PROJECT MANUAL FOR

2016 FAÇADE REPAIRS

Lawrence Street Center
1380 Lawrence Street
Denver, Colorado 80217

Prepared for:

University of Colorado, Denver
Project No.: 15-104284
Project Name: LSC Façade (Skin) Repairs Carry Forward 2014-2015

Prepared by:

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Lakewood, CO 80228

July 2016

Facility Engineering Associates, P.C.
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DISCLOSURE STATEMENT  

ALL INFORMATION CONTAINED IN OR DISCLOSED BY THIS DOCUMENT IS CONSIDERED PROPRIETARY INFORMATION BY FACILITY ENGINEERING ASSOCIATES, P.C (FEA). IT SHALL NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM FEA. COPIES REQUIRED FOR PROJECT BIDDING AND CONSTRUCTION WILL BE SUPPLIED BY UNIVERSITY OF COLORADO - DENVER.  

END OF SECTION 00 00 02
SECTION 00 11 13
INSTRUCTIONS TO BIDDERS

1.01 COLORADO STATE INSTRUCTIONS TO BIDDERS

The proposing contractor shall comply with the Colorado State Information for Bidders, State Form SBP-6.12, in addition to the FEA Instruction to Bidders defined in Section 002113. The State Information for Bidders Form takes precedence over the FEA Instruction to Bidders Form.

END OF SECTION 00 11 13
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

INFORMATION FOR BIDDERS

Institution or Agency: University of Colorado Denver / GFE
Project No./Name: 15-104284 / LSC Façade (Skin) Repairs Carry Forward 2014-15 project

1. BID FORM: Bidders are required to use the Bid form attached to the bidding documents. Each bidder is required to bid on all alternates and indicate the time from the date of the Notice to Proceed to Substantial Completion in calendar days, and in addition, the bidder is required to indicate the period of time to finally complete the project from Substantial Completion to Final Acceptance, also in calendar days. Bids indicating times for Substantial Completion and Final Acceptance in excess of the number of days indicated in the Advertisement for Bids for completion of the entire Project may be found non-responsive and may be rejected. The bid shall not be modified or conditioned in any manner. Bids shall be submitted in sealed envelopes bearing the address and information shown below. If a bid is submitted by mail, this aforementioned sealed envelope should be enclosed in an outer envelope and sent to the following addressee:

University of Colorado Denver
Facilities Project Department
1945 N. Wheeling Street
3rd Floor, Reception Desk
Aurora, Colorado 80045
ATTN: Mr. Daniel Argersinger

The outside of the sealed inner envelope should bear the following information:

Project #
Project Name
Name and Address of Bidder
Date of Opening
Time of Opening

2. INCONSISTENCIES AND OMISSIONS: Bidders may request clarification of any seeming inconsistencies, or matters seeming to require explanation, in the bidding documents at least three (3) business days prior to the time set for the opening of Bids. Decisions of major importance on such matters will be issued in the form of addendum.

3. APPLICABLE LAWS AND REGULATIONS: The bidder’s attention is called to the fact that all work under this Contract shall comply with the provisions of all state and local laws, approved state building codes, ordinances and regulations which might in any manner affect the work to be done or those to be employed in or about the work. Attention is also called to the fact that the use of labor for work shall be governed by the provisions of Colorado law which are hereinafter set forth in Articles 27 and 52E of the GENERAL CONDITIONS.

4. UNAUTHORIZED IMMIGRANTS: Note that the Special Provisions of the General Conditions of the Contract includes the following language: PUBLIC CONTRACTS FOR SERVICES - CRS 8-17.5-101 and PUBLIC CONTRACTS WITH NATURAL PERSONS - 24-76.5-101. The Contractor certifies that the Contractor shall comply with the provisions of CRS 8-17.5-101 et seq. The Contractor shall not knowingly employ or contract with an illegal alien to perform work under this contract or enter into a contract with a subcontractor that fails to certify to the Contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this contract. The Contractor represents, warrants, and agrees that it (i) has verified that it does not employ any illegal aliens, through participation in the Basic Pilot Employment Verification Program administered by the Social Security Administration and Department of Homeland Security, and (ii) otherwise will comply with the requirements of CRS 8-17.5-102(2)(b). The Contractor shall comply with all reasonable requests made in the course of an investigation under CRS 8-17.5-102 by the Colorado Department of Labor and Employment. If the Contractor fails to comply with any requirement of this provision or CRS 8-17.5-101 et
seq., the State may terminate this contract for breach and the Contractor shall be liable for actual and consequential damages to the State.

A Contractor that operates as a sole proprietor hereby swears or affirms under penalty of perjury that the Contractor (i) is a citizen of the United States or otherwise lawfully present in the United States pursuant to federal law, (ii) shall comply with the provisions of CRS 24-76.5-101 et seq, and (iii) shall produce one of the forms of identification required by CRS 24-76.5-103 prior to the effective date of this Contract. Except where exempted by federal law and except as provided in CRS 24-76.5-103(3), a Contractor that receives federal or state funds under this contract must confirm that any individual natural person eighteen years of age or older is lawfully present in the United States pursuant to CRS 24-76.5-103(4) if such individual applies for public benefits provided under this contract.

5. **TAXES:** The bidder’s attention is called to the fact that the Bid submitted shall exclude all applicable federal excise or manufacturers’ taxes and all state sales and use taxes as hereinafter set forth in Article 9C of the GENERAL CONDITIONS.

6. **OR EQUAL:** The words “OR EQUAL” are applicable to all specifications and drawings relating to materials or equipment specified. Any material or equipment that will fully perform the duties specified, will be considered “equal”, provided the bid submits proof that such material or equipment is of equivalent substance and function and is approved, in writing. Requests for the approval of “or equal” shall be made in writing at least five (5) business days prior to bid opening. During the bidding period, all approvals shall be issued by the Architect/Engineer in the form of addenda at least two (3) business days prior to the bid opening date.

7. **ADDITIONS:** Owner/architect initiated addenda shall not be issued later than two (3) business days prior to bid opening date. All addenda shall become part of the Contract Documents and receipt must be acknowledged on the Bid form.

8. **METHOD OF AWARD - LOWEST RESPONSIBLE BIDDER:** If the bidding documents for this project require alternate prices, additive and/or deductible alternates shall be listed on the alternates bid form provided by the Principal Representative. Bidders should note the Method of Award is applicable to this Bid as stated below.

   A. **DEDUCTIBLE ALTERNATES:** The lowest responsible Bid, taking into account the Colorado resident bidder preference provision of Colorado law, will be determined by and the contract will be awarded on the base bid combined with deductible alternates, deducted in numerical order in which they are listed in the alternates bid form provided by the Principal Representative. The subtraction of alternates shall result in a sum total within available funds. If this bid exceeds such amount, the right is reserved to reject all bids. An equal number of alternates shall be subtracted from the base bid of each bidder within funds available for purposes of determining the lowest responsible bidder.

   B. **ADDITIVE ALTERNATES:** The lowest responsible Bid, taking into account the Colorado resident bidder preference provision of Colorado law, will be determined by and the contract will be awarded on the base bid plus all additive alternates added in the numerical order in which they are listed in the alternates bid form provided by the Principal Representative. The addition of alternates shall result in a sum total within available funds. If this bid exceeds such amount, the right is reserved to reject all bids. An equal number of alternates shall be added to the base bid of each bidder within funds available for purposes of determining the lowest responsible bidder.

   C. **DEDUCTIBLE AND ADDITIVE ALTERNATES:** Additive alternates will not be used if deductible alternates are used and deductible alternates will not be used if additive alternates are used.

9. **NOTICE OF CONTRACTOR’S SETTLEMENT** – Agencies/institutions must indicate in the initial Solicitation (Advertisement for Bids, Documented Quotes, or Requests for Proposals) whether settlement will be advertised in newspapers or electronic media.

The Advertisement for Bids can be located at the web site: [www.colorado.gov/pacific/osa/cdnotices](http://www.colorado.gov/pacific/osa/cdnotices) (Click on the appropriate link [ColoradoVSS or ColoradoBIDS] or on the State Purchasing Office website)
SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.01 DEFINITIONS

A. The University of Colorado, Denver shall be hereinafter referred to as the "Owner".


C. "Provide" shall mean Contractor to furnish and install.

1.02 BIDS

A. Bids shall be sealed and hand delivered or sent via “Federal Express” or “Registered Mail - Return Receipt Requested” in time for receipt by 2 pm on August 26, 2016 to the Owner's Address at:

University of Colorado Denver
Facilities Project Department
1945 N. Wheeling Street
2nd.Floor, Reception Desk
Aurora, CO 80045
ATTN: Mr. Dan.Argersinger

Bids should be clearly labeled with the Contractor's name and the Project Name. The Bid shall be submitted on the Bid Form provided with the bidding documents. Bid Form shall be filled in completely with the amounts shown in letters and repeated in figures. Signatures must be in longhand, executed by a principal duly authorized to make contracts, with bidders' legal name fully stated.

