARE SHOWN ON THE STRUCTURAL DRAWINGS. SUCH ITEMS MAY INCLUDE BUT ARE NOT LIMITED TO: EDGE ANGLES, CLOSURE PLATES AND DECK SUPPORT FRAMING.
C. DECK OPENINGS: FLOOR AND ROOF OPENINGS ARE SHOWN ON ARCHITECTURAL, STRUCTURAL, AND OTHER DISCIPLINE DRAWINGS. IF OPENINGS ARE NOT SHOWN, LOCATED OR DIMENSIONED ON STRUCTURAL DRAWINGS, REFER TO DRAWINGS LISTED ABOVE FOR REQUIRED INFORMATION. UNLESS OTHERWISE NOTED, ALL OPENINGS THROUGH FLOOR AND ROOF DECK SHALL BE FRAMED USING MISCELLANEOUS STRUCTURAL STEEL FRAMES OR REINFORCING AS FOLLOWS:
a. DECK SUPPORTING CONCRETE:
1. FOR OPENINGS WITH THE LARGEST DIMENSION LESS THAN 24", PROVIDE 1-#5 BAR IN CONCRETE ABOVE DECK FLUTES ON EACH SIDE OF OPENING. EXTEND REINFORCING A MINIMUM OF 24" BEYOND EDGES OF OPENING OR PROVIDE A STANDARD HOOK. OPENINGS SHALL BE SPACED A MINIMUM OF 24" CLEAR. IF SPACING REQUIREMENT CANNOT BE MET, THE OPENINGS SHALL BE CONSIDERED AS ONE LARGE OPENING AND A STEEL FRAME AROUND OPENINGS SHALL BE PROVIDED AS DESCRIBED BELOW.
2. FOR ALL OTHER OPENINGS, PROVIDE A STEEL FRAME AROUND OPENING PER TYPICAL OPENING FRAME DETAIL PROVIDED ON STRUCTURAL DRAWINGS.
b. ROOF DECK (NO CONCRETE TOPPING):
1. NO ADDITIONAL DECK SUPPORT FRAMING IS REQUIRED FOR OPENINGS WITH THE LARGEST DIMENSION LESS THAN OR EQUAL TO 10". OPENINGS IN THIS CATEGORY MUST BE SPACED A MINIMUM OF 24" APART (ON CENTER) WHEN OPENINGS ARE NOT ALIGNED PARALLEL TO DIRECTION OF FLUTES. IF SPACING REQUIREMENT CANNOT BE MET, THE OPENINGS SHALL BE CONSIDERED AS ONE LARGE OPENING AND A DECK SUPPORT FRAME SHALL BE PROVIDED AS DESCRIBED BELOW.
2. FOR ALL OTHER OPENINGS, PROVIDE A STEEL FRAME AROUND OPENINGS PER TYPICAL OPENING FRAME DETAIL PROVIDED ON STRUCTURAL DRAWINGS.
D. COLD-FORMED METAL FRAMING:
A. COLD-FORMED METAL FRAMING REFERENCED IN THIS SECTION PERTAINS TO FRAMING DESCRIBED IN SPECIFICATION DIVISION 05400 ONLY.
B. REFERENCE STANDARDS: COLD-FORMED METAL FRAMING SHALL BE DESIGNED IN ACCORDANCE WITH THE AMERICAN IRON AND STEEL INSTITUTE (AISI) "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".
C. FABRICATION: COLD-FORMED METAL FRAMING PRODUCTS SHALL BE MANUFACTURED BY A CURRENT MEMBER OF THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA).
D. SHEET STEEL USED IN THE FABRICATION OF COLD-FORMED FRAMING PRODUCTS SHALL CONFORM TO ASTM A1003, STRUCTURAL GRADE, TYPE H OR ASTM A853 AND SHALL BE ZINC COATED IN ACCORDANCE WITH ASTM A653, G90. MINIMUM YIELD STRENGTH SHALL BE 50 KSI.
E. COLD-FORMED STRUCTURAL STUD NOMENCLATURE SHALL FOLLOW SSMA DESIGNATION AS FOLLOWS:
SECTION DEPTH (IN.) FLANGE WIDTH (IN.)
STYLE: S = STUDS, T = TRACK
EXAMPLES: 600 = 6" DEPTH 362 = 3-5/8" DEPTH
S162 = STUD, 1-5/8" FLANGE T125 = TRACK, 1-1/4" DEEP LEG
33 = 20 GAGE, 43 = 18 GAGE, 54 = 16 GAGE
F. MINIMUM COLD-FORMED MEMBER SIZE REQUIREMENTS SHALL CONFORM TO THE FOLLOWING UNLESS SHOWN OTHERWISE ON THE DRAWINGS:
a. EXTERIOR STUDS: 600S162-54 (16 GAGE)
b. TRACK: THICKNESS SHALL MATCH WALL OR JOIST FRAMING AND HAVE 125 DEEP LEGS (1-1/4")
c. DEEP LEG TRACK (DEFLECTION TRACK): THICKNESS SHALL BE 97 MILS (12 GAGE) AND HAVE 200 DEEP LEGS (2").
G. FASTENERS:
a. UNLESS SHOWN OTHERWISE ON THE DRAWINGS, PROVIDE TRAXXIP01, SELF-DRILLING FASTENERS AT ALL COLD-FORMED FRAMING CONNECTIONS (MINIMUM TWO SCREWS PER CONNECTION). PROVIDE SUFFICIENT NUMBER OF SCREWS AT EACH CONNECTION TO SUPPORT ALL APPLIED LOADS.
b. PROVIDE HILTI POWDER-ACTUATED, UNIVERSAL, KNURLED SHANK FASTENERS (X-U) TO ATTACH COLD-FORMED FRAMING TO CONCRETE SUBSTRATES. PROVIDE SUFFICIENT NUMBER OF FASTENERS TO TRANSFER ALL LOADS INTO CONCRETE, (MAXIMUM SPACING OF FASTENERS NO GREATER THAN STUD SPACING).
c. WELDS: UNLESS NOTED OTHERWISE ON THE DRAWINGS, WELDS SHALL BE FILLET WELDS (MINIMUM TWO 3/4" LONG WELDS PER CONNECTION). PAINT ALL WELDS IN EXTERIOR WALL CONSTRUCTION WITH ZINC-RICH PAINT.
H. INSTALLATION:
a. SPLICING OF STUDS AND JOISTS SHALL NOT BE PERMITTED.
b. ALL CORNERS SHALL BE FRAMED WITH A MINIMUM OF THREE STUDS OF THE SAME DEPTH AND GAGE AS WALL STUDS, UNLESS NOTED OTHERWISE.
c. FRAME WALL OPENINGS WITH HEADERS, KING AND JAMB STUDS AS REQUIRED.
d. MULTIPLE STUDS AT JAMBS OF OPENINGS SHALL BE SECURED TOGETHER WITH EITHER SELF-DRILLING FASTENERS OR 3/4" LONG FILLET WELDS AT EACH FLANGE AT 12" O.C. UNLESS NOTED OTHERWISE.
e. BRACE WALL STUDS USING EITHER COLD-ROLLED CHANNELS THROUGH PUNCH-OUTS OR BY HORIZONTAL STRAPS AT EACH FLANGE WITH TRACK BLOCKING. BRACING SHALL CONFORM TO SECTION 03 OF THE AISI SPECIFICATION.
f. NON-LOAD BEARING FRAMING:
1. PROVIDE JACK STUDS OR CRIPPLES BELOW WINDOW SILLS, ABOVE WINDOW AND DOOR HEADS AND ELSEWHERE AS REQUIRED.
2. PROVIDE DEFLECTION ALLOWANCE AT TOP OF ALL WALLS TO ACCOMMODATE STRUCTURAL MOVEMENT. SUBMIT DETAILS INCLUDING MANUFACTURER'S PRODUCT LITERATURE TO THE STRUCTURAL ENGINEER FOR REVIEW.
3. PROVIDE SLIDE CLIPS AT CONNECTIONS WHERE WALLS EXTEND PAST EDGE OF FLOORS OR ROOF AS SHOWN ON THE DRAWINGS. SUBMIT DETAILS INCLUDING MANUFACTURER'S PRODUCT LITERATURE TO THE STRUCTURAL ENGINEER FOR REVIEW.

