Settlement Notices

For all projects with a total dollar value above $150,000 Notice of Final Settlement is required by C.R.S. 38-26-107(1).
Final Settlement, if required, will be advertised via: Electronic Media

Project Description

This project is developed to replace a leak prone eyebrow shaped roof system. Remove and replace roofing membrane and associated components as shown in attached project documents. Install new roofing and underlayment, new fascia, blocking, and miscellaneous components as outlined in project documents. Dispose of all existing materials not being reused. This project is open to an SCPP (Small Construction Purchase Program) General Contractor as the prime contractor. Please extend this invite to roofing contractors to join the project walk.

Scope of Services

The University of Colorado Denver | Anschutz Medical Campus will use the Design/Bid/Build approach to project delivery. A project estimate has been developed by the Architect/Engineer conjunction with the University of Colorado Denver | Anschutz Medical Campus. The SCPP Contractor

Minimum Requirements

Notice is hereby given to all interested parties that all firms will be required to meet all minimum requirements to be considered for this project. To be considered as qualified, interested firms shall have, as a minimum:
1. Provided General Contracting services within the last three (3) years for at least two (2) projects each in excess of $100,000 (hard costs), utilizing the expertise present in their Colorado Office; and

2. Demonstrated specific General Contracting experience in projects of similar scope and complexity; and

3. Demonstrated bonding capability up to $250,000 for an individual project coincidentally with current and anticipated workloads; provide letter from surety that affirms this capacity.


**Firms meeting the minimum requirements may obtain the bidding documents on the website accompanying this advertisement.**

University of Colorado Denver | Anschutz Medical Campus Facilities Projects – [Request for Proposals](http://www.ucdenver.edu/about/departments/FacilitiesManagement/FacilitiesProjects/RFP/Pages/RFP.aspx) website:

Colorado CORE/ColoradoVSS: [https://codpa-vss.cloud.cgifederal.com/webapp/PRDVSS2X1/AltSelfService](https://codpa-vss.cloud.cgifederal.com/webapp/PRDVSS2X1/AltSelfService)

**Other Information**

Preference shall be given to Colorado resident bidders and for Colorado labor, as provided by law.

**Pre-Bid Meeting**

A mandatory Pre-Bid Meeting will be held:

**University of Colorado Anschutz Medical Campus**

Health Sciences Library, West Entrance Lobby

12950 E Montview Blvd, Aurora, CO 80045

Comments: Mandatory Pre-Bid meeting will begin at **10:30 AM** on **Feb 20, 2019**.

**Schedule/Submission Details**

1. The schedule of events for the RFP process and an outline of the schedule for the balance of the project is as follows:

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertisement</td>
<td>2/7/2019</td>
</tr>
<tr>
<td>Mandatory Pre-Bid Conference and Tour</td>
<td>2/20/2019, 10:30 AM</td>
</tr>
<tr>
<td>Date Email Questions Due</td>
<td>2/22/2012, 3:00 PM</td>
</tr>
<tr>
<td>Date Email Answers Issued</td>
<td>2/26/2019</td>
</tr>
<tr>
<td>Sealed/Email Bids Due</td>
<td>3/1/2019, 3:00 PM</td>
</tr>
<tr>
<td>Negotiation of General Contractor Contract</td>
<td>3/15/2019</td>
</tr>
<tr>
<td>Contract Approval (projected)</td>
<td>3/29/2019</td>
</tr>
<tr>
<td>Anticipated Design Start</td>
<td>Completed</td>
</tr>
</tbody>
</table>
2. ONE (1) electronic PDF Bid is due 3/1/2019 and shall be received no later than 3:00 PM (MD/ST), and shall be submitted accepted via email at the following address: ben.bohmann@ucdenver.edu

Agency: University of Colorado Anschutz Medical Campus
Contact Name: Ben Bohmann
Email: ben.bohmann@ucdenver.edu
Address: Campus Services Building
1945 Wheeling Street
3rd Floor Facilities Projects Reception Desk
Aurora, CO 80045

Comments: Late sealed bids will be rejected without consideration. The University of Colorado Denver (GFE) and the State of Colorado assume no responsibility for costs related to the preparation of submittals.

3. The above schedule is tentative. Responding firms shall be notified of revisions in a timely manner by email. Respondents may elect to verify times and dates by email, but no earlier than 36 hours before the schedule date and time.

Point of Contact/Clarification

Name: BEN BOHMANN
Agency: University of Colorado Anschutz Medical Campus (GFE)
Phone: 303.724.3956
Email: ben.bohmann@ucdenver.edu

This Notice is also available on the web at www.colorado.gov/pacific/osa/cdnotices
Media of Publication(s): University of Colorado Denver Facilities Projects Website Colorado CORE/ColoradoVSS
Publication Dates: 2/6/2019
UNIVERSITY OF COLORADO DENVER

Library 3rd Floor Roof

PN 19-117024

STATE OF COLORADO
STATE BUILDINGS AND REAL ESTATE PROGRAMS

100% Construction Documents Specifications
December 14, 2018

Architect: Architectural Workshop, LLC.
280 South Pennsylvania Street
Denver, CO  80209
Ph: 303.788.1717
## SECTION 00 01 00 – TABLE OF CONTENTS

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<td>01 77 00</td>
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<td>CLOSEOUT PROCEDURES - APPENDIX A: SUPPLEMENTAL NOTICE OF OCCUPANCY AND USE LIST</td>
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<td>01 77 00B</td>
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<td><strong>DIVISION 03 - CONCRETE – N/A</strong></td>
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<td><strong>DIVISION 05 – METALS- N/A</strong></td>
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<td><strong>DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES</strong></td>
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<td>MISCELLANEOUS ROUGH CARPENTRY</td>
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DIVISION 10 - SPECIALTIES – N/A
DIVISION 11 - EQUIPMENT – N/A
DIVISION 12 - FURNISHINGS – N/A
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DIVISION 14 - CONVEYING EQUIPMENT – N/A
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DIVISION 26 - ELECTRICAL – N/A
DIVISION 27 – COMMUNICATIONS – N/A
DIVISION 28 - ELECTRONIC SAFETY AND SECURITY – N/A

END OF SECTION
SECTION 00 41 53 – BID FORM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. 00 43 13 - Bid Bond (SPB-6.14)

1.2 SUMMARY

1.3 DEFINITIONS

1.4 BID FORM
   B. A copy of the above noted form is attached to the end of this section.
   C. Addition State and University of Colorado forms to be attached to the submitted bid are listed in the Articles below.

1.5 PROCEDURES
   A. The durations for Bidder’s Time of Completion shall match the project advertisement duration.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 00 41 53
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

BID

Institution/Agency: University of Colorado Anschutz Medical Campus
Project No./Name: 19-117024 / Library Redesign 3rd Floor Terrace Roof

Bidder Acknowledges Receipt of Addenda Numbers:
Bidder Anticipates Services outside the United States or Colorado:
Bidder will comply with 80% Colorado Labor on project above $500,000:
Bidder is a Service-Disabled Veteran Owned Small Business:

No ☐ Yes ☐ If Yes see 3A below
Yes ☐ No ☐ If No see 3B below
No ☐ Yes ☐ If Yes see 3C below

Base Bid

(Refer to Bid Alternate Form SC-6.13.1 Attached, If Applicable)

Bidder’s Time of Completion

a. Time Period from Notice to Proceed to Substantial Completion:

b. Time Period from Substantial Completion to Final Acceptance:

c. Total Time of Completion of Entire Project (a + b):

1. BID: Pursuant to the advertisement by the State of Colorado dated the undersigned bidder hereby proposes to furnish all the labor and materials and to perform all the work required for the complete and prompt execution of everything described or shown in or reasonably implied from the Bidding Documents, including the Drawings and Specifications, for the work and for the base bid indicated above. Bidders should include all taxes that are applicable.

2. EXAMINATION OF DOCUMENTS AND SITE: The bidder has carefully examined the Bidding Documents, including the Drawings and Specifications, and has examined the site of the Work, so as to make certain of the conditions at the site and to gain a clear understanding of the work to be done.

3. PARTIES INTERESTED IN BID: The bidder hereby certifies that the only persons or parties interested in this Bid are those named herein, and that no other bidder or prospective bidder has given any information concerning this Bid.

A. If the bidder anticipates services under the contract or any subcontracts will be performed outside the United States or Colorado, the bidder shall provide in a written statement which must include, but need not be limited to the type of services that will be performed at a location outside the United States or Colorado and the reason why it is necessary or advantageous to go outside the United States or Colorado to perform such services. (Does not apply to any project that receives federal moneys)

B. For State Public Works projects per C.R.S. 8-17-101, Colorado labor shall be employed to perform at least 80% of the work. Colorado Labor means any person who is a resident of the state of Colorado at the time of the Public Works project. Bidders indicating that their bid proposal will not comply with the 80% Colorado Labor requirement are required to submit written justification along with the bid submission. (Does not apply to any project that receives federal moneys–)

C. A Service-Disabled Veteran Owned Small Business (SDVOSB) per C.R.S. 24-103-211, means a business that is incorporated or organized in Colorado or maintains a place of business or has an office in Colorado and is officially registered and verified by the Center for Veteran Enterprise within the U.S. Department of Veteran Affairs. Attach proof of certification along with the bid submission.

4. BID GUARANTEE: This Bid is accompanied by the required Bid Guarantee. You are authorized to hold said Bid Guarantee for a period of not more than thirty (30) days after the opening of the Bids for the work above indicated, unless the undersigned bidder is awarded the Contract, within said period, in which event the Director, State Buildings Programs, may retain said Bid Guarantee, until the undersigned bidder has executed the required Agreement and furnished the required Performance Bond, Labor and Material Payment Bond, Insurance Policy and Certificates of Insurance and Affidavit Regarding Unauthorized Immigrants.

5. TIME OF COMPLETION: The bidder agrees to achieve Substantial Completion of the Project from the date of the Notice to Proceed within the number of calendar days entered above, and in addition, further agrees that
between Substantial Completion and Final Acceptance of the Project will not exceed the number of calendar days noted above. If awarded the Work, the bidder agrees to begin performance within ten (10) days from the date of the Notice to Proceed subject to Article 46, Time of Completion and Liquidated Damages of The General Conditions of the Contract, and agrees to prosecute the Work with due diligence to completion. The bidder represents that Article 7D of the Contractor’s Agreement (SC-6.21) has been reviewed to determine the type and amount of any liquidated damages that may be specified for this contract.

6. EXECUTION OF DOCUMENTS: The bidder understands that if this Bid is accepted, bidder must execute the required Agreement and furnish the required Performance Bond, Labor and Material Payment Bond, Insurance Policy and Certificates of Insurance and Affidavit Regarding Unauthorized Immigrants within ten (10) days from the date of the Notice of Award, and that the bidder will be required to sign to acknowledge and accept the Contract Documents, including the Drawings and Specifications.

7. ALTERNATES: Refer to the Information for Bidders (SC-6.12) for Method of Award for Alternates and use State Form SBP-6.13.1 Bid Alternates form to be submitted with this bid form if alternates are requested by the institution/agency in the solicitation documents.

8. Submit wage rates (direct labor costs) for prime contractor and subcontractor as requested by the institution/agency in the solicitation documents.

9. The right is reserved to waive informalities and to reject any and all Bids.

SIGNATURES: If the Bid is being submitted by a Corporation, the Bid shall be signed by an officer, i.e., President or Vice-President. If a sole proprietorship or a partnership is submitting the Bid, the Bid shall so indicate and be properly signed.

Dated this ______ Day of ________________, 20____

THE BIDDER:

Company Name

Phone number:

Name (Print) and Title

Address (including city, state and zip)

Signature
SECTION 00 51 00 – NOTICE OF AWARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1.2 SUMMARY

1.3 DEFINITIONS

1.4 NOTICE OF AWARD
   A. FORM: State of Colorado form “Notice of Award” (SBP-6.15) for Design/Bid/Build Agreements.

1.5 PROCEDURE

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 00 51 00
NOTICE OF AWARD
(Design/Bid/Build and Design/Build Lump Sum Agreements)

TO:

The State of Colorado, represented by the undersigned, has considered the Proposals submitted for the above described work.

Your Proposal, deemed to be in the best interest of the State of Colorado, in the amount of ________ DOLLARS AND NO/100* ($____ *) is hereby accepted, pending final execution of the Agreement.

You are required to execute the approved Agreement and to furnish the Performance Bond, Labor and Material Payment Bond, Insurance Policy and Certificates of Insurance, Certification and Affidavit Regarding Unauthorized Immigrants and Labor Overhead (Direct Labor Burdens) for Work performed by Contractor and major Subcontractors within ten (10) days from the date of this Notice.

If you fail to execute said Agreement and to furnish said Performance Bond, Labor and Material Payment Bond, Insurance Policy, Certificates of Insurance, Certification and Affidavit Regarding Unauthorized Immigrants, and Labor Overhead (Direct Labor Burdens) as described above within ten (10) days from the date of this Notice, the State Controller is entitled to retain the amount of the Proposal Guaranty submitted with your Proposal as Liquidated Damages. In this event, the right is reserved to consider all of your rights arising out of the acceptance of your Proposal as abandoned and to award the work covered by your Proposal to another, or to re-advertise the Project, or otherwise dispose thereof.

By ________________________________________    By ________________________________________
State Buildings Programs                  Principal Representative
(or Authorized Delegate)                  (Agency/Institution)

Date                  Date

When completely executed, this form is to be sent by certified mail to the Contractor by the Principal Representative or delivered by any other means to which the parties agree.
SECTION 00 55 00 – NOTICE TO PROCEED

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1.2 SUMMARY

1.3 DEFINITIONS

1.4 NOTICE TO PROCEED


1.5 PROCEDURE

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 00 55 00
# NOTICE TO PROCEED (DESIGN/BID/BUILD CONTRACT)

<table>
<thead>
<tr>
<th>Date of Notice:</th>
<th>Date to be inserted by the Principal Representative</th>
</tr>
</thead>
</table>

| Date/Description of Contract Documents: | Institution/Agency: University of Colorado Denver | Anschutz Medical Campus |
|----------------------------------------|-----------------------------------------------|
|                                       | Project No./Name: 19-117024 / Library Redesign 3rd Floor Terrace Roof |

| Attach Notice of Code Compliance from Code Review Agent/Building Official for Documents Listed Above |

**To:**

This is to advise you that your Performance Bond, Labor and Material Payment Bond, Insurance Policy and Certificates of Insurance, and Affidavit Regarding Unauthorized Immigrants have been received. Our issuance of this Notice does not relieve you of responsibility to assure that the bond and insurance requirements of the Contract Documents are met for the duration of the Agreement. The Agreement dated _____ covering the above described work has been fully executed.

You are hereby authorized and directed to proceed within ten (10) days from date of this Notice as required in the Agreement. Any liquidated damages for failure to achieve Substantial Completion by the date agreed that may be applicable to this Contract will be calculated using the date of this Notice for the date of the commencement of the Work.

**The completion date of the Project is _____________ (M/D/YYYY).**

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<thead>
<tr>
<th>By</th>
<th>Date</th>
<th>By</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Buildings Program (or Authorized Delegate)</td>
<td></td>
<td>Principal Representative (Institution or Agency)</td>
<td></td>
</tr>
</tbody>
</table>

When completely executed, this form is to be sent by certified mail to the Contractor by the Principal Representative; or delivered by any other means to which the parties agree.
SECTION 00 73 80 – SALES TAX

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1.2 SUMMARY

A. This Section includes administrative documents related to sales tax exemption for construction material purchases.

1.3 DEFINITIONS (Not Applicable)

1.4 DOCUMENTS

A. Tax Exempt Status of University of Colorado, dated November 4, 2009
B. City of Aurora Sales and Use Tax Exemption, dated March 12, 2001
C. City of County of Denver Tax Confirming Exemption Status, dated November 5, 1999
D. State of Colorado Letter Confirming Adams County, RTD, Stadium, and Cultural Tax Exemptions, dated April 7, 2006
E. Colorado Department of Revenue - Contractor Application for Exemption Certification

1.5 PROCEDURE

A. General Contractor must apply for a sales tax exemption certificate through the Colorado Department of Revenue using the “Contractor Application For Exemption Certificate.”
1. Form can be downloaded from the Colorado Department of Revenue website: https://www.colorado.gov/pacific/sites/default/files/DR0172.pdf
2. PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 00 73 80
CERTIFICATE OF EXEMPTION FOR STATE SALES/USE TAX ONLY

<table>
<thead>
<tr>
<th>USE ACCOUNT NUMBER</th>
<th>LIABILITY INFORMATION</th>
<th>ISSUE DATE</th>
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</thead>
<tbody>
<tr>
<td>09802565</td>
<td>G 010180</td>
<td>Aug 25 2017</td>
</tr>
</tbody>
</table>

STATE OF COLORADO/ OFFICE OF STATE CONTROLLER
ATTN: OFFICE OF UNIVERSITY CONTROLLER
1800 N GRANT ST STE 600
DENVER CO 80203-1148

Executive Director
Department of Revenue
Sales Tax Exemption Certificate
Multi - Jurisdiction

See page 2 for instructions

<table>
<thead>
<tr>
<th>Last Name or Business Name</th>
<th>First Name</th>
<th>Middle Initial</th>
</tr>
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<tbody>
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<table>
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</tbody>
</table>

I Certify That

Name of Firm (Buyer)
The Regents of University of Colorado

Address
1800 Grant Street, Suite 600

City
Denver

State
CO

ZIP
80203

Qualifies As (Check each applicable item)

- [ ] Wholesaler
- [ ] Retailer
- [ ] Manufacturer
- [ ] Charitable or Religious
- [x] Political Subdivision or Governmental Agency
- [ ] Other (Specify)

If Other, specify here

1) and is registered with the below listed states and cities within which your firm would deliver purchases to us which are for resale or lease by us in the normal course of our business which is Institution of Higher Education or

2) that such purchases are exempt from payment of sales or use tax in such states and cities because our buyer is:

- [x] Political Subdivision or Governmental Agency
- [ ] Charitable or Religious
- [ ] Otherwise Exempt By Statute (Specify)

If Otherwise Exempt By Statute, specify here

<table>
<thead>
<tr>
<th>City or State</th>
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<th>City or State</th>
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<td>City of State</td>
<td>State Registration or ID Number</td>
<td>City or State</td>
<td>State Registration or ID Number</td>
</tr>
</tbody>
</table>

If the list of states and cities is more than six (6), attach a list to this certificate.
I further certify that if any property so purchased tax free is used or consumed by the firm as to make it subject to a Sale or Use Tax we will pay the tax due direct to proper taxing authority when state law so provides or inform the seller for added tax billing. This certificate shall be part of each order which we may hereafter give to you, unless otherwise specified, and shall be called until canceled by us in writing or revoked by the city or state.

General Description of products to be purchased from seller

Under penalties of perjury, I swear or affirm that the information on this form is true and correct as to every material matter.

Authorized Signature (owner, partner or Corporate Officer) | Title | Date (MM/DD/YYYY)
---------------------------------------------------------|-------|-------------------
[Signature]                                                | Associate Vice President/University Controller | 7/4/18  |
March 12, 2001

Wayne F. Henderson
Vice Chancellor for Administration and Finance
University of Colorado Health Sciences Center
Fitzsimons, Building 500, Room C1003
P.O. Box 6508
Aurora, Colorado 80045-0508

RE: Letter of Commitment

Dear Mr. Henderson:

I am in receipt of your letter dated February 27, 2001, requesting that I issue a letter of commitment to the University of Colorado Health Sciences Center ("UCHSC") pursuant to City Code Section 130-63(c). It is my understanding that UCHSC is part and parcel of the University of Colorado, a public institution of higher education of the State of Colorado. § 23-20-101, et seq., C.R.S. You have asked for some assurance that UCHSC is exempt from the payment of City sales and use tax, as well as the employer portion of the City occupational privilege tax.

City Code Section 130-157(1) exempts all sales of tangible personal property and taxable services to the various political subdivisions of this state from imposition of City sales tax. Identical exemptions exist in both the City Use Tax ordinance (City Code § 130-198(5)) and the City Employer Occupational Privilege Tax ordinance (City Code § 130-405(1)). Accordingly, UCHSC falls squarely within each of these three exemptions.

It should be noted, however, that these exemptions do not extend to the collection of City tax. For instance, UCHSC must collect, report, and remit City sales tax on any retail sale of tangible personal property or taxable services it makes to a non-exempt third party. City Code § 130-160. Likewise, UCHSC
must also collect, report, and remit the employee portion of the City occupational privilege tax for each person it employs within the City for any period of time within a calendar month sufficient to receive no less than $250.00 as compensation for such employment. *City Code § 130-464.*

With respect to the deposit and ultimate payment of City use tax on construction materials, it is the longstanding policy of the City that the party who contracts for and directs and controls the construction of building improvements is liable for such tax. *See Fifteenth Street Investment Co. v. People*, 102 Colo. 571, 81 P.2d 764 (1938). Under the circumstances described in your request, it is UCHSC, and not its contractors, upon whom sole liability for the payment of City use tax would rest. Because UCHSC is an exempt entity, no use tax is due and owing on the purchase and subsequent use of construction materials for the development of UCHSC’s property at the Fitzsimons site.

With regard to your additional requests, the City has no objection if UCHSC’s contractors wish to use this letter to present to City building officials and third-party retailers as evidence of UCHSC’s tax exemption. As for any future revocation of this letter, unless the status of UCHSC as a political subdivision changes, the various City tax exemptions which UCHSC is entitled to claim cannot be lawfully repealed without the prior approval of the City’s voters. *See Colo. Const. Art. X, § 20(4)(a).* Therefore, the City believes UCHSC will be adequately informed in the event that the City decides to seek approval for any change in its tax laws that would impact UCHSC’s tax-exempt status.

Very truly yours,

【签名】

John Gross
Director of Finance
February 19, 2014

University of Colorado
Procurement Service Center
1800 Grant Street, Suite 500
Denver, CO 80203

Ladies/Gentlemen:

The above named entity is exempt from the Denver sales tax per Sec. 53-26(1) of the City Retail Sales Tax
Article:

Sec. 53-26 (1) Exemptions

There shall be exempt from taxation under the provisions of this Article the following: (1) All sales to the
United States Government, to the State, its departments and institutions and the political subdivisions thereof,
only when purchased in their governmental capacities.

To qualify for the exemption, purchases must be billed direct to the organization, and payment made from funds
of the organization.

The exemption does not extend to construction contractors who may perform contracts for you; they are the
consumer of all property purchased and used in the performance or contracts for others. Nor does the
exemption apply to purchases by employees or members for their own personal use.

You may reproduce this letter to furnish to suppliers as needed.

Sincerely,

[Signature]

Donald Korte, Audit Manager
Tax Compliance/Audit Section
720-913-9339
April 7, 2006

Dear Mr. Barden:

This is in response to your letter of March 1, 2006, to Bruce Nelson of the Department of Revenue regarding sales tax exemption from county and special district sales taxes for UCDHSC construction projects at the Fitzsimons campus. Mr. Nelson has left the Department, so I am responding to your inquiry.

In regards to Adams County sales and use tax, the sales tax is collected by the Department of Revenue, not the city of Aurora. Use tax on building materials is collected by the county when issuing building permits. Under 29-2-105(d), 39-26-708(1)(a) and 39-26-708(2)(a), C.R.S., UCDHSC and its contractors and sub-contractors are exempt from county sales and use tax on construction and building materials for State/UCDHSC owned real property.