A copy of the bid shall be faxed/e-mailed to the following after 3 pm and before close of business on same day:

Ms. Sara Johnson
303-984-7300 x5107
303-984-7301 FAX
Sara.johnson@feapc.com

NOTE: No telegraphic, electronically transmitted, or telephone Bids will be considered at the owner's designated location. Only hand delivered or couriered bids will be considered at the owner’s location.

Those Bids that are not signed, by individuals making them, should have attached thereto a power of attorney evidencing authority to sign the Bid in the name of the person for whom it is signed.
D. Those Bids that are signed for partnership should be signed by all of the partners, or by an attorney-in-fact. There should be attached, with the Bid, a power of attorney evidencing authority to sign the Bid executed by the partners.

E. Those Bids which are signed for a corporation shall have the correct name thereof and the signature of the president or other authorized officer of the corporation and secretary manually written below the corporate name following "By __________ " , and shall have affixed the corporate seal. If such Bid is manually signed by an official other than the president of the corporation, a certified copy of the resolution of the board of directors evidencing the authority of such official to sign the Bid should be attached to it.

F. Bidders are cautioned to allow ample time for transmittal of Bids by mail or otherwise. Bidders should secure correct information relative to the probable time of arrival and distribution of mail at the place where Bids are to be opened. No Bid received after the specified date and time for opening will be considered.

1.03 COMPLETENESS OF BIDS

A. Bidders are required to visit the site and inform themselves of conditions under which the Work is to be performed, conditions of the grounds, obstacles that may be encountered, location and availability of utilities and facilities, and other relevant matters concerning the Work to be done. Conditions which are existing during the bidding period shall be considered as “pre-existing” and shall in no way constitute “unforeseen conditions” at any later date during the contract.

B. Addenda issued during the bidding period shall be recorded in the proposal and will become a part of the contract.

C. Each bidder submitting a Bid for this project is required to have at least one full complete set of Construction Documents. Each bidder shall be responsible for completely and thoroughly examining the full complete set of Construction Documents, and for providing all Work shown and specified.

D. No allowance shall be subsequently made in behalf of any Bidder by reason of any error or oversight on its part resulting from its failure to examine the building site and Construction Documents for all trades involved in the Work of the Contract.

E. Items specifically noted as Not In Contract "NIC" or “By Others” are not required under this contract, but are to be furnished and installed by others.

1.04 WITHDRAWAL OF BIDS

A. A bidder may withdraw his Bid from consideration if the Bid price was substantially lower than the other Bids due solely to a mistake therein, provided the Bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or an unintentional omission of a quantity of Work, labor, or material made directly in the compilation of a Bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of original Work papers, documents and materials used in the preparation of the Bid sought to be withdrawn. The bidder shall give notice in writing of a claim of right to withdraw the Bid within two business days after the conclusion of the Bid opening procedure.
1.05 PRE-BID CONFERENCE
A. Attendance is required at a pre-bid conference for Prime Contractors at the project site on August 12, 2016 at 2:00pm. Meet in the first floor main lobby.

1.06 RECEIPT AND OPENING OF BIDS
A. Bids received prior to the time of opening will be kept secured and unopened. The person whose duty it is to open them will decide when the specified time has arrived. No Bid received thereafter will be considered. No responsibility will be attached to an office for the premature opening of a Bid not properly addressed and identified.

1.07 OWNER’S ACCEPTANCE OF BIDS
A. The Contract may be awarded to the lowest responsible bidder complying with conditions for bidding, provided the Bid is reasonable and is to the best interest of the Owner to accept it. The Owner reserves the right to reject the Bid of any bidder who has previously failed to perform properly or complete on time, contracts of a similar nature, who is not in a position to perform the contract, or who has habitually, and without just cause, neglected the payment of bills or otherwise disregarded obligations to subcontractors, material suppliers, or employees.
B. The Owner is under no obligation to accept lowest or any other Bid and expressly reserves the right to accept or reject any and/or all Bids, and to waive any informalities or irregularities in any Bid.
C. The Owner, in determining the lowest and/or best Bid, will evaluate the requested items submitted in the Bid package. This may include the acceptance of a single item or combination of items encompassing: Base Bid; Stipulated Alternates; Line Item Cost; and other Add or Deduct Items as may be stipulated herein.

1.08 CONTRACT FORMS
A. The form of agreement between Owner and Contractor will be executed on the proprietary Owner contract. This form will be filled in and furnished by the Engineer or Owner.

1.09 PROJECT MANUAL
A. The Project Manual contains bidding information, Contract Documentation information, and technical specification information. All bidders shall read and understand the Project Manual and review and understand the drawings prior to bidding.
B. One complete set of bidding documents is comprised of:

1. Project Manual
   - Bidding Requirements
   - Contract Form and General Terms and Conditions of the Contract
   - General Requirements and Technical Specifications
   - Any and all addenda issued during bidding phase prior to Bid opening

2. Drawing Sheets (Working Drawings)

1.10 MATERIALS AND EQUIPMENT SUBSTITUTION

A. Materials and equipment incorporated into the project must be as specified, or, approved by the Engineer in writing during the Bid period and before the Bid due date. Request for material or equipment approval shall be made to the Engineer no later than seven (7) calendar days prior to the bid due date. Request for approval shall be accompanied with all technical information and support data necessary for the Engineer to review and evaluate compliance and conformance to the Construction Documents. For Bids to be valid, each prime bidder shall have on file at the official Bid due time, a copy of Engineer letter of approval on material(s) not specified, if said material is used for bidding. It shall be the responsibility of the person requesting approval to see that the prime bidder is furnished a copy of Engineer letter of approval.

1.11 BASE BID AND UNIT COSTS

A. Base Bid: Shall include all labor, materials, and equipment to perform operations necessary to complete the Work as required in the Project Manual and as shown and indicated on the Drawing Sheets.

B. Unit Costs: Unit costs shall be used for any addition/deduction in quantity of work varying from base bid quantities provided, regardless of the total quantity of each category of work performed.

C. Allowances: Quantities built into the Contract value and used in conjunction with the Unit Costs to address anticipated hidden conditions.

1.12 TIME OF COMPLETION

A. It is the intention of the Owner to award a Notice to Proceed for the Work described herein within 45 working days from Bid submission, with Work to be commenced on or about September 12, 2016. Actual on-site Work to be scheduled and coordinated with the Owner’s written approval. The time in which the Contractor agrees to complete the Work is of the essence of the Contract. It is the Owner’s desire to have substantial completion with 90 calendar days. The time of completion shall be a factor in the award of the contract.

B. Should the Owner be unable to issue a Notice of Award within 45 days from Bid submission, for some unforeseen reason, the Bids shall remain valid for 90 days after the date of the Bid opening, with date of substantial completion adjusted according to any delay in award. After award of the Contract, the successful Contractor shall attend a pre-construction conference to agree on scheduling and to coordinate the construction with the Owner. The full cooperation of the Engineer and the Owner will be afforded the Contractor to expedite the Work for the completion times.
C. Any request for an extension of time is to be made immediately upon occurrence of conditions which, in the opinion of the Contractor, warrant such an extension with reasons clearly stated and detailed proof given for all delays beyond the Contractor’s control, are to be made in writing to the Engineer. No time extension will be allowed except by formal approval of the Owner.

D. The Contractor (after award of Contract) shall meet with the Owner for the purpose of expounding in detail the progress schedule. This will include a list of the Work items required to complete the Contract, the duration, sequence, and dependency on the Work of other contractors. The Owner will review and revise the schedule as required, with Contractor’s cooperation.

**PART 2 PRODUCTS:** NOT USED

**PART 3 EXECUTION:** NOT USED

**END OF SECTION 00 21 13**
SECTION 00 31 13
BID FORM – COLORADO STATE

1.0  COLORADO STATE BID FORM

The proposing contractor shall complete the Colorado State Bid Form, State Form SBP-6.13, in addition to the FEA Bid Form defined in Section 004113. The State Bid Form takes precedence over the FEA Bid Form.