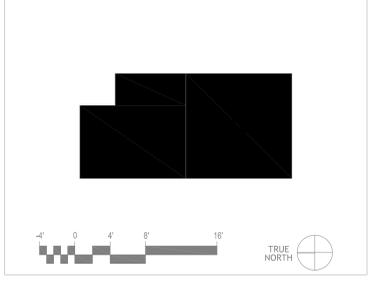
03.04-MECHANICAL AND ELECTRICAL TRADES

- 1. PRECEDENCE:
A. STRUCTURAL FRAMING COMPONENTS, INCLUDING BUT NOT LIMITED TO STEEL FRAMING, CONCRETE FRAMING, REINFORCING, POST-TENSIONING CABLES AND EMBEDMENT SHALL TAKE PRECEDENCE OVER MECHANICAL, PLUMBING AND ELECTRICAL (MEP) ITEMS. STRUCTURAL FRAMING COMPONENTS SHALL NOT BE MOVED, ADJUSTED OR OTHERWISE MODIFIED FROM THE STRUCTURAL DRAWINGS TO ACCOMMODATE OTHER DISCIPLINES WITHOUT APPROVAL FROM THE STRUCTURAL ENGINEER.
2. COORDINATION:
A. THE GENERAL CONTRACTOR, MECHANICAL AND ELECTRICAL SUBCONTRACTORS SHALL VERIFY PURCHASED EQUIPMENT AND REQUIRED OPENINGS THROUGH FLOORS, ROOF AND WALLS ARE IN AGREEMENT WITH THE DESIGN INFORMATION SHOWN ON THE DRAWINGS.
B. DIFFERENCES OR CONFLICTS BETWEEN THE DRAWINGS AND MECHANICAL AND ELECTRICAL REQUIREMENTS SHALL BE REPORTED TO THE STRUCTURAL ENGINEER BEFORE PROCEEDING WITH THE WORK.
3. EQUIPMENT:
A. THE FLOOR AND ROOF FRAMING IS DESIGNED TO SUPPORT THE MECHANICAL AND ELECTRICAL EQUIPMENT SHOWN ON PLANS. DIFFERENCES IN ACTUAL EQUIPMENT LOCATION, SIZE OR WEIGHT MAY REQUIRE REDESIGN OF THE FRAMING AT THE EXPENSE OF THE CONTRACTOR.
4. SUPPORT OF PIPING, CONDUITS & DUCTWORK:
A. SUPPORT OF MINOR MECHANICAL, PLUMBING AND ELECTRICAL ITEMS SUSPENDED FROM THE ROOF STRUCTURE IS PERMITTED AND IS THE RESPONSIBILITY OF THE CONTRACTOR INCLUDING THE DETERMINATION OF THE NUMBER AND POSITION OF FASTENERS. SUPPORT LOADS GREATER THAN 100 LBS REQUIRES APPROVAL FROM THE STRUCTURAL ENGINEER.

STANDARD ABBREVIATIONS

Table with columns for ABBREVIATION, LOCATION, and LOCATION. Lists various construction terms and their corresponding abbreviations.

KEY PLAN (NOT TO SCALE)





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1. THE TESTING AND BALANCING CONTRACTOR SHALL SUBMIT TWO (2) BOUND COPIES AND ONE (1) ELECTRONIC FILE OF THE FINAL TESTING AND BALANCING REPORT AT LEAST FIFTEEN (15) CALENDAR DAYS PRIOR TO THE DATE FOR WHICH THE MECHANICAL CONTRACTOR REQUESTS FINAL COMPLETION.

2. A COMPLETE REDUCED SET OF MECHANICAL CONTRACT DRAWINGS (SHOWING EACH SYSTEM) SHALL BE INCLUDED IN THE REPORT, WITH ALL EQUIPMENT, FLOW MEASURING DEVICES, TERMINALS, CLEARLY MARKED AND ALL EQUIPMENT DESIGNATED. THE TEST AND BALANCE CONTRACTOR CAN OBTAIN DRAWING FILES FROM THE ENGINEER FOR DEVELOPMENT OF THESE DRAWINGS.

3. THE REPORT SHALL INCLUDE A LIST OF ALL EQUIPMENT USED IN THE TESTING AND BALANCING WORK.

4. THIS PROJECT WILL NOT BE CONSIDERED SUBSTANTIALLY COMPLETE UNTIL A SATISFACTORY REPORT IS RECEIVED. THE TESTING AND BALANCING CONTRACTOR SHALL RESPOND TO AND CORRECT ALL DEFICIENCIES WITHIN SEVEN (7) DAYS OF RECEIVING THE ENGINEER'S WRITTEN REVIEW OF THE BALANCING REPORT. FAILURE TO COMPLY WILL RESULT IN HOLDING RETAINAGE OF THE FINAL PAYMENT UNTIL ALL ITEMS HAVE BEEN CORRECTED TO THE SATISFACTION OF THE ENGINEER.

5. THE TESTING AND BALANCING CONTRACTOR SHALL GUARANTEE THE ACCURACY OF THE TESTING AND BALANCING REPORT. DURING THIS PERIOD, THE TESTING AND BALANCING CONTRACTOR SHALL MAKE PERSONNEL AVAILABLE AT NO COST TO THE OWNER, TO CORRECT DEFICIENCIES THAT MAY BECOME APPARENT IN THE SYSTEM BALANCE.

6. THE TESTING AND BALANCING CONTRACTOR SHALL GUARANTEE THE ACCURACY OF THE DRAWINGS AND AS SPECIFIED HEREIN, CONSISTING OF WET-PIPE FIRE SPRINKLER SYSTEM HYDRAULICALLY CALCULATED TO COMPLY WITH NFPA 13 AND ALL APPLICABLE CODES AND ALL REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

7. FIRE PROTECTION CONTRACTOR SHALL DESIGN, PREPARE AND SUBMIT ALL SHOP DRAWINGS TO LOCAL AUTHORITIES HAVING JURISDICTION, SUCH AS, THE FIRE AND BUILDING DEPARTMENTS, FOR REVIEW AND APPROVAL.

8. SUBMIT TO THE ARCHITECT/ENGINEER TWO (2) SETS SHOP DRAWINGS AND HYDRAULIC CALCULATIONS, WHICH HAVE BEEN APPROVED, STAMPED AND SIGNED BY THE LOCAL FIRE PREVENTION AUTHORITY. SHOP DRAWINGS SHALL BE PREPARED IN ACCORDANCE WITH NFPA 13.

9. FIRE PROTECTION CONTRACTOR SHALL COORDINATE ALL PIPING AND SPRINKLER HEADS WITH OTHER TRADES.

10. SPRINKLER HEAD TYPES SHALL MATCH EXISTING OR AS INDICATED ON DRAWINGS.

11. ALL NEW OR RELOCATED SPRINKLER HEADS SHALL BE INSTALLED IN CENTER OF 2'X2' CEILING TILES OR AT QUARTER POINTS, ALONG THE CENTERLINE LENGTHWISE, OF 2'X4' CEILING TILES.

12. SPRINKLER HEAD LOCATIONS SHOWN ON THESE DRAWINGS ARE APPROXIMATE AND SHOWN FOR COORDINATION PURPOSES ONLY.

13. THE TESTING AND BALANCING CONTRACTOR SHALL GUARANTEE THE ACCURACY OF THE TESTING AND BALANCING REPORT. DURING THIS PERIOD, THE TESTING AND BALANCING CONTRACTOR SHALL MAKE PERSONNEL AVAILABLE AT NO COST TO THE OWNER, TO CORRECT DEFICIENCIES THAT MAY BECOME APPARENT IN THE SYSTEM BALANCE.

14. THE TESTING AND BALANCING CONTRACTOR SHALL GUARANTEE THE ACCURACY OF THE DRAWINGS AND AS SPECIFIED HEREIN, CONSISTING OF WET-PIPE FIRE SPRINKLER SYSTEM HYDRAULICALLY CALCULATED TO COMPLY WITH NFPA 13 AND ALL APPLICABLE CODES AND ALL REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

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18. SPRINKLER HEAD TYPES SHALL MATCH EXISTING OR AS INDICATED ON DRAWINGS.