In regards to special district sales and use taxes, UCDHSC and its contractors and subcontractors are exempt from sales and use tax pursuant to the exemptions granted in 39-26-708(1)(a) and 39-26-708(2)(a), C.R.S., for the Regional Transportation District under 32-9-119(2)(c)(II), C.R.S., for the Scientific and Cultural District under 32-13-107(2), C.R.S, and for the Metropolitan Football Stadium District under 32-15-110(2)(a), C.R.S.

Additionally, for construction projects in the City and County of Denver, UCDHSC and its contractors and sub-contractors are exempt from the aforementioned special district sales and use taxes, as well as state sales and use tax.

Should you have additional questions regarding these matters, feel free to contact me.

Respectfully,

Steve Asbell
Taxpayer Service Policy Group
Colorado Dept of Revenue
Ph:303.866.3889  email: sasbell@spike.dor.state.co.us
Special Notice

Purpose of this application
The exemption certificate for which you are applying must be used only for the purpose of purchasing construction and building materials for the exempt project described below. This exemption does not include or apply to the purchase or rental of equipment, supplies, and materials which are purchased, rented, or consumed by the contractor and which do not become a part of the structure, highway, road, street, or other public works owned and used by the exempt organization.

Any unauthorized use of the exemption certificate will result in revocation of your exemption certificate and other penalties provided by law.

A separate certificate is required for each project.

Colorado Withholding Account Number
A Colorado Account Number (CAN) should be provided in this field. Applications that are left blank or list N/A will not be processed and will be returned.

Subsidiary:
This box is marked when a subsidiary is using the parents withholding account number (only when it does not have its own.) Provide the parents CAN.

Subcontractor:
This box is marked when a contractor does not have employees of their own and outsources their employees through a subcontractor. List the subcontractor or subcontractors name and CAN(s).

Staffing Agency:
This box is marked when a contractor does not have employees of their own and outsources their employees through a staffing agency. Provide the Staffing Agency’s name and CAN.

No employees/no subcontractors:
For contractors with no employees, no subcontractors/staffing agencies:
Write no employees in the (CAN) box and provide explanation. For example, I have no employees or subcontractors and perform all of the work myself.

Subcontractors:
Subcontractors will not be issued Certificates of Exemption by the Department of Revenue. Upon receipt of the Certificate, the prime contractor should make a copy for each subcontractor involved in the project and complete it by filling in the subcontractor’s name and address and signing it. The original Certificate should always be retained by the prime contractor. Copies of all Certificates that the prime contractor issued to subcontractors should be kept at the prime contractor’s place of business for a minimum of three years and be available for inspection in the event of an audit.

See FYI Sales 95 for information about qualifying affordable housing projects.

To avoid a returned application ensure you have done the following:
- [ ] Accurately completed all applicable boxes of the form.
- [ ] Provided a copy of the Contract or agreement page.
  The Contract or Agreement page lists the type and scope of work.
- [ ] Bid amount on Contract or Agreement page matches the amount listed on the application (to the penny).
- [ ] Contract or Agreement page contains the signatures of the contracting parties.
- [ ] The form DR0172 (application) is signed.
- [ ] The exempt organizations number was provided and is correct.
Contractor Application for Exemption Certificate

This exemption does not include or apply to the purchase or rental of equipment, supplies, and materials which are purchased, rented, or consumed by the contractor and which do not become a part of the structure, highway, road, street, or other public works owned and used by the exempt organization. Any unauthorized use of the exemption certificate will result in revocation of your exemption certificate and other penalties provided by law. A separate certificate is required for each contract.

Send completed forms to: Colorado Department of Revenue, Denver, CO 80261-0009
Failure to accurately complete all boxes of the form or provide all supporting documentation will cause the application to be denied.

<table>
<thead>
<tr>
<th>Contractor/Account No.</th>
<th>Period (MM/YY/MMYY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>89-</td>
<td></td>
</tr>
</tbody>
</table>

For Department Use Only. Do not write in this section.

Must be completed by applicant

**Contractor Information**

Trade name/DBA

<table>
<thead>
<tr>
<th>Owner, partner or corporate last name</th>
<th>First Name</th>
<th>Middle Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mailing Address</td>
<td>City</td>
<td>State    Zip</td>
</tr>
</tbody>
</table>

**E-Mail Address:** FEIN

Bid amount for your contract (Must match to the penny) $

Fax number

Business Phone number

Colorado withholding tax account number

Subsidiary

Subcontractors

Staffing Agency

No employees/subcontractors (see below)

No Employees/Subcontractors. (Provide explanation or attach a letter of explanation).

**Exemption Information**

Copies of contract or agreement page, identifying the contracting parties, bid amount, type of work, and signatures of contracting parties must be attached

<table>
<thead>
<tr>
<th>Name of exempt organization (as show on contract)</th>
<th>Exempt organization's number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address of exempt organization</td>
<td>City</td>
</tr>
<tr>
<td>Principal contact at exempt organization-Last Name</td>
<td>First Name</td>
</tr>
</tbody>
</table>

Housing Authority (if applicable)

Name of Project (if applicable)

Owner of the Project (if applicable)

Physical location of project site (give actual address when applicable and Cities and/or County [ies] where project is located)

City

State Zip

Principal contact's telephone number

Scheduled construction start date (MM/DD/YYYY)

Estimated completion date (MM/DD/YYYY)

I declare under penalty of perjury in the second degree that the statements made in this application are true and complete to the best of my knowledge.

Signature of the business owner, partner or corporate officer

Title of corporate officer

Date (MM/DD/YYYY)
SECTION 01 10 00

SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work by University.
4. Work under separate contracts.
5. University-furnished and installed products.
7. Access to site.
8. Coordination with occupants.
10. Specification and drawing conventions.

B. Related Requirements:

1. Section 01 35 46 "Indoor Air Quality Procedures" for requirements and procedures related to maintaining air quality in adjacent occupied spaces and buildings.
2. Section 01 50 00 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of University's facilities and for the provision of temporary construction barriers and dust partitions.

1.3 PROJECT INFORMATION

A. Project Identification: Library 3rd floor roof, Owners Project # 19-117024.

1. Project Location: 12950 E. Montview Blvd, Aurora, CO

B. Principal Representation: University of Colorado Denver.

1. University's Representative: Ben Bohmann Ph: 303-724-3956


D. Architect/Engineer's Consultants: N/A
1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and, in summary, briefly consists of the following:
   1. The University of Colorado Denver (UC Denver) will be re-roofing the lightwell dog house roof on the 3rd floor exterior patio. The area of construction is approx. 110 square feet.

1.5 WORK BY UNIVERSITY

A. General: Cooperate fully with University so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by University. Coordinate the Work of this Contract with work performed by University.

1.6 WORK UNDER SEPARATE CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

1.7 UNIVERSITY-FURNISHED AND INSTALLED PRODUCTS

A. University will not furnish certain items or equipment/furnishings on this project.

1.8 UNIVERSITY-FURNISHED, CONTRACTOR-INSTALLLED PRODUCTS

A. N/A

1.9 ACCESS TO SITE

A. General: Contractor shall have limited and restricted use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
   1. Adjust means and methods of construction based on site limits and restrictions.
   2. Locate staging areas only where permitted by University.

C. Construction Access and Travel:
   1. Use only those entrances, exits, and travel ways on campus roads and within the building designated by University. Contractor's personnel are not permitted in non-designated areas of University's existing facilities. Use only designated travel ways for transporting demolition materials, new construction materials, tools and equipment.
   2. Use of other than designated travel ways on campus roads and within existing buildings requires a minimum of 20 business days prior approval by University.
      a. Request variations to traffic flow including temporary fire lane, parking lot, sidewalk and road closures, regulatory signage, and traffic control devices in accordance with University “Procedure for Approval of Regulatory Signage, Traffic Control Devices and for Street...
Closures at the Anschutz Medical Campus” and “AMC Campus Street and Parking Lot Closure Request” available through University Project Manager.

3. Access to the site will be as permitted by the University. Prearrange delivery and use of cranes, heavy trucks and other heavy equipment at least 72 hours prior to need through the University’s Project Manager and University Police.

4. Maintain access to fire lanes and campus operations at all times. Provide flag personnel during the ingress or egress of large equipment.
   a. When fire lanes and/or access way must be temporarily disrupted notify University Police and University Parking and Transportation at least 20 business days in advance and reconfirm 72 hours in advance through the University’s Project Manager.

5. Arrange for and obtain all necessary permits from City of Aurora for any disruption to or temporary closures of public city streets. Coordinate procurement of permits with Anschutz Medical Campus Liaison and University Project Manager.

D. Construction Parking:

1. General: Contractor must pay for all parking and, if available, may be assigned parking spaces in designated contractor parking lots. Parking in lots designated for visitors and patients is not permitted. Make arrangements for designated spaces and payment for long term parking with University Parking Services through the University Project Manager.

2. Provide temporary parking or use designated areas of University’s existing parking areas as applicable to the Project and in accordance with the following:
   a. All parking on University property, including parking on University owned streets, is under the exclusive control and authority of University Parking and Transportation Services. Direct policy question to the department at (303) 724-2555.
   b. There is no free parking on campus. Displacement or use of existing parking spaces by Contractor, either for parking or for staging, is a Contractor cost.
   c. Use of existing parking spaces or other areas outside of Contractor’s staging area must be approved in advance by University Parking and Transportation Services.
   d. University Parking and Transportation Services may require and issue parking permits through the University Project Manager. Permits must be displayed and visible at all times while parked on the campus. Failure to display a permit will result in citations being written and possible removal of the vehicle from University property.
   e. Keep all designated parking areas clean and free of litter and debris. University reserves the right to direct Contractor to clean areas not kept clean and orderly.
   f. University Parking and Transportation Services may change parking assignments as deemed necessary, restrict the use of any space(s) or lot(s) at any time, and determine the hours of control and mode of operations for any parking area at any time. University Parking and Transportation Services may deny or revoke parking privileges to any person when deemed necessary and/or considered to be in the best interests of the University.

3. Parking on University property is at the Contractor’s own risk. The University and any entity affiliated with it are not responsible for fire, theft, and damage to or loss of contractor’s or subcontractor’s vehicle or any article left therein. Only a license is granted to the user and no bailment is created.

E. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.
1.10 COORDINATION WITH OCCUPANTS

A. University may occupy site and both existing and adjacent building(s) during entire construction period. Cooperate with University during construction and sequence operations to minimize conflicts and facilitate University usage. Perform the Work so as not to interfere with University's day-to-day operations.

1. Maintain existing exits from existing and adjacent building, unless otherwise indicated.
2. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from University and approval of authorities having jurisdiction.
3. Limit construction operations to those methods and procedures which will not adversely and unduly affect the working environment of University's occupied spaces, including noise, dust, odors, air pollution, ambient discomfort, poor lighting, hazards and other undesirable effects and conditions.
4. Coordinate with University Project Manager to schedule jack hammering or activities producing dusty conditions, excessive fumes or odors during off-hours.
5. When work must be accomplished in areas containing existing furniture, upon a minimum of 3 business days notification of the University Project Manager, University will remove or relocate existing furniture.
6. Provide not less than 72 hours' notice to University Project Manager of activities that will affect University's operations. University Project Manager will coordinate with campus tenants.
   a. Refer to “Work Restrictions” Article of this Section for procedures and notification requirements related to utility interruptions.
7. Provide temporary barriers and partitions, or other means as required to protect occupants of existing building and the general public from injury due to construction activities. Prevent the spread of dust and dirt to adjacent occupied areas and building.

1.11 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
2. In planning and executing the Work, take into consideration the special needs of University patient care, teaching and research settings, for example, supply of critical utilities, noise and dust control, access to existing loading docks, occupied buildings, etc.

B. Normal Working Hours: Limit work to normal working hours of 7:00 a.m. to 6:00 p.m., Monday through Friday.

1. Notify University Project Manager of all proposed work outside of normal working hours. Include dates, times, names and contact information for contractors and subcontractor performing the Work with notification. University Project Manager will notify, as appropriate, other University personnel and departments including, but not limited to, Building Maintenance and Operations (BMO) Directors, BMO assigned representative, Campus Police and Facilities Management.

C. Noise and Vibration: Coordinate operations that may result in high levels of noise and vibration, or other disruption to University occupancy with University.
1. Noise during Normal Working Hours: Identify potentially disruptive construction activities at weekly Progress Meeting and adjust active time of day to reduce significant impacts on occupants.

2. Noise outside Normal Working Hours: Schedule construction work or demolition work outside of normal working hours with University Project Manager at minimum of 72 hours in advance.
   a. The maximum permissible noise level is 75 decibels (dBA), measured at the adjacent property line.

D. Contractor Identification:

1. Supervisory staff for the primary contractor must obtain an identification badge at the University Anschutz Medical Center (AMC) Building 500. Submit the University Access Control Badge Application form through University Project Manager. Submitted forms shall be complete with all required information including a letter on company letterhead confirming employee status with company and stating whether the company completes background testing and/or drug screening. Contractor supervision must display badge on site during construction activities.

2. To the greatest extent possible, Contractor’s and subcontractor’s employees must wear a recognizable logo shirt or hardhat identifying them as members of the contractor’s work force.

E. Use of Existing Elevators: Use “freight” elevators only and protect finishes during transport. Restrict use exclusively to time required to move construction materials.

1. Do not block corridors, aisles, passageways or doors leading to elevator except as, and only to the extent approved by University Project Manager.

F. Keys: Submit written request to University Project Manager on University Key Request Form.

1. To the extent the need for keys is demonstrated and required to complete the Work, University Project Manager will issue keys to Contractor.

2. Contractor is responsible for all costs related to lost or non-returned keys.

3. Electrical, mechanical and sensitive research space may require University escort in lieu of issuing keys.

G. Dock Deliveries: Restrict use exclusively to time required to unload and move construction materials.

H. Existing Utility Interruptions: Do not interrupt water, sewer, plumbing, gas, steam, chilled water, oxygen, HVAC, electrical power, lighting, telephone and other related utilities serving facilities occupied by University without prior notice to and approval by the University. Coordinate and schedule interruptions in advance through the University Project Manager in strict conformance with University Utility Interruption/Outage Request Procedure.

1. Form of Notice: University Utility Interruption and Start-up Request form.

2. Time of Notice: Notice for major and minor outages as defined by the Utility Interruption/Outage Request Procedure is 8 business days for minor outages and 31 business days for major outages.

I. Fire Alarm and Fire Sprinkler Interruptions: When construction activities require interruption of fire alarm or fire sprinkler service, or when dust from construction activities is likely to cause accidental alarm, advise University Project Manager who will submit an interruption request.

1. Form of Notice: University Fire Alarm/Sprinkler Disable Request Form.

2. Time of Notice: Prior to noon on the day before the anticipated interruption.

J. Nonsmoking Campus: Smoking, chewing tobacco, and other related tobacco product use is not permitted at any location on campus or on any adjacent property.
K. University Policies Applying to All Contractors: Comply with University policies applying to contractors including drug policy, sexual harassment policy and tobacco free policy. Obtain copies of University policies from University Project Manager.

1. Controlled Substances: Use of tobacco products and other controlled substances on Project site and surrounding Campus is not permitted.

L. Designated Eating Areas: Restrict consumption of food on project site to designated eating areas as approved by University Project Manager.

1.12 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
3. Words in the singular number include the plural and those in the plural include the singular.
4. Words of any gender include any other gender.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
3. Keynoting: Materials and products may be identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if University decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.
3. Selection of alternates described in this Section may be deferred for possible selection at a subsequent date if so indicated in the Agreement.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

1. Alternate descriptions are recognized as abbreviated and incomplete. Correlate the descriptions with applicable Specification Sections and Drawings for the provision of complete and coordinated work.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Add Alternate No.
   1. N/A

END OF SECTION 01 23 00
SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 01 60 00 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

2. Substitutions for Convenience: Changes proposed by Contractor or College that are not required in order to meet other Project requirements but may offer advantage to Contractor or College.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit each request for consideration in format and quantities specified in Section 01 33 00 “Submittal Procedures”. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use CSI Form 13.1A or Contractor-generated form with substantially the same information.

2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

   a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
   b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by College and separate contractors that will be necessary to accommodate proposed substitution.
   c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant
qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.

e. Samples, where applicable or requested.

f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.

h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.

i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.

j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

k. Cost information, including a proposal of change, if any, in the Contract Sum.

l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.

m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect/Engineer's Action: If necessary, Architect/Engineer in consultation with the College will request additional information or documentation for evaluation within seven calendar days of receipt of a request for substitution. Architect/Engineer in consultation with the College will notify Contractor of acceptance or rejection of proposed substitution within 14 calendar days of receipt of request, or seven calendar days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order.

b. Use product specified if Architect/Engineer does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.
PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 14 calendar days prior to time required for preparation and review of related submittals.

1. Conditions: Architect/Engineer in consultation with the College will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect/Engineer will return requests without action, except to record noncompliance with these requirements:
   a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
   b. Requested substitution provides sustainable design characteristics that specified product provided.
   c. Substitution request is fully documented and properly submitted.
   d. Requested substitution will not adversely affect Contractor's construction schedule.
   e. Requested substitution has received necessary approvals of authorities having jurisdiction.
   f. Requested substitution is compatible with other portions of the Work.
   g. Requested substitution has been coordinated with other portions of the Work.
   h. Requested substitution provides specified warranty.
   i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00
SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 01 25 00 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

2. Contractor’s Agreement Design/Bid/Build, State Form SC-6.21 and The General Conditions of the Construction Contract Design/Bid/Build, State Form SC-6.23 for definitions and contractual requirements related to contract modification procedures.

1.3 DEFINITIONS

A. Change Order: A written order in compliance with the requirements of the Contract authorizing changes in the Work. For the purposes of this Section a Change Order and a Contract Amendment shall have the same meaning.

1.4 INFORMATIONAL SUBMITTALS

A. Contractor’s Authorized Signatory: Submit name of individual authorized to accept changes and responsible for informing others employed by Contractor of changes in the Work.

1.5 MINOR CHANGES IN THE WORK

A. Architect/Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.6 CHANGE ORDER BULLETIN

A. University-Initiated Change Order Bulletin: Architect/Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications. It will also state the time period for which the request will remain valid.
2. Work Change Order Bulletins issued by Architect/Engineer are not instructions either to stop work in progress or to execute the proposed change.

B. Contractor-Initiated Change Order Bulletin: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect/Engineer.

2. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

1.7 CHANGE ORDER PROPOSAL

A. Change Order Proposal: In response to a University-Initiated Change Order Bulletin or accompanying a Contractor-Initiated Change Order Bulletin, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change described.

2. Labor Rates: Prior to submitting first Change Order Proposal, submit bare, unburdened hourly labor rates for all contractor and subcontractor labor categories; submit itemized breakdown of all applicable additional labor benefit costs to be added to the bare labor cost to arrive at the total burdened hourly labor cost.
3. Equipment Costs: Provide cost backup for all equipment clearly indicating equipment billing rates and sufficient to demonstrate, as determined by the University Project Manager, that proposed rates are competitive and reasonable in all cases. Submit completed Change Order Proposal Form within the requested timeframe. Include backup documentation to support calculations consistent with Contract provisions, including but not limited to, the following:
   a. Contractor and Subcontractor labor, material and equipment costs including:
      1) A list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
      2) Applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
      3) Costs of labor and supervision directly attributable to the change and as permitted by the terms and conditions of the General Contract for Construction.
   b. Contractor and Subcontractor overhead and profit.
   c. Contractor’s bond cost.
   d. Justification for Change in Contract Time: An updated Contractor’s construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
4. Maintain detailed records of work completed. Provide complete information for evaluation of proposed changes and to substantiate proposed changes in Contract Sum or Contract Time.
1.8 ADMINISTRATIVE CHANGE ORDERS

A. Allowance Adjustment: See Section 01 21 00 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

B. Unit-Price Adjustment: See Section 01 22 00 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.9 CHANGE ORDER PROCEDURES

A. Submit three signed copies of Change Order Proposal to Architect/Engineer for review.

1. University-Initiated Change Order Bulletins: University and Architect/Engineer will evaluate Contractor’s Change Order Proposal and either request additional information or suggest modifications. Based on this review and evaluation University will either accept or reject the proposal.

2. Contractor-Initiated Change Order Bulletins: Architect/Engineer will evaluate Contractor’s claim based on the terms and conditions of the Contractor Agreement and General Conditions of the Construction Contract, as applicable.

3. Architect/Engineer’s Action: When satisfied as to the accuracy and completeness of the Change Order Proposal, the Architect/Engineer will sign all three copies and forward to the University for consideration.

B. On University's approval of a Change Order Proposal, Architect/Engineer will prepare, sign and forward three copies of a Change Order, State Form SC-6.31 available from the website of the Office of the State Architect, for signature by the Contractor. Contractor then forwards all three copies of signed Change Order to the University for signature and distribution of fully executed copies to Architect/Engineer and Contractor for record.

C. Upon receipt of a fully executed Change Order, promptly perform the following:

1. Revise Schedule of Values on the Application for Payment Form by indicating each authorized Change Order as a separate line item and adjusting the Contract Sum as shown on the Change Order.

   a. University will not pay for changes to the Work until authorized by a Change Order signed by all parties.

2. Revise the Progress Schedule to reflect any change in the Contract Time.

3. Enter changes in the Project Record Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00
SECTION 01 29 00
PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
B. Related Requirements:
   1. Section 01 26 00 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
   2. Section 01 32 00 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS
A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES
A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule. Schedule of values report from cost-loaded Critical Path Method Schedule prepared in accordance with Section 01 32 00 “Construction Progress Documentation” may serve to satisfy requirements for the schedule of values.

1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
   a. Application for Payment forms with continuation sheets.
   b. Submittal schedule.
   c. Items required to be indicated as separate activities in Contractor's construction schedule.

   1) Construction Manager's Fee.
   2) Estimated Project General Conditions Costs.

2. Submit schedule of values and hold a conference with the Architect/Engineer and University Project Manager to finalize the schedule of values at earliest possible date, but no later than 10 business days before the date scheduled for submittal of initial Certificates and Applications for Payment.
B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one-line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:
   a. Project name and location.
   b. Name of Architect/Engineer.
   c. Architect/Engineer's project number.
   d. Contractor's name and address.
   e. Date of submittal.

2. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
   a. Related Specification Section or Division.
   b. Description of the Work.
   c. Name of subcontractor.
   d. Name of manufacturer or fabricator.
   e. Name of supplier.
   f. Change Orders (numbers) that affect value.
   g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

   1) Labor.
   2) Materials.
   3) Equipment.


   a. Include separate line items under Contractor and principal subcontracts for LEED documentation, where applicable, and other Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.

4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

   a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.

6. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

   a. Temporary facilities and other major cost items that are not a direct cost of actual work-in-place shall be shown as separate line items in the schedule of values.

7. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders result in a change in the Contract Sum.
1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect/Engineer and paid for by University.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Pay Application and Schedule Review Meetings: Conduct in accordance with Section 01 31 00 “Project Management and Coordination.” Provide draft application for payment and draft schedule update reflecting work accomplished during previous pay period. Review progress achieved; discuss and resolve issues affecting the progress; and review critical activities to be accomplished during the following 90 calendar days.

1. Jobsite Walk: When required, conduct a walk of the jobsite to confirm progress related to any activity in question.

C. Monthly Schedule Reporting: Upon conclusion of the Pay Application and Schedule Review Meeting, but not later than the 28th of the month, update the Construction Schedule and submit the Pay Application.

D. Payment Application Times: Submit Application for Payment to Architect/Engineer by the first day of the month and no more than five (5) business days prior thereto. The period covered by each Application for Payment is per the date indicated in the Application.