END OF SECTION 00 31 13
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

BID

Institution/Agency: University of Colorado Denver / GFE
Project No./Name: 15-104284 / LSC Façade (Skin) Repairs Carry Forward 2014-15 project

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 7/20/2016, 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 the period 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

State Form SBP-6.13
Rev. 7/2014
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 should 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

Address (including city, state and zip)

Phone number:

Name (Print) and Title

Signature
SECTION 00 41 13
BID FORM

FOR: LSC Façade (Skin) Repairs Carry Forward 2014-2015

AT: Lawrence Street Center
University of Colorado, Denver
1380 Lawrence Street
Denver, Colorado 80204

BID OF

(Contractor)

(Address)

Acknowledgment of Addenda:

Addendum No. _______ Dated _______
Addendum No. _______ Dated _______
Addendum No. _______ Dated _______

Bidder's State of Colorado Registration Number

1.0 ESTIMATED BID REPAIR QUANTITIES AND UNIT COSTS

The undersigned proposes to provide all material and labor necessary to complete the Façade Repair at the Lawrence Street Center at the University of Colorado. The Owner/Agent reserves the right to accept the bid for all items together, or any combination of bid items. The Contractor's Base Bid shall be formulated based on the Base Bid Quantities shown below. The unit costs provided in the tables below will be used for any addition or deduction in quantity of work varying from the quantity given in the table, regardless of the total quantity of each category of work performed. The work can be referenced in detail in the Technical Specifications.

Each price provided shall include all direct costs, indirect costs, overhead, taxes, permits, insurance, profit, delay and/or any other related cost. The Base Bid shall be based on the following quantities in the tables below:
## 2016 Repairs

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobilization &amp; Demobilization</td>
<td>1</td>
<td></td>
<td>Lump Sum</td>
<td></td>
</tr>
<tr>
<td>General Conditions Including Full-Time</td>
<td>1</td>
<td></td>
<td>Lump Sum</td>
<td></td>
</tr>
<tr>
<td>Project Designated Superintendent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaffolding/Access/Equipment</td>
<td>1</td>
<td></td>
<td>Lump Sum</td>
<td></td>
</tr>
<tr>
<td>Wet seal windows gaskets at shrunken corners</td>
<td>70</td>
<td>EA</td>
<td>/EA</td>
<td></td>
</tr>
<tr>
<td>Repair sealant at head and sill joints</td>
<td>175</td>
<td>EA</td>
<td>EA</td>
<td></td>
</tr>
<tr>
<td>Repair mortar joints</td>
<td>2,700</td>
<td>SF</td>
<td>/SF</td>
<td></td>
</tr>
<tr>
<td>Wet seal windows gaskets at shrunken corners</td>
<td>90</td>
<td>EA</td>
<td>/EA</td>
<td></td>
</tr>
<tr>
<td>Repair sealant at head and sill joints</td>
<td>200</td>
<td>EA</td>
<td>/EA</td>
<td></td>
</tr>
<tr>
<td>Wet seal windows gaskets at shrunken corners</td>
<td>80</td>
<td>EA</td>
<td>/EA</td>
<td></td>
</tr>
<tr>
<td>Repair sealant at head and sill joints</td>
<td>200</td>
<td>EA</td>
<td>/EA</td>
<td></td>
</tr>
<tr>
<td>Replace impact-damaged tiles</td>
<td>300</td>
<td>EA</td>
<td>/EA</td>
<td></td>
</tr>
<tr>
<td>Wet seal windows gaskets at shrunken corners</td>
<td>75</td>
<td>EA</td>
<td>/EA</td>
<td></td>
</tr>
<tr>
<td>Repair sealant at head and sill joints</td>
<td>175</td>
<td>EA</td>
<td>/EA</td>
<td></td>
</tr>
<tr>
<td>Remove and replace horizontal and vertical expansion joints between panels</td>
<td>1,220</td>
<td>LF</td>
<td>/LF</td>
<td></td>
</tr>
</tbody>
</table>

### 2016 Total

---

Percentage Owner to increase Accepted Bid for Performance and Payment Bonds if required: 

_____ %. (Do not include P&P Bonds in Base Bid Price)
2.0 **UNIT COSTS**

Please provide the following labor unit costs:

<table>
<thead>
<tr>
<th>Repair Item</th>
<th>Unit of Measure</th>
<th>Unit Cost¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hourly Rate for Superintendent</td>
<td>Manhour</td>
<td></td>
</tr>
<tr>
<td>Hourly Rate for Foreman</td>
<td>Manhour</td>
<td></td>
</tr>
<tr>
<td>Hourly Rate for General Worker</td>
<td>Manhour</td>
<td></td>
</tr>
<tr>
<td>Material Markup %</td>
<td></td>
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<tr>
<td>Overhead %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burden and Profit %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ Unit costs shall be used for any addition/deduction in quantity of work varying from base bid quantities provided, regardless of the total quantity of each category of work performed.

3.0 **PROPOSED SCHEDULE**

Bidder proposes to complete the work in accordance with the following schedule. Indicate schedule in number of calendar days as indicated, from Notice to Proceed (NTP) or from Proposed Start of Work (PSW). Final Completion shall include completion of all punch list items, final clean-up, and demobilization.

**BASE BID SCHEDULE**

Pre-Job Submittal Submission: __________ from NTP*
Proposed Start of Work: __________ from NTP*
Substantial Completion: __________ from PSWE*
Final Completion: __________ from PSW*

* Do not use actual dates
4.0 SIGNATURES

The undersigned proposes to provide all material, labor, and equipment necessary to complete the work as outlined in the Project Manual. The Owner reserves the right to accept the bid for all items together, or any combination of bid items. The work can be referenced in detail in the Technical Specifications. All Work shall be completed in accordance with the Project Manual and as shown on the Drawings.

The Bid Due Date is as indicated in Section 002113 Instruction to Bidders. Bid shall remain valid and cannot be withdrawn for a period of 90 Days. Upon receipt of notice of the acceptance of this bid, the Undersigned hereby agrees that they will execute the formal written contract included in the Project Manual between Owner and Contractor within 14 calendar days, in accordance with the Bid as accepted.

IN TESTIMONY WHEREOF, The bidder (an individual) has hereunto set has hand this ________________ day of ____________, 2016.

By: ______________________
    Bidder

IN TESTIMONY WHEREOF, The bidder (a corporation) has caused this proposal to be signed by its President and Secretary and affixed it corporate seal this ________________ day of ____________, 2016.

________________________
Name of Corporation

By: ______________________
    Title:

By: ______________________
    Secretary

END OF SECTION 00 41 13
SECTION 01 00 00
GENERAL REQUIREMENTS

PART 1  GENERAL

1.01  SUMMARY

A. Design Requirements:

1. Designer Responsibility: Based on a series of meetings with the University Project Manager and applicable University staff, draft Division 01 Specification Sections consistent with State of Colorado Construction Contract provisions, General and Supplementary Conditions of the Contract, including requirements for administrative procedures consistent with the size and scope of the project.

2. Content: Include, as applicable, the following Sections:

a. SECTION 01 11 00 – SUMMARY OF WORK.
b. SECTION 01 21 00 – ALLOWANCES
c. SECTION 01 22 00 – UNIT PRICES
d. SECTION 01 25 00 – SUBSTITUTION PROCEDURES.
e. SECTION 01 26 00 – CONTRACT MODIFICATION PROCEDURES.
f. SECTION 01 29 00 – PAYMENT PROCEDURES
g. SECTION 01 31 00 – PROJECT MANagements AND COORDINATION.
h. SECTION 01 33 00 – SUBMITTAL PROCEDURES.
i. SECTION 01 35 44 – SPECIAL PROCEDURES.

1) This Section includes special environment health and safety procedures unique to work at University projects.

j. SECTION 01 40 00 – QUALITY REQUIREMENTS.
k. SECTION 01 41 00 – REGULATORY REQUIREMENTS.
l. SECTION 01 42 00 – REFERENCES.
m. SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS.
n. SECTION 01 60 00 – PRODUCT REQUIREMENTS.
o. SECTION 01 70 00 – CONTRACT CLOSE-OUT
p. SECTION 01 73 00 – CLOSEOUT PROCEDURES.
q. SECTION 01 78 39 – PROJECT RECORD DOCUMENTS.
r. EXTRA BUILDING FACE TILES TO BE GIVEN TO BUILDING MANAGER.
PART 2  PRODUCTS (NOT APPLICABLE)

PART 3  EXECUTION (NOT APPLICABLE)

END OF SECTION 01 00 00
SECTION 01 10 00
SUMMARY OF WORK

PART I  GENERAL

1.01  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.