19. ALL NEW OR RELOCATED SPRINKLER HEADS SHALL BE INSTALLED IN CENTER OF 2'X2' CEILING TILES OR AT QUARTER POINTS, ALONG THE CENTERLINE LENGTHWISE, OF 2'X4' CEILING TILES.

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22. THE TESTING AND BALANCING CONTRACTOR SHALL GUARANTEE THE ACCURACY OF THE DRAWINGS AND AS SPECIFIED HEREIN, CONSISTING OF WET-PIPE FIRE SPRINKLER SYSTEM HYDRAULICALLY CALCULATED TO COMPLY WITH NFPA 13 AND ALL APPLICABLE CODES AND ALL REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

23. FIRE PROTECTION CONTRACTOR SHALL DESIGN, PREPARE AND SUBMIT ALL SHOP DRAWINGS TO LOCAL AUTHORITIES HAVING JURISDICTION, SUCH AS, THE FIRE AND BUILDING DEPARTMENTS, FOR REVIEW AND APPROVAL.

24. SUBMIT TO THE ARCHITECT/ENGINEER TWO (2) SETS SHOP DRAWINGS AND HYDRAULIC CALCULATIONS, WHICH HAVE BEEN APPROVED, STAMPED AND SIGNED BY THE LOCAL FIRE PREVENTION AUTHORITY. SHOP DRAWINGS SHALL BE PREPARED IN ACCORDANCE WITH NFPA 13.

25. FIRE PROTECTION CONTRACTOR SHALL COORDINATE ALL PIPING AND SPRINKLER HEADS WITH OTHER TRADES.

26. SPRINKLER HEAD TYPES SHALL MATCH EXISTING OR AS INDICATED ON DRAWINGS.

27. ALL NEW OR RELOCATED SPRINKLER HEADS SHALL BE INSTALLED IN CENTER OF 2'X2' CEILING TILES OR AT QUARTER POINTS, ALONG THE CENTERLINE LENGTHWISE, OF 2'X4' CEILING TILES.

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30. THE TESTING AND BALANCING CONTRACTOR SHALL GUARANTEE THE ACCURACY OF THE DRAWINGS AND AS SPECIFIED HEREIN, CONSISTING OF WET-PIPE FIRE SPRINKLER SYSTEM HYDRAULICALLY CALCULATED TO COMPLY WITH NFPA 13 AND ALL APPLICABLE CODES AND ALL REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

31. FIRE PROTECTION CONTRACTOR SHALL DESIGN, PREPARE AND SUBMIT ALL SHOP DRAWINGS TO LOCAL AUTHORITIES HAVING JURISDICTION, SUCH AS, THE FIRE AND BUILDING DEPARTMENTS, FOR REVIEW AND APPROVAL.

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38. THE TESTING AND BALANCING CONTRACTOR SHALL GUARANTEE THE ACCURACY OF THE DRAWINGS AND AS SPECIFIED HEREIN, CONSISTING OF WET-PIPE FIRE SPRINKLER SYSTEM HYDRAULICALLY CALCULATED TO COMPLY WITH NFPA 13 AND ALL APPLICABLE CODES AND ALL REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

MECHANICAL GENERAL NOTES

CONTRACTOR SHALL COMPLY WITH NOTES AS APPLICABLE TO PROJECT. NOTES ON INDIVIDUAL DRAWINGS TAKE PRECEDENCE.