E. Payment Application Review: The Architect/Engineer shall, within five (5) business days after the receipt of each Certificate and Application for Payment, review the Project Application for Payment and either execute a Project Certificate for Payment to the University or notify the Contractor in writing of the reasons for withholding a Certificate.

1. All applications for payment, except the final application, and the payments there under, shall be subject to correction in the next application rendered following the discovery of any error.

F. Application for Payment Forms: Use State Form SBP-7 2 “Certification for Contractor Payment.”

G. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect/Engineer will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders issued before last day of construction period covered by application.
4. Indicate separate amounts for work being carried out under University-requested project acceleration.

H. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site as approved in advance by the University Project Manager and items stored at an off-site location previously agreed upon in writing.
1. Provide certificate of insurance, evidence of transfer of title to University, and consent of surety to payment, for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:
   a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
   b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
   c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

I. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect/Engineer by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.
   1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

J. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
   1. List of subcontractors.
   2. Schedule of values.
   3. Contractor's construction schedule (preliminary if not final).
   4. Products list (preliminary if not final).
   5. Submittal schedule (preliminary if not final).
   6. List of Contractor's staff assignments.
   7. List of Contractor's principal consultants.
   10. Initial progress report.

K. Application for Payment at Substantial Completion: After Architect/Engineer issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
   1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
   2. This application shall reflect Certificate(s) of Substantial Completion issued previously for University occupancy of designated portions of the Work.

L. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
   1. All items on Pre-acceptance Checklist (State Form SBP-05) have been completed.
   2. Notice of Acceptance (State Form SBP-6.27) has been issued.
   3. Statements to support local sales tax refunds, if any submitted.
   4. Notice of Contractor's settlement has been published.
   5. Evidence of completion of Project closeout requirements, including but not limited to:
PAYMENT PROCEDURES

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00
SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. Requests for Information (RFIs).
4. Project Web site.
5. Project meetings.

B. Related Requirements:

1. Section 01 32 00 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
2. Section 01 73 00 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
3. Section 01 77 00 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request from Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Within 21 calendar days of Notice of Award submit, as complete as possible, a preliminary list to include all major subcontractors. Augment, complete and submit the final subcontractor list within 60 calendar days of Notice of Award, unless a longer duration is approved by the Architect/Engineer. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.
B. Key Personnel Names: Within 14 calendar days after Notice to Proceed, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1.5 GENERAL COORDINATION PROCEDURES

A. General: Each entity involved in the performance of work for the entire Project shall cooperate in the overall coordination of the Work; promptly, when requested, furnish information concerning its portion of the Work; and respond promptly and reasonably to the decisions and requests of persons designated with coordination, supervision, administrative or similar authority.

1. University Standard Project Management Forms
   
a. Where applicable, obtain from the University Project Manager and use the following University Standard Forms:

   1) Preconstruction Agenda
   2) Change Order Log with Contingency Codes
   3) Access Control Badge Application Form
   4) Utility Interruption Request Form
   5) Utility Start-Up Request Form
   6) Fire Alarm/Sprinkler Disable Request Form
   7) Hot Work Permit Form
   8) Anschutz Medical Campus (AMC) Street and Parking Lot Closure Form
   9) Indoor Air Quality (IAQ) Planning Checklist
   10) Indoor Air Quality (IAQ) Inspection Checklist

2. Site Utilization:
   
a. In addition to the site utilization limitations and requirements indicated in Section 01 10 00 “Summary” and indicated by the Contract Documents; administer the allocation of available space equitably among entities needing access and space, so as to produce the best overall efficiency in the performance of the total work of the project. Schedule deliveries so as to minimize the space and time requirements for storage of materials and equipment on the site; but do not unduly risk delays in the work.

b. Concurrent with work of the Contractor, other contractors, suppliers, and the University personnel may be working in relatively close proximity. The Contractor is solely responsible for coordinating their work with that of other contractors and will make no claims for failure to do so.

3. Layout:
   
a. It is recognized that the Contract Documents are diagrammatic in showing certain physical relationships of the various elements and systems and their interfacing with other elements and systems. Establishment and coordination of these relationships is the exclusive responsibility of the Contractor. Do not scale the drawings. Lay out and arrange all elements to contribute to safety, efficiency and to carry the harmony of design throughout the Work. In case of conflict or un-dimensioned locations, verify required positioning with Architect/Engineer.

4. Substrate Examination:
a. The Installer of each element of the work must examine the conditions of the substrate to receive the work, dimensions and spaces adjacent, tolerances, interfacing with other elements and services, and the conditions under which the work will be performed and must notify the Contractor in writing of conditions detrimental to the proper or timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

5. Large and Heavy Equipment:

a. Contractor to coordinate with University Project Manager requirements to be maintained for the subsequent entry of large equipment units. Coordinate the movement of heavy items with shoring and bracing, so that the building structure will not be overloaded during the movement and installation.

b. Where equipment or products to be installed on the roof are too heavy to be hand-carried, do not transport across roof deck; position by crane or other device so as to avoid overloading the roof deck.

B. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections of the Specification that depend on each other for proper installation, connection, and operation.

1. Contractor Communication with the University: Direct all communication with the University through the University Project Manager.

2. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

3. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.

4. Make adequate provisions to accommodate items scheduled for later installation.

C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for University and separate contractors if coordination of their Work is required.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.

2. Preparation of the schedule of values.

3. Installation and removal of temporary facilities and controls.

4. Delivery and processing of submittals.

5. Progress meetings.

6. Preinstallation conferences.

7. Project closeout activities.

8. Startup and adjustment of systems.

E. Coordination Of Submittals: Prior to transmittal to the Architect/Engineer, review shop and erection drawings, product data, and samples for compliance with Contract Documents and for coordination among work of all Sections of the Specifications. Coordination of submittals shall include, but not be limited to the following:
1. Verification of field dimensions and clearances and relationship to available space and anchors.
2. Verification of compatibility with equipment and work of other Sections, electrical characteristics, and operational control requirements.
3. Verification of motor voltages and control characteristics.
4. Coordination of controls, interlocks, wiring of pneumatic switches, and relays.
5. Coordination of wiring and control diagrams.
6. Review of the effect of any changes on work of other Sections.
7. For any item to be installed in or on a finished surface, certify that applicable Contract Documents have been checked and that the item submitted is compatible with the surface finish on which it is to be installed.
8. Equipment and material submittals shall show sufficient data to indicate complete compliance with Contract Documents as follows:
   a. Proper sizes and capabilities.
   b. Ability to fit in the available space in a manner that will allow proper service.
   c. Construction methods, materials, and finishes.
   d. List of accessories.

**F. Special Coordination Requirements for Mechanical and Electrical Work:**

1. General: Provide necessary work and services required to coordinate the complete installation of heating, ventilating, and air conditioning (HVAC) equipment and systems; plumbing systems and fixtures; electrical equipment, fixtures, and systems; and other equipment or systems containing motors and controls or requiring connection to mechanical or electrical systems; all so that the various systems perform as indicated and are in harmony with other project Work.
2. Contract Drawings:
   a. Drawings are schematic in nature and indicate in general how the various components are integrated with other parts of the building. Coordinate exact locations by job measurement, by verifying the requirements of other trades, and by review of Contract Documents.
3. Mechanical and Electrical Drawings indicate general routing of the various parts of the systems, but do not indicate all sizes, fittings, offsets, and runouts which are required. Coordinate correct sizes, fittings, offsets, and runouts required to fit systems into allocated spaces. Coordinate locations of all light fixtures, vents, and supply grilles to conform to the ceiling grid system or other modular finishes.
4. Coordinate installation of mechanical and electrical work in compliance with the following requirements:
   a. Install piping, ductwork and similar services straight and true, aligned with other work, close to walls and overhead structure, allowing for insulation, concealed (except where indicated as exposed) in occupied spaces, and out-of-the-way with maximum passageway and headroom remaining in each space.
   b. Install electrical work in a neat, organized manner with conduit and similar services in or parallel with building lines and concealed unless indicated as exposed.
   c. For all work maintain maximum practical overhead clearance but not less than 6" above ceiling. Where exposed, maintain 7'-0" minimum clearance.
   d. Arrange all work to facilitate maintenance and repair or replacement of equipment. Locate services requiring maintenance on valves and similar units in front of services requiring less maintenance. Connect equipment for ease of disconnecting, with minimum of interference with other work.
   e. Provide space to permit removal of coils, tubes, fan shafts, filters, other parts which may require replacement.
   f. Locate operating and control equipment and devices for easy access. Furnish access panels where units are concealed by finishes and similar work.
g. Integrate mechanical work in ceiling plenums with suspension system, light fixtures and other work, so that required performances of each will be achieved.

h. Give the right-of-way to piping systems required to slope for drainage over other service lines and ductwork.

i. Advise other trades of openings required in their work for accommodation of mechanical and electrical elements. Provide and place sleeves and anchors required in other work.

5. Access to Equipment: Except where located above accessible ceilings, provide access panels wherever access is required to concealed valves, controls, dampers, pull boxes and other devices requiring ongoing or periodic access.

a. Acceptable types of access panels are specified in Division 08.

b. Each trade is responsible for providing access panels needed for access to their equipment and coordinating installation with other Division 03, 04, 06 and 09 trades.

c. Coordinate requirements and obtain approval of locations from Architect/Engineer.

G. Compatibility of Systems:

1. Provide products and equipment which are compatible with other work requiring mechanical/electrical interface including electrical connections, control devices, water, drain and other piping connections. Verify electrical characteristics, fuel requirements and other interface requirements before ordering equipment and resolve conflicts that may arise.

2. Coordinate equipment, mechanical and electrical work in accordance with the following schedule:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>FURNISHED BY</th>
<th>MOUNTED BY</th>
<th>LOW VOLTAGE WIRED BY</th>
<th>POWER WIRED &amp; CONNECTED BY</th>
<th>LOW VOLTAGE CONTROL CONNECTED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment motors</td>
<td>I</td>
<td>MI</td>
<td>MI</td>
<td>EI</td>
<td>MI</td>
</tr>
<tr>
<td>Motor starters, contactors and overload heaters</td>
<td>MI</td>
<td>EI</td>
<td>EI</td>
<td>EI</td>
<td>MI</td>
</tr>
<tr>
<td>Fused and unfused disconnect switches</td>
<td>EI**</td>
<td>EI**</td>
<td>EI**</td>
<td>EI</td>
<td>--</td>
</tr>
<tr>
<td>Manual operating switches, speed switches, push-button stations and pilot lights</td>
<td>MI</td>
<td>EI</td>
<td>EI</td>
<td>EI</td>
<td>EI</td>
</tr>
<tr>
<td>Duct detectors</td>
<td>EI</td>
<td>MI</td>
<td>MI</td>
<td>EI</td>
<td>MI</td>
</tr>
<tr>
<td>Control relays and transformers</td>
<td>MI</td>
<td>MI</td>
<td>MI</td>
<td>EI</td>
<td>MI</td>
</tr>
<tr>
<td>Thermostats, time switches*</td>
<td>MI</td>
<td>MI</td>
<td>MI</td>
<td>EI</td>
<td>MI</td>
</tr>
<tr>
<td>Temperature control panels</td>
<td>MI</td>
<td>MI</td>
<td>MI</td>
<td>EI</td>
<td>MI</td>
</tr>
<tr>
<td>Motor and solenoid valves, damper motors, PE and EP switches</td>
<td>MI</td>
<td>MI</td>
<td>MI</td>
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<td>MI</td>
</tr>
<tr>
<td>Refrigeration equipment, cooling tower and controls</td>
<td>MI</td>
<td>MI</td>
<td>MI</td>
<td>EI</td>
<td>MI</td>
</tr>
<tr>
<td>Electric meters</td>
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<td>EI</td>
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<td>MI</td>
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<tr>
<td>Steam meters</td>
<td>MI</td>
<td>MI</td>
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<tr>
<td>Chilled water meters</td>
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<td>Water meters</td>
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<tr>
<td>Natural Gas</td>
<td>MI</td>
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</tr>
</tbody>
</table>

I = Installer of equipment requiring electrical service  
EI = Electrical Installer  
MI = Mechanical Installer

* Motor driven units which are controlled from line voltage automatic controls such as line voltage thermostats, float switches or time switches which conduct full load current of the motor shall be wired for both power and control circuit under the electrical contract. However, if the control device does not conduct full load current, then the responsibility shall be that set forth in the above schedule. (Example: a 208 volt, 3-phase, 3- wire motor requires 120 volt control. Electrical Installer shall furnish a 120 volt circuit for control and 208 volt circuit for power and wire the power circuit. Mechanical Installer shall wire the control circuit.)

** Disconnects for AH units are factory mounted.

***Building Service meter provided by Civil. Any sub meter provided by MI. Coordinate meter requirements with utility for remote monitoring by 23 09 00 – Instrumentation and Controls.

H. Special Coordination Requirements for Exterior Envelope Work:

1. General: Provide necessary work and services required to coordinate the complete and continuous installation of the building’s heat, air and moisture barriers. Exterior building envelope construction to be coordinated includes, but is not limited to, below-grade walls, slabs-on-grade, exterior opaque walls, windows, curtain walls, roofs, and skylights.

2. Contract Drawings:

   a. Drawings indicate general concepts and design intent for continuity of heat, air and moisture barriers at each exterior building envelope component and at transitions between building envelope components. Coordinate details for continuity based on actual product selections and Contractor’s proposed sequence of construction.

I. Complete Systems:

1. It is the intent of the Contract Documents that all systems, including mechanical and electrical, be complete and functional to provide the intended or specified performance. Provide all incidental items and parts necessary to achieve this requirement.

2. Provide correctly sized power, utilities, piping, drains, services and their connections to equipment and systems requiring them, whether or not specific items are listed in the schedule under “Compatibility of Systems” paragraph in this Section.

J. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

   1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as University's property.
2. Establish recycling program at job site. Refer to Section 01 74 19 “Construction Waste Management and Disposal” for additional requirements.

1.6 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

   a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.

   b. Coordinate the addition of trade-specific information to the coordination drawings by multiple subcontractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.

   c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.

   d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.

   e. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect/Engineer indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings, where required, to adequately represent the Work.

2. Plenum Space: Indicate sub-framing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate areas of conflict between light fixtures and other components.

3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.

4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.

5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.

6. Mechanical and Plumbing Work: Show the following:

   a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.

   b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
c. Fire-rated enclosures around ductwork.

7. Electrical Work: Show the following:
   a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
   b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
   c. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
   d. Location of pull boxes and junction boxes, dimensioned from column center lines.

8. Fire-Protection System: Show the following:
   a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.

9. Windows, Curtain Wall, and Exterior Wall Assembly Transition Work: Show all components of each adjacent wall or window system and all required compatible tie-ins between them including transition strips, flashings and sealants. Clearly identify each product, its configuration and its extent. Shop Drawings which only generically indicate adjacent construction and/or indicate "construction by others’ will not be acceptable.

10. Review: Architect/Engineer will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect/Engineer determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect/Engineer will so inform Contractor, who shall make changes as directed and resubmit.

11. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 01 33 00 "Submittal Procedures."
   a. Architect/Engineer will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
      1) Architect/Engineer makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
      2) Digital Data Software Program: Drawings are available in <Insert name and version of digital data software program and operating system>.
      3) Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to University and Architect/Engineer.

12. Review: At request of Contractor and at Architect/Engineer’s discretion, Architect/Engineer will participate in BIM coordination and review meetings and will review coordination model and drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are the Contractor's responsibility. If the Architect/Engineer determines that the coordination model and drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, the Architect/Engineer will inform the Contractor, who shall make changes as directed and resubmit.

C. Interference Resolution: Whenever job measurements and an analysis of the building coordination model, Drawings and Specifications indicate that the various systems cannot be installed without significant deviation from the intent of the Contract, prepare interference drawings as required to indicate conflict between the various systems and other components of the building such as beams, columns, and walls. Include plans, elevations, sections, and other details drawn to large scale as required to clearly define the interference and to indicate the Contractor's proposed solution. Submit interference drawings for review by the Architect prior to proceeding with work in the general areas of the conflict.
1.7 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect/Engineer will return RFIs submitted to Architect/Engineer by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect/Engineer.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
   a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: Hard copy form or software-generated form with substantially the same content as indicated above, acceptable to Architect/Engineer.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Architect/Engineer's Action: Architect/Engineer will review each RFI, determine action required, and respond. Allow seven calendar days for Architect/Engineer's response for each RFI. RFIs received by Architect/Engineer after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:
   a. Requests for approval of submittals.
   b. Requests for approval of substitutions.
   c. Requests for approval of Contractor's means and methods.
   d. Requests for coordination information already indicated in the Contract Documents.
   e. Requests for adjustments in the Contract Time or the Contract Sum.
   f. Requests for interpretation of Architect/Engineer's actions on submittals.
   g. Incomplete RFIs or inaccurately prepared RFIs.
2. Architect/Engineer's action may include a request for additional information, in which case Architect/Engineer's time for response will date from time of receipt of additional information.

3. Architect/Engineer's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Contractor-Initiated Change Order Bulletin and Proposal according to Section 01 26 00 "Contract Modification Procedures."

   a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect/Engineer in writing within seven calendar days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by RFI number. Submit log weekly. Use CSI Log Form 13.2B or Contractor-generated form of substantially same content. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect/Engineer.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect/Engineer's response was received.

F. On receipt of Architect/Engineer's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect/Engineer within seven calendar days if Contractor disagrees with response.

1.8 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify University and Architect/Engineer of scheduled meeting dates and times a minimum of 4 business days prior to meeting.

   a. Participants, including representatives of subcontractors and suppliers, shall be qualified, familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: G.C. responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including University and Architect/Engineer, within three business days of the meeting.

B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time and site convenient to all parties, but not later than 14 calendar days after Notice to Proceed.

1. Conduct the conference to review responsibilities and personnel assignments.
2. Attendees: Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work and include the following:

   a. Authorized representatives of University:

      1) University Project Manager.
      2) University Building Maintenance Operations (BMO) Representative.
b. architect/engineer and their consultants.
c. contractor’s project manager and superintendent.
d. major subcontractors and suppliers.
e. other concerned parties shall attend the conference.

3. Agenda: Discuss items of significance that could affect progress, including the following:

a. designation of key personnel and their duties.
b. lines of communications.
c. list of major subcontractors and suppliers.
d. tentative construction schedule.

1) Phasing.
2) Critical work sequencing and long-lead items.
3) Equipment deliveries and priorities.

e. Procedures and processing of:

2) RFI’s
3) Testing and inspecting.
4) Applications for Payment.
5) Submittals.
6) Preparation of record documents.

f. Use of the premises, existing building and adjacent buildings as applicable.

1) Work restrictions.
2) Working hours.
3) University's occupancy requirements.
4) Procedures for disruptions and shutdowns.
5) Construction parking and staging.
6) Construction route and site access.
7) Office, work, and storage areas.
8) Progress cleaning and housekeeping procedures.

g. Project coordination.
h. Distribution of the Contract Documents.
i. Temporary facilities and controls.
j. Indoor Air Quality Plan and Monitoring including procedures for moisture and mold control.
k. Construction waste management and recycling.
l. Safety.

1) Fire and Life Safety.
2) Health and Safety.

m. First aid.
n. Security.
o. Building Department.
p. Telecommunications.
q. Building Services.
r. Building Operations.
s. University Work Related Policies.
t. Contractor Contacts.
u. University Contacts.
v. University Process Forms.

   1) Key Request Form.
   2) Access Control Badge Application Form.
   3) Utility Interruption Request Form.
   4) Utility Start-Up Form.
   5) Fire Alarm/ Sprinkler Disable Request Form.
   6) Hot Work Permit Form.
   7) Anschutz Medical Campus (AMC) Street and Parking Lot Closure Form.
   8) Indoor Air Quality (IAQ) Plan.
   9) IAQ Planning Checklist.
  10) IAQ Inspection Checklist.
  11) Request for Variance.

4. Minutes: G.C. is responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site for installations, systems or assemblies where required by individual Specification Sections, or where deemed necessary by Contractor.

   1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect/Engineer of scheduled meeting dates.
   2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following, as appropriate:

      b. Options.
      c. Related RFIs.
      d. Related Change Orders.
      e. Purchases.
      f. Deliveries.
      g. Submittals.
      h. Possible conflicts.
      i. Compatibility requirements.
      j. Time schedules.
      k. Weather limitations.
      l. Manufacturer's written instructions.
      m. Warranty requirements.
      n. Compatibility of materials.
      o. Acceptability of substrates.
      p. Temporary facilities and controls.
      q. Space and access limitations.
      r. Regulations of authorities having jurisdiction.
      s. Testing and inspecting requirements.
      t. Installation procedures.
      u. Coordination with other work.
      v. Required performance results.
      w. Protection of adjacent work.
      x. Protection of construction and personnel.

   3. Record significant conference discussions, approved schedules, agreements, and disagreements, including required corrective measures and actions.
4. **Reporting:** Distribute minutes of the meeting to each party present and to other parties requiring information, including University Project Manager and Architect/Engineer.

5. **Do not proceed with installation if the conference cannot be successfully concluded.** Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. **Project Closeout Conference:** Schedule and conduct a project closeout conference, at a time convenient to University and Architect/Engineer, but no later than 30 calendar days prior to the scheduled date of Substantial Completion or Partial Substantial Completion.

1. **Conduct the conference to review requirements and responsibilities related to Project closeout.**
2. **Attendees:** Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work and include the following:
   a. University Project Manager.
   c. Architect/Engineer and their consultants.
   d. Contractor’s project manager and superintendent.
   e. Major subcontractors and suppliers.
   f. Other concerned parties.

3. **Agenda:** Discuss items of significance that could affect or delay Project closeout, including the following:
   a. Procedures related to:
      1) Notice of Completion, including preparation of Contractor’s punch list.
      2) Final Inspection.
      3) Notice of Substantial Completion.
      4) Notice of Approval of Occupancy/Use.
      5) Supplemental Occupancy/Use Checklist.
      6) Supplemental Acceptance Checklist.
      7) Pre-acceptance Checklists.
      8) Notice of Acceptance.
      9) Settlement and Final Payment.
   b. Preparation of record documents.
   c. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
   d. Submittal of written warranties.
   e. Requirements for completing LEED documentation, for projects pursuing LEED certification.
   f. Requirements for preparing operations and maintenance data.
   g. Requirements for delivery of material samples, attic stock, and spare parts.
   h. Requirements for demonstration and training.
   i. University's partial occupancy requirements.
   j. Installation of University's furniture, fixtures, and equipment.
   k. Responsibility for removing temporary facilities and controls.

4. **Minutes:** Entity conducting meeting will record and distribute meeting minutes.

E. **Progress Meetings:** Conduct progress meetings at weekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work and include the following:

a. University Project Manager.
b. University Health Safety Department Representative.
d. University Campus Building Official.
e. Architect/Engineer and their consultants.
f. Contractor’s project manager and superintendent.
g. Major subcontractors and suppliers.
h. Other entities concerned with current progress or involved in planning, coordination, or performance of future activities.
i. As needed, University Building Maintenance Operations (BMO), Subject Matter Experts (SME), and University Facility Support Services (FSS) Representatives.