1.02  SUMMARY

A.  Section Includes:

1.  Project information.
2.  Work covered by Contract Documents.
3.  Work by University.
4.  Access to site.
5.  Coordination with occupants.
6.  Work restrictions.
7.  Specification and drawing conventions.

B.  Related Requirements:

1.  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.

1.03  PROJECT INFORMATION

A.  University Project Identification:

1.  Number:  15-104284
2.  Name:  LSC Façade (Skin) Repairs Carry Forward 2014-2015
3.  Location:  1380 Lawrence Street, Denver, Colorado
4.  Building Name:  Lawrence Street Center
5.  Principal Representation:

a.  University of Colorado Denver
b.  Dan Argersinger – Project Manager
   Daniel.argersinger@ucdenver.edu
   (303) 724-5681
B. Engineer's Project Identification:

1. FEA Number: 05.2013.000835.003 –
2. FEA Name: CU Denver 2016 Façade Repair
3. Engineer Representative:
   a. Facility Engineering Associates (FEA)
      Sara Johnson – Project Engineer
      Sara.johnson@feapc.com
      (303) 984-7300 x5107

1.04 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 Work of this Contract includes sealant repairs to windows and window framing joints, removal and replacement of wall panel expansion joints, removal and replacement of broken tiles, and tuck pointing repairs.

2. Include all Work listed in these Specifications and incidentals thereto. It is required that skilled craftsmen experienced in their respective trades execute all phases of the Work. It is required that a full-time Superintendent with five or more years experience be on-site at all times that work is being performed. Any time there are personnel under the Contractor’s agreement on the property, the Superintendent shall be present.

3. Provide labor, materials, equipment and supervision to perform the work as required by the Project Manual, and as generally outlined below. Refer to the technical sections and Drawings for detailed description of work. All work shall be performed in accordance with accepted industry standards.

4. Base Bid includes but is not limited to the following tasks within the specified work elements:
   a. Provide protection barriers, work curtains, and overhead protection to restrict access to work areas and to maintain safety for the building occupants and pedestrians, and to minimize, control, and contain any debris generated by the work of this Contract.
   b. Provide all scaffolding, equipment, and accessories necessary to access the Work areas.
   c. Provide access to Engineer to observe the Work.
   d. Provide temporary waterproofing protection between removal stages and installation of new materials to prevent water penetration into building.
   e. Completion of the entire scope of work on one “mock-up” drop to document effectiveness of repairs prior to completing the remainder of the façade.
   f. Two-Year Contractor's Material and Labor Warranty
5. Wet seal window gaskets at corners (All elevations)
   a. Install new wet seal in locations where gaskets have shrunk. Install wet seal at window glass to aluminum frame

6. Repair sealant at head and sill framing joints (All elevations)
   a. Remove existing sealant from metal to metal framing joints at head and sill.
   b. Install sealant at all metal to metal window frame joints.

7. Repair horizontal and vertical expansion joint sealant between panels (Southeast elevation)
   a. Remove existing sealant and backer rod from the expansion joint.
   b. Install new closed-cell back rod and silicone sealant at joint.

8. Tuck-point deteriorated mortar joints (Northwest elevation)
   a. Grind out existing mortar joint.
   b. Install tuck-pointing mortar in layers.

9. Replace damaged tiles (Southwest elevation)
   a. Remove damaged tiles
   b. Install new tiles in mortar bed. Tiles to match existing color.

10. Verify all repair quantities prior to beginning the Work. Provide documentation of same to Owner and Engineer prior to start of work. Provide documentation and accounting of actual repair quantities with each Application for Payment.

### 1.05 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.

### 1.06 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 City and County of Denver requirements.

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 and County of Denver for any disruption to or temporary closures of public city streets. Coordinate procurement of permits with University Project Manager.

D. Construction Parking:

1. General: Contractor parking will not be provided; make arrangements and pay for all required parking.

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.

g. 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.

1.07 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.
1.08 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 7:00 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 24 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 Tivoli Building on the Auraria Campus. 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.
   
   3. Work with University Project Manager and Building Maintenance and Operations staff to get identification badge activated.
4. Work with University Project Manager and Building Maintenance and Operations staff to set up identification badge for access to construction areas secured by card reader.

E. Use of Existing Elevators: Use “freight” elevators only and protect finishes during transport. Elevators may not be used for transport of construction materials between 7:00am – 9:00am, 11:30am – 1:30pm, and from 3:00pm – 5:00pm.

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: Notify University Project Manager and limit deliver time to a maximum of 20 minutes.

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 except outside in designated areas.

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.

1.09 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
SECTION 01 21 00
ALLOWANCES

PART 1  GENERAL

1.01 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.

1.02 SUMMARY
   A. Section includes administrative and procedural requirements governing allowances.
      1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.
   B. Types of allowances include the following:
      1. Unit-cost allowances.
   C. Related Requirements:
      1. Section 00 41 13 "Bid Form" for unit price quantities.
      2. Section 01 11 00 "Summary of Work" for description of work.
      3. Section 01 22 00 "Unit Prices" for procedures for using unit prices.

1.03 SELECTION AND PURCHASE
   A. At the earliest practical date after award of the Contract, advise Architect/Engineer of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
   B. At Architect/Engineer's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
   C. Purchase products and systems selected by Architect/Engineer from the designated supplier.

1.04 ACTION SUBMITTALS
   A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.05 INFORMATIONAL SUBMITTALS
   A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
   B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.06 COORDINATION
A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.07 LUMP-SUM AND UNIT-COST ALLOWANCES
A. Allowance shall include cost to Contractor of specific products and materials ordered by University or selected by Architect/Engineer under allowance and shall include taxes, freight, and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by University and/or selected by Architect/Engineer under allowance shall be included as part of the Contract Sum and not part of the allowance.

C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to University, after installation has been completed and accepted.
   1. If requested by Architect/Engineer, retain and prepare unused material for storage by University. Deliver unused material to University’s storage space as directed.

1.08 ADJUSTMENT OF ALLOWANCES
A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
   1. Include installation costs in purchase amount only where indicated as part of the allowance.
   2. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
   3. University reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor’s handling, labor, installation, overhead, and profit.
   1. Do not include Contractor’s or subcontractor’s indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
   2. No change to Contractor’s indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.
PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION
   A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.02 PREPARATION
   A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.03 SCHEDULE OF ALLOWANCES
   A. Unit Cost allowance as specified in 01 10 00 “Summary of Work” item No. 5 and as shown on Drawings. Reference 00 41 13 “Bid Form” for quantities.
   B. Unit Cost allowance as specified in 01 10 00 “Summary of Work” item No. 6 and as shown on Drawings. Reference 00 41 13 “Bid Form” for quantities.
   C. Unit Cost allowance as specified in 01 10 00 “Summary of Work” item No. 7 and as shown on Drawings. Reference 00 41 13 “Bid Form” for quantities.
   D. Unit Cost allowance as specified in 01 10 00 “Summary of Work” item No. 8 and as shown on Drawings. Reference 00 41 13 “Bid Form” for quantities.
   E. Unit Cost allowance as specified in 01 10 00 “Summary of Work” item No. 9 and as shown on Drawings. Reference 00 41 13 “Bid Form” for quantities.

END OF SECTION 01 21 00
SECTION 01 22 00
UNIT PRICES

PART 1 GENERAL

1.01 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.

1.02 SUMMARY
A. Section includes administrative and procedural requirements for unit prices.
B. Related Requirements:
   1. Section 01 21 00 “Allowances” for lump-sum and unit-cost allowances.
   2. Section 01 26 00 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.03 DEFINITIONS
A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by Change Order, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.04 PROCEDURES
A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
B. Measurement and Payment: Upon completion of work involving unit prices, submit documentation to establish actual quantity of work provided. A Change Order will be issued in an amount equal to the actual quantity multiplied by the unit price.
C. University reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at University's expense, by an independent surveyor acceptable to Contractor.
D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.
PART 2  PRODUCTS (NOT USED)

PART 3  EXECUTION

3.01  SCHEDULE OF UNIT PRICES

A. Unit Price No. 1: Wet seal window gaskets at shrunken corners on all elevations.
   1. Description: Install sealant where gaskets have shrunk at window corners.
   2. Unit of Measurement: per corner

B. Unit Price No. 2: Repair sealant at head and sill joints of windows on all elevations.
   1. Description: Remove and replace existing sealant from metal to metal framing joints at head and sill.
   2. Unit of Measurement: per location of intersecting window framing elements

C. Unit Price No. 3: Repair expansions joints between panels on the Southeast Elevation.
   1. Description: Remove and replace horizontal and vertical expansion joints between panels
   2. Unit of Measurement: Lineal feet of sealant.