- A. GENERAL: 1. REFER TO BASE BUILDING SPECIFICATIONS, BASE BUILDING DRAWINGS, GENERAL CONDITIONS AND DIVISION 1 FOR SUPPLEMENTAL REQUIREMENTS. 2. WHILE ALL WORK IS IN PROGRESS, EXCEPT FOR SHORT DESIGNATED INTERVALS DURING WHICH CONNECTIONS ARE TO BE MADE, CONTINUITY OF SERVICE TO ALL EXISTING SYSTEMS SERVING OCCUPIED SPACES SHALL BE MAINTAINED. PROVIDE TEMPORARY PIPING SERVICES WHERE REQUIRED TO MAINTAIN EXISTING AREAS OPERABLE. 3. ANY WORK WHICH WILL AFFECT THE BUILDING OCCUPANTS, INCLUDING, BUT NOT LIMITED TO, WORK WHICH GENERATES EXCESSIVE NOISE, DUST, SMOKE, OR INCONVENIENCE TO BUILDING OCCUPANTS, SHALL BE PERFORMED AFTER BUSINESS HOURS, UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE BUILDING MANAGER. 4. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH OWNER AT ALL TIMES FOR ALL NEW-TO-EXISTING CONNECTIONS, SYSTEM SHUTDOWNS, RESTART-UP, AND FLUSHING AND FILLING OF BOTH NEW AND EXISTING AFFECTED SYSTEMS. 5. THE CONTRACTOR SHALL VISIT AND EXAMINE THE PREMISES AND/OR JOB SITE SO AS TO ASCERTAIN PRIOR TO BEGINNING THE EXISTING CONDITIONS IN WHICH HE WILL BE OBLIGED TO OPERATE IN PERFORMING HIS PART OF THE CONTRACT. NO EXTRAS WILL BE ALLOWED DUE TO LACK OF KNOWLEDGE OF THESE CONDITIONS. 6. REPAIR ANY EXISTING DAMAGED EQUIPMENT OR SYSTEMS TO THE OWNER PRIOR TO ANY WORKED FOR THE BUILDING MANAGER. 7. INSTALL ALL EQUIPMENT AND MATERIALS IN SUCH A MANNER AS TO PROVIDE REQUIRED ACCESS FOR SERVICING AND MAINTENANCE. ALLOW AMPLE SPACE FOR REMOVAL OF ALL PARTS THAT REQUIRE REPLACEMENT OR SERVICING. 8. FURNISH HINGED STEEL ACCESS DOORS WITH CONCEALED LATCH, WHETHER SHOWN ON DRAWINGS OR NOT, WHICH REQUIRE NO KEYS TO OPEN. PROVIDE HINGED STEEL ACCESS DOORS WITH CONCEALED LATCH, WHETHER SHOWN ON DRAWINGS OR NOT, WHICH REQUIRE NO KEYS TO OPEN. PROVIDE HINGED STEEL ACCESS DOORS WITH CONCEALED LATCH, WHETHER SHOWN ON DRAWINGS OR NOT, WHICH REQUIRE NO KEYS TO OPEN. 9. IT IS THE INTENTION OF THESE SPECIFICATIONS AND DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION. WHEREVER THE WORD "PRODUCE" IS USED, IT SHALL MEAN "FURNISH AND INSTALL COMPLETE AND READY FOR USE." 10. SECURE AND PAY FOR ALL PERMITS, TAP FEES, TAXES, ROYALTIES, LICENSES, AND INSPECTIONS IN CONNECTION WITH THE WORK DESCRIBED UNDER THESE SPECIFICATIONS. 11. ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS. 12. DRAWINGS ARE DIAGNOSTIC IN CHARACTER AND DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, VALVE, FITTING, ETC. 13. DRAWINGS SHALL NOT BE SCALED FOR ROUGH-IN MEASUREMENTS OR USED AS SHOP DRAWINGS. ALL DIMENSIONS SHALL BE VERIFIED IN FIELD. 14. ALL NEW, RELOCATED AND EXISTING MATERIALS, IN CEILING PLenums SHALL BE CLASS 1 RATED, NOT EXCEEDING RATING OF 25 FLAME SPREAD AND 50 SMOKE DEVELOPED. REMOVE AND REPLACE ALL EXISTING MATERIALS NOT IN COMPLIANCE. 15. BEFORE ANY EQUIPMENT IS ORDERED AND/OR INSTALLED, DETERMINE THAT SAID EQUIPMENT WILL PROPERLY FIT WITHIN THE SPACE ALLOCATED. THAT REQUIRED PIPING GRADES CAN BE MAINTAINED; AND THAT DUCTWORK CAN BE RUN AS INTENDED. 16. COORDINATE THE INSTALLATION OF MECHANICAL MATERIALS AND EQUIPMENT ABOVE AND BELOW CEILINGS, LIGHT FIXTURES, AND OTHER BUILDING COMPONENTS. ALL COMPONENTS SHALL BE LOCATED AS NEAR TO STRUCTURE AS POSSIBLE. COORDINATE CEILING CAVITY SPACE CAREFULLY WITH ALL TRADES. 17. ALL ROOF PENETRATIONS SHALL BE SEALED WATER TIGHT. PROVIDE FLASHING AND COUNTER FLASHING AS REQUIRED. COORDINATE ROOFING WORK WITH THE GENERAL CONTRACTOR. 18. CONTRACTOR SHALL NOTIFY ENGINEER 48 HOURS PRIOR TO SUBSTANTIAL COMPLETION OF CONSTRUCTION OR INSTALLATION OF CEILING TILE, TO SCHEDULE A FINAL PUNCH LIST WALKTHROUGH. 19. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, FREE OF DEFECTS, AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S CURRENT PUBLISHED RECOMMENDATIONS. 20. CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ARCHITECT/ENGINEER IN ELECTRONIC (PDF) FORMAT, ALL SHOP DRAWINGS AND DESCRIPTIVE EQUIPMENT DATA/SUBMITTALS REQUIRED FOR THE PROJECT. THE CONTRACTOR SHALL IDENTIFY ANY LONG LEAD TIME ITEMS, WHICH MAY IMPACT THE OVERALL PROJECT SCHEDULE. ALL BIDS SHALL INCLUDE COSTS ASSOCIATED WITH THE PURCHASE AND DELIVERY OF EQUIPMENT TO MEET THE PROJECT SCHEDULE. ALL SUBMITTALS SHALL BE CLEAR AND CONCISE. PARTIAL, PROGRESS, "PRELIMINARY," OR CATALOGUE LISTS WILL NOT BE REVIEWED AND WILL BE RETURNED AS INCOMPLETE. NO EXCEPTIONS. ALLOW A MINIMUM OF 7 WORKING DAYS FOR ARCHITECT/ENGINEER REVIEW. 21. REVIEW OF THE EQUIPMENT SUBMITTALS IS CONTINGENT ON WHETHER THE PHYSICAL DIMENSIONS OF THE SUBMITTED EQUIPMENT WILL FIT INTO ALLOTTED SPACES WITH CLEARANCE FOR INSTALLATION AND MAINTENANCE. CONTRACTOR SHALL VERIFY PRIOR TO ORDERING AND INSTALLATION. 22. QUIET OPERATION AND VIBRATION: MECHANICAL EQUIPMENT PROVIDED UNDER THIS CONTRACT SHALL OPERATE UNDER ALL LOAD CONDITIONS WITHOUT NOISE OR VIBRATION, WHICH IS OBJECTIONABLE IN THE OPINION OF THE ENGINEER. 23. KEEP A COMPLETE SET OF RECORD DOCUMENT PRINTS IN CUSTODY DURING ENTIRE PERIOD OF CONSTRUCTION AT THE CONSTRUCTION SITE. AT THE COMPLETION OF CONSTRUCTION, TURN THESE DRAWINGS OVER TO THE GENERAL CONTRACTOR FOR HIS SUBMISSION TO THE ARCHITECT. 24. THE CONTRACTOR FOR THIS WORK SHALL EXAMINE THE DRAWINGS AND SPECIFICATIONS FOR OTHER PARTS OF THE WORK, AND IF HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE OR IF ANY DISCREPANCIES OCCUR BETWEEN THE PLANS FOR HIS WORK AND THE PLANS FOR THE WORK OF OTHERS, HE SHALL REPORT SUCH DISCREPANCIES TO THE ARCHITECT/ENGINEER AND SHALL OBTAIN WRITTEN INSTRUCTIONS FOR ANY CHANGES NECESSARY TO ACCOMMODATE HIS WORK WITH THE WORK OF OTHERS. ANY CHANGES IN THE WORK COVERED BY THIS SPECIFICATION MADE NECESSARY BY THE FAILURE OR NEGLECT OF THE CONTRACTOR TO REPORT SUCH DISCREPANCIES SHALL BE MADE BY AND AT THE EXPENSE OF THIS CONTRACTOR. 25. EQUIPMENT SCHEDULES ESTABLISH A QUALITY AND DESIGN STANDARD. SUBSTITUTIONS MUST BE EQUIVALENT IN PERFORMANCE, MATERIAL, SPACE, AND CONFIGURATION REQUIREMENTS. THE PROJECT ENGINEER OR ARCHITECT'S DECISION WILL BE FINAL AND MAY BE BASED ON BOTH CERTIFIED TEST DATA AND SUBJECTIVE REASONING. 26. THE MANUFACTURER'S MATERIAL OR EQUIPMENT LISTED IN THE SCHEDULE OR IDENTIFIED BY NAME ON THE DRAWINGS ARE THE TYPES TO BE PROVIDED FOR THE ESTABLISHMENT OF SIZE, CAPACITY, GRADE AND QUALITY. IF ALTERNATES ARE USED IN lieu OF THE SCHEDULED NAMES, THE COST OF ANY CHANGES IN CONSTRUCTION REQUIRED BY THEIR USE SHALL BE BORNE BY CONTRACTOR. 27. OPERATING AND MAINTENANCE DATA: THE CONTRACTOR SHALL PREPARE AN OPERATING AND MAINTENANCE MANUAL COVERING ALL SYSTEMS AND EQUIPMENT INSTALLED UNDER THIS DIVISION. SUBMIT AN OUTLINE OF A PREVENTATIVE MAINTENANCE PROGRAM FOR EACH SYSTEM. CONTRACTOR SHALL PROPERLY LUBRICATE ALL MECHANICAL PARTS OF EQUIPMENT, WHICH HE HAS PROVIDED BEFORE TURNING THE BUILDING OVER TO THE OWNER. 28. DEMOLITION: 28.1. DURING THE DEMOLITION PHASE REMOVE EXISTING EQUIPMENT, PIPING, DUCTWORK AND INSTALLATION ITEMS EITHER AS SHOWN OR AS INDICATED ON THE DEMOLITION DRAWINGS AS BEING REMOVED, OR AS REQUIRED FOR THE WORK. 28.2. PROPERLY CAP AND SEAL ALL DUCTWORK AND PIPING NOT USED. 28.3. EXISTING THERMOSTATS, DIFFUSERS, DUCTWORK, ETC., NOTED ON DRAWINGS TO BE RE-USED SHALL BE THOROUGHLY CLEANED AND/OR REFRESHED TO MATCH NEW. 28.4. THE LOCATION OF EXISTING EQUIPMENT, PIPING, DUCTWORK, ETC., SHOWN ON THE DRAWINGS HAS BEEN TAKEN FROM EXISTING DRAWINGS AND IS, THEREFORE, ONLY AS ACCURATE AS THAT INFORMATION. 29. WARRANTIES: 29.1. PROVIDE COMPLETE WARRANTY INFORMATION FOR EACH ITEM, INCLUDING NAME OF PRODUCT OR EQUIPMENT, DATE OF BEGINNING OF WARRANTY OR BOND, DURATION OF WARRANTY OR BOND, AND NAME, ADDRESS, AND TELEPHONE NUMBERS OF MANUFACTURING/SERVICING PERSONNEL, AS WELL AS, PROCEDURES FOR FILING A CLAIM AND OBTAINING WARRANTY SERVICES. 29.2. THE CONTRACTOR SHALL WARRANT ALL MATERIALS, WORKMANSHIP AND THE SUCCESSFUL OPERATION OF ALL EQUIPMENT AS IDENTIFIED IN THE GENERAL CONDITIONS, OR DIV. 1. 30. ANY FILTERS USED DURING CONSTRUCTION SHALL BE REPLACED WITH NEW FILTERS DURING FINAL CLEANUP. 31. EXISTING EQUIPMENT, CHECK, VERIFY AND MAKE OPERABLE ALL EXISTING EQUIPMENT THAT IS NOTED TO BE REUSED. PROVIDE SERVICE ON ALL ROOFTOP HVAC UNITS, Z-BOXES, FAN