3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Contractor's Construction Schedule:

1) Review progress since the last meeting.
2) Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule.
3) Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
4) Review schedule for next two week period.
5) Review schedule of deliveries.
6) Review off-site fabrication.

b. Site Safety.
c. Indoor Air Quality Management monitoring.
d. MS4 Storm Water and Water Quality monitoring.
e. Quality:

1) Quality and work standards.
2) Status of correction of deficient items.
3) Progress cleaning.
4) Field observations.

f. Status of submittals.
g. Status of RFIs.
h. Status of Changes including:

1) Change Order Bulletins.
2) Change Order Proposals.
3) Change Orders.
4) Pending claims and disputes.

i. Review present and future needs of each entity present including:

1) Access.
2) Site utilization.
3) Temporary facilities and controls.
4) Coordination.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

F. Pay Application and Schedule Review Meeting: Conduct review meeting monthly on or about the 25th of each month.

1. Attendees:
   a. University Project Manager.
   b. Architect/Engineer.
   c. Contractor’s Project Manager, Superintendent and Scheduler.

2. Agenda: Review draft pay application and progress schedule update in accordance with the requirements of Section 01 29 00 “Payment Procedures” and Section 01 32 00 “Construction Progress Documentation.”

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00
SECTION 01 32 00
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Startup construction schedule.
2. Contractor's construction schedule.
3. Construction schedule updating reports.
4. Daily construction reports.
5. Monthly project status reports.
6. Material location reports.
7. Site condition reports.
8. Special reports.

B. Related Requirements:

1. Section 01 33 00 "Submittal Procedures" for submitting schedules and reports.
2. Section 01 40 00 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.

C. Event: The starting or ending point of an activity.

D. Float: The measure of leeway in starting and completing an activity.
1. Float time is not for the exclusive use or benefit of either University or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.

3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

E. Resource Loading: The allocation of manpower necessary for the completion of an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:
   1. PDF electronic file and four paper copies.

B. Startup construction schedule (bar chart).
   1. Approval of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.

C. Construction Schedule Updating Reports: Submit draft for discussion at monthly project schedule and pay application review meeting. Submit final report with monthly Application for Payment.

D. Daily Construction Reports: Submit at weekly intervals.

1.5 QUALITY ASSURANCE

A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:
   1. Review software limitations and content and format for reports.
   2. Verify availability of qualified personnel needed to develop and update schedule.
   3. Discuss constraints, including phasing, work stages, area separations, interim milestones, and partial University occupancy, as may be applicable.
   4. Review delivery dates for University-furnished products.
   5. Review schedule for work of University's separate contracts.
   6. Review submittal requirements and procedures.
   7. Review time required for review of submittals and resubmittals.
   8. Review requirements for tests and inspections by independent testing and inspecting agencies.
   9. Review time required for Project closeout and University startup procedures, including commissioning activities.
  10. Review and finalize list of construction activities to be included in schedule.
  11. Review procedures for updating schedule.

1.6 COORDINATION

A. Coordinate Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
   1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for commencement of the Work to date of Substantial Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date is not permitted. Contract completion date may only be modified by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 21 calendar days, unless specifically allowed by Architect/Engineer.
2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 calendar days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

3. Submittal Review Time: Include review and resubmittal times indicated in Section 01 33 00 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.

4. Startup and Testing Time: Include adequate time for startup, testing and commissioning.

5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Architect/Engineer's administrative procedures necessary for issuing Notice of Substantial Completion.

C. Constraints: Include the following constraints and work restrictions as indicated in the Contract Documents and as applicable in schedule; show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work by University: Include a separate activity for each portion of the Work performed by University.

3. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 01 10 00 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.

4. University-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 01 10 00 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.

5. Work Restrictions: Show the effect of the following items, as applicable, on the schedule:

   a. Coordination with existing construction.
   b. Limitations of continued occupancies.
   c. Uninterruptible services.
   d. Partial occupancy before Substantial Completion.
   e. Use of premises restrictions.
   f. Environmental control.
6. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
   a. Submittals.
   b. Fabrication.
   c. Sample testing.
   d. Deliveries.
   e. Installation.
   f. Tests and inspections.
   g. Building flush-out.
   h. Startup and placement into final use and operation.

7. Construction Areas: As applicable, identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
   a. Structural completion.
   b. Temporary enclosure and space conditioning.
   c. Permanent space enclosure.
   d. Completion of mechanical installation.
   e. Completion of electrical installation.
   f. Substantial Completion.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Commencement of Work, Substantial Completion, Notice of Occupancy and Use, and Final Acceptance. As applicable, also include milestones for Partial Substantial Completion and Partial Notice of Occupancy and Use.

E. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

F. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules and as approved by University and Architect/Engineer.

2.2 STARTUP CONSTRUCTION SCHEDULE (BAR CHART)
   A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within seven calendar days of date established for commencement of the Work.

   B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 calendar days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (BAR CHART OR GANTT CHART)
   A. Bar-Chart or Gantt-Chart Schedule: Submit startup, horizontal, bar-chart-type or a comprehensive, fully developed, horizontal, Gantt-chart-type construction schedule within 30 calendar days of date established for commencement of the Work. Base schedule on the startup construction schedule and additional information received since the start of Project.
B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Use the same breakdown of construction activities as indicated in the Schedule of Values.

1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar. With each required construction schedule update, place a contrasting mark in each bar to indicate actual completion.

2.4 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (see special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Services connected and disconnected.
16. Equipment or system tests and startups.
17. Partial completions and occupancies.
18. Substantial Completions authorized.

B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.5 SPECIAL REPORTS

A. General: Submit special reports directly to University within one calendar day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise University in advance when these events are known or predictable.
PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule draft update schedule for discussion and review at monthly project progress schedule and pay application review meeting.

1. Revise schedule immediately after each meeting and issue updated schedule concurrently with submittal of monthly Application for Payment.
2. Include summary reports with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.
4. Schedule updates may change logic but may not change milestone or critical path without prior approval of University and Architect/Engineer.

B. Distribution: Distribute copies of approved schedule to Architect/Engineer University, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00
SECTION 01 32 33
PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Periodic construction photographs.
3. Final completion construction photographs.

B. Related Requirements:

1. Section 01 33 00 "Submittal Procedures" for submitting photographic documentation.
2. Section 01 77 00 "Closeout Procedures" for submitting photographic documentation as project record documents at Project closeout.

1.3 INFORMATIONAL SUBMITTALS

A. Digital Photographs: Submit image files within three business days of taking photographs.

1. Identification: Provide the following information with each image description in file metadata tag:

   a. Name of Project.
   b. Name and contact information for photographer.
   c. Name of Architect/Engineer.
   d. Name of Contractor.
   e. Date photograph was taken.
   f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
   g. Unique sequential identifier keyed to accompanying key plan.

1.4 USAGE RIGHTS

A. Obtain and transfer copyright usage rights from photographer to University for unlimited reproduction of photographic documentation.
PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Date and Time: Include date and time in file name for each image.
2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Architect/Engineer.

C. Preconstruction Photographs: Before starting construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect/Engineer.

1. Flag construction limits before taking construction photographs.
2. Take 20 photographs to show existing conditions adjacent to property before starting the Work.
3. Take 20 photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

D. Periodic Construction Photographs: Take 20 photographs monthly, coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

E. Final Completion Construction Photographs: Take 20 color photographs after date of Substantial Completion for submission as project record documents. Architect/Engineer will inform photographer of desired vantage points.

1. Do not include date stamp.

END OF SECTION 01 32 33
SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:

1. Section 01 29 00 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 01 32 00 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
3. Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
4. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
5. Division 02 through 33 for additional submittal requirements specific to indicated Specification Sections.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect/Engineer's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals." Submittals not specifically indicated as informational submittals are considered to be action submittals.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect/Engineer's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals" and include, but are not limited to:

1. Schedules.
2. Permits.
3. Applications for payment.
4. Performance and payment bonds.
5. Insurance certificates.
7. Schedule of Values.
8. Inspection and test results.
10. Coordination drawings.
12. Anschutz Medical Campus Street Services Request.


1.4 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect/Engineer and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
   a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
3. Format: Arrange the following information in a tabular format:
   a. Scheduled date for first submittal.
   b. Specification Section number and title.
   c. Submittal category: Action; informational.
   d. Name of subcontractor.
   e. Description of the Work covered.
   f. Scheduled date for resubmittal.
   g. Scheduled date for Architect/Engineer's final release or approval.
   h. Scheduled date of fabrication.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect/Engineer's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect/Engineer for Contractor's use in preparing submittals.

1. Architect/Engineer will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.
   a. Architect/Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
   b. Digital Drawing Software Program: The Contract Drawings are available in PDF and DWG.
   c. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to University and Architect/Engineer.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit for review with sufficient time to avoid construction delays.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.

3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

   a. Architect/Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect/Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

   1. Initial Review: Allow 14 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect/Engineer will advise Contractor when a submittal being processed must be delayed for coordination.

   2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

   3. Resubmittal Review: Allow 14 calendar days for review of each resubmittal.

   4. Large and/or Complex Submittals: For large and/or complex submittals, as determined by the Architect/Engineer and for submittals that require sequential reviews by Architect/Engineer’s consultants, a review period greater than 14 calendar days may be required. Architect/Engineer and Contractor shall identify such submittals upon submission of the submittal schedule and determine a mutually agreed upon review period.

D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.

   1. Indicate name of firm or entity that prepared each submittal on label or title block.

   2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect/Engineer.

   3. Include the following information for processing and recording action taken:

      a. Project name.
      b. Date.
      c. Name of Architect/Engineer.
      d. Name and address of Contractor.
      e. Name and address of subcontractor.
      f. Name and address of supplier.
      g. Name of manufacturer.
      h. Submittal number or other unique identifier, including revision identifier.

      1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

        i. Number and title of appropriate Specification Section.
        j. Drawing number and detail references, as appropriate.
        k. Location(s) where product is to be installed, as appropriate.
        l. Other necessary identification.
4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect/Engineer observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
   a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect/Engineer.

5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect/Engineer will return without review submittals received from sources other than Contractor.
   a. Transmittal Form for Paper Submittals: Provide locations on form for the following information:
      1) Project name.
      2) Date.
      3) Destination (To:).
      4) Source (From:).
      5) Name and address of Architect/Engineer.
      6) Name and address of Contractor.
      7) Name of firm or entity that prepared submittal.
      8) Names of subcontractor, manufacturer, and supplier.
      9) Category and type of submittal.
     10) Submittal purpose and description.
     11) Specification Section number and title.
     12) Specification paragraph number or drawing designation and generic name for each of multiple items.
     13) Drawing number and detail references, as appropriate.
     14) Indication of full or partial submittal.
     15) Transmittal number.
     16) Submittal and transmittal distribution record.
     17) Remarks.
     18) Contractor's certification that information complies with Contract Document requirements.
     19) Signature of transmitter.

6. Transmittal Form for Electronic Submittals: Use electronic form acceptable to University, containing the following information:
   a. Project name.
   b. Date.
   c. Name and address of Architect/Engineer.
   d. Name and address of Contractor.
   e. Name of firm or entity that prepared submittal.
   f. Names of subcontractor, manufacturer, and supplier.
   g. Category and type of submittal.
   h. Submittal purpose and description.
   i. Specification Section number and title.
   j. Specification paragraph number or drawing designation and generic name for each of multiple items.
   k. Drawing number and detail references, as appropriate.
   l. Location(s) where product is to be installed, as appropriate.
   m. Related physical samples submitted directly.
   n. Indication of full or partial submittal.
   o. Transmittal number.
   p. Submittal and transmittal distribution record.
   q. Other necessary identification.
r. Contractor's certification that information complies with Contract Document requirements.
s. Remarks.

E. Options: Identify options requiring selection by Architect/Engineer.

F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect/Engineer on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

G. Contractor Certification: On transmittal include Contractor's certification that information complies with Contract Document requirements.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
   1. Note date and content of previous submittal.
   2. Note date and content of revision in label or title block and clearly indicate extent of revision.
   3. Resubmit submittals until they are marked with approval notation from Architect/Engineer's action stamp.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect/Engineer's action stamp.

K. Record Documents: Retain complete additional copies of submittals on Project site to be submitted as record documents in accordance with requirements of Section 01 78 39 “Project Record Documents.”

L. Legibility: Provide clear and legible submittals. Submittals that are blurry or are for any reason unreadable will be returned without action.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
   1. Action Submittals: Submit three paper copies of each submittal to Architect/Engineer and one to University unless otherwise indicated. Architect/Engineer will return one copy.
   2. Informational Submittals: Submit two paper copies of each submittal to Architect/Engineer and one to University unless otherwise indicated. Architect/Engineer will not return copies.
   3. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:
   a. Manufacturer's catalog cuts.
   b. Manufacturer's product specifications.
   c. Manufacturer's installation instructions.
   d. Manufacturer's printed recommendations.
   e. Standard color charts.
   f. Statement of compliance with specified referenced standards.
   g. Statement of compliance with specified trade association standards.
   h. Testing by recognized testing agency.
   i. Application of testing agency labels and seals.
   j. Notation of coordination requirements.
   k. Notation of dimensions verified by field measurement.

4. For equipment, include the following in addition to the above, as applicable:
   a. Wiring diagrams showing factory-installed wiring.
   b. Printed performance curves.
   c. Operational range diagrams.
   d. Rough-in diagrams and templates indicating clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.


7. Submit additional copies of Product Data as required complying with requirements of Section 01 78 39 “Project Record Documents.”

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Highlight, encircle or otherwise indicate deviations from Contract Documents. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect/Engineer's digital data drawing files is otherwise permitted. Standard information prepared without specific reference to the Project is not considered a shop drawing.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
   a. Identification of products.
   b. Schedules.
   c. Compliance with specified standards.
   d. Notation of coordination requirements.
   e. Notation of dimensions established by field measurement.
   f. Relationship and attachment to adjoining construction clearly indicated.
   g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than size of Construction Drawings.
   a. Refer to Section 01 31 00 "Project Management and Coordination" for requirements for coordination drawings.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Mount, display or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Architect/Engineer's Sample.

3. Identification: Attach label on unexposed side of Samples that includes the following:
   a. Generic description of Sample.
   b. Product name and name of manufacturer.
   c. Sample source.
   d. Number and title of applicable Specification Section.
   e. Specification paragraph number and generic name of each item.
   f. Compliance with recognized standards.
   g. Availability and delivery time.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect/Engineer will return submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
   a. Number of Samples: Submit three sets of Samples. Architect/Engineer will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.
      1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
   a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
   b. Samples not incorporated into the Work, or otherwise designated as University's property, are the property of Contractor.

7. Distribution of Samples: Prepare and distribute additional sets to Subcontractors, manufacturers, fabricators, suppliers, Installers, and others as required for performance of the Work. Show distribution on transmittal forms.

8. Field Samples and Mock-Ups: Field Samples and mock-ups specified in individual Sections are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.
E. Selection of Related Materials: Where selections of colors, patterns, textures are specified to be made by Architect/Engineer, assemble complete samples of all specified or approved products for all Specification Sections and submit to Architect/Engineer. Review specifications and assemble all such samples for a combined single submittal. Indicate on the transmittal the latest date for selections to be made for each item to permit delivery of material in accordance with Progress Schedule. Architect/Engineer's action is limited solely to the specified selections or rejection of submittal items not in accordance with Specifications.

F. Coordination Drawing Submittals: Comply with requirements specified in Section 01 31 00 "Project Management and Coordination."

G. Contractor's Construction Schedule: Comply with requirements specified in Section 01 32 00 "Construction Progress Documentation."

H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 29 00 "Payment Procedures."

I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 40 00 "Quality Requirements."

J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 77 00 "Closeout Procedures."

K. Maintenance Data: Comply with requirements specified in Section 01 78 23 "Operation and Maintenance Data."

L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by
manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

U. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

V. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

W. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

X. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect/Engineer.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect/Engineer. Submittals received without Contractor's substantive review and approval stamp will be rejected and returned to the Contractor.

B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01 77 00 "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT/ENGINEER'S ACTION

A. Action Submittals: Architect/Engineer will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect/Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

B. Informational Submittals: Architect/Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect/Engineer will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect/Engineer.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may be returned by the Architect/Engineer without action.

END OF SECTION 01 33 00
SECTION 01 35 44

SPECIAL PROCEDURES FOR ENVIRONMENTAL HEALTH AND SAFETY AND FIRE AND LIFE SAFETY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
   A. Section includes special administrative and procedural requirements related to environmental health and safety.
   B. University is Authority Having Jurisdiction (AHJ) for Fire and Life Safety. This responsibility is administered by the University’s Fire and Life Safety Officer.
   C. Related Requirements:
      1. Section 01 35 46 “Indoor Air Quality Procedures” for procedure related to maintaining indoor air quality during construction.
      2. Section 02 81 00 “Transportation/Disposal of Hazardous Materials.”

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 ENVIRONMENTAL HEALTH AND SAFETY AND FIRE AND LIFE SAFETY PROCEDURES
   A. Physical, Life, and Fire Safety:
      1. All contractors are required to conform to the Federal Occupational Safety and Health Administration (OSHA) regulations for construction (29 CFR 1926). Certain General Industry Standards (29 CFR 1910) may also apply, depending on location of work.
      2. Provide an effective health and safety program to control hazards, including but not limited to compressed gases, welding, electrical, safety netting, cranes, scaffolding and supplies on the roof.
      3. Provide fire protection in all construction areas to the satisfaction of the Authority Having Jurisdiction.
      4. During the construction phase, the Authority Having Jurisdiction may conduct oversight inspections to observe and provide recommendations regarding applicable safety standards. The following minimum items are included:
         a. Do not block exit corridors. Install signage clearly identifying exit routes.
         b. Provide physical barriers with appropriate warning signage to protect public areas from construction work.
c. Conduct daily inspections to eliminate fire hazards and any other safety hazards.

d. Periodic safety inspections will be performed on job sites by the Authority Having Jurisdiction. The Authority Having Jurisdiction for fire safety will present University’s Project Manager with a written summary of the findings who will then take these issues to the Contractor’s superintendent, foreman or other designated representative and return the summary form with documentation of the resolution of safety items to AHJ. Abate deficient items in a timely manner. Include documentation and resolution of safety items presented in weekly Progress Meeting minutes. Inspections by University AHJ are spot-checks only. They are not all encompassing. These inspections and recommendations do not relieve the Contractor from obligations related to safe work practices, as required under federal law.

e. AHJ has the right to access the site at all times. Should a potential threat to personnel or property be observed, AHJ may require the hazard related operation immediately altered until adequate safeguards are addressed.

f. Supply AHJ, through the University Project Manager, with a copy of Contractor’s weekly safety meeting minutes and safety inspection reports.

g. Provide signs used for proper identification of construction areas.

h. Provide adequate number of appropriately rated fire extinguishers to be available on-site for emergency use in the construction area.

i. Insure standpipes, pull stations, electrical panels, water control valves and fire hydrants are accessible at all times.

j. Post emergency notification phone numbers provided by Contractor and University in all construction areas.

k. Notify University Project Manager of any lost time injuries occurring on University’s property within one (1) calendar day and of any fatalities immediately.

l. Submit copies of all injury reports to AHJ, through University’s Project Manager.

m. Equip construction personnel with personal protective equipment (PPE) where required. Coordinate with University Project Manager to identify where use of PPE will be required.

B. OSHA Hazard Communication Standard:

1. Every Contractor and Subcontractor performing work shall comply with the OSHA Hazard Communication Standard. Compliance includes joint University and Contractor responsibilities for the purpose of providing timely communications and information sharing with regard to hazardous materials, chemicals and chemical sources which may be present on-site or brought in by Contractor.

2. University Project Manager will provide Contractor with the following:

   a. Information regarding known hazardous chemicals and agents or other hazards present at the job site.
   b. University emergency procedures and contact numbers.

3. Provide safety training and environmental surveillance of all workers.

4. Inform and provide University’s Project Manager the following:

   a. Material safety data sheets (MSDS) for all chemicals introduced into the workplace.
   b. Information regarding potential sources of pollutants which may be entrained in University’s air intakes, e.g., roofing tar fumes, nuisance dusts, exhaust from internal combustion engines, welding or cutting fumes, and asbestos - if damaged or encountered during the course of the work.

C. Asbestos and Lead Paint:

1. The presence of asbestos-containing materials and/or paint containing lead on the job site does not mean a problem exists. Areas where asbestos is friable and not contained or lead paint is present or will be caused to be present in airborne or settled dust are of concern.
2. Responsibilities of University and Contractor regarding asbestos and lead paint are as follows:

   a. University:

      1) Notify the Contractor of the condition and location(s) where asbestos is known to be present or may reasonably be encountered, e.g., asbestos insulation, ceiling tiles, floor tiles, fire doors, wall and ceiling plasters, concrete, grouting, etc., and lead paint on metal building materials, walls, windows, etc.

      2) Coordinate with Contractor when response action is required by a Subcontractor.

      3) Contract with third party contractor to monitor areas where friable asbestos and/or lead-containing particles are present during construction/renovation projects for its own records and purpose. Monitoring results can be shared with Contractors but are in no way to be used for Contractor employee monitoring.

      4) Final authority on all asbestos-related concerns and contractual arrangements.

   b. Contractor:

      1) Notify University’s Project Manager of any suspected or existing problem involving asbestos or lead and cease work in that area until University has assessed the situation.

      2) Ensure that undamaged asbestos-containing material and/or material containing lead, not included in the scope of the project, are not damaged.

      3) Train and monitor their own employees, including Asbestos Awareness training and Lead Paint Awareness training, where applicable.

      4) Be responsible for all environmental/industrial hygiene surveillance of its work staff and subcontractors and for required area monitoring where potential contamination of adjacent areas exists.

      5) Prevent problems which can result in asbestos or lead exposure to building occupants.

      6) Coordinate with the University’s EHS Department and Building Maintenance and Operations through University’s Project Manager and perform all activities that may potentially disturb asbestos containing materials in a manner acceptable to the EHS.

      7) Follow State of Colorado regulation, Emission Standards for Asbestos, Part B, Control of Asbestos, “Regulation 8” and OSHA standards regulating exposure to asbestos and lead.

      8) Where applicable, comply with Section 02 81 00 “Transportation/Disposal of Hazardous Materials.”


D. Carcinogens:

   1. Contractor or any Subcontractor shall not knowingly install or cause to be installed any material or product containing carcinogens. Refer to Annual Report on Carcinogens, U.S. Department of Health and Human Services, National toxicology Program.

E. Hazardous Waste:

   1. All hazardous wastes are to be handled and disposed of according to current University EHS guidelines which can be obtained through University Project Manager. Only individuals specifically authorized by University may sign hazardous waste manifests for wastes generated on University’s property. Only University approved transporters and disposal facilities are to be used for transportation and disposal of hazardous wastes.
F. The Control of Hazardous Energy (Lockout/Tagout):

1. Provide and enforce a program and procedures for the control of hazardous energy (lockout/tagout) including, but not limited to, locks, tags and lockout devices. Provide proof that workers have received safety training in the control of hazardous energy through lockout/tagout.

G. Hot Work Operations:

1. Comply with University hot work policy and obtain Hot Work Permit prior to executing any hot work in existing buildings.
2. Notify University Project Manager prior to any hot work on University property.
3. Provide and enforce a program to control fires during hot work operations. Provide appropriately rated fire extinguishers, fire retardant protective covers (when needed), and any other hot work related equipment.

H. Confined Space Entry:

1. Work in compliance with the “Confined Spaced Entry Procedure for Non-University Personnel” whenever any project requires entry into a confined space. A copy of this procedure can be obtained from University EHS through University’s Project Manager.

I. Green Tagging of Work Area:

1. Obtain a Green Tag and Construction Permit from the University Project Manager prior to any work being conducted in a laboratory or on any exhaust ductwork system serving a laboratory. If a Green Tag has been issued, it will be displayed at the entry of the laboratory area. The Green Tag assures that any radioactive, chemical or biological materials have been removed from the laboratory verifying the area is free from hazards to workers. If a Green Tag is not displayed, coordinate tagging with EHS through University’s Project Manager.