D. Unit Price No. 4: Repair mortar joints on Northwest Elevation.
   1. Description: Tuck-point deteriorated mortar joints on the Northwest Elevation
   2. Unit of Measurement: Square feet of joint repair

E. Unit Price No. 5: Replace impact damaged tiles on Southeast Elevation.
   1. Description: Remove existing damaged tiles and replace with new tile and mortar.
   2. Unit of Measurement: per each replaced tile

END OF SECTION 01 22 00
SECTION 01 25 00
SUBSTITUTION PROCEDURES

PART 1 - GENERAL

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

1.02 SUBMITTALS
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.

1.03 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 University that are not required in order to meet other Project requirements but may offer advantage to Contractor or University.

1.04 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 University 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.

B. Architect/Engineer’s Action: If necessary, Architect/Engineer in consultation with the University 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 University 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.

1.05 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.
1.06 PROCEDURES

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

PART 2 - PRODUCTS

2.01 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 University 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

1.01 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.

1.02 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, for definitions and contractual requirements related to contract modification procedures.

1.03 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.

1.04 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.

1.05 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.

1.06 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.

1.07 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.

1.08 ADMINISTRATIVE CHANGE ORDERS

A. 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.

1.09 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

1.01 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.

1.02 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:

1. Section 01 21 00 "Allowances" for procedural requirements governing the handling and processing of allowances.

2. Section 01 22 00 "Unit Prices" for administrative requirements governing the use of unit prices.

3. Section 01 26 00 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

4. Section 01 32 00 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

5. For projects required to obtain LEED certification, Division 01 Section "Sustainable Design Requirements" for administrative requirements governing submittal of cost breakdown information required for LEED documentation.

1.03 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.

1.04 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 schedule of values consistent with format of AIA Document G703.

   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.
1.05 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.

1. Provide summary documentation for stored materials indicating the following:
   a. Value of materials previously stored and remaining stored as of date of previous Application 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. For projects required to obtain LEED certification, LEED submittal for project materials cost data.
4. Contractor's construction schedule (preliminary if not final).
5. Products list (preliminary if not final).
6. For projects required to obtain LEED certification, LEED action plans.
7. Schedule of unit prices.
8. Submittal schedule (preliminary if not final).
9. List of Contractor's staff assignments.
10. List of Contractor's principal consultants.
13. 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:
      a. Submittal of Record Documents.
      b. Submittal of all Operation and Maintenance Manuals.
      c. Completion of all required demonstration and training.
   6. Updated final statement, accounting for final changes to the Contract Sum.
   7. Evidence that claims have been settled.
   8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when University took possession of and assumed responsibility for corresponding elements of the Work.

**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

1.01 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.

1.02 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 70 00 "Closeout Procedures" for coordinating closeout of the Contract.

1.03 DEFINITIONS

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

1.04 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. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.05 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) Indoor Air Quality (IAQ) Planning Checklist
      9) 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 of Work” 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. Layout 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 over loaded 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. Pre-installation 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. Review of the effect of any changes on work of other Sections.
5. 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.
6. 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 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: 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.

G. 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.

H. 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.

1.06 REQUESTS FOR INFORMATION (RFI)

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.

**1.07 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: Entity 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.
w. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
C. Pre-installation Conferences: Conduct a pre-installation 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. LEED requirements, for projects pursuing LEED certification.
   i. Review of mockups.
   j. Possible conflicts.
   k. Compatibility requirements.
   l. Time schedules.
   m. Weather limitations.
   n. Manufacturer's written instructions.
   o. Warranty requirements.
   q. Acceptability of substrates.
   r. Temporary facilities and controls.
   s. Space and access limitations.
   t. Regulations of authorities having jurisdiction.
   u. Testing and inspecting requirements.
   v. Installation procedures.
   w. Coordination with other work.
   x. Required performance results.
   y. Protection of adjacent work.
z. 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.

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

   e. Status of submittals.

   f. Status of RFIs.

   g. Status of Changes including:
      1) Change Order Bulletins.
      2) Change Order Proposals.
      3) Change Orders.
      4) Pending claims and disputes.

   h. Status of LEED documentation, for projects pursuing LEED certification.
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

1.01 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.

1.02 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.

1.03 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.

B. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.

C. Predecessor Activity: An activity that precedes another activity in the network.

D. Successor Activity: An activity that follows another activity in the network.

1.04 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. 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.

1.05 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

2.01 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 11 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 11 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:

6. Coordination with existing construction.

7. Limitations of continued occupancies.

8. Uninterruptible services.

9. Partial occupancy before Substantial Completion.

10. Use of premises restrictions.

11. Environmental control.

12. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

   a. Submittals.
   b. Mockups.
   c. Fabrication.
   d. Sample testing.
   e. Deliveries.
   f. Installation.
   g. Tests and inspections.
   h. Building flush-out.
   i. Startup and placement into final use and operation.

13. 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. 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.

2.02 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.

2.03 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. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

C. 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.

2.04 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

3.01 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 33 00
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 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.

1.02 SUMMARY
B. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
C. 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 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
   4. Division 02 through 33 for additional submittal requirements specific to indicated Specification Sections.

1.03 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.

C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.


1.04 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.
1.05 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

B. 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 and Project record 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 format and AutoCAD 2012 DWG format.
   c. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to University and Architect/Engineer.

C. 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.

D. 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.

E. 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.

F. 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.

1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect/Engineer.

G. 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.
1. Transmittal Form for Paper Submittals: Provide locations on form for the following information:
   a. Project name.
   b. Date.
   c. Destination (To:).
   d. Source (From:).
   e. Name and address of Architect/Engineer.
   f. Name and address of Contractor.
   g. Name of firm or entity that prepared submittal.
   h. Names of subcontractor, manufacturer, and supplier.
   i. Category and type of submittal.
   j. Submittal purpose and description.
   k. Specification Section number and title.
   l. Specification paragraph number or drawing designation and generic name for each of multiple items.
   m. Drawing number and detail references, as appropriate.
   n. Indication of full or partial submittal.
   o. Transmittal number.
   p. Submittal and transmittal distribution record.
   q. Remarks.
   r. Contractor's certification that information complies with Contract Document requirements.
   s. Signature of transmitter.

2. 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.

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

I. 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.

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

K. 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.

L. 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.

M. 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.

N. 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.”

O. Legibility: Provide clear and legible submittals. Submittals that are blurry or are for any reason unreadable will be returned without action.
PART 2 - PRODUCTS

2.01 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.

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.

E. 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.

1. 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.

a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

b. 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.

F. 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.

1. 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.

2. Samples not incorporated into the Work, or otherwise designated as University's property, are the property of Contractor.

G. 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.

H. 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.

I. 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.

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

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

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

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

N. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 70 00 "Closeout Procedures."

O. LEED Submittals: For project required to obtain LEED certification, comply with requirements specified in Division 01 Section "Sustainable Design Requirements".

P. 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.

Q. 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.

R. 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.

S. 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.

T. Product Certificates: Submit written statements on manufacturer’s letterhead certifying that product complies with requirements in the Contract Documents.

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

V. 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.

W. 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.
X. 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.

Y. 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.

Z. 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.

AA. 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.

BB. 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.

2.02 DELEGATED-DESIGN SERVICES

CC. 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.

DD. 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

3.01 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 70 00 "Contract Close-out."

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.

3.02 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

1.01  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.

1.02  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.

PART 2  PRODUCTS (NOT USED)

PART 3  EXECUTION

3.01  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 AuthorityHearing 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 to 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:
      i. 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.
      ii. Coordinate with Contractor when response action is required by a Subcontractor.
      iii. 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.
      iv. Final authority on all asbestos-related concerns and contractual arrangements.
b. Contractor:

i. 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.

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

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

iv. 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.

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

vi. 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.


a) 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/Tag-out):

   1. Provide and enforce a program and procedures for the control of hazardous energy (lockout/tag-out) 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/tag-out.

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 40 00
QUALITY REQUIREMENTS

PART I  GENERAL

1.01 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.

1.02 SUMMARY
A. Section includes administrative and procedural requirements for quality assurance and quality control.
B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.

2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.

3. Requirements for Contractor to provide quality-assurance and -control services required by Architect/Engineer, University, or authorities having jurisdiction are not limited by provisions of this Section.

4. Specific test and inspection requirements are not specified in this Section.

1.03 DEFINITIONS
A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect/Engineer.
C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. As indicated in individual Specifications Sections or on the Drawings, the Work may include the following types of mockups:
   a. Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.
b. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.

c. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.