- COILS, AIR CONDITIONING UNITS, ETC., AS REQUIRED TO BRING THEM TO PROPER OPERATING CONDITION. CLEAN COILS AND EXCHANGERS, LUBRICATE, CHECK MOTORS AND REPLACE FILTERS. 32. SPECIFICATIONS OF CONTRACTOR: THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE AND SATISFACTORY INSTALLATION OF HIS WORK IN ACCORDANCE WITH THE TRUE INTENT OF THE DRAWINGS AND SPECIFICATIONS. HE SHALL PROVIDE, WITHOUT EXTRA CHARGE, ALL MATERIALS AND EQUIPMENT TO BE INSTALLED UNDER THESE SPECIFICATIONS. HE SHALL BE SO MADE THAT ITS SEVERAL COMPONENT PARTS WILL FUNCTION TOGETHER AS A WORKABLE SYSTEM AND SHALL BE LEFT WITH ALL PARTS ADJUSTED AND IN WORKING ORDER. B. MECHANICAL/ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT: 1. CONTRACTOR SHALL REVIEW ELECTRICAL POWER REQUIREMENTS FOR MECHANICAL EQUIPMENT THAT ARE SCHEDULED ON THE ELECTRICAL DRAWINGS AND VERIFY THAT THEY MATCH PRIOR TO ORDERING EQUIPMENT. DO NOT PURCHASE MOTORS OR ELECTRICAL EQUIPMENT UNTIL POWER CHARACTERISTICS AVAILABLE AT BUILDING SITE LOCATION HAVE BEEN CONFIRMED BY CONTRACTOR. 2. PROVIDE SAFETY DISCONNECT SWITCHES FOR ALL MECHANICAL EQUIPMENT, UNLESS SPECIFICALLY SHOWN ON THE ELECTRICAL DIVISION. 3. FURNISH COMBINATION TYPE FULL VOLTAGE RATED STARTERS WITH FUSED DISCONNECT SWITCH FOR ALL 3-PHASE MOTORS PROVIDED. 4. ELECTRICAL WIRING IN CONNECTION WITH THE AUTOMATIC TEMPERATURE CONTROL SYSTEM, INCLUDING INTERLOCK WIRING, WHERE SHOWN ON THE ELECTRICAL DIVISION DRAWINGS, SHALL BE PERFORMED BY THE ELECTRICAL CONTRACTOR. ALL OTHER WORK, INCLUDING 120V REQUIRED FOR PROPER OPERATION OF THE AUTOMATIC TEMPERATURE CONTROL SYSTEM, SHALL BE PERFORMED BY THE MECHANICAL CONTRACTOR. C. MECHANICAL SYSTEMS FIRESTOPPING: 1. CONTRACTOR SHALL PROVIDE FIRESTOP SYSTEM FOR ALL THROUGH PENETRATIONS OF PIPING, DUCTWORK AND OTHER MECHANICAL ITEMS THROUGH FIRE-RATED CORRIDOR WALLS, FIRE RESISTIVE PARTS OF EXISTING WALLS AND FLOOR PENETRATIONS. THE FIRE RESISTIVE QUALITY OF A WALL FIRESTOP SYSTEM SHALL BE LISTED/INSTALLED/TESTED IN ACCORDANCE WITH ASTM E814 OR E-119. THE SYSTEM SHALL HAVE AN F-RATING/1-RATING OF NOT LESS THAN 1 HR AND NOT LESS THAN THE REQUIRED RATING OF THE PENETRATING ASSEMBLY. CONTRACTOR SHALL ALSO REFERENCE AND COMPLY WITH 2015 BC SECTION 714.3.1.2. D. PIPING APPLICATION: 1. ALL PIPING SHALL CONFORM TO APPLICABLE NATIONAL AND LOCAL CODES. 2. DOMESTIC HOT AND COLD WATER: ABOVE GRADE, INSIDE BUILDING, TYPE "1" HARD DRAWN COPPER TUBE, 1/2" TO 4" IN ANTI-MONY SOLDERED JOINTS. BELOW GRADE, INSIDE AND OUTSIDE BUILDING, 2" AND SMALLER, TYPE "X" SOFT DRAWN COPPER WITH SILVER BRAZED SOLDER JOINTS, 4" AND LARGER: DUCTILE IRON, TAR COATED OUTSIDE, CEMENT MORTAR LINED INSIDE. 3. SANITARY DRAINAGE, STORM DRAINAGE AND VENTS - INSIDE BUILDING: ABOVE GRADE: CSPI 302 CAST IRON, NO-HUB TYPE, WITH NEOPRENE GASKETS AND 300 SERIES STAINLESS STEEL CLAMPS; BELOW GRADE: ASTM A-74 SERVICE WEIGHT CAST IRON, HUB-AND-SPIGOT TYPE ONLY, WITH NEOPRENE COMPRESSION GASKETS, BEYOND 5 FEET OUTSIDE BUILDING, UNLESS SPECIFIED BY CIVIL, ASTM D-3034 SDR-35 PVC SLOPE PIPE. 4. NATURAL GAS PIPING: ABOVE GRADE, EXPOSED LOCATIONS, 2" AND SMALLER: SCHEDULE 40 BLACK STEEL PIPE, BEVELED ENDS, WITH 150 PSI MALLEABLE IRON FITTINGS AND THREADED END CONNECTIONS. BELOW GRADE OR LARGER THAN 2": SCHEDULE 40 BLACK STEEL PIPE WITH SEAMLESS STEEL, BUTT-WELD FITTINGS AND WELDED JOINTS. FOR BELOW GRADE GAS PIPING, PROVIDE PROTECTIVE MACHINE-APPLIED COATING AND WRAPPING IN ACCORDANCE WITH LOCAL CODE AND UTILITY COMPANY REQUIREMENTS. PROVIDE CATHODIC PROTECTION. 5. FOR GAS PIPING INSTALLED ON ROOF SHALL BE SUPPORTED AT A MINIMUM OF EVERY 6 FEET, WITH A MINIMUM CLEARANCE FROM ROOF, EXCEPT WHERE GOVERNED BY MORE STRINGENT LOCAL CODES OR SPECIFICATIONS. 6. EXPOSED GAS PIPING SHALL BE LABELED WITH GAS PRESSURE AND PAINTED TO PREVENT CORROSION. 7. PROVIDE FULL-SIZED SHUT-OFF GAS VALVE, PRESSURE REGULATOR (VENTED TO OUTSIDE) AND 6" DRIP LEG FOR CONNECTIONS TO GAS-FIRED EQUIPMENT. 8. SPACE HEATING WATER, CHILLED WATER, AND CONDENSER WATER PIPING: 2"-1/2" AND SMALLER, TYPE 1 COPPER TYPE ASTM B-36, WITH WROUGHT COPPER FITTINGS PER ANSI B16.22, BRAZED OR LEAD-FREE SOLDERED, 3" AND LARGER, SCHEDULE 40 BLACK STEEL WITH FLANGES OR WELDED JOINTS. 9. EQUIPMENT DRAINS, CONDENSATE DRAINS AND OVERFLOWS: TYPE "M" OR "DM" COPPER. 10. REFRIGERANT PIPING (FIELD INSTALLED): TYPE "X" HARD-DRAWN COPPER TUBING WITH WROUGHT COPPER SILVER SOLDERED FITTINGS AND COUPLINGS, OR TYPE "1" COPPER. REFRIGERANT GRADE, COLOR CODED AND MARKED "R" WITH BRAZED JOINTS. SOFT-ANNEALED COPPER TUBING MAY BE USED IN SIZES UP TO 1-1/8", AND, WHEN USED, SHALL BE ENCLOSED IN BOX WITH INSULATION OR IN CONDUIT, MOLDING OR RACEWAY WHICH WILL PROTECT SAID TUBING AGAINST DAMAGE. E. PIPING INSTALLATION: 1. GENERAL: INSTALL PIPES AND PIPE FITTINGS IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES, WHICH WILL ACHIEVE PERMANENTLY LEAK-PROOF PIPING SYSTEMS, CAPABLE OF PERFORMING EACH INDICATED SERVICE WITHOUT PIPING FAILURE. INSTALL EACH RUN WITH MINIMUM JOINTS AND COUPLERS, BUT WITH ADEQUATE AND ACCESSIBLE UNIONS FOR DISASSEMBLY AND MAINTENANCE, REPLACEMENT OF VALVES AND EQUIPMENT. 2. SANITARY WASTE AND VENT; ROOF DRAIN; AND STORM DRAIN PIPING: 2.1. VERIFY ALL INVERT ELEVATIONS OF EXISTING WASTE AND STORM DRAIN PIPING PRIOR TO ANY NEW WORK. 2.2. INSTALL PLUMBING DRAINAGE PIPING WITH MINIMUM 1/4" PER FOOT (2%) DOWNWARD SLOPE IN DIRECTION OF DRAIN FOR PIPING 3" AND SMALLER. INSTALL 4" AND LARGER PIPING WITH MINIMUM 1/8" PER FOOT (1%) DOWNWARD SLOPE, UNLESS OTHERWISE INDICATED ON DRAWINGS AND WHEN APPROVED BY ADMINISTRATIVE AUTHORITIES. 2.3. GRADE VENT PIPING FOR PROPER VENTILATION (MINIMUM 1/8" PER FOOT) AND TO ALLOW PIPING TO FREE ITSELF QUICKLY OF CONDENSATION OF WATER. 3. CONTRACTOR SHALL FIELD VERIFY ALL PIPING AND PLUMBING LOCATIONS AND INVERTS PRIOR TO TRENCHING OR INSTALLATION OF NEW PIPING. ALLOW FOR COST OF 1/4" RAMPING FLOOR FOR LOCATING BURIED PIPING AND PRIOR TO MAKING FLOOR PENETRATIONS. 4. INSTALL HANGERS AND GUIDES AS NECESSARY FOR PIPING SYSTEMS, WHICH ARE SELF-SUPPORTING AND NOT DEPENDENT UPON CONNECTION TO EQUIPMENT. ALL PIPING SHALL BE ADEQUATELY SUPPORTED FROM THE BUILDING STRUCTURE WITH ADJUSTABLE HANGERS TO MAINTAIN UNIFORM GRADING, WHERE REQUIRED AND TO PREVENT SAGGING AND POCKETING. 5. ALLOW FLEXIBILITY IN THE CONSTRUCTION OF THE PIPING SYSTEM IN ORDER TO PREVENT EXCESSIVE STRESSES IN MATERIALS AND JOINTS DUE TO THERMAL EXPANSION OR EQUIPMENT VIBRATION. PROVIDE SUFFICIENT SWING JOINTS, ANCHORS, EXPANSION LOOPS, EXPANSION JOINTS, AND/OR OTHER DEVICES AS NECESSARY, AND INSTALL SO AS TO PERMIT FREE EXPANSION AND CONTRACTION WITHOUT CAUSING UNDESIRED STRESSES. 6. PROVIDE SHUTOFF VALVES AND UNIONS OR FLANGES TO ISOLATE EACH ITEM OF EQUIPMENT. 7. PROVIDE DIELECTRIC UNIONS AT ALL JUNCTIONS OF DISSIMILAR METALS. 8. PROVIDE SHEET METAL SHIELDS FOR PIPING 2" AND SMALLER (EXCEPT WHERE REQUIRED TO BE CLAMPED). 9. PROVIDE ELECTROLYSIS ISOLATORS AT ALL HANGERS AND SUPPORTS FOR DOMESTIC WATER, CONDENSER WATER, AND OTHER WATER LINES WHICH ARE NOT INSULATED. 10. TEST ALL PIPING SYSTEMS. CORRECT LEAKS BY REMOVING JOINTS. GIVE A MINIMUM OF TWENTY-FOUR (24) HOURS NOTICE TO ENGINEER OF DATES WHEN ACCEPTANCE TEST WILL BE CONDUCTED. 11. ALL PIPING SHALL BE CLEANED AND FLUSHED PRIOR TO SERVICE. 12. NEW DOMESTIC WATER SUPPLY AND DISTRIBUTION SYSTEMS SHALL BE PURGED AND STERILIZED