END OF SECTION 01 35 44
SECTION 01 35 46

INDOOR AIR QUALITY PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for managing emissions and moisture control during construction.

1.3 DEFINITIONS

A. Sustainable Design Related Terminology: As defined is ASTM E 2114.

B. Adequate Ventilation: Ventilation, including air circulation and air changes, required to cure materials, dissipate humidity, and prevent accumulation of particulates, dust, fumes, vapors, or gases.

C. Hazardous Materials: Any material that is regulated as a hazardous material in accordance with 49 CFR 173, requires a Material Safety Data Sheet (MSDS) in accordance with 29 CFR 1910.1200, or which during end use, treatment, handling, storage, transportation or disposal meets or has components which meet or have the potential to meet the definition of a Hazardous Waste in accordance with 40 CFR 261. Throughout this specification, hazardous material includes hazardous chemicals.

   1. Hazardous materials include: pesticides, biocides, and carcinogens as listed by recognized authorities, such as the Environmental Protection Agency (EPA) and the International Agency for Research on Cancer (IARC).

D. Indoor Air Quality (IAQ): The composition and characteristics of the air in an enclosed space that affect the occupants of that space. The indoor air quality of a space refers to the relative quality of air in a building with respect to contaminants and hazards and is determined by the level of indoor air pollution and other characteristics of the air, including those that impact thermal comfort such as air temperature, relative humidity and air speed.

E. Interior Final Finishes: Materials and products that will be exposed at interior, occupied spaces including but not limited to flooring, wallcovering, finish carpentry, and ceilings.

F. Packaged Dry Products: Materials and products that are installed in dry form and are delivered to the site in manufacturer's packaging including but not limited to carpets, resilient flooring, ceiling tiles, and insulation.

G. Wet Products: Materials and products installed in wet form, including paints, sealants, adhesives, special coatings, and other materials which require curing.
1.4 QUALITY ASSURANCE

A. Inspection and Testing Lab Qualifications: Minimum of 5 years experience in performing the types of testing specified herein.

1.5 PRECONSTRUCTION MEETING

A. After award of Contract and prior to the commencement of the Work, schedule and conduct meeting with University and Architect/Engineer to review and discuss the proposed IAQ Management Plan and develop a mutual understanding of detailed requirements for maintaining indoor air quality and environmental protection.

1.6 SUBMITTALS

A. Indoor Air Quality (IAQ) Management Plan: Not less than 10 business days before the Pre-construction meeting, prepare and submit an IAQ Management Plan including, but not limited to, the following:

1. Procedures for control of emissions during construction.
   a. Identify schedule for application of interior finishes.

2. Procedures for moisture control during construction.
   a. Identify porous materials and absorptive materials.
   b. Identify schedule for inspection of stored and installed absorptive materials.

3. Revise and resubmit Plan as required by University.
   a. Approval of Contractor’s Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations.

B. Product Data:

1. Submit product data for filtration media used during construction and during operation. Include Minimum Efficiency Reporting Value (MERV).

2. Material Safety Data Sheets: Submit MSDSs for inclusion in Operation and Maintenance Manual for the following products. Coordinate with Section 01 78 23 – Operation and Maintenance Data.
   a. Adhesives.
   b. Floor and wall patching/leveling materials.
   c. Caulking and sealants.
   d. Insulating materials.
   e. Fireproofing and firestopping.
   f. Carpet.
   g. Paint.
   h. Clear finish for wood surfaces.
   i. Lubricants.
   j. Cleaning products.

C. Inspection and Test Reports:

1. Moisture control inspections.

2. Moisture content testing.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 IAQ MANAGEMENT - EMISSIONS CONTROL

A. Provide point person responsible for the implementation and assurance that the Indoor Air Quality Plan is being implemented.

B. University Indoor Air Quality Plan: Comply with the requirements of the University IAQ Plan, latest version, appended to this Specification Section.

3.2 IAQ MANAGEMENT - MOISTURE CONTROL

A. Housekeeping:

1. Keep materials dry. Protect stored on-site and installed absorptive materials from moisture damage.
2. Verify that installed materials and products are dry prior to sealing and weatherproofing the building envelope.
3. Install interior absorptive materials only after building envelope is sealed and weatherproofed.

B. Inspections: Document and report results of inspections; state whether or not inspections indicate satisfactory conditions.

1. Examine materials for dampness as they arrive. If acceptable to University, dry damp materials completely prior to installation; otherwise, reject materials that arrive damp.
2. Examine materials for mold as they arrive and reject materials that arrive contaminated with mold.
3. Inspect stored and installed absorptive materials regularly for dampness and mold growth. Inspect weekly.
   a. Where stored on-site or installed absorptive materials become wet, notify Architect/Engineer and University. Inspect for damage. If acceptable to University, dry completely prior to closing in assemblies; otherwise, remove and replace with new materials.

4. Plumbing: Verify satisfactory pressure test of pipes and drains is performed before closing in and insulating lines.
5. HVAC: Inspect HVAC system.
   a. And, inspect HVAC to verify:
      1) Condensate pans are sloped and plumbed correctly.
      2) Access panels are installed to allow for inspection and cleaning of coils and ductwork downstream of coils.
      3) Ductwork and return plenums are air sealed.
      4) Duct insulation is installed and sealed.
      5) Chilled water line and refrigerant line insulation are installed and sealed.
C. Schedule:

1. Schedule work such that absorptive materials, including but not limited to porous insulations, paper-faced gypsum board, ceiling tile, and finish flooring, are not installed until they can be protected from rain and construction-related water.
2. Weather-proof as quickly as possible. Schedule installation of moisture-control materials, including but not limited to air and weather-resistive barriers, flashing, exterior sealants and roofing, at the earliest possible time.

01 35 46
Indoor Air Quality Plan
March 1, 2012

Project __________________________________________________________
Completed by: ____________________________________________________
(Name & Company)
Date: _____________________________________________________________________

This plan describes the measures to be taken to provide good indoor air quality (IAQ) during construction and after
construction is complete and the occupants have moved into the building. This plan is based on the SMACNA standard
“IAQ Guidelines for Occupied Buildings under Construction” and the requirements of the LEED.

It is not the intent of this document to replace or supersede OSHA regulations as to safe construction workplace
practices. It remains the responsibility of the Construction Manager and the individual sub-contractors to maintain safe
building and site operations. Addition precautions may be necessary when hazardous materials are present.

The plan will address construction IAQ by recommending procedures in five areas of concern, which in turn will allow
the building to achieve two LEED program points:

• HVAC system protection
• Containment source control
• Pathway interruption
• Housekeeping
• Scheduling

The following describes the specific measures to be performed in each area of concern:

1. HVAC Protection

• During construction, provide MERV 13 filters for supply air intake when in use. Provide MERV 8
  filters at the return air system openings when in use. Perform frequent maintenance when the HVAC
  system is being utilized and replace filters as they become loaded and prior to occupancy.
• When performing construction activities that produce dust, such as drywall sanding, concrete cutting,
  masonry work, wood sawing or adding insulation, seal off the supply diffusers and return air system
  openings completely for the duration of the task.
• Shut down and seal off the supply diffusers and return air ducts during any demolition operations.
• Whenever the HVAC system is not used during construction, seal off the supply diffusers and return
  air system openings to prevent the accumulation of dust and debris in the duct system.
• Do not use the mechanical rooms to store construction or waste materials. Keep rooms clean and neat.
• Provide periodic duct inspections during construction; if the ducts become contaminated due to
  inadequate protection, clean the ducts professionally in accordance with NADCA (National Air Duct
  Cleaning Association) standards.

2. Source Control

• Use low VOC products as indicated by the specifications to reduce potential problems.
• Exhaust pollution sources to the outside with portable fan systems. Prevent exhaust from recirculating
  back into the building from construction equipment outside the building.
• Keep containers of wet products closed as much as possible. Cover or seal containers of waste
  materials that can release odor or dust.
• Protect stored on-site or installed absorptive building materials from weather and moisture; wrap with plastic and seal tight to prevent moisture absorption.

3. Pathway Interruption

• Provide dust curtains or temporary enclosures to prevent dust from migrating to other areas when applicable.
• Locate pollutant sources as far away as possible from supply ducts and areas occupied by workers when feasible. Supply and exhaust systems may have to be shut down or isolated during such activity.
• During construction, isolate areas of work to prevent contamination of clean or occupied areas. Pressure differentials may be utilized to prevent contaminated air from entering clean areas.

4. Housekeeping

• Provide regular cleaning concentrating on HVAC equipment and building spaces to remove contaminants from the building prior to occupancy.
• All coils, air filters, fans and ductwork shall remain clean during installation and, if required, will be cleaned prior to performing the testing, adjusting and balancing of the systems.
• Suppress and minimize dust with wetting agents or sweeping compounds. Utilize efficient and effective dust collecting methods such as a damp cloth, wet mop, or vacuum with particulate filters, or wet scrubber.
• Remove accumulations of water inside the building. Protect porous materials such as insulation and ceiling tile from exposure to moisture.
• Thoroughly clean all interior surfaces prior to replacing filters and running HVAC system for system balancing.

5. Scheduling and Construction Activity Sequence

• Schedule high pollution activities that utilize high VOC level products (including paints, sealers, insulation, adhesives, caulking and cleaners) to take place prior to installing highly absorbent materials (such as ceiling tiles, gypsum wall board, fabric furnishing, carpet and insulation, for example). These materials will act as ‘sinks’ for VOCs, odors and other contaminants, and release them later after occupancy.

PLANNING AND INSPECTION CHECKLISTS

The planning and inspection checklists included in this document are useful to ensure construction IAQ management is planned and implemented correctly. The planning checklist should be completed by the contractor prior to construction. The inspection checklists should be completed monthly to confirm the IAQ management plan is being followed. At the time of inspection, photographs should be taken to support the checklist and to provide audit documentation for the USGBC.
University of Colorado Denver IAQ
February 14, 2009

Planning Checklist
(Must be completed weekly)

Project __________________________________________ _______________________
Completed by: _____________________________________ ____________________________
(Name & Company)
Date: ____________________________________________________________________

1. HVAC Protection
   □ MERV 13 filters at supply air intake
   □ MERV 8 filters at return air openings
   □ Seal supply diffusers and return air during demolition
   □ Seal supply diffusers and return air openings during construction
   □ Mechanical rooms clean and neat
   □ Periodic duct inspections during construction
   □ General Contractor to document with photographs

2. Source Control
   □ Low/no VOC products as indicated by specifications
   □ Utilize electric or natural gas alternatives for gasoline and diesel
   □ Cycle equipment off when not being used or needed
   □ Exhaust pollution sources to the outside
   □ Keep containers of wet products closed
   □ Cover or seal containers of waste materials
   □ Protect absorptive building materials from weather and moisture
   □ Prevent fume migration from construction vehicles and equipment into adjacent buildings
   □ General Contractor to document with photographs

3. Pathway Interruption
   □ Provide dust curtains or temporary enclosures
   □ Locate pollutant sources as far away as possible from supply dusts and areas occupied by workers
   □ General Contractor to document with photographs
   □ Isolate areas of work to prevent contamination of clean or occupied areas
   □ When using VOC emitting materials ventilate using 100% outside air
   □ General Contractor to document with photographs
4. **Housekeeping**

- Provide regular cleaning, including HVAC equipment
- If necessary clean HVAC equipment prior to testing, adjusting and balancing the systems
- Suppress and minimize dust with wetting agents or sweeping compounds
- Remove accumulations of water inside the building
- Protect porous materials
- General Contractor to document with photographs

5. **Scheduling and Construction Activity Sequence**

- Schedule high pollution activities prior to installing absorbent materials
- General Contractor to document with photographs

I confirm the checked activities to be proceeding according to the Construction Indoor Air Quality Plan. Items that are not checked will be addressed, initialed and dated once corrective actions have been taken. Items that are not applicable are labeled as such.

Signed: ________________________________ Date: ________________

(Contractor)
University of Colorado Denver IAQ
February 14, 2009

Inspection Checklist
(Must be completed weekly)

Project __________________________________________
Completed by: _____________________________________
(Name & Company)
Date: ________________________________

1. HVAC Protection
   □ MERV 13 filters at supply air intake
   □ MERV 8 filters at return air openings
   □ Seal supply diffusers and return air during demolition
   □ Seal supply diffusers and return air openings during construction
   □ Mechanical rooms clean and neat
   □ Periodic duct inspections during construction
   □ General Contractor to document with photographs

2. Source Control
   □ Low/no VOC products as indicated by specifications
   □ Utilize electric or natural gas alternatives for gasoline and diesel
   □ Cycle equipment off when not being used or needed
   □ Exhaust pollution sources to the outside
   □ Keep containers of wet products closed
   □ Cover or seal containers of waste materials
   □ Protect absorptive building materials from weather and moisture
   □ General Contractor to document with photographs

3. Pathway Interruption
   □ Provide dust curtains or temporary enclosures
   □ Locate pollutant sources as far away as possible from supply dusts and areas occupied by workers
   □ General Contractor to document with photographs
   □ Isolate areas of work to prevent contamination of clean or occupied areas
   □ When using VOC emitting materials ventilate using 100% outside air
   □ General Contractor to document with photographs

4. Housekeeping
   □ Provide regular cleaning, including HVAC equipment
If necessary clean HVAC equipment prior to testing, adjusting
and balancing the systems
Suppress and minimize dust with wetting agents or sweeping compounds
Remove accumulations of water inside the building
Protect porous materials
General Contractor to document with photographs

5. Scheduling and Construction Activity Sequence
Schedule high pollution activities prior to installing absorbent materials
General Contractor to document with photographs

I confirm the checked activities to be proceeding according to the Construction Indoor Air Quality Plan. Items that are not checked will be addressed, initialed and dated once corrective actions have been taken. Items that are not applicable are labeled as such.

Signed: ____________________________________________ Date: ________________
(Contractor)
SECTION 01 41 00
REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
   A. Section Includes:
      1. Building Department Authority.
      2. Applicable Codes and Standards.

1.3 BUILDING DEPARTMENT AUTHORITY
   A. The University of Colorado Denver is charged with the responsibility of ensuring that provision of applicable codes, standards and guidelines are met on its campuses.
   B. The University Denver campus has an established Building Authority responsible to review and examine buildings and plan documents, to permit and inspect construction and/or demolition to ensure conformance to codes adopted by the University and issue certificates of temporary occupancy and occupancy if satisfactory conformance is demonstrated.
   C. The authority is executed by the Campus Building Official (CBO) who has the responsibility to perform all the duties set forth in the Current Approved State Buildings Codes and other applicable codes and standards indicated in the “Applicable Codes and Standards” Article of this Section.
   D. Permits: Obtain a separate permit for each Project from the Office of the CBO prior to erecting, constructing, enlarging, repairing, moving, removing, converting or demolishing any building or portion thereof. Coordinate and obtain all permits through the University Project Manager. The Contractor is not responsible for costs associated with construction permits.
      1. Exempt work: A building permit is not required for the following:
         a. Fences less than or equal to 6 feet tall.
         b. Movable casework, counters and partitions not over 5 feet 9 inches tall with no electrical or plumbing.
         c. Platforms, walks, and driveways not more than 30 inches above grade and not over any basement or story below.
         d. Painting, papering and similar finish work.
         e. Other work of limited scope at the discretion of the CBO.
   E. Permit Issuance: The CBO, or at the discretion of the CBO a third party code consultant, will review application, Drawings, Specifications, computations and other data filed for permit. Complete the permit application with the University Project Manager. Permits require submittal of two (2) stamped, signed...
sets of Construction Documents, including Drawings, Specifications and all Addenda, and one (1) set of each engineering discipline’s calculations, where such calculations are required. If CBO determines that submittal conforms to the requirements of the Building Code and other applicable codes, standards, laws, regulations and ordinances, an inspection record card will be issued with the building permit. Keep one stamped set of documents on site. The University will keep one stamped set in the Campus Support plan room.

F. Suspension or Revocation of Permit: CBO may, in writing, suspend or revoke a permit issued in error or on the basis of submitted information that is incorrect or that is in violation of the Building Code and other applicable codes and standards.

G. Posting of Permit: Post the Permit in a visible and protected location near the access to the project.

H. Inspection Record Card: Post the Inspection Record Card next to the permit in a visible and protected location near the access to the project. CBO will make required entries based on inspection of the work.

I. Inspection Requests:

1. Notify CBO that work is ready for inspection two business days before such inspection is desired by telephoning the number posted on the permit. The CBO retains the right to require requests in writing.
2. A re-inspection fee may be charged for prior rejected items.

J. Construction Inspections:

1. Contractor is not responsible for costs associated with construction inspections, except re-inspections. The CBO or his/her designee will perform all general building, electrical and plumbing inspections. All construction or work for which a permit is required must remain accessible and exposed for inspection purposes. Provide access to and means for inspection of work.
2. Site Utilities: Contact and comply with all requirements of City of Aurora.
3. Plumbing and Electrical Inspections: For new buildings and major additions, contact and comply with all requirements of State of Colorado Plumbing and Electrical Boards.
4. Provisions for structural and other special inspections required by Contract Documents, current approved State Building Codes and University Codes will be provided by the University.

K. Certification of Occupancy:

1. When CBO inspects the project and finds no violations of any provision of the Building Code, other applicable codes, standards, laws, regulations and ordinances, CBO will issue a Certification of Occupancy (CO) which will contain the following:
   a. Building permit number.
   b. Address of building.
   c. Name and address of Owner.
   d. Description of building or portion thereof for which certification is issued.
   e. Statement that described building or portion thereof has been inspected for compliance with the requirements of the Building Code, other applicable codes, standards, laws, regulations and ordinances, as relates to type of occupancy and use for which the building is intended.
2. Temporary Certificate of Occupancy (TCO): If CBO finds no substantial hazard will result from occupancy of any building or portion thereof before the same is completed, CBO may issue a TCO for the use of a portion or portions of a building or structure prior to the completion of the entire building or structure.

3. Posting of CO: Provide a copy to the University Project Manager and post in a conspicuous location on the premises. CO may not be removed except by CBO upon initial occupancy.

4. Revocation of CO:

1.4 APPLICABLE CODES AND STANDARDS

A. The following approved building codes and standards have been adopted by State Buildings Programs (SBP) as the minimum requirements to be applied to all state-owned buildings and physical facilities including capital construction and controlled maintenance construction projects. Current applicable codes can be obtained from The Office of the State Architect’s website.

B. University of Colorado Denver Codes and Standards: The following codes and standards supplement those indicated on the Office of the State Architect website.


   a. Use the most restrictive interpretation where NFPA 101 conflicts with the IBC requirements.
21. CDC-NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL); latest edition.

C. Other Standards: As indicated in individual Specification Sections.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 41 00
SECTION 01 42 00

REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Definitions.
2. Industry Standards.
3. Abbreviations and Acronyms.

B. Related Requirements:

1. Section 01 10 00 “Summary” for an explanation of specification and drawing conventions.
2. Section 01 41 00 “Regulatory Requirements” for a list of applicable codes.

1.3 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

1. Definitions in this Section are not intended to be complete, exhaustive or exclusive. They are general and apply to the Work to the extent that such definitions are not stated more explicitly in other provisions of the Contract Documents.

B. "Approved": When used to convey Architect/Engineer's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect/Engineer's duties and responsibilities as stated in the Conditions of the Contract. Except where expressly indicated, such approval does not release the Contractor from responsibility to fulfill requirements of the Contract Documents.

C. “Backup”: N+1 system.

D. "Directed": A command or instruction by Architect/Engineer. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

E. “EHS”: Environmental Health and Safety.

F. “Engineer”: Architect/Engineer. Other terms including “Mechanical Engineer”, “Electrical Engineer”, or “Structural Engineer” have the same meaning as “Engineer.”

G. “General Conditions”: Contract terms contained in Contractor’s Agreement Design/Bid/Build, State Form SC-6.21 and The General Conditions of the Construction Contract Design/Bid/Build, State Form
SC-6.23 “General Requirements”: Provisions and requirements of all Division 01 Sections as they apply to all aspects of the Work.

H. “Guarantee”: The narrow definition of the term “warranty” applying to both “warranty” and “guarantee” which terms are used interchangeably.

I. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

J. “Redundant”: 2N system. The level of redundancy is determined by design.

K. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.

L. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

M. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

N. “Owner”: Principal Representative and/or University.

O. "Provide": Furnish and install, complete and ready for the intended use.

P. “Project Manual”: Bound, printed volume or volumes including Conditions of the Contract and Specifications, which may also include bidding requirements, contract forms, details, schedules, surveys, reports or other relevant items that may or may not be Contract Documents.

Q. "Project Site": Space available for performing construction activities, either exclusively or in conjunction with others performing other work as part of the Project. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

R. “Supplementary Conditions”: University Special Supplementary General Conditions. Other terms including “Supplementary General Conditions” shall have the same meaning.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

1. Referenced standards take precedence over standards that are not referenced but generally recognized in the construction industry as applicable.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents.

1. Updated Codes and Standards: Where an applicable code or standard has been revised and reissued after the date of the Contract Documents and before performance of Work affected, submit Contractor-Initiated Change Order Bulletin and Change Order Proposal in accordance with
Section 01 26 00 “Contract Modification Procedures” for consideration to modify contract requirements to comply with revised code or standard.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.
2. Where required by individual Specification Sections provide and maintain copies of referenced codes and standards at Project Site.
3. Although copies of standards needed for enforcement of requirements may be part of required submittals, the Architect/Engineer reserves the right to require the Contractor to submit additional copies as necessary for enforcement of requirements.

D. Unreferenced Standards: Unreferenced standards are not directly applicable to the Work, except as a general requirement of whether the Work complies with recognized construction industry standards.

E. Conflicting Requirements: Where compliance with two or more standards is specified, and they establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents indicate otherwise. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Architect/Engineer for a decision before proceeding.