D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.04 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect/Engineer for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect/Engineer for a decision before proceeding.
1.05 INFORMATIONAL SUBMITTALS

A. Contractor’s Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Architect/Engineer.


B. Testing Agency Qualifications: For testing agencies specified in “Quality Assurance” Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

1.06 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.

12. Name and signature of laboratory inspector.

13. Recommendations on retesting and re-inspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

D. Permits, Licenses, and Certificates: For University's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.07 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

1. Monitor quality control over products, services, site conditions, and workmanship to produce work of specified quality.

2. Comply fully with manufacturers' instructions, including each step in sequence.

3. If manufacturers' instructions conflict with Contract Document requirements, request clarification from Architect/Engineer before proceeding.
4. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

5. Perform work by persons qualified to produce workmanship of specified quality.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Subcontractor and Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance. In addition comply with the following:

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329 or ASTM D 3740 as appropriate; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.

2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.


4. Authorized to operate in the State of Colorado.

5. Calibrate testing equipment at reasonable intervals with devices of accuracy traceable to National Bureau of Standards or of accepted values of natural physical constants.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:
   a. Provide test specimens representative of proposed products and construction.
   a. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
   b. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
   c. When required, build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
   d. When required, build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
   e. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups, as applicable; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect/Engineer, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect/Engineer.
2. Notify Architect/Engineer seven calendar days in advance of dates and times when mockups will be constructed.
3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
4. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Obtain Architect/Engineer's approval of mockups before starting work, fabrication, or construction.
6. Allow seven calendar days for initial review and each re-review of each mockup.
7. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
8. Demolish and remove mockups when directed unless otherwise indicated.
L. Integrated Exterior Mockups: When indicated on Drawings, construct integrated exterior mockup. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials.

1.08 QUALITY CONTROL

A. University Responsibilities: Where quality-control services are indicated as University's responsibility, University will engage a qualified testing agency to perform these services.

1. University will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.

2. Payment for these services will be made by the University.

3. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to University are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

a. Contractor shall not employ same entity engaged by University, unless agreed to in writing by University.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.

4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in pre-installation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
Testing Agency Responsibilities: Cooperate with Architect/Engineer and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect/Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.

3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.

6. Do not perform any duties of Contractor.

Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.

2. Incidental labor and facilities necessary to facilitate tests and inspections.

3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.

4. Facilities for storage and field curing of test samples including, but not limited to, safe storage and proper curing of concrete test cylinders at Project site for first 24 hours after casting as required by ASTM C 31.

5. Delivery of samples to testing agencies.

6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

7. Security and protection for samples and for testing and inspecting equipment at Project site.

Coordination: Coordinate sequence of activities to accommodate required quality-assurance and control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

Manufactured Items and Equipment: Where manufactured products or equipment are required to have representative samples tested, do not use such materials or equipment until tests have been made and the materials or equipment found to be acceptable. Do not incorporate in the work any product which becomes unfit for use after acceptance.

Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to University, Architect/Engineer, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.09 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: University will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of University, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.

2. Notifying Architect/Engineer and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect/Engineer with copy to Contractor and to authorities having jurisdiction.

4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.

5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.

6. Retesting and re-inspecting corrected work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections including instructions received from University. Include the following:

1. Date test or inspection was conducted.

2. Description of the Work tested or inspected.

3. Date test or inspection results were transmitted to Architect/Engineer.

4. Identification of testing agency or special inspector conducting test or inspection.

5. Disposition: Pass, fail, nature of defects, if any.

6. Date and descriptions of remedial or correction action taken.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect/Engineer's reference during normal working hours.
3.02 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 00 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

3.03 SCHEDULE OF INSPECTIONS AND TESTS BY UNIVERSITY

A. University will engage testing agency and pay for testing and inspection associated with the following materials and systems, where included in the Project:

1. Curtain wall, window, and door field testing.

END OF SECTION 01 40 00
SECTION 01 41 00
REGULATORY REQUIREMENTS

PART I GENERAL

1.01 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.

1.02 SUMMARY
A. Section Includes:
   1. Building Department Authority.
   2. MS 4 Storm Water and Water Quality Permits
   3. Applicable Codes and Standards.

1.03 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 and County of Denver for site utility inspections.

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:

1.04 MS4 STORM WATER AND WATER QUALITY PERMITS

A. Obtain necessary State of Colorado and City and County of Denver Permits to the extent that Project impacts site.

1.05 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
PART 1 GENERAL

1.01 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.

1.02 SUMMARY
A. Section Includes:
   1. Definitions.
   2. Industry Standards.
   3. Abbreviations and Acronyms.
B. Related Requirements:
   1. Section 01 11 00 "Summary of Work" for an explanation of specification and drawing conventions.
   2. Section 01 41 00 "Regulatory Requirements" for a list of applicable codes.

1.03 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.
H. “General Requirements”: Provisions and requirements of all Division 01 Sections as they apply to all aspects of the Work.

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

J. "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."

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

L. "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.

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

N. "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.

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

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

Q. “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.

R. "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.

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

1.04 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.

1.05 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.

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<th>Abbreviation</th>
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<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>
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<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>
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<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>
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<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>
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www.americanbearings.org

ACI  American Concrete Institute (Formerly: ACI International)  www.concrete.org  (248) 848-3700

ACPA  American Concrete Pipe Association  www.concrete-pipe.org  (972) 506-7216

AEIC  Association of Edison Illuminating Companies, Inc. (The)  www.aeic.org  (205) 257-2530

AF&PA  American Forest & Paper Association  www.afandpa.org  (800) 878-8878  (202) 463-2700

AGA  American Gas Association  www.agausa.org  (202) 824-7000

AHAM  Association of Home Appliance Manufacturers  www.aham.org  (202) 872-5955

AHRI  Air-Conditioning, Heating, and Refrigeration Institute (The)  www.ahrinet.org  (703) 524-8800

AI  Asphalt Institute  www.asphaltinstitute.org  (859) 288-4960

AIA  American Institute of Architects (The)  www.aia.org  (800) 242-3837  (202) 626-7300

AISC  American Institute of Steel Construction  www.aisc.org  (800) 644-2400  (312) 670-2400

AISI  American Iron and Steel Institute  www.steel.org  (202) 452-7100

AITC  American Institute of Timber Construction  www.aic-glulam.org  (303) 792-9559


ANSI  American National Standards Institute  www.ansi.org  (202) 293-8020

AOSA  Association of Official Seed Analysts, Inc.  www.aosaseed.com  (607) 256-3313
<table>
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<tr>
<td>APA</td>
<td>APA - The Engineered Wood Association</td>
<td><a href="http://www.apawood.org">www.apawood.org</a></td>
<td>(253) 565-6600</td>
</tr>
<tr>
<td>APA</td>
<td>Architectural Precast Association</td>
<td><a href="http://www.archprecast.org">www.archprecast.org</a></td>
<td>(239) 454-6989</td>
</tr>
<tr>
<td>API</td>
<td>American Petroleum Institute</td>
<td><a href="http://www.api.org">www.api.org</a></td>
<td>(202) 682-8000</td>
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<td>ARI</td>
<td>Air-Conditioning &amp; Refrigeration Institute (See AHRI)</td>
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<td>ARI</td>
<td>American Refrigeration Institute (See AHRI)</td>
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<td>ARMA</td>
<td>Asphalt Roofing Manufacturers Association</td>
<td><a href="http://www.asphaltroofing.org">www.asphaltroofing.org</a></td>
<td>(202) 207-0917</td>
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<td>ASCE</td>
<td>American Society of Civil Engineers</td>
<td><a href="http://www.asce.org">www.asce.org</a></td>
<td>(800) 548-2723 (703) 295-6300</td>
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<tr>
<td>ASCE/SEI</td>
<td>American Society of Civil Engineers/Structural Engineering Institute (See ASCE)</td>
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<td>ASHRAE</td>
<td>American Society of Heating, Refrigerating and Air-Conditioning Engineers</td>
<td><a href="http://www.ashrae.org">www.ashrae.org</a></td>
<td>(800) 527-4723 (404) 636-8400</td>
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<tr>
<td>ASME</td>
<td>ASME International (American Society of Mechanical Engineers)</td>
<td><a href="http://www.asme.org">www.asme.org</a></td>
<td>(800) 843-2763 (973) 882-1170</td>
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<tr>
<td>ASSE</td>
<td>American Society of Safety Engineers (The)</td>
<td><a href="http://www.asse.org">www.asse.org</a></td>
<td>(847) 699-2929</td>
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<td>ASSE</td>
<td>American Society of Sanitary Engineering</td>
<td><a href="http://www.asse-plumbing.org">www.asse-plumbing.org</a></td>
<td>(440) 835-3040</td>
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<td>ATIS</td>
<td>Alliance for Telecommunications Industry Solutions</td>
<td><a href="http://www.atis.org">www.atis.org</a></td>
<td>(202) 628-6380</td>
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<td>AWEA</td>
<td>American Wind Energy Association</td>
<td>(202) 383-2500</td>
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<tr>
<td>AWI</td>
<td>Architectural Woodwork Institute</td>
<td>(571) 323-3636</td>
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<td>AWMAC</td>
<td>Architectural Woodwork Manufacturers Association of Canada</td>
<td>(403) 453-7387</td>
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<td>AWPA</td>
<td>American Wood Protection Association</td>
<td>(205) 733-4077</td>
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<td>AWS</td>
<td>American Welding Society</td>
<td>(800) 443-9353</td>
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<td>AWWA</td>
<td>American Water Works Association</td>
<td>(800) 926-7337</td>
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<td>BHMA</td>
<td>Builders Hardware Manufacturers Association</td>
<td>(212) 297-2122</td>
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<td>BIA</td>
<td>Brick Industry Association (The)</td>
<td>(703) 620-0010</td>
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<td>BICSI</td>
<td>BICSI, Inc.</td>
<td>(800) 242-7405</td>
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<td>BIFMA</td>
<td>BIFMA International</td>
<td>(616) 285-3963</td>
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<td>BISSC</td>
<td>Baking Industry Sanitation Standards Committee</td>
<td>(866) 342-4772</td>
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<td>BOCA</td>
<td>BOCA (Building Officials and Code Administrators International Inc.)</td>
<td>(See ICC)</td>
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<td>BWF</td>
<td>Badminton World Federation</td>
<td>60 3 9283 7155</td>
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<td>CDA</td>
<td>Copper Development Association</td>
<td>(800) 232-3282</td>
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References