- BEFORE ACCEPTANCE FOR OPERATION, IN ACCORDANCE WITH IFC 2015 SECTION 610. F. MECHANICAL IDENTIFICATION: 1. LABEL ALL DUCT ACCESS DOORS, PIPING, EQUIPMENT AND THERMOSTATS. PIPING AND EQUIPMENT SHALL BE IDENTIFIED WITH LETTERS 2" HIGH AND 6" FLOW ARROWS. G. VIBRATION CONTROL: 1. ALL MECHANICAL EQUIPMENT, PIPING AND DUCTWORK AS NOTED OR IN THE SPECIFICATION, SHALL BE MOUNTED ON VIBRATION ISOLATORS TO PREVENT THE TRANSMISSION OF VIBRATION AND MECHANICALLY TRANSMITTED SOUND TO THE BUILDING STRUCTURE. VIBRATION ISOLATORS SHALL BE SELECTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THE HEIGHT DISTRIBUTION, SO AS TO PRODUCE REASONABLY UNIFORM DEFLECTIONS. H. WATER DISTRIBUTION SYSTEM: 1. ALL EQUIPMENT AND FIXTURES, WHICH ARE CONNECTED TO A POTABLE WATER SUPPLY, SHALL BE INSTALLED IN SUCH A MANNER AS TO ELIMINATE THE POSSIBILITY OF ANY PHYSICAL OR POTENTIAL CROSS-CONNECTION. VACUUM BREAKERS SHALL BE PROVIDED FOR ALL SUBMERGED/ENCLOSED OUTLETS AND INSTALLED A MINIMUM OF 6" ABOVE OVERFLOW RIM. 2. INSTALL BACKFLOW PREVENTERS ON PLUMBING LINES WHERE CONTAMINATION OF DOMESTIC WATER MAY OCCUR. 3. INSTALL PRESSURE REDUCING VALVES TO LIMIT MAXIMUM PRESSURE AT PLUMBING FIXTURES TO 65 PSIG. 4. INSTALL WATER HAMMER ARRESTERS IN DOMESTIC WATER PIPING SYSTEM AT EACH SET OF FRESH VALVES AND IN OTHER LOCATIONS WHERE HYDROSTATIC SHOCK PRESSURES COULD OCCUR. I. PLUMBING FIXTURES: 1. WHERE FIXTURES ARE SPECIFIED AS HANDICAPPED-ACCESSIBLE, IT SHALL BE THE SOLE RESPONSIBILITY OF ALL MANUFACTURERS AND/OR SUPPLIERS TO PROVIDE PLUMBING FIXTURES AND RELATED RIM, WHICH MEET OR EXCEED THE ADA REQUIREMENTS. COORDINATE WITH ARCHITECTURAL DRAWINGS. 2. FIXTURE MOUNTING HEIGHT AND ROUGH-IN DIMENSIONS SHALL BE AS INDICATED ON THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS. 3. INSTALL DRAIN FLASHING, COLLAR OR FLANGE, SO THAT NO LEAKAGE OCCURS BETWEEN DRAIN AND ADJACENT FLOORING. MAINTAIN INTEGRITY OF WATERPROOF MEMBRANES, WHERE PENETRATED. 4. PROVIDE ISOLATION VALVES AT ALL PLUMBING FIXTURES. J. METAL DUCTWORK: 1. NEW RECTANGULAR DUCTWORK SHALL BE GALVANIZED SHEET METAL INTERNALLY LINED WITH MINIMUM 1/2" THICK, 2 LB/CFM DENSITY FIBERGLASS DUCT LINER, WITH MINIMUM NRC NOISE REDUCTION COEFFICIENT OF 0.70. MINIMUM INSULATION VALUE SHALL BE R-6. LINER SHALL BE U.L. APPROVED, MADE FROM FLAME ATTENUATED CLASS FIBER BONDED WITH A THERMOSET RESIN WITH ACRYLIC SMOOTH SURFACE TREATMENT AND FACTORY APPLIED EPOXY COATING. 2. ALL DUCT DIMENSIONS ARE INSIDE CLEAR DIMENSIONS IN INCHES. 3. PROVIDE SPIN-IN FITTINGS WITH BUTTERFLY DAMPERS FOR ALL NEW AND EXISTING ROUND SUPPLY, RETURN, EXHAUST TO DIFFUSERS AND ALL ROUND RETURN/EXHAUST RUN-OUT DUCTS TO RETURN/EXHAUST GRILLES, ANY DIFFUSERS OR GRILLES INSTALLED WHERE SAID BUTTERFLY DAMPERS WOULD BE INACCESSIBLE SHALL BE PROVIDED WITH INTEGRAL BALANCING DAMPER. 4. FABRICATE DUCTWORK OF GAUGES AND REINFORCEMENT COMPLYING WITH SMACNA "HVAC" DUCT CONSTRUCTION STANDARDS - MEDIUM PRESSURE DUCT, UPSTREAM OF VAV BOXES - PRESSURE CLASS 4" W.G. POSITIVE OR NEGATIVE, SEAL CLASS A, LOW PRESSURE DUCT, DOWNSTREAM OF VAV BOXES - PRESSURE CLASS 2" W.G. POSITIVE OR NEGATIVE, SEAL CLASS B. 5. SMACNA STANDARDS: COMPLY WITH SMACNA "HVAC" DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE" FOR FABRICATION AND INSTALLATION OF METAL DUCTWORK, COMPLY WITH SMACNA "HVAC" AIR DUCT LEAKAGE TEST MANUAL" FOR TESTING OF DUCT SYSTEMS. 7. ALL RECTANGULAR DUCTWORK WITH 45 DEG. ELBOWS OR GREATER SHALL HAVE DOUBLE WALL TURNING VANES OR LONG RADIUS ELBOWS. PROVIDE LONG RADIUS ELBOWS FOR ROUND DUCTWORK. 8. FLEXIBLE AIR DUCTS SHALL BE LISTED UNDER UL-181 STANDARDS AS CLASS 1 AIR DUCT MATERIAL. MINIMUM OPERATING PRESSURE RATING SHALL BE 6" W.G. WITH MINIMUM WORKING VELOCITY RATING SHALL BE 4000 FPM. 9. ALL INSULATED FLEXIBLE DUCTS SHALL BE CONSTRUCTED OF A METALIZED RIPSTOP REINFORCED LAMINATE INNER CORE, MINIMUM 1-1/2" THICK, INSTALLED R-4, 3/4" LB/CFM DENSITY FIBERGLASS INSULATION WITH 1" FACTOR OF 0.23 OR LESS, AND AN OUTER JACKET MADE EXCLUSIVELY OF FIRE RETARDANT REINFORCED ALUMINIZED MATERIAL, EQUAL TO FLEXIMASTER TYPE SM. 10. EXISTING FLEXIBLE DUCTWORK, WHICH REMAINS IN PLACE, MAY BE REUSED IF IT IS PROPERLY LABELED WITH UL 181 TAG. EXISTING FLEXIBLE DUCTWORK NOT U.L. APPROVED SHALL BE REMOVED AND REPLACED WITH THAT SPECIFIED IN NOTES ABOVE. 11. FINAL CONNECTION OF FLEXIBLE DUCTWORK TO RUN-OUT DUCTS AND CEILING DIFFUSERS SHALL BE MADE WITH 0.15" WIDE POSITIVE-LOCKING STEEL STRAPS (APPLIES TO ALL FLEXIBLE DUCTWORK NEW AND EXISTING). 12. MAXIMUM LENGTH: FOR ANY DUCT RUN USING FLEXIBLE DUCTWORK, SHALL NOT EXCEED 6'-0". 13. CONNECTIONS TO EXHAUST GRILLES SHALL BE MADE WITH RIGID DUCTWORK ONLY. 14. SEAL ALL DUCTWORK WITH NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT, OF TYPE APPLICABLE FOR FABRICATION/INSTALLATION DETAIL, AS COMPOUNDED AND RECOMMENDED BY MANUFACTURER, SPECIFICALLY FOR SEALING JOINTS AND SEAMS IN DUCTWORK. 15. DUCT TAKEOFF FITTINGS: PROVIDE SPIN-IN FITTINGS AT FLEXIBLE OR ROUND SHEET METAL TAKEOFFS TO AIR DEVICES. FITTINGS DOWNSTREAM OF AIR TERMINALS SHALL INCLUDE BUTTERFLY TYPE MANUAL VOLUME DAMPER WITH DOWN BEARINGS, REGULATOR, AND LOCKING DEVICE. 16. PROVIDE DUCT HANGERS IN ACCORDANCE WITH SMACNA HVAC DUCT MANUALS. 17. KITCHEN GREASE EXHAUST DUCT SHALL BE MINIMUM 16 GA. CARBON STEEL, ALL WELDED CONSTRUCTION, WITH ACCESS PANELS AND CLEANOUTS FOR GREASE CLEANING, AS REQUIRED BY NFPA 96 AND 2015 IBC SECTIONS 506.3.8 AND 506.3.9. SLOPE DUCT BACK TOWARDS HOOD AT MINIMUM OF 1/4" PER FOOT IF MAINTENANCE CODE REQUIRED CLEARANCE TO COMBUSTIBLE MATERIALS. INSTALL GREASE DUCT IN AN APPROVED 2 HOUR FIRE-RATED ENCLOSURE, AS REQUIRED BY CODE OR PROVIDE A 2 HOUR FIRE WRAP, U.L. LISTED FOR GREASE DUCT SYSTEM. 18. DISHWASHER, POOL, AND LOCKER ROOM EXHAUST SHALL BE MINIMUM 16 GA. ALUMINUM SLOPE DUCT DOWN TO AIR DEVICE. K. COMBINATION FIRE/SMOKE DAMPERS: 1. PROVIDE AND INSTALL U.L. LABELED, CLASS II (FOR VELOCITIES UP TO 1,500 FPM) OR CLASS I (FOR VELOCITIES ABOVE 1,500 FPM), MOTOR-DRIVEN COMBINATION FIRE/SMOKE DAMPERS AT ALL FIRE RATED WALLS, FULL DUCT SIZE, WITH TYPE 004 STAINLESS STEEL SEALS. COMBINATION SILICONE/GALVANIZED STEEL EDGE SEALS, BRONZE OILITE OR STAINLESS STEEL SLEEVE BEARINGS, ARFIDE SHAPED GALVANIZED STEEL PARALLEL ACTING BLADES ALONG WITH OUT-OF-AXIS STREAM IN-JAMB LINKAGE, WITH STAINLESS STEEL PIVOTS AND FACTORY SLEEVE, RED SMALL FINISH CALKED AND ATTACHED TO DAMPER IN ACCORDANCE WITH U.L. FIRE DAMPER REQUIREMENTS. 2. FIRE/SMOKE DAMPERS SHALL BE ACTIVATED PER 2015 IBC SECTION 607.3.3.3. ACTIVATION SHALL BE PROVIDED BY FIRE ALARM CONTRACTOR.