1.5 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Name</th>
<th>Phone Number</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>AABC</td>
<td>Associated Air Balance Council</td>
<td>(202) 737-0202</td>
<td><a href="http://www.aabc.com">www.aabc.com</a></td>
</tr>
<tr>
<td>AAMA</td>
<td>American Architectural Manufacturers Association</td>
<td>(847) 303-5664</td>
<td><a href="http://www.aamanet.org">www.aamanet.org</a></td>
</tr>
<tr>
<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials</td>
<td>(202) 624-5800</td>
<td><a href="http://www.transportation.org">www.transportation.org</a></td>
</tr>
<tr>
<td>AATCC</td>
<td>American Association of Textile Chemists and Colorists</td>
<td>(919) 549-8141</td>
<td><a href="http://www.aatcc.org">www.aatcc.org</a></td>
</tr>
<tr>
<td>ABMA</td>
<td>American Bearing Manufacturers Association</td>
<td>(202) 367-1155</td>
<td><a href="http://www.americanbearings.org">www.americanbearings.org</a></td>
</tr>
<tr>
<td>ACI</td>
<td>American Concrete Institute</td>
<td>(248) 848-3700</td>
<td><a href="http://www.concrete.org">www.concrete.org</a></td>
</tr>
<tr>
<td>ACPI</td>
<td>American Concrete Pipe Association</td>
<td>(972) 506-7216</td>
<td><a href="http://www.concrete-pipe.org">www.concrete-pipe.org</a></td>
</tr>
<tr>
<td>AEIC</td>
<td>Association of Edison Illuminating Companies, Inc. (The)</td>
<td>(205) 257-2530</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>Organization Name</td>
<td>Website</td>
<td>Phone 1</td>
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<tr>
<td>AF&amp;PA</td>
<td>American Forest &amp; Paper Association</td>
<td><a href="http://www.afandpa.org">www.afandpa.org</a></td>
<td>(800) 878-8878</td>
</tr>
<tr>
<td>AGA</td>
<td>American Gas Association</td>
<td><a href="http://www.ag.org">www.ag.org</a></td>
<td>(202) 824-7000</td>
</tr>
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<td>AHAM</td>
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<td><a href="http://www.aham.org">www.aham.org</a></td>
<td>(202) 872-5955</td>
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<td>AHRI</td>
<td>Air-Conditioning, Heating, and Refrigeration Institute (The)</td>
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<td>(703) 524-8800</td>
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<td><a href="http://www.asphaltinstitute.org">www.asphaltinstitute.org</a></td>
<td>(859) 288-4960</td>
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<td><a href="http://www.aisc.org">www.aisc.org</a></td>
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<td><a href="http://www.steel.org">www.steel.org</a></td>
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<td>(253) 565-6600</td>
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<td>ASCE</td>
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<td>ASHRAE</td>
<td>American Society of Heating, Refrigerating and Air-Conditioning Engineers</td>
<td>(800) 527-4723</td>
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<td>ASSE</td>
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<td>ASSE</td>
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<td>ATIS</td>
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<td>AWMAC</td>
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<td>(403) 453-7387</td>
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<td>AWPA</td>
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<td>(205) 733-4077</td>
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<td>AWS</td>
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<td>(800) 443-9353</td>
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<td>AWWA</td>
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<td>(305) 443-9353</td>
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<td>BHMA</td>
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<td>(800) 926-7337</td>
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<td>BIA</td>
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<td>(303) 794-7711</td>
<td><a href="http://www.gobrick.com">www.gobrick.com</a></td>
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<td>BICSI</td>
<td>BICSI, Inc.</td>
<td>(212) 297-2122</td>
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<td>(616) 285-3963</td>
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<td>BISSC</td>
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<td>(866) 342-4772</td>
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<td>CDA</td>
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<td>(613) 230-9263</td>
<td><a href="http://www.electricity.ca">www.electricity.ca</a></td>
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<td>CEA</td>
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<td>CFFA</td>
<td>Chemical Fabrics &amp; Film Association, Inc.</td>
<td>(216) 241-7333</td>
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<td>CFSEI</td>
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<td>(888) 881-2462</td>
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<td>CISCA</td>
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<td>(404) 622-0073</td>
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<td>CPA</td>
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<td>CRSI</td>
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<td>(800) 328-6306</td>
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<td><a href="http://www.dasma.com">www.dasma.com</a></td>
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<td>ECA</td>
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<td><a href="http://www.ecentral.org">www.ecentral.org</a></td>
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<td>EIMA</td>
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<td>EVO</td>
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<td><a href="http://www.evo-world.org">www.evo-world.org</a></td>
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<td>GANA</td>
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<td>(405) 744-5175</td>
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<td>ILI</td>
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<td><a href="http://www.iliai.com">www.iliai.com</a></td>
<td>(812) 275-4426</td>
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<td>Intertek</td>
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<td>(888) 480-9138</td>
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<td>MHIA</td>
<td>Material Handling Industry of America</td>
<td>(800) 345-1815 (704) 676-1190</td>
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<td>MIA</td>
<td>Marble Institute of America</td>
<td>(440) 250-9222</td>
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<td>MMPA</td>
<td>Moulding &amp; Millwork Producers Association</td>
<td>(800) 550-7889 (530) 661-9591</td>
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<td>MPI</td>
<td>Master Painters Institute</td>
<td>(888) 674-8937 (604) 298-7578</td>
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<td>MSS</td>
<td>Manufacturers Standardization Society of The Valve and Fittings Industry Inc.</td>
<td>(703) 281-6613</td>
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<td>NAAMM</td>
<td>National Association of Architectural Metal Manufacturers</td>
<td>(630) 942-6591</td>
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<td>NACE</td>
<td>NACE International (National Association of Corrosion Engineers International)</td>
<td>(800) 797-6223 (281) 228-6200</td>
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<td>NADCA</td>
<td>National Air Duct Cleaners Association</td>
<td>(202) 737-2926</td>
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<td>NAIMA</td>
<td>North American Insulation Manufacturers Association</td>
<td>(703) 684-0084</td>
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<td>NBGQA</td>
<td>National Building Granite Quarries Association, Inc.</td>
<td>(800) 557-2848</td>
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<td>NCAA</td>
<td>National Collegiate Athletic Association (The)</td>
<td>(317) 917-6222</td>
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<td>NCMA</td>
<td>National Concrete Masonry Association</td>
<td>(703) 713-1900</td>
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<td>NEBB</td>
<td>National Environmental Balancing Bureau</td>
<td>(301) 977-3698</td>
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<td>NECA</td>
<td>National Electrical Contractors Association</td>
<td>(301) 657-3110</td>
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<td>NeLMA</td>
<td>Northeastern Lumber Manufacturers Association</td>
<td>(207) 829-6901</td>
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<td>NEMA</td>
<td>National Electrical Manufacturers Association</td>
<td>(703) 841-3200</td>
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<td>NETA</td>
<td>InterNational Electrical Testing Association</td>
<td>(888) 300-6382 (269) 488-6382</td>
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<td>NFHS</td>
<td>National Federation of State High School Associations</td>
<td>(317) 972-6900</td>
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<td>NFPA</td>
<td>NFPA (National Fire Protection Association)</td>
<td>(800) 344-3555 (617) 770-3000</td>
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<td>NFPA</td>
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<td>NFRC</td>
<td>National Fenestration Rating Council</td>
<td>(301) 589-1776</td>
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<td>NHLA</td>
<td>National Hardwood Lumber Association</td>
<td>(800) 933-0318 (901) 377-1818</td>
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<td>NLGA</td>
<td>National Lumber Grades Authority</td>
<td>(604) 524-2393</td>
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<td>National Oak Flooring Manufacturers Association (See NWFA)</td>
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<td>NOMMA</td>
<td>National Ornamental &amp; Miscellaneous Metals Association</td>
<td>(888) 516-8585</td>
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<td>NRCA</td>
<td>National Roofing Contractors Association</td>
<td>(800) 323-9545 (847) 299-9070</td>
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<td>NRMCA</td>
<td>National Ready Mixed Concrete Association</td>
<td>(888) 846-7622 (301) 587-1400</td>
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<tr>
<td>NSF</td>
<td>NSF International (National Sanitation Foundation International)</td>
<td>(800) 673-6275 (734) 769-8010</td>
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<td>NSPE</td>
<td>National Society of Professional Engineers</td>
<td>(703) 684-2800</td>
<td><a href="http://www.nspe.org">www.nspe.org</a></td>
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<td>NSSGA</td>
<td>National Stone, Sand &amp; Gravel Association</td>
<td>(800) 342-1415</td>
<td><a href="http://www.nssga.org">www.nssga.org</a></td>
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<td>NTMA</td>
<td>National Terrazzo &amp; Mosaic Association, Inc. (The)</td>
<td>(800) 323-9736</td>
<td><a href="http://www.ntma.com">www.ntma.com</a></td>
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<td>NWFA</td>
<td>National Wood Flooring Association</td>
<td>(800) 422-4556</td>
<td><a href="http://www.nwfa.org">www.nwfa.org</a></td>
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<td>PCI</td>
<td>Precast/Prestressed Concrete Institute</td>
<td>(312) 786-0300</td>
<td><a href="http://www.pci.org">www.pci.org</a></td>
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<td>PDI</td>
<td>Plumbing &amp; Drainage Institute</td>
<td>(800) 589-8956</td>
<td><a href="http://www.pdionline.org">www.pdionline.org</a></td>
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<td>PLASA</td>
<td>PLASA (Formerly: ESTA - Entertainment Services and Technology Association)</td>
<td>(212) 244-1505</td>
<td><a href="http://www.plasa.org">www.plasa.org</a></td>
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<td>RCSC</td>
<td>Research Council on Structural Connections</td>
<td>(706) 882-3833</td>
<td><a href="http://www.boltcouncil.org">www.boltcouncil.org</a></td>
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<td>RFCI</td>
<td>Resilient Floor Covering Institute</td>
<td>(724) 776-4841</td>
<td><a href="http://www.rfci.com">www.rfci.com</a></td>
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<td>RIS</td>
<td>Redwood Inspection Service</td>
<td>(925) 935-1499</td>
<td><a href="http://www.redwoodinspection.com">www.redwoodinspection.com</a></td>
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<td>SAE</td>
<td>SAE International (Society of Automotive Engineers)</td>
<td>(877) 606-7323</td>
<td><a href="http://www.sae.org">www.sae.org</a></td>
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<td>SBCCI</td>
<td>Southern Building Code Congress International, Inc.</td>
<td>(877) 294-5424</td>
<td>(516) 294-5424</td>
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<td>SCTE</td>
<td>Society of Cable Telecommunications Engineers</td>
<td>(610) 363-6888</td>
<td><a href="http://www.scta.org">www.scta.org</a></td>
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<td>SDI</td>
<td>Steel Deck Institute</td>
<td>(847) 458-4647</td>
<td><a href="http://www.sdi.org">www.sdi.org</a></td>
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<td>SDI</td>
<td>Steel Door Institute</td>
<td>(440) 899-0010</td>
<td><a href="http://www.steeldoor.org">www.steeldoor.org</a></td>
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<td>SEFA</td>
<td>Scientific Equipment and Furniture Association</td>
<td>(877) 294-5424</td>
<td><a href="http://www.sefalabs.com">www.sefalabs.com</a></td>
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<td>SEI/ASCE</td>
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<td>(516) 294-5424</td>
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<td>SIA</td>
<td>Security Industry Association</td>
<td>(866) 817-8888</td>
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<td>(703) 683-2075</td>
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<td>SJI</td>
<td>Steel Joist Institute</td>
<td>(843) 293-1995</td>
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<td>SMA</td>
<td>Screen Manufacturers Association</td>
<td>(773) 636-0672</td>
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<td>SMACNA</td>
<td>Sheet Metal and Air Conditioning Contractors' National Association</td>
<td>(703) 803-2980</td>
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<td>SMPTE</td>
<td>Society of Motion Picture and Television Engineers</td>
<td>(914) 761-1100</td>
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<td>SPFA</td>
<td>Spray Polyurethane Foam Alliance</td>
<td>(800) 523-6154</td>
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<td>SPIB</td>
<td>Southern Pine Inspection Bureau</td>
<td>(850) 434-2611</td>
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<td>SPRI</td>
<td>Single Ply Roofing Industry</td>
<td>(781) 647-7026</td>
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<td>SRCC</td>
<td>Solar Rating and Certification Corporation</td>
<td>(321) 638-1537</td>
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<td>SSINA</td>
<td>Specialty Steel Industry of North America</td>
<td>(800) 982-0355</td>
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<td>SSPC</td>
<td>SSPC: The Society for Protective Coatings</td>
<td>(877) 281-7772</td>
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<td>STI</td>
<td>Steel Tank Institute</td>
<td>(847) 438-8265</td>
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<td>SWI</td>
<td>Steel Window Institute</td>
<td>(216) 241-7333</td>
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<td>SWPA</td>
<td>Submersible Wastewater Pump Association</td>
<td>(847) 681-1868</td>
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<td>TCA</td>
<td>Tilt-Up Concrete Association</td>
<td>(319) 895-6911</td>
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<td>TCNA</td>
<td>Tile Council of North America, Inc.</td>
<td>(864) 646-8453</td>
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<td>TEMA</td>
<td>Tubular Exchanger Manufacturers Association, Inc.</td>
<td>(914) 332-0040</td>
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<td>TIA</td>
<td>Telecommunications Industry Association</td>
<td>(703) 907-7700</td>
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<td>(Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance)</td>
<td><a href="http://www.tiaonline.org">www.tiaonline.org</a></td>
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<td>TIA/EIA</td>
<td>Telecommunications Industry Association/Electronic Industries Alliance</td>
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<td>TMS</td>
<td>The Masonry Society</td>
<td><a href="http://www.masonrysociety.org">www.masonrysociety.org</a></td>
<td>(303) 939-9700</td>
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<td>TPI</td>
<td>Truss Plate Institute</td>
<td><a href="http://www.tpiinst.org">www.tpiinst.org</a></td>
<td>(703) 683-1010</td>
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<td>TPI</td>
<td>Turfgrass Producers International</td>
<td><a href="http://www.turfgrasssoc.org">www.turfgrasssoc.org</a></td>
<td>(800) 405-8873</td>
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<td>TRI</td>
<td>Tile Roofing Institute</td>
<td><a href="http://www.tileroofing.org">www.tileroofing.org</a></td>
<td>(312) 670-4177</td>
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<td>UBC</td>
<td>Uniform Building Code</td>
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<td>UL</td>
<td>Underwriters Laboratories Inc.</td>
<td><a href="http://www.ul.com">www.ul.com</a></td>
<td>(877) 854-3577</td>
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<td>UNI</td>
<td>Uni-Bell PVC Pipe Association</td>
<td><a href="http://www.uni-bell.org">www.uni-bell.org</a></td>
<td>(972) 243-3902</td>
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<td>USAV</td>
<td>USA Volleyball</td>
<td><a href="http://www.usavolleyball.org">www.usavolleyball.org</a></td>
<td>(888) 786-5539</td>
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<td>USGBC</td>
<td>U.S. Green Building Council</td>
<td><a href="http://www.usgbc.org">www.usgbc.org</a></td>
<td>(800) 795-1747</td>
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<td>USITT</td>
<td>United States Institute for Theatre Technology, Inc.</td>
<td><a href="http://www.usitt.org">www.usitt.org</a></td>
<td>(800) 938-7488</td>
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<td>WASTEC</td>
<td>Waste Equipment Technology Association</td>
<td><a href="http://www.wastec.org">www.wastec.org</a></td>
<td>(800) 424-2869</td>
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<td>WCLIB</td>
<td>West Coast Lumber Inspection Bureau</td>
<td><a href="http://www.wclib.org">www.wclib.org</a></td>
<td>(800) 283-1486</td>
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<td>WCMA</td>
<td>Window Covering Manufacturers Association</td>
<td><a href="http://www.wcmanet.org">www.wcmanet.org</a></td>
<td>(212) 297-2122</td>
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<td>WDMA</td>
<td>Window &amp; Door Manufacturers Association</td>
<td><a href="http://www.wdma.com">www.wdma.com</a></td>
<td>(800) 223-2301</td>
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<td>WI</td>
<td>Woodwork Institute</td>
<td>(Formerly: WIC - Woodwork Institute of California)</td>
<td><a href="http://www.wienet.org">www.wienet.org</a></td>
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<tr>
<td>WMMPA</td>
<td>Wood Moulding &amp; Millwork Producers Association</td>
<td>(See MMPA)</td>
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<td>WSRCA</td>
<td>Western States Roofing Contractors Association</td>
<td><a href="http://www.wsrca.com">www.wsrca.com</a></td>
<td>(800) 725-0333</td>
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B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

WWPA Western Wood Products Association www.wwpa.org (503) 224-3930

DIN Deutsches Institut für Normung e.V. www.din.de 49 30 2601-0

IAPMO International Association of Plumbing and Mechanical Officials www.iapmo.org (909) 472-4100

ICC International Code Council www.iccsafe.org (888) 422-7233


C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

COE Army Corps of Engineers www.usace.army.mil (202) 761-0011

CPSC Consumer Product Safety Commission www.cpsc.gov (800) 638-2772 (301) 504-7923

DOC Department of Commerce National Institute of Standards and Technology www.nist.gov (301) 975-4040

DOD Department of Defense http://dodssp.daps.dla.mil (215) 697-2664

DOE Department of Energy www.energy.gov (202) 586-9220

EPA Environmental Protection Agency www.epa.gov (202) 272-0167

FAA Federal Aviation Administration www.faa.gov (866) 835-5322


GSA General Services Administration www.gsa.gov (800) 488-3111 (202) 619-8925

HUD Department of Housing and Urban Development www.hud.gov (202) 708-1112
### REFERENCES

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<td>LBL</td>
<td>Lawrence Berkeley National Laboratory</td>
<td>(510) 486-4000</td>
<td><a href="http://eetd.lbl.gov">http://eetd.lbl.gov</a></td>
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<tr>
<td>OSHA</td>
<td>Occupational Safety &amp; Health Administration</td>
<td>(800) 321-6742</td>
<td><a href="http://www.osha.gov">www.osha.gov</a></td>
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<tr>
<td>SD</td>
<td>Department of State</td>
<td>(202) 647-4000</td>
<td><a href="http://www.state.gov">www.state.gov</a></td>
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<tr>
<td>TRB</td>
<td>Transportation Research Board</td>
<td>(202) 334-2934</td>
<td><a href="http://www.trb.org">www.trb.org</a></td>
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<td>USDA</td>
<td>Department of Agriculture</td>
<td>(202) 720-3656</td>
<td><a href="http://www.ars.usda.gov">www.ars.usda.gov</a></td>
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<td>USDA</td>
<td>Department of Agriculture</td>
<td>(202) 720-2791</td>
<td><a href="http://www.usda.gov">www.usda.gov</a></td>
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<tr>
<td>USDJ</td>
<td>Department of Justice</td>
<td>(202) 307-0703</td>
<td><a href="http://www.ojp.usdoj.gov">www.ojp.usdoj.gov</a></td>
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<td>USP</td>
<td>U.S. Pharmacopeia</td>
<td>(800) 227-8772</td>
<td>(301) 881-0666</td>
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### Standards and Regulations

D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

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<td>DOD</td>
<td>Department of Defense</td>
<td>(215) 697-2664</td>
<td><a href="http://dodssp.daps.dla.mil">Available from Department of Defense Single Stock Point</a></td>
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<td>DSCC</td>
<td>Defense Supply Center Columbus</td>
<td>(See FS)</td>
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<td>FED-STD</td>
<td>Federal Standard</td>
<td>(See FS)</td>
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<td>FS</td>
<td>Federal Specification</td>
<td>(215) 697-2664</td>
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REFERENCES 01 42 00 - 16
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00
SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1. Nothing in this Section is intended to limit types and amounts of temporary work required, and no omission from this Section will be recognized as an indication by Architect/Engineer that such temporary activity is not required for successful completion of the Work. The use of alternative facilities equivalent to those specified is the Contractor's option, subject to Architect/Engineer's and University acceptance.

B. Related Requirements:

1. Section 01 10 00 "Summary" for work restrictions and limitations on utility interruptions.
2. Section 01 35 46 “Indoor Air Quality” for temporary facility work including HVAC, air filtration, moisture management, air filtration and dust control partitions required to comply with indoor air quality requirements during construction.

1.3 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, University's construction forces, Architect/Engineer, testing agencies, and authorities having jurisdiction.

B. Use Charges: As follows:

1. For new construction: Arrange for and pay for water, sewer, electric power, steam and chilled water use charges for utility usage by all entities for construction operations.
2. For renovations of existing facilities: Arrange for and University will pay for all use charges.

C. Temporary Metering: For all utility connection; sub-meter at point of connection to existing systems.

1. Temporary utility meter must be approved by University Campus Energy Engineer.
2. Meters shall be operational prior to any use of utility for temporary heating.
1.4 INFORMATIONAL SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

D. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
   1. Locations of dust-control partitions at each phase of work.
   2. HVAC system isolation schematic drawing.
   3. Location of proposed air-filtration system discharge.
   5. Other dust-control measures.

1.5 QUALITY ASSURANCE

A. General: Comply with governing regulations and utility company regulations and recommendations for the construction of temporary facilities including, but not necessarily limited to, code compliances, permits, inspections, testing, health, safety, pollution and environmental compliances.


D. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

E. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

F. Accessible Temporary Egress: Where temporary accessible egress from existing buildings or portions thereof is provided, comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before University's acceptance, regardless of previously assigned responsibilities.

B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.
PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide both new or used materials and equipment for temporary facilities, which are in substantially undamaged and serviceable condition. Provide types and qualities which are recognized in the construction industry as suitable for the intended use in each application. Comply with Utility Company requirements as applicable.

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. Digital Camera: Minimum 12 megapixel; available in field office for use.

PART 3 - EXECUTION

3.1 TEMPORARY UTILITY INSTALLATION

A. Heating: Provide temporary heating required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

1. HVAC Equipment: Unless University authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
   a. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
   b. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
   c. Permanent HVAC System: If University authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air and exhaust grille in system and remove at end of construction. Clean and adjust HVAC system and put in new condition before Completion as required in Section 01 77 00 “Closeout Procedures”.

B. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

1. Prior to commencing work, isolate the HVAC system in area where work is to be performed.
   a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
   b. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.

C. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.

D. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Provide temporary light to levels and as required by governing regulations but not less than minimum 5 foot-candle illumination in all areas accessible to workers during hours they are at the job; minimum 10 foot-candles for shop areas; 20 foot-candles or more where detailed or finishing work is being done, supplemented as may be required.
2. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
3. Where permanent light fixtures have been used for temporary lighting, supply temporary lamps and replace with new lamps at time of Completion.

3.2 SUPPORT FACILITIES INSTALLATION

A. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 01 73 00 "Execution."

1. Coordinate with University Project Manager to obtain approval from University Environmental Services Manager.
2. Provide waste chutes as required in accordance with applicable laws and regulations.

B. Existing Elevator Use: When approved by University, one designated existing elevator may be used at no charge to Contractor or other subcontractors for transporting personnel, small tools, materials, and equipment. Comply with requirements of Section 01 10 00 “Summary” and the following:

1. Contractor will not be granted exclusive use of the designated elevator. University personnel and staff will be permitted to use this elevator as their work duties require.
2. Entire car is lined (floor, walls, ceiling) with 3/4 inch Fir plywood or equivalent.
3. Total load carried does not exceed rated capacity of elevator.
4. No materials, equipment, trash, tools or other items too large to be readily moved into and out of the car may be carried in the elevator.
5. Before acceptance of the building, linings are removed; all exposed surfaces are in new condition; all controls, relays, other parts showing any wear have been replaced.
6. Entire elevator, including machinery, electrical components, doors, operators and controls shall be tested, adjusted, and put in new condition with specified warranties and maintenance to take effect at date of Completion Certificate.
7. Written clearance has been obtained from the Elevator Service Company stating that the installation is safe and complete for this use prior to using it.
8. The Contractor signs the Elevator Service Company's standard agreement and release forms for this usage and pays charges for maintenance, service, repairs, and reconditioning.

C. Existing Stair Usage: Use of University's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to University. At Substantial Completion, restore stairs to condition existing before initial use.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

D. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Protection of Work: Protect in-progress and completed work from damage or deterioration, other than normal weathering of exposed materials, through construction duration until completion, as appropriate and as recommended by manufacturer and Installer.

1. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings. Protect finished floors and stairs from traffic, movement of heavy objects, and storage.
2. Prohibit traffic and storage on waterproofed and roofed surfaces, on lawn and landscaped areas.
3. Always protect excavation, trenches, and building, from damage from rain water, spring water, ground water, backing up of drains or sewers. Provide pumps, equipment, enclosures, to provide this protection.
4. Remove protective coverings and materials at the appropriate time but no later than final cleaning operations.

C. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 01 10 00 "Summary."

D. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

E. Temporary Partitions: Provide floor-to-floor or floor-to-ceiling dustproof partitions terminating in dustproof floor or ceiling above to limit dust and dirt migration and to separate existing active elevator hoistways and other areas occupied by University from dust, fumes and noise in compliance with Section 01 35 46 “Indoor Air Quality” and the following:

1. Construct dustproof partitions with 5/8 inch gypsum wallboard with joints taped on occupied side, and 1/2 inch fire-retardant-treated plywood on construction operations side.
2. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
3. Insulate partitions to control noise transmission to occupied areas.
4. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
5. Protect air-handling equipment.
6. Provide walk-off mats at each entrance through temporary partition.
7. At elevator hoistway entrances not used during construction, seal openings with plastic sheet and duct tape.

F. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Fire Extinguishers: Minimum one per floor at or near useable exit.
   a. Provide additional extinguishers where convenient and effective for intended purpose.
   b. Comply with NFPA 10 to the extent applicable.

2. Strictly enforce site prohibition against smoking.
3. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
4. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Coordinate with University Project Manager to review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
5. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.
6. Maintain unobstructed access to fire extinguishers, temporary fire protection facilities, stairways and other access routes for fighting fires.
7. Store combustible materials in containers in fire-safe locations.
8. Permanent Fire Protection System: Complete and make operational at earliest possible date. Instruct site personnel on use of permanent system.

3.4 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Comply with requirements in Section 01 35 46 “Indoor Air Quality Procedures.”

3.5 OPERATION, TERMINATION, AND REMOVAL

END OF SECTION 01 50 00
SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 01 21 00 "Allowances" for products selected under an allowance, if applicable.
2. Section 01 23 00 "Alternates" for products selected under an alternate, if applicable.
3. Section 01 25 00 "Substitution Procedures" for requests for substitutions.
4. Section 01 42 00 "References" for applicable industry standards for products specified.
5. Section 01 77 00 “Closeout Procedures” for submittal of project warranties.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.
1.4 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Requests for consideration of comparable products will only be entertained during bidding.
2. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
3. Architect/Engineer's Action: If necessary, Architect/Engineer will request additional information or documentation for evaluation of a comparable product request. Architect/Engineer will notify Contractor of approval or rejection of proposed comparable product.
   a. Form of Approval: Written Addendum.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 33 00 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options. The complete compatibility between the various choices available to the Contractor is not assured by the various requirements of the Contract Documents, but must be provided by the Contractor.

B. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.

C. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturers or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on the exterior.

D. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.

E. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data.

   1. Name of product and manufacturer.
   2. Model and serial number.
   3. Capacity.
   4. Speed.
   5. Ratings.
   6. Power characteristics (if applicable).
   7. UL label or compliance (if applicable).

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents. Such disclaimers and limitations do not relieve保修 requirements on Work that incorporates product nor do they relieve suppliers, manufacturers and subcontractors required to countersign special warranties with the Contractor.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to University.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for University.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time and Form: Comply with requirements in Section 01 77 00 "Closeout Procedures."

D. Warranty Requirements:
1. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

2. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

3. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the University has benefited from use of the Work through a portion of its anticipated useful service life.

4. University's Recourse:
   a. Written warranties made to the University are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the University can enforce such other duties, obligations, rights, or remedies.
   b. Rejection of Warranties: The University reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.
   c. The University reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged, are asbestos free, and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. University reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect/Engineer will make selection.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product and provide only products previously approved during bid phase by written Addendum. The determination of equivalence is at the sole discretion of the Architect/Engineer who has no obligation to prove non-equivalence.
7. Mechanical and electrical equipment design and their space requirements are based on the first named item of the Section in which specified or that scheduled on the Drawings. If other than the first named or scheduled item listed for use is selected, modification to other elements of Work may be required. Show all such modification on shop drawings and submittals as appropriate. The cost of such modifications is solely the responsibility of the Contractor.
8. Where manufacturers are listed as acceptable for specific proprietary products but precise identification by model, series, or trade name is not specified, submit detailed product information for such products for Architect/Engineer's acceptance prior to ordering. Include specific requirements for modifications to other construction, including but not limited to, power and utility requirements, characteristics, capacities, size and locations. The cost of such modifications is solely the responsibility of the Contractor.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

3. Products:
   a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

4. Manufacturers:
   a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. If proposing a comparable product by another manufacturer, whether named or not, provide a custom product if manufacturer's standard product does not include salient features of the Basis-of-Design product indicated. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

6. Contractor’s Option: Where materials, products, systems or methods are specified to be selected from a list of options, subject to compliance with requirements, the choice of which material, method, product or system will be solely at the Contractor’s discretions. There will be no change in Contract Sum or Time because of such choice.

C. Visual Matching Specification: Where Specifications require "match Architect/Engineer's sample", provide a product that complies with requirements and matches Architect/Engineer's sample. Architect/Engineer's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01 25 00 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect/Engineer from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect/Engineer will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.
2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Prior to bid, Architect/Engineer will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect/Engineer will reject request:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00
SECTION 01 73 00

EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Coordination of University-installed products.
6. Progress cleaning.
7. Starting and adjusting.
8. Protection of installed construction.

B. Related Requirements:

1. Section 01 10 00 "Summary" for limits on use of Project site and procedures related to utility interruptions.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For land surveyor or professional engineer.

B. Certificates: Submit certificate signed by land surveyor or professional engineer certifying that location and elevation of improvements comply with requirements.

C. Cutting and Patching Plan and Request: Submit plan and request describing procedures at least 21 calendar days prior to the time cutting and patching will be performed.

1. Submit request whenever cutting and patching operation affect:
EXECUTION

1. Include the following information:

   a. Work of the University or any separate contractor.
   b. Structural value or integrity of any element of the Project.
   c. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
   d. Efficiency, operational life, maintenance or safety of operational elements.
   e. Visual qualities of sight-exposed elements.
   f. Cutting new openings in existing structural concrete walls, floors and suspended slabs.
   g. Cutting new openings in existing roofs and roofing materials.
   h. Cutting exterior walls.
   i. Cutting into shafts.

2. Include the following information:

   a. Extent: Describe reason for and extent of each occurrence of cutting and patching, including explanation of why cutting and patching operation cannot be reasonable avoided.
   b. Changes to In-Place Construction: Describe cutting and patching methods and anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
   c. Products: List products to be used for patching and firms or entities that will perform patching work.
   d. Trades: Indicate trades and subcontractors who will perform the work.
   e. Dates: Indicate when cutting and patching will be performed.
   f. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

   1) Include description of provisions for temporary services and systems during interruption of permanent services and systems.
   2) Comply with requirements of Section 01 10 00 “Summary” related to existing utility and system interruptions.

   g. Structural Elements: Where cutting and patching structural elements requires the addition of reinforcement, submit details and calculations signed and sealed by an Engineer registered in the State of Colorado. Indicate how new reinforcing will be integrated with original structure.

3. Limitations: Approval of cutting and patching request does not waive right of Architect/Engineer or University to later require complete removal and replacement of work found to be unsatisfactorily cut and patched.

D. Certified Surveys: Submit two copies signed by land surveyor or professional engineer.

E. Final Property Survey: Submit one electronic and two paper copies showing the Work performed and record survey data.

   1. Include certified statement that lines and levels of the work comply with the requirements of the Contract Documents and listing authorized or accepted deviations, cross-referenced to Change Order number, where applicable.

1.5 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect/Engineer of locations and details of cutting and await directions from Architect/Engineer before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include but are not limited to the following:
   a. Primary operational systems and equipment.
   b. Fire separation assemblies.
   c. Air or smoke barriers.
   d. Fire-suppression systems.
   e. Mechanical systems piping and ducts.
   f. Control systems.
   g. Communication systems.
   h. Fire-detection and -alarm systems.
   i. Conveying systems.
   j. Electrical wiring systems.
   k. Operating systems of special construction.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
   a. Water, moisture, or vapor barriers.
   b. Membranes and flashings.
   c. Exterior curtain-wall construction.
   d. Sprayed fire-resistive material.
   e. Equipment supports.
   f. Piping, ductwork, vessels, and equipment.
   g. Noise- and vibration-control elements and systems.

4. Visual Elements: Do not cut and patch construction exposed to the exterior or exposed in occupied spaces in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect/Engineer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

5. Hazardous Materials: Do not proceed with cutting and patching operations until University has examined existing construction for the presence of asbestos and/or lead-based coatings. Comply with requirements in Section 01 35 00 “Special Procedures.”

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.
PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with requirements in Division 01 Section “Sustainable Design Requirements.”

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect/Engineer for the visual and functional performance of in-place materials.

C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work. Notify University Project Manager and Architect/Engineer and obtain approval prior to disturbing, moving or penetrating soil.

1. Arrange for locating buried utilities including water and sewer lines within construction limits. Obtain location information and stake all known utilities prior to commencing construction activities.

   a. Contact Utility Notification Center of Colorado (UNCC), 1-800-922-1987, and comply with UNCC guidelines.

2. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.

3. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present, for compliance with requirements for installation tolerances and other conditions affecting performance.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility or University, as appropriate, that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect/Engineer according to requirements in Section 01 31 00 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect/Engineer promptly.

B. General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
4. Inform installers of lines and levels to which they must comply.
5. Check the location, level and plumb, of every major element as the Work progresses.
6. Notify Architect/Engineer when deviations from required lines and levels exceed allowable tolerances. Record deviation which are accepted (i.e., not corrected) on record drawings in accordance with the requirements of Section 01 78 39 “Project Record Documents.”
7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect/Engineer.

3.4 FIELD ENGINEERING

A. Identification: University will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect/Engineer. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect/Engineer before proceeding.

2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.

3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

E. Final Property Survey: Engage a land surveyor or professional engineer to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor or professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.

2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."
3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated to the extent they are more explicit or stringent than requirements of the Contract Documents.

C. Install products at the time and under conditions, including weather that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Isolate each part of complete installation from incompatible material as needed to prevent deterioration.

E. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

F. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

G. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

H. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

I. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned, true and level as applicable, with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
   1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect/Engineer.
   2. Allow for building movement, including thermal expansion and contraction.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

J. Attachment to Concrete:
   1. No drilled inserts or powder-actuated fasteners are permitted in pre-stressed concrete except as specifically authorized by Contractor and carried out under the direct supervision of its Superintendent.
   2. Only those devices with a maximum controlled penetration of 3/4 inch or less will be permitted. Make holes through slabs by means of sleeves placed no closer than 2 inch from tensioning cables. Core drilling will not be permitted unless unavoidable and as specified for cutting and patching in this Section.
K. Joints: Unless indicated otherwise, make joints of uniform width. Where joint locations in exposed work are required but not indicated, arrange joints for the best visual effect. Confirm arrangement with Architect/Engineer before proceeding. Fit exposed connections together to form hairline joints.

L. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Responsibility: Provide cutting and patching work, including attendant excavation and backfill required to complete the Work or to:

1. Make components fit together properly.
2. Uncover portions of the Work to provide for installation of ill-timed work.
3. Remove and replace defective work or work not conforming to requirements of Contract Documents.
4. Remove samples of installed work as specified for testing.
5. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.

C. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

D. Temporary Support: Provide temporary support of work to be cut.

E. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

F. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 10 00 "Summary."

G. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas, coordinate cutting and patching according to requirements in Section 01 10 00 "Summary."

H. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations. Employ methods which will prevent settlement or damage to other work.

5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.

6. Proceed with patching after construction operations requiring cutting are complete.

I. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements, including tolerance, specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.

2. Exposed Finishes: 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.
   a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
   b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
   a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.

5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

J. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 UNIVERSITY-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for University's construction personnel.

B. Coordination: Coordinate construction and operations of the Work with work performed by University's construction personnel.

1. Construction Schedule: Inform University of Contractor's preferred construction schedule for University's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify University if changes to schedule are required due to differences in actual construction progress.
2. **Preinstallation Conferences**: Include University's construction personnel at preinstallation conferences covering portions of the Work that are to receive University's work. Attend preinstallation conferences conducted by University's construction personnel if portions of the Work depend on University's construction.

3.8 **PROGRESS CLEANING**

A. **General**: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

2. Do not hold waste materials more than seven calendar days during normal weather or three calendar days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

   a. Use containers intended for holding waste materials of type to be stored.

B. **Collection Point**: Review location with University and obtain approval.

C. **Site**: Maintain Project site free of waste materials and debris.

D. **Wind Blown Debris**: Prevent spread of trash, debris, cartons, packing material, or other waste on or off Project site by wind.

E. **Dust**: Sprinkle dusty debris with water.

F. **Packing Materials**: Immediately after uncrating or unpacking materials or equipment, remove all crating, lumber, excelsior, wrapping or other like combustible materials from building to central collection facility.

G. **Work Areas**: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

H. **Installed Work**: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

I. **Concealed Spaces**: Remove debris from concealed spaces before enclosing the space.

J. **Exposed Surfaces in Finished Areas**: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

K. **Waste Disposal**: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 74 19 "Construction Waste Management and Disposal."
L. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

M. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

N. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

O. Snow and Ice: Remove snow and ice from sidewalks adjacent to site and from access ways to building and construction site.

P. Streets: At frequency required by University and/or governing authority, clean adjacent and nearby streets of dirt resulting from construction operations.

3.9 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: Comply with qualification requirements in Section 01 40 00 "Quality Requirements."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Thermal shock.
5. Excessively high or low humidity.
6. Air contamination or pollution.
7. Water or ice.
8. Solvents.
10. Light.
11. Radiation.
12. Puncture.
13. Abrasion.
14. Heavy traffic.
15. Soiling, staining and corrosion.
16. Bacteria.
17. Rodent and insect infestation.
19. Electrical current.
20. High speed operation.
21. Improper lubrication.
22. Unusual wear or other misuse.
23. Contact between incompatible materials.
24. Misalignment.
25. Excessive weathering.
27. Improper shipping or handling.
28. Theft.
29. Vandalism.

END OF SECTION 01 73 00
SECTION 01 77 00
CLOSEOUT PROCEDURES

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
   1. Substantial Completion procedures, including Notice of Completion and Final Inspection procedures.
   2. Occupancy procedures, including Notice of Approval of Occupancy/Use and University Supplemental Notice of Occupancy and Use List.
   3. Final Acceptance procedures, including Pre-Acceptance Checklist and University Supplemental Building/Project Acceptance List.
   4. Inspections after completion.
   5. Warranties.
   6. Final cleaning.
   7. Repair of the Work.
B. Related Requirements:
   1. Section 01 32 33 "Photographic Documentation" for submitting final completion construction photographic documentation.
   2. Section 01 73 00 "Execution" for progress cleaning of Project site.
   3. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.
   4. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
   5. Section 01 79 00 "Demonstration and Training" for requirements for instructing University's personnel.

1.3 ACTION SUBMITTALS
A. Product Data: For cleaning agents.
B. Contractor's List of Incomplete Items: Initial submittal at Notice of Completion.
C. Certified List of Incomplete Items: Final submittal at Final Acceptance.

1.4 CLOSEOUT SUBMITTALS
A. Certificates of Release: From authorities having jurisdiction.
B. Certificate of Insurance: For continuing coverage.
C. Field Report: For pest control inspection.
1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 NOTICE OF COMPLETION AND SUBSTANTIAL COMPLETION PROCEDURES

A. Procedures and Submittals Prior to Notice of Completion: Complete and submit all of the following items prior to submitting Notice of Completion to Architect/Engineer. Include Contractor’s comprehensive list of items to be completed, corrected or not in compliance with the Drawings and Specifications.

1. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's preliminary punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
2. Building Inspection Record: Submit completed record with all required corrections noted.
4. Final Completion Schedule: Submit schedule for performing and completing all work indicated on the Contractor’s list of incomplete items.
5. Submit sustainable design documentation.
6. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
7. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
8. Submit test/adjust/balance records.

B. Final Inspection: Submit Notice of Completion to Architect/Engineer. Upon receipt, Architect/Engineer and University will review and if all items on the University Supplemental Notice of Completion Checklist are complete will, within the timeframe required by the Contract, schedule and make an inspection of the Project to determine whether the Work is substantially complete.

1. Final Punch List: Based on the inspection, Architect/Engineer will prepare a final punch list of work to be completed, work not in compliance with the Drawings or Specifications, and unsatisfactory work for any reason.
2. Re-inspection: If the cumulative number of items identified on the final punch list prevents a determination that the work is substantially complete, complete those items and when complete resubmit Notice of Completion. Upon receipt of resubmittal, Architect/Engineer and University will then schedule and make a re-inspection of the Project to determine whether the Work is substantially complete.

C. Notice of Substantial Completion: When inspection of the Work indicates that the Project is substantially complete and all other Contract provisions required for substantial completion have been satisfied, Architect/Engineer will issue a Notice of Substantial Completion (State Form SBP-07).

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor or as approved by Architect/Engineer.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:
   a. Project name.
   b. Date.
   c. Name of Architect/Engineer.
   d. Name of Contractor.
   e. Page number.
4. Submit list of incomplete items in the following format:
   a. MS Excel and PDF electronic file. Architect/Engineer will return annotated file.

1.8 OCCUPANCY PROCEDURES

A. Procedures and Submittals Prior to Occupancy: Complete and submit all items on both State Form SBP-01 “Notice of Approval of Occupancy/Use” and University Supplemental Notice of Occupancy and Use List.

1.9 FINAL ACCEPTANCE PROCEDURES

A. Procedures and Submittals Prior to Final Acceptance: Complete and submit all items on both State Form SBP-05 “Pre-Acceptance Checklist” and University Supplemental Building/Project Acceptance List.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 business days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect/Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect/Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.10 SETTLEMENT AND FINAL PAYMENT

A. Submit and complete all of the following as a condition precedent to settlement and final payment:

1. All guarantees and warranties.
2. All statement to support local sales tax refunds, if any.
3. Three (3) sets of operation and maintenance manuals.
4. One (1) set of as-built Contract Documents showing all job changes.
5. All demonstration and training completed in accordance with Section 01 79 00.
6. All punch list items documented as complete.

B. Final Certificate of Payment: Submit in accordance with the requirements of Section 01 29 00 “Payment Procedures.”
1.11 INSPECTIONS AFTER COMPLETION

A. Warranty/Guarantee Inspections: During the warranty period, accompany Architect/Engineer and University Representative, and participate in inspection(s) of the Project to identify defective and deficient work at intervals and as required by the Contract.

B. List of Deficient or Defective Work: Within 10 business days of inspection, Architect/Engineer will provide Contractor with a list of items requiring correction.

C. Remedial Work: Upon receive of itemized list, immediately correct and remedy deficiencies and defects in a manner satisfactory to the Architect/Engineer and University.

1.12 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties to the Architect/Engineer prior to advertisement of the Notice of Contractor's Settlement. If the Notice of Acceptance designates a commencement date for warranties other than the date of Notice of Acceptance for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.

B. Partial Occupancy: When a designated portion of the Work is completed and occupied or used by the University, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect/Engineer within fifteen (15) calendar days of completion of that designated portion of the Work.

C. Special Warranties: When a special warranty is required to be executed by the Contractor, or the Contractor and a Subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the University through the Architect/Engineer for approval prior to final execution. Refer to individual Specification Sections for specific requirements for special warranties.

D. Form of Submittal: Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
   1. Number of Copies: Two.
   2. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
   3. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
   4. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
   5. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

E. Provide additional copies of each warranty to include in operation and maintenance manuals.

F. List of Extended Warranties: Provide a comprehensive list of all manufacturers’ standard and special warranties with duration greater than one year after Notice of Acceptance. Organize list into an orderly sequence based on table of contents of the Project Manual.
PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

   1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.
   2. Do not use sweeping compounds on concrete floors that will leave residue affecting finish floor materials.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations immediately prior to Occupancy for entire Project or for a designated portion of Project:
   a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
   b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
   c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
   d. Remove tools, construction equipment, machinery, and surplus material from Project site.
   e. Remove snow and ice to provide safe access to building.
   f. Clean exposed exterior and interior finishes to a dirt-free condition, free of grease, dust, stains, films, fingerprints, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
   g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
   h. Sweep concrete floors broom clean in unoccupied spaces.
   i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
   j. Power scrub and power buff resilient flooring surfaces, tile and fluid-applied flooring.
   k. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
   l. Remove labels that are not permanent.
   m. Wipe surfaces of mechanical and electrical equipment, elevator equipment where applicable, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
   n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
CLOSEOUT PROCEDURES

o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
p. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.


q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
r. Clean food service equipment to sanitary condition acceptable for intended food service use and approved by authority having jurisdiction.
s. Leave Project clean and ready for occupancy.

C. Pest Control: Comply with pest control requirements in Section 01 50 00 "Temporary Facilities and Controls." Prepare written report.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

   a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

3.3 ATTACHMENTS

A. Samples of the following forms are appended to this Section for reference following End of Section 01 77 00:

   1. University of Colorado Denver | Anschutz Medical Campus Supplemental Notice of Occupancy and Use List.

   2. University of Colorado Denver | Anschutz Medical Campus Supplemental Building / Project Acceptance List.

END OF SECTION 01 77 00
Supplemental Notice of Occupancy and Use List

Project Name & Number: ____________________________
Contractor: ____________________________

In addition to completing Notice of Approval of Occupancy / Use (SBP-01), the following items must be completed before Occupancy is approved:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date Completed</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Final and formal address posted on the building entries.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. A copy of the Contractor’s in-progress red line “as-built” drawings has been given to BMO representative &amp; a 2nd copy is provided for Projects plan room. This is to include landscape drawings showing irrigation installation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Maintenance, operations and spare parts manuals on all installed equipment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Notice of Partial Substantial Completion concerning roles/ responsibilities of University and Contractor for security, maintenance, heat, utilities reviewed and accepted.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Manufacturer maintenance, operations and spare parts manuals for fixtures, mechanical, electrical and plumbing.</td>
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<tr>
<td>6. Hardware-maintenance, operations and spare parts manuals for doors &amp; locks, including roll up doors.</td>
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<tr>
<td>7. Warranty Dates and Contact list for all Contractors and Suppliers given to BMO.</td>
<td></td>
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<tr>
<td>8. Transfer utility account from Contractor to Facilities Operations.</td>
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<tr>
<td>9. Site plan to include first floor main isolation locations and plans for each floor to include main utility shutoffs, for utilities to include water, electrical, steam, sewer, fuel supply, telecom, fiber optic and gasses, identified on a set of drawings.</td>
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<tr>
<td>10. If Commissioning Report is completed, BMO has reviewed/commented, including electrical, plumbing, mechanical/ HVAC.</td>
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<tr>
<td>11. All Contractor provided equipment has new filters &amp; construction filters removed.</td>
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<tr>
<td>12. Not Used</td>
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<tr>
<td>13. Elevator equipment rooms insulated and space conditioned for control system requirements.</td>
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<tr>
<td>15. FSS has been provided with copy of Building Department testing and inspection report for window washing equipment.</td>
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<tr>
<td>16. Roof walking pads to access equipment are installed.</td>
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<tr>
<td>17. PM to communicate to fire department via Life Safety Officer that building has transitioned to BMO. Alarms at Anschutz Medical Campus report to University Police Dispatch and at Downtown report to designated monitoring company.</td>
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</tbody>
</table>

19. Training for BMO and FSS on installed equipment and systems is completed.

20. Equipment keys and locks transitioned to Operations, including fire panels, electrical panels, directories and generator panels. Construction cores removed and replaced with permanent cores.

21. Access control pathways and junction boxes for installed doors, gates, loading docks and roof access complete. **All wiring and hardware completed and electronic security access controls in place and tested by University Electronic Security.**

22. EH&S is provided, as applicable for project, with fume hood certification, water testing certification, hazardous waste compliance certification, radiation compliance certification, BSL3 certification, and all other specialty equipment certification.