- American Wind Energy Association (202) 383-2500
- Architectural Woodwork Institute (571) 323-3636
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- American Wood Protection Association (205) 733-4077
- American Welding Society (800) 443-9353
- American Water Works Association (800) 926-7337
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- Brick Industry Association (The) (703) 620-0010
- BICSI, Inc. (800) 242-7405
- BIFMA International (616) 285-3963
- Baking Industry Sanitation Standards Committee (866) 342-4772
- BOCA (Building Officials and Code Administrators International Inc.)
- Badminton World Federation 60 3 9283 7155
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<td>CEA</td>
<td>Canadian Electricity Association (613) 230-9263</td>
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<td>CEA</td>
<td>Consumer Electronics Association (866) 858-1555 (703) 907-7600</td>
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<td>CFFA</td>
<td>Chemical Fabrics &amp; Film Association, Inc. (216) 241-7333</td>
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<td>CFSEI</td>
<td>Cold-Formed Steel Engineers Institute (866) 465-4732 (202) 263-4488</td>
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<td>CGA</td>
<td>Compressed Gas Association (703) 788-2700</td>
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<td>CIMA</td>
<td>Cellulose Insulation Manufacturers Association (888) 881-2462 (937) 222-2462</td>
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<td>CISCA</td>
<td>Ceilings &amp; Interior Systems Construction Association (630) 584-1919</td>
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<td>Cast Iron Soil Pipe Institute (404) 622-0073</td>
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<td>Chain Link Fence Manufacturers Institute (301) 596-2583</td>
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<td>CPA</td>
<td>Composite Panel Association (703) 724-1128</td>
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<td>CRI</td>
<td>Carpet and Rug Institute (The) (706) 278-3176</td>
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<td>CRRC</td>
<td>Cool Roof Rating Council (866) 465-2523 (510) 485-7175</td>
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<td>CRSI</td>
<td>Concrete Reinforcing Steel Institute (800) 328-6306 (847) 517-1200</td>
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<td>CSA</td>
<td>Canadian Standards Association (800) 463-6727 (416) 747-4000</td>
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<td>CSA</td>
<td>CSA International (Formerly: IAS - International Approval Services) (866) 797-4272 (416) 747-4000</td>
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<td>CSI</td>
<td>Construction Specifications Institute (The) (800) 689-2900</td>
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<td><a href="http://www.csinet.org">www.csinet.org</a></td>
<td>(703) 684-0300</td>
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<td>CSSB</td>
<td>Cedar Shake &amp; Shingle Bureau, <a href="http://www.cedarbureau.org">www.cedarbureau.org</a></td>
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<td>CTI</td>
<td>Cooling Technology Institute (Formerly: Cooling Tower Institute), <a href="http://www.cti.org">www.cti.org</a></td>
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<td>CWC</td>
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www.iapsc.org

IAS  International Approval Services
      (See CSA)

ICBO  International Conference of Building Officials
       (See ICC)

ICC  International Code Council
      www.iccsafe.org
      (888) 422-7233
      (202) 370-1800

ICEA  Insulated Cable Engineers Association, Inc.
      www.icea.net
      (770) 830-0369

ICPA  International Cast Polymer Alliance
      www.icpa-hq.org
      (703) 525-0511

ICRI  International Concrete Repair Institute, Inc.
      www.icri.org
      (847) 827-0830

IEC  International Electrotechnical Commission
     www.iec.ch
     41 22 919 02 11

IEEE  Institute of Electrical and Electronics Engineers, Inc. (The)
      www.ieee.org
      (212) 419-7900

IES  Illuminating Engineering Society
     (Formerly: Illuminating Engineering Society of North America)
     www.ies.org
     (212) 248-5000

IESNA  Illuminating Engineering Society of North America
       (See IES)

IEST  Institute of Environmental Sciences and Technology
      www.iest.org
      (847) 981-0100

IGMA  Insulating Glass Manufacturers Alliance
      www.igmaonline.org
      (613) 233-1510

IGSHPA  International Ground Source Heat Pump Association
        www.igshpa.okstate.edu
        (405) 744-5175

ILI  Indiana Limestone Institute of America, Inc.
     www.iliai.com
     (812) 275-4426

Intertek  Intertek Group
         (Formerly: ETL.SEMCO; Intertek Testing Service NA)
         (800) 967-5352
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<td><a href="http://www.intertek.com">www.intertek.com</a></td>
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<td>ISA</td>
<td>International Society of Automation (The) (Formerly: Instrumentation, Systems, and Automation Society) <a href="http://www.isa.org">www.isa.org</a></td>
<td>(919) 549-8411</td>
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<td>ISFA</td>
<td>International Surface Fabricators Association (Formerly: International Solid Surface Fabricators Association) <a href="http://www.isfanow.org">www.isfanow.org</a></td>
<td>(877) 464-7732 (801) 341-7360</td>
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<td>ISO</td>
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<td>41 22 730 51 11</td>
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<td>(703) 264-1690</td>
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<td>LMA</td>
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<td>LPI</td>
<td>Lightning Protection Institute <a href="http://www.lightning.org">www.lightning.org</a></td>
<td>(800) 488-6864</td>
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<td>MBMA</td>
<td>Metal Building Manufacturers Association <a href="http://www.mbma.com">www.mbma.com</a></td>
<td>(216) 241-7333</td>
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<td>MCA</td>
<td>Metal Construction Association <a href="http://www.metalconstruction.org">www.metalconstruction.org</a></td>
<td>(847) 375-4718</td>
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<td>MFMA</td>
<td>Maple Flooring Manufacturers Association, Inc. <a href="http://www.maplefloor.org">www.maplefloor.org</a></td>
<td>(888) 480-9138</td>
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<td>MFMA</td>
<td>Metal Framing Manufacturers Association, Inc. <a href="http://www.metalframingmfg.org">www.metalframingmfg.org</a></td>
<td>(312) 644-6610</td>
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<tr>
<td>MHIA</td>
<td>Material Handling Industry of America <a href="http://www.mhia.org">www.mhia.org</a></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 (Formerly: Wood Moulding &amp; Millwork Producers Association)</td>
<td>(800) 550-7889</td>
<td>(530) 661-9591</td>
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<td>MPI</td>
<td>Master Painters Institute</td>
<td>(888) 674-8937</td>
<td>(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</td>
<td>(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>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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References:
- MIA: Marble Institute of America (440) 250-9222
- MMPA: Moulding & Millwork Producers Association
  (Formerly: Wood Moulding & Millwork Producers Association)
  (800) 550-7889 (530) 661-9591
- MPI: Master Painters Institute
  (888) 674-8937 (604) 298-7578
- MSS: Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
  (703) 281-6613
- NAAMM: National Association of Architectural Metal Manufacturers
  (630) 942-6591
- NACE: NACE International
  (National Association of Corrosion Engineers International)
  (800) 797-6223 (281) 228-6200
- NADCA: National Air Duct Cleaners Association
  (202) 737-2926
- NAIMA: North American Insulation Manufacturers Association
  (703) 684-0084
- NBGQA: National Building Granite Quarries Association, Inc.
  (800) 557-2848
- NCAA: National Collegiate Athletic Association (The)
  (317) 917-6222
- NCMA: National Concrete Masonry Association
  (703) 713-1900
- NEBB: National Environmental Balancing Bureau
  (301) 977-3698
- NECA: National Electrical Contractors Association
  (301) 657-3110
- NeLMA: Northeastern Lumber Manufacturers Association
  (207) 829-6901
- NEMA: National Electrical Manufacturers Association
  (703) 841-3200

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www.nema.org

NETA  InterNational Electrical Testing Association
www.netaworld.org  (888) 300-6382
(269) 488-6382

NFHS  National Federation of State High School Associations
www.nfhs.org  (317) 972-6900

NFPA  NFPA
(National Fire Protection Association)
www.nfpa.org  (800) 344-3555
(617) 770-3000

NFPA  NFPA International
(See NFPA)

NFRC  National Fenestration Rating Council
www.nfrc.org  (301) 589-1776

NHLA  National Hardwood Lumber Association
www.nhla.com  (800) 933-0318
(901) 377-1818

NLGA  National Lumber Grades Authority
www.nlga.org  (604) 524-2393

NOFMA  National Oak Flooring Manufacturers Association
(See NWFA)

NOMMA  National Ornamental & Miscellaneous Metals Association
www.nomma.org  (888) 516-8585

NRCA  National Roofing Contractors Association
www.nrca.net  (800) 323-9545
(847) 299-9070

NRMCA  National Ready Mixed Concrete Association
www.nrmca.org  (888) 846-7622
(301) 587-1400

NSF  NSF International
(National Sanitation Foundation International)
www.nsf.org  (800) 673-6275
(734) 769-8010

NSPE  National Society of Professional Engineers
www.nspe.org  (703) 684-2800

NSSGA  National Stone, Sand & Gravel Association
www.nssga.org  (800) 342-1415
(703) 525-8788

NTMA  National Terrazzo & Mosaic Association, Inc. (The)
www.ntma.com  (800) 323-9736
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<td>National Wood Flooring Association</td>
<td>(800) 422-4556</td>
<td>(636) 519-9663</td>
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<td>PCI</td>
<td>Precast/Prestressed Concrete Institute</td>
<td>(312) 786-0300</td>
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<td>PDI</td>
<td>Plumbing &amp; Drainage Institute</td>
<td>(800) 589-8956</td>
<td>(978) 557-0720</td>
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<td><a href="http://www.pdionline.org">www.pdionline.org</a></td>
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<td>PLASA (Formerly: ESTA - Entertainment Services and Technology Association)</td>
<td>(212) 244-1505</td>
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<td>RCSC</td>
<td>Research Council on Structural Connections</td>
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<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>(706) 882-3833</td>
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<td>RIS</td>
<td>Redwood Inspection Service</td>
<td>(925) 935-1499</td>
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<td>SAE</td>
<td>SAE International (Society of Automotive Engineers)</td>
<td>(877) 606-7323</td>
<td>(724) 776-4841</td>
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<td>Southern Building Code Congress International, Inc. (See ICC)</td>
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<td>SCTE</td>
<td>Society of Cable Telecommunications Engineers</td>
<td>(800) 542-5040</td>
<td>(610) 363-6888</td>
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<td>SDI</td>
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<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>
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<td><a href="http://www.sefalabs.com">www.sefalabs.com</a></td>
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<td>SIA</td>
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<td>(866) 817-8888</td>
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<td><a href="http://www.siaonline.org">www.siaonline.org</a></td>
<td>(703) 683-2075</td>
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<td>SJI Steel Joist Institute</td>
<td><a href="http://www.steeljoist.org">www.steeljoist.org</a></td>
<td>(843) 293-1995</td>
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<td>SMA Screen Manufacturers Association</td>
<td><a href="http://www.smainfo.org">www.smainfo.org</a></td>
<td>(773) 636-0672</td>
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<td>SMACNA Sheet Metal and Air Conditioning Contractors' National Association</td>
<td><a href="http://www.smacna.org">www.smacna.org</a></td>
<td>(703) 803-2980</td>
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<td>SMPTE Society of Motion Picture and Television Engineers</td>
<td><a href="http://www.smp%D1%82%D0%B5.org">www.smpте.org</a></td>
<td>(914) 761-1100</td>
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<td>SPFA Spray Polyurethane Foam Alliance</td>
<td><a href="http://www.sprayfoam.org">www.sprayfoam.org</a></td>
<td>(800) 523-6154</td>
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<td>SPIB Southern Pine Inspection Bureau</td>
<td><a href="http://www.spib.org">www.spib.org</a></td>
<td>(850) 434-2611</td>
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<td>SPRI Single Ply Roofing Industry</td>
<td><a href="http://www.spri.org">www.spri.org</a></td>
<td>(781) 647-7026</td>
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<td>SSINA Specialty Steel Industry of North America</td>
<td><a href="http://www.ssina.com">www.ssina.com</a></td>
<td>(800) 982-0355, (202) 342-8630</td>
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<td>SSPC SSPC: The Society for Protective Coatings</td>
<td><a href="http://www.sspc.org">www.sspc.org</a></td>
<td>(877) 281-7772, (412) 281-2331</td>
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<td>STI Steel Tank Institute</td>
<td><a href="http://www.steeltank.com">www.steeltank.com</a></td>
<td>(847) 438-8265</td>
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<td>SWI Steel Window Institute</td>
<td><a href="http://www.steelwindows.com">www.steelwindows.com</a></td>
<td>(216) 241-7333</td>
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<td>SWPA Submersible Wastewater Pump Association</td>
<td><a href="http://www.swpa.org">www.swpa.org</a></td>
<td>(847) 681-1868</td>
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<td>TCA Tilt-Up Concrete Association</td>
<td><a href="http://www.tilt-up.org">www.tilt-up.org</a></td>
<td>(319) 895-6911</td>
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<td>TCNA Tile Council of North America, Inc. (Formerly: Tile Council of America)</td>
<td><a href="http://www.tileusa.com">www.tileusa.com</a></td>
<td>(864) 646-8453</td>
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<td>Tubular Exchanger Manufacturers Association, Inc.</td>
<td>(914) 332-0040 <a href="http://www.tema.org">www.tema.org</a></td>
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<td>TIA</td>
<td>Telecommunications Industry Association (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance)</td>
<td>(703) 907-7700 <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 (See TIA)</td>
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<td>TMS</td>
<td>The Masonry Society</td>
<td>(303) 939-9700 <a href="http://www.masonrysociety.org">www.masonrysociety.org</a></td>
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<td>TPI</td>
<td>Truss Plate Institute</td>
<td>(703) 683-1010 <a href="http://www.tpinst.org">www.tpinst.org</a></td>
</tr>
<tr>
<td>TPI</td>
<td>Turfgrass Producers International</td>
<td>(800) 405-8873 (847) 649-5555 <a href="http://www.turfgrasssod.org">www.turfgrasssod.org</a></td>
</tr>
<tr>
<td>TRI</td>
<td>Tile Roofing Institute</td>
<td>(312) 670-4177 <a href="http://www.tileroofing.org">www.tileroofing.org</a></td>
</tr>
<tr>
<td>UBC</td>
<td>Uniform Building Code (See ICC)</td>
<td></td>
</tr>
<tr>
<td>UL</td>
<td>Underwriters Laboratories Inc.</td>
<td>(877) 854-3577 <a href="http://www.ul.com">www.ul.com</a></td>
</tr>
<tr>
<td>UNI</td>
<td>Uni-Bell PVC Pipe Association</td>
<td>(972) 243-3902 <a href="http://www.uni-bell.org">www.uni-bell.org</a></td>
</tr>
<tr>
<td>USAV</td>
<td>USA Volleyball</td>
<td>(888) 786-5539 (719) 228-6800 <a href="http://www.usavolleyball.org">www.usavolleyball.org</a></td>
</tr>
<tr>
<td>USGBC</td>
<td>U.S. Green Building Council</td>
<td>(800) 795-1747 <a href="http://www.usgbc.org">www.usgbc.org</a></td>
</tr>
<tr>
<td>USITT</td>
<td>United States Institute for Theatre