- L. AIR OUTLETS AND INLETS: 1. CEILING COMPATIBILITY: PROVIDE DIFFUSERS WITH BORDER STYLES THAT ARE COMPATIBLE WITH ADJACENT CEILING SYSTEMS, AND THAT ARE SPECIFICALLY MANUFACTURED TO FIT INTO CEILING MODULES WITH ACCURATE FIT AND ADEQUATE SUPPORT. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR TYPES OF CEILING SYSTEMS, WHICH WILL CONTAIN EACH TYPE OF CEILING AIR DIFFUSER. M. CONTROLS: 1. TEMPERATURE CONTROLS CONTRACTOR SHALL PROVIDE A COMPLETE NEW/AMENDED CONTROL SYSTEM USING NEW CONTROL DEVICES AS REQUIRED, OR TO REPLACE/EXISTING DEVICES FOR THE MECHANICAL SYSTEMS TO OPERATE AS REQUIRED. THE CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A PROPOSAL. 2. THE EXISTING TEMPERATURE CONTROL SYSTEM CONTROL DEVICES, DAMPERS, OPERATORS, WIRING, CONDUIT, AIR PIPING, VALVES, ETC. NOT BEING MODIFIED, AND WHICH ARE NO LONGER UTILIZED, SHALL BE REMOVED, AND NOT ABANDONED IN PLACE. 3. CHECK AND MAKE OPERABLE ALL WIRING AND PNEUMATIC CONTROL TUBING FOR ALL THE SYSTEMS ASSOCIATED WITH THE PROJECT AREA. 4. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL INSTALLATION, PROGRAMMING, COMMISSIONING, TESTING AND PERFORMANCE VERIFICATION. 5. THE CONTROLS CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING ALL DEVICES REQUIRED FOR A COMPLETE OPERATING CONTROL SYSTEM. 6. PROVIDE 120V WIRING AS REQUIRED FOR THE TEMPERATURE CONTROL SYSTEMS, UNLESS SPECIFICALLY INDICATED ON ELECTRICAL DRAWINGS. N. PIPING INSULATION: 1. ALL NEW AND EXISTING PIPING SHALL BE INSULATED WITH FIBERGLASS PIPING INSULATION. PIPING SHALL BE MAXIMUM OF 0.24 AT 75° F MEAN TEMPERATURE. INSULATION SHALL HAVE JACKET WITH TENSILE STRENGTH OF 35 LBS/IN AND FACTORY APPLIED VAPOR BARRIER JACKET WITH PERMEABILITY OF 0.05 PERM WITH ADHESIVE SELF-SEALING LAP JOINT. SEE TABLE ON THIS SHEET FOR MINIMUM INSULATION THICKNESSES REQUIRED. O. DUCTWORK SYSTEM INSULATION: 1. ALL NEW AND EXISTING UN-INSULATED ROUND DUCTWORK AND EXISTING UN-INSULATED RECTANGULAR DUCTWORK SHALL BE WRAPPED WITH FIBERGLASS FIBERGLASS DUCTWORK INSULATION, MINIMUM 2" THICK, TYPE 1, 1.0 LB. PER CU. FT. DENSITY. MINIMUM INSTALLED INSULATION VALUE SHALL BE R-6. ALL WRAP INSULATION SEAMS AND JOINTS SHALL BE SEALED WITH VAPOR-TIGHT FOL-SOL-SCRM-KRAFT TAPE. 2. DUCTWORK EXPOSED TO WEATHER SHALL BE INSULATED WITH RIGID FIBERGLASS INSULATION BOARD, 3" THICK, MINIMUM R-12. DENSITY OF 3 LBS. PER CU. FT. AND FACTORY APPLIED VAPOR BARRIER FACING. 3. DUCTWORK ON WHICH INSULATION IS NOT REQUIRED: FIBROUS CLASS DUCTWORK, LINED DUCTWORK, EXHAUST AIR DUCTWORK, EXCEPT AS SPECIFICALLY NOTED ON DRAWINGS, AND PRE-INSULATED FLEX DUCT. P. EXISTING INSULATION REPAIR: 1. REPAIR DAMAGED SECTIONS OF EXISTING MECHANICAL INSULATION, BOTH PREVIOUSLY DAMAGED OR DAMAGED DURING THIS CONSTRUCTION. REMOVE ALL DAMAGED INSULATION, THICKNESS AS EXISTING INSULATION. INSTALL NEW JACKET LAPPING AND SEAL OVER EXISTING. Q. TESTING, ADJUSTING AND BALANCING: A. GENERAL: 1. THE CONTRACTOR SHALL TEST, ADJUST AND BALANCE ALL AIR SIDE SYSTEMS AND EQUIPMENT: SUPPLY/RETURN AIR SYSTEMS, AIR TERMINAL DIFFUSERS AND GRILLES, GENERAL EXHAUST/SUPPLY FANS, AIR HANDLING UNITS, TERMINAL UNITS, ETC. AND ALL HYDROVIC SYSTEMS AND EQUIPMENT; AND HEATING/CHILLED/CONDENSER WATER SYSTEMS, COILS, PUMPS, ETC. B. QUALIFICATIONS OF CONTRACTOR: 1. THE MECHANICAL CONTRACTOR SHALL PROCURE THE SERVICES OF AN INDEPENDENT TESTING AND BALANCING AGENCY (NOT ENGAGED IN ENGINEERING DESIGN AND IS NOT A DIVISION OF A MECHANICAL CONTRACTING ENTITY) SPECIALIZING IN THE TESTING, ADJUSTING AND BALANCING OF ENVIRONMENTAL SYSTEMS TO PERFORM THE ABOVE-MENTIONED WORK. WORK SHALL BE PERFORMED BY QUALIFIED TECHNICIANS, WHO ARE CURRENTLY CERTIFIED BY THE TESTING, ADJUSTING AND BALANCING BUREAU (TAB), THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB), OR THE ASSOCIATED AIR BALANCE COUNCIL (AABC). C. APPROVAL OF CONTRACTOR: 1. THE FOLLOWING FIRMS ARE ACCEPTABLE TO PERFORM THE WORK: COMPLETE MECHANICAL, BALANCING, INC. (303) 948-5429 DENVER TEST AND BALANCE, INC. (303) 888-6538 TAB SERVICES, INC. (303) 649-1213 JPC ENGINEERING, INC. (303) 688-9044 2. ANY TESTING AND BALANCING FIRM OTHER THAN THE ACCEPTABLE FIRMS LISTED ABOVE, DESIRING TO OFFER THEIR SERVICES FOR THIS WORK, SHALL SUBMIT THEIR QUALIFICATIONS TO THE ENGINEER NOT LESS THAN SEVEN (7) WORKING DAYS PRIOR TO THE BID DATE. D. TESTING PROCEDURES: 1. TESTING AND BALANCING SHALL NOT BEGIN UNTIL THE SYSTEM HAS BEEN COMPLETED AND IS IN FULL WORKING ORDER. 2. BEFORE ANY AIR BALANCE WORK IS DONE, CHECK THE SYSTEM FOR DUCT LEAKAGE, ASSURE THAT NEW FILTERS ARE INSTALLED; CHECK FOR CORRECT FAN OPERATION; CHECK EQUIPMENT VIBRATION; AND CHECK AUTOMATIC DAMPERS FOR PROPER OPERATION. ALL VOLUME CONTROL DAMPERS AND OUTLETS SHALL BE WIDE OPEN AT THIS TIME. 3. BEFORE ANY HYDROVIC, DOMESTIC WATER OR APPLICABLE SYSTEM BALANCING WORK IS DONE, THE SYSTEMS SHALL BE CHECKED FOR PLUGGED STRAINERS, PROPER PUMP ROTATION, CONTROL VALVE INSTALLATION AND OPERATION, AIR LOCKS, SYSTEM STATIC PRESSURE, FLOW METER, AND CHECK VALVE INSTALLATION. ALL THROTTLING DEVICES AND CONTROL VALVES SHALL BE OPEN AT THIS TIME. E. GENERAL SYSTEM AND EQUIPMENT PROCEDURES: 1. BALANCE ALL AIR AND WATER FLOWS AT TERMINALS TO WITHIN +10% TO -5% OF DESIGN FLOW QUANTITIES. NOTIFY CONTRACTOR/ENGINEER IN WRITING OF CONDITIONS DETRIMENTAL TO THE PROPER COMPLETION OF THE TEST AND BALANCE WORK. 2. MINIMUM COOLING CFM FOR VAV TERMINALS SHALL BE SET AT 10% OF MAXIMUM DESIGN. 3. RECORD PRIMARY AND AMBIENT AIR, DRY BULB AND WET BULB TEMPERATURES AT THE TIME OF TESTING. 4. CHECK AND CALIBRATE ALL THERMOSTATS AND TEMPERATURE SENSORS. REPORT TO THE GENERAL CONTRACTOR ANY MALFUNCTIONING THERMOSTAT AND SENSORS; AND REPAIR OR REPLACE AS