23. PM notifies University Risk Management that project is transferring to University and notifies Contractor that it can eliminate Builders Risk Insurance.

24. Not Used

25. Not Used

26. Elevator tools, including hand tools, computer, proprietary and operational software is received and confirm 1-year service from date of acceptance.

27. All computers and software required in drawings and specs. are received, including for BAS, Energy and Lighting, Fuel Systems, and Power Management, and any specialty software and alarm codes for operating systems.

28. For all areas to be transferred to University, all waste and debris removed; floor and wall surfaces clean and in good repair; ceiling surfaces clean, unmarked, in place; site, including sidewalks, cleared of debris and construction equipment; and roof is clear of all materials and debris.

29. Water chlorination and testing complete and provided by PM to Chief Building Official and BMO via BMO Rep.

30. Toilet accessories are in place that meet custodial contract.

31. Trash receptacles outside the building are in place

<table>
<thead>
<tr>
<th>University Project Manager</th>
<th>Date</th>
<th>University BMO Rep.</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>(sign &amp; print name)</td>
<td></td>
<td>(sign &amp; print name)</td>
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</table>

<table>
<thead>
<tr>
<th>University FSS Rep</th>
<th>Date</th>
<th>University Downtown Rep. (If Necessary)</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>(sign &amp; print name)</td>
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<td>(sign &amp; print name)</td>
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*Highlighted items are not the responsibility of Contractor but PM and BMO Rep must ensure these are completed and operational prior to occupancy and use.*

Mark N/A by item if it is not applicable to project

3.1.12
Supplemental Building / Project Acceptance List

Project Name & Number:  
Contractor:  

In addition to completing Pre-Acceptance Checklist (SBP-05), the following items must be completed before Final Acceptance.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date Completed</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Review State Buildings Pre-Acceptance check list &amp; Notice of Approval of Occupancy / use form with BMO rep &amp; confirm agreement with status</td>
<td></td>
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</tr>
<tr>
<td>2. Establish list of post construction change orders &amp; track separately from basic project until items are complete – call it Phase 2 to avoid delay on basic project</td>
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<tr>
<td>3. O &amp; M Manuals given to BMO Representative and BMO Archivist (2 hard copies and 1 electronic total)</td>
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<tr>
<td>4. Record Documents – a hard copy of plans and specifications are provided for plan room &amp; given to BMO &amp; electronic auto cad &amp; specs are given to Archive Officer (Art Steinman) this is to include landscape drawings showing irrigation installation.</td>
<td></td>
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</tr>
<tr>
<td>5. Final Site Walk is completed with University Grounds Supervisor. Drain barriers are removed and storm drains cleared. MS4 storm water plan, CDPHE permits, and evidence of final closeout received by Project Manager and all copied to University Engineering Division.</td>
<td></td>
<td></td>
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<tr>
<td>6. Move-related work items complete including physical move, tours (occupants &amp; police), mail, phone &amp; electrical hook ups for equipment &amp; furniture systems complete &amp; freezers enrolled in University freezer program.</td>
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<tr>
<td>7. If exterior work is applicable: Landscape – Include a walk through with University Grounds for 1) new &amp; established 1-year service date; 2) existing damaged landscape is repaired; and 3) irrigation – zone control test is complete.</td>
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<td>8. Attic stock, matches spec. requirements, is located in secured location, and is inventoried.</td>
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<td>9. Electrical system one line diagram framed and mounted in electrical room.</td>
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<tr>
<td>10. Spare fire suppression heads in cabinets and tool: cabinet in main electrical room includes one complete set of spare fuses for major equipment.</td>
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<tr>
<td>11. Contractor keys issued by University BMO returned to University Key Shop via PM/ BMO Rep.</td>
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<tr>
<td>12. Interior Finishes Binder given to the University Project Manager: (Two hard copies)</td>
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<tr>
<td>13. Not Used</td>
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<tr>
<td>14. Not Used</td>
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<tr>
<td>15. Safety grating in pipe chases in place.</td>
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<tr>
<td>16. Signs in place including monument sign, building exterior and site signage and building interior signage.</td>
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<tr>
<td>17. All applicable reports, including Air Emission reports; Sewer Reports, including for process diverters, traps and collection tanks; Fuel Storage Tank and Detection reports; and Water System tests and reports provided to BMO via PM and BMO Rep.</td>
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<tr>
<td>18. Not Used</td>
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<tr>
<td>19. Not Used</td>
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<tr>
<td>20. Not Used</td>
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<tr>
<td>21. Not Used</td>
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<tr>
<td>22. If commissioning is included for project, Commissioning Agent certification is received by BMO via PM and BMO Rep.</td>
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</tbody>
</table>

University Project Manager   Date
(sign & print name)       (sign & print name)

University FSS   Date
(sign & print name)

University BMO Rep.   Date
(sign & print name)

University Downtown Rep  (if necessary)   Date
(sign & print name)

*Warranty dates are not subject to completion of these items by contract
** Highlighted items are not the responsibility of Contractor but PM and BMO Rep must ensure these are completed and operational prior to occupancy and use.
Mark N/A by item if it is not applicable to project
3.1.12
SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory.
2. Systems, subsystems, and equipment operation and maintenance manuals.
3. Product maintenance manuals.
4. Emergency manuals.
5. Framed operating and maintenance instructions.

B. Related Requirements:

1. Section 01 33 00 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
2. Section 01 91 13 "General Commissioning Requirements" for verification and compilation of data into operation and maintenance manuals.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

A. Schedule: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 30 calendar days before commencing demonstration and training. Architect/Engineer will return copy with comments.

1. Correct or revise each manual to comply with Architect/Engineer's comments. Submit copies of each corrected manual within 15 calendar days of receipt of Architect/Engineer's comments and prior to commencing demonstration and training.

B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect/Engineer.
a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
b. Compile entirely from documents with searchable text.
c. Enable inserted reviewer comments on draft submittals.

2. Paper copies. Assemble in accordance with the requirements of this Section.
a. Submit three final copies, one to be retained by the Architect/Engineer and two to be retained by the University.

C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 30 calendar days before commencing demonstration and training. Architect/Engineer will return copy with comments.

1. Correct or revise each manual to comply with Architect/Engineer's comments. Submit copies of each corrected manual within 15 calendar days of receipt of Architect/Engineer's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:

1. List of documents.
2. List of systems.
3. List of equipment.
4. Table of contents.

B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 GENERAL REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Intent: Prepare data in form of an instructional manual for use by University personnel.

B. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
1. Title page.
2. Table of contents.

C. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of University.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Construction Manager.
7. Name and contact information for Architect/Engineer.
8. Name and contact information for Commissioning Authority.
9. Names and contact information for major consultants to the Architect/Engineer that designed the systems contained in the manuals.
10. Cross-reference to related systems in other operation and maintenance manuals.

D. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

E. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

F. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

G. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

H. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size and enable OCR (optical character recognition) to provide searchable text.
2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
I. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in minimum 1 inch and maximum 2 inch thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
   a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
   b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.

3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.


5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
   a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
   b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 SYSTEMS, SUBSYSTEMS AND EQUIPMENT OPERATION AND MAINTENANCE MANUALS

A. General: Provide operation and maintenance manuals where indicated in individual Specification Section and the following:

1. Heating, ventilating and air-conditioning equipment and systems.
2. Plumbing equipment and systems.
3. Special piping equipment and systems.
4. Electrical distribution systems.
5. Standby generator systems.
6. Communications systems.
7. Fire alarm and detection systems.
8. Underground sprinkler systems.
10. Food service equipment.
11. Elevators.
12. Other special construction and conveying systems.

B. Operation Content: In addition to requirements in this Section, include operation data required in individual Specification Sections.

1. Additional Operation Content Required:
b. Performance and design criteria if Contractor has delegated design responsibility.
c. Operating standards.
d. Operating procedures.
e. Operating logs.
f. Wiring diagrams.
g. Control diagrams.
h. Piped system diagrams.
i. Precautions against improper use.
j. License requirements including inspection and renewal dates.

2. Descriptions: Include the following:
   a. Product name and model number. Use designations for products indicated on Contract Documents.
b. Manufacturer's name.
c. Equipment identification with serial number of each component.
d. Equipment function.
e. Operating characteristics.
f. Limiting conditions.
g. Performance curves.
h. Engineering data and tests.
i. Complete nomenclature and number of replacement parts.

3. Operating Procedures: Include the following, as applicable:
   a. Startup procedures.
b. Equipment or system break-in procedures.
c. Routine and normal operating instructions.
d. Regulation and control procedures.
e. Instructions on stopping.
f. Normal shutdown instructions.
g. Seasonal and weekend operating instructions.
h. Required sequences for electric or electronic systems.
i. Special operating instructions and procedures.

4. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.


C. Maintenance Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

1. Source Information: Provide the following information in a list for each product included in manual:
   a. Name, address, and telephone number of Installer or supplier and maintenance service agent.
b. Name, address, and telephone number of local source for supply of replacement parts.
c. Name, address, and telephone number of maintenance contractor, where appropriate.
d. Cross-reference Specification Section number and title.
e. Drawing or schedule designation or identifier where applicable.
2. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
   a. Standard maintenance instructions and bulletins.
   b. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
   c. Identification and nomenclature of parts and components.
   d. List of items recommended to be stocked as spare parts.

3. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
   a. Test and inspection instructions.
   b. Troubleshooting guide.
   c. Precautions against improper maintenance.
   d. Disassembly; component removal, repair, and replacement; and reassembly instructions.
   e. Aligning, adjusting, and checking instructions.
   f. Demonstration and training video recording, if available.

4. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
   a. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
   b. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

5. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

6. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

7. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
   a. Include procedures to follow and required notifications for warranty claims.
   b. Include information sheet covering proper procedures in event of failure and instances which might affect validity of warranties and bonds.

2.4 PRODUCT MAINTENANCE MANUALS

A. Content: Organize manual into a separate section for each product, material, and finish. Separate into two manuals: one for exterior moisture protection products and those exposed to weather and one for interior products. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: Provide the following information for each product included in manual:
   1. Name, address, and telephone number of Installer or supplier and maintenance service agent.
   3. Drawing or schedule designation or identifier where applicable.

C. Product Information: Include the following, as applicable:
1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.5 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
5. Power failure.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of University's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.
2.6 FRAMED OPERATING AND MAINTENANCE INSTRUCTIONS

A. All mechanically and electrically operated equipment and controls shall be provided with legible and complete wiring diagrams, schematics, operating instructions, and pertinent preventative maintenance instructions in a sturdy frame with clear glass or plastic cover. Use non-fading, permanent media.

B. Locate frames in the same room or service enclosure as equipment, or in the nearest mechanical or electrical room.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 78 23
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:
   1. Record Drawings.
   2. Record Specifications.
   3. Record Product Data.
   4. Record Samples.
   5. Miscellaneous record submittals.

B. Related Requirements:
   1. Section 01 73 00 "Execution" for final property survey.
   2. Section 01 77 00 "Closeout Procedures" for general closeout procedures.
   3. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

A. General: Submit record drawings with duplicate original transmittal letters containing:
   1. Date.
   2. Project title and number.
   3. Contractor’s name and address.
   4. Certification that each document as submitted is complete and accurate.
   5. Signature of authorized representative of the Contractor.

B. Record Drawings: Submit copies of record Drawings as follows:
   1. Submit three paper-copy sets of marked-up record prints, two copies will be retained by the University and one copy retained by the Architect/Engineer.
   2. Submit three paper-copy sets and three digital copies on CD of electronic files for all delegated-design submittals. Two copies will be retained by the University and one copy retained by the Architect/Engineer.

C. Record Specifications: Submit three paper copies of Project's Specifications, including addenda and contract modifications. Two copies will be retained by the University and one copy retained by the Architect/Engineer.
D. Record Product Data: Submit three paper copies of each submittal. Two copies will be retained by the University and one copy retained by the Architect/Engineer.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

E. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit three paper copies of each submittal. Two copies will be retained by the University and one copy retained by the Architect/Engineer.

F. Interior Finishes Binder: Three copies. Two copies will be retained by the University and one copy retained by the Architect/Engineer.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

   a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
   b. Accurately record information in an acceptable drawing technique.
   c. Record data as soon as possible after obtaining it.
   d. Record and check the markup before enclosing concealed installations.
   e. Cross-reference record prints to corresponding archive photographic documentation.
   f. Mark using line types and symbols conforming to Contract Documents.

2. Content: Types of items requiring marking include, but are not limited to, the following:

   a. Dimensional changes to Drawings.
   b. Revisions to details shown on Drawings.
   c. Depths of foundations below first floor.
   d. Locations and depths of underground utilities referenced to permanent surface improvements.
   e. Revisions to routing of piping and conduits.
   f. Revisions to electrical circuitry.
   g. Actual equipment locations.
   h. Duct size and routing.
   i. Locations of concealed internal utilities referenced to visible and accessible features of structure.
   j. Locations of concealed valves, dampers, controls, balancing devices, junction boxes, cleanouts, and other items requiring access or maintenance.
   k. Changes made by Change Order.
   l. Changes made following Architect/Engineer's written orders.
   m. Details not on the original Contract Drawings.
   n. Field records for variable and concealed conditions.
PROJECT RECORD DOCUMENTS

Library 3rd Floor Roof
University of Colorado Denver / AMC

1. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.

4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

5. Mark additional information important to University that was either shown schematically or omitted from original Drawings.

6. Note Change Order numbers, and similar identification, where applicable.

B. Record Delegated Design Electronic Files: For all delegated design submittals, including but not limited to landscape irrigation, fire alarm and fire sprinkler plans, prepare electronic files in full compliance with University of Colorado Denver | Anschutz Medical Campus Guidelines and Design Standards, Part 1.0, Paragraph “Drawing Production Standards.”

C. Identification: Identify and date each record Drawing; include the designation "PROJECT记录 DRAWING" in a prominent location.

1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2. Identification: As follows:
   a. Project name.
   b. Date.
   c. Designation "PROJECT RECORD DRAWINGS."
   d. Name of Architect/Engineer.
   e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to substitutions, selection of options, and similar information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

3. Note related Change Orders where applicable.

4. Maintain one complete copy of all Addenda, Change Orders and other written change documents in printed form during construction.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.

3. Note related Change Orders, record Specifications, and record Drawings where applicable.

B. Directory: Include record Product Data directory organized by Specification Section number and title.
C. Product List: Update and record any changes to Product List submitted in accordance with Section 01 60 00 “Product Requirements”, including any changes to brand, model, subcontractor, or Installer so that final list reflects materials, equipment and systems incorporated into the Work.

2.4 RECORD SAMPLES

A. Prior to Final Acceptance, meet with University Project Manager and Architect/Engineer at site to review and identify which submitted samples maintained during the progress of the Work are to be transmitted to the University.

B. Deliver selected samples to storage area identified by University.

C. Finishes Binder: Three-ring notebook or notebooks, organized by Specification Section number, providing a listing and description of all material finishes on the Project and including a minimum 6 inch by 6 inch sample thereof to accompany the description. Accompany each material selection indicated with the following:
   1. Manufacturer and product name.
   2. Pattern name and number, as applicable.
   3. Color name, as applicable.
   4. Any additional information required to order replacement product.

2.5 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

   1. Include manufacturer’s certifications, field test record, copies of permits, licenses, certifications, inspection reports, releases, notices, receipts for fee payments and similar documents.

B. Directory: Include miscellaneous record submittals directory organized by Specification Section number and title.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project. Update at least weekly.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect/Engineer's and University’s reference during normal working hours.

END OF SECTION 01 78 39
SECTION 06 10 53 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SYSTEM REQUIREMENTS

A. Design Requirements
   1. Wood studs not permitted. If required and approved by the University Project Manager provide fire-retardant-treated lumber.
   2. Select composite wood products with low emissions based on ASTM testing standards E1333-10.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Wood Products, General:
   1. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness.

B. Wood-Preservative-Treated Materials:
   1. Preservative Treatment: AWPA U1; use Category UC2 except use Category UC3b for exterior construction and use Category UC4a for items in contact with the ground.
      a. Preservative Chemicals: Containing no arsenic or chromium.
   2. Application: Items indicated and the following:
      a. Items in contact with roofing or waterproofing.
      b. Items in contact with concrete or masonry.
      c. Framing less than 18 inches above ground in crawlspaces.
      d. Floor plates installed over concrete slabs-on-grade.

C. Fire-Retardant-Treated Materials:
   1. Exterior type for exterior locations and where indicated.
   2. Interior Type A, High Temperature (HT) for enclosed roof framing and where indicated.
   3. Interior Type A unless otherwise indicated.

D. Miscellaneous Lumber:
   1. Dimension Lumber: Construction or No. 2 grade any species.

E. Plywood Backing Panels: Exterior, AC, fire-retardant treated.

F. Fasteners: Hot-dip galvanized steel where exposed to weather, in ground contact, in contact with treated wood, or in area of high relative humidity.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 06 10 53
SECTION 07 50 00 - MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY:

A. Section Includes:
   1. Roofing Membrane.
   2. Roofing Insulation.
   3. Base Flashing.
   4. Fasteners, adhesive and sealants.

1.2 PERFORMANCE REQUIREMENTS:

A. Installed roofing membrane and base flashing shall withstand specified wind uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, and other defects in construction. Membrane roofing and flashing shall remain watertight.

B. Provide membrane roofing system that has been approved by the manufacturer.

C. Provide materials which have been tested and listed by UL for Class A exterior fire-test exposure.

1.3 SUBMITTALS:

A. Product data for roofing membrane, flashing membrane and all accessory products.

B. Installer Certification: submit written certification from the roofing system manufacturer certifying that installer is approved by manufacturer for installation of specified roofing system. Letter shall be dated not more than 6 months prior to roofing system application.

C. Submit shop drawings sheet layout, seam locations, penetrations, special conditions and details not standard with the manufacturer.

D. Submit roofing system manufacturer's certification for this specific project listing the roofing system components and indicating the roofing system will be issued a warranty at project completion. Certification shall be submitted prior to roofing application.

E. Samples of field membrane and roof insulation.

F. Warranty: Sample copy of roofing system manufacturer’s 20 YEAR warranty stating obligations, remedies, limitations, and exclusions of warranty.

G. Maintenance data for installed roofing system to be included in closeout documents.

1.4 QUALITY ASSURANCE:

A. Qualifications:
   1. Roof applicator shall have minimum of 5 years satisfactory continuous experience under the same company name and shall be approved in writing by roof system manufacturer for application of roof for which warranty will be issued. Submit satisfactory evidence of conformance.
B. Pre-Roofing Conference:
   1. Meet at the project site and review requirements for the work and conditions which could possibly interfere with successful performance of the work. Require every party who is concerned with the work or required to coordinate with it or to protect it thereafter to attend the conference.

1.5 Warranty:
   A. Contractor’s Warranty: Submit executed copy of standard 2-year “Roofing Guarantee”, covering work of this section including roofing membrane, roof insulation and roofing accessories, sign and countersigned by installer (Roofer) and Contractor.
   B. Manufacturer’s Warranty: Submit executed copy of roofing manufacturer’s 20 Year Labor and Materials Guarantee, signed by an authorized representative of the roofing system manufacturer. Guarantee shall cover roofing membrane, base flashings, roofing membrane accessories, roof insulation, fasteners, cover board, and other single-source components of the roofing system. Guarantee shall have unlimited dollar coverage for the full period of the guarantee and shall not be subject to a deductible.

PART 2 - Materials

2.1 ROOFING SYSTEM
   A. Thermoplastic Polyolefin (TPO) Self Adhered Sheet: ASTM 6878-03 of the following thickness and exposed face color.
      1. Thickness: 60 mils, nominal.
      2. Exposed Face Color: Gray
      3. Acceptable Manufacturers:
         a. Firestone Building Products Company, UltraPly TPO SA.

2.2 SINGLE-PLY ROOFING SYSTEM DESIGN REQUIREMENTS:
   A. Adhered Roofing Membrane System: Single-ply membrane must be self-adhered to the fully adhered coverboard, ¼” DensDeck duraguard.
   B. Insulation shall be mechanically fastened to metal deck to meet the manufacturers requirement for attachment to meet warranty.

2.3 INSULATION:
   A. Match existing thickness.
   B. Insulation: Polyisocyanurate board insulation, ASTM C 1289, Type II, Class 1, Grade 2 with felt or glass-fiber mat facer on both major surfaces.

2.4 ACCESSORY MATERIALS:
   A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.
   B. Reinforced Sheet Flashing: Manufacturer’s standard sheet flashing of same material, type, reinforcement, thickness, and color as primary sheet membrane.
   C. Bonding Adhesive: Manufacturer’s bonding adhesive designed for bonding coverboard to horizontal surfaces.
D. Fasteners: Factory-coated steel fasteners and metal plates meeting corrosion resistance provisions and load capacities according to ASTM E 488. Fasteners must be designed and approved by roofing manufacturer for fastening insulation to substrate. Length as required to secure insulation system and penetrate deck for proper securement.

E. Miscellaneous Accessories: Provide required accessories.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mechanically Fastened Insulation: Secure first and subsequent layers of insulation to metal deck per manufacturers requirements.

B. Where open adhesive containers are used, lids are on cans when placed around any air intakes to prevent fumes from migrating into air handling system.

C. When job is completed, check all seams to ensure there are no cold welds.

3.2 PROTECTION AND CLEANING:

A. Protect membrane roofing system from damage and wear during construction period. Large areas of damage will require removal and replacement (not just patching) prior to final acceptance.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements. Repair substrates, and repair or reinstall membrane roofing system to a condition free of damage and deterioration prior to final acceptance and according to warranty requirements.

C. Clean foot traffic discoloration, over spray and spillage off roofing membrane and flashing using power washer with cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07 50 00
SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SYSTEM REQUIREMENTS

A. Design Requirements:
   2. Provide two lines of butyl sealant at all flashing and equipment base lap joints to maintain weatherproof seal.

B. PERFORMANCE REQUIREMENTS
   1. Roof Edge Flashing and Copings: Capable of resisting Wind Zone 3 forces according to FMG Loss Prevention Data Sheet 1-49.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Sheet Metals:
   1. Aluminum Sheet with Smooth, Flat Surface:
      a. Coil-Coated Finish: Three-coat fluoropolymer.
      b. Use: For all exposed to view locations.
   2. Stainless-Steel Sheet: 2D (dull, cold rolled) finish with surface.
      a. Use: For all concealed from view locations.

B. Underlayment: Self-adhering, high-temperature sheet.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 07 62 00
SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 EXTENDED WARRANTY: Provide a written two-year warranty, signed by Contractor and sealant installer, guaranteeing all exterior joints and interior joints for a period of not less than two (2) years from date of the Letter of Acceptance of the Work by the College.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS

A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.
   1. Use: For joints in vertical surfaces.
   2. Products: Subject to compliance with requirements, provide one of the following:
      a. Dow Corning Corporation; 790.
      b. GE Advanced Materials - Silicones; SilPruf LM SCS2700.
      c. Tremco Incorporated; Spectrem 1.

B. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
   1. Use: For interior door frames and other static joints.
   2. Products: Subject to compliance with requirements, provide one of the following:
      a. BASF Building Systems; Sonolac.
      c. Pecora Corporation; AC-20+.
      d. Tremco Incorporated; Tremflex 834.

C. Acoustical Joint Sealant: Nonsag, paintable, nonstaining latex.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Pecora Corporation; AC-20 FTR.
      b. USG Corporation; SHEETROCK Acoustical Sealant.

D. Cylindrical Joint-Sealant Backing: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

PART 3 - EXECUTION

3.1 INSTALLATION

1. Per Manufacturers written instructions.

END OF SECTION 07 92 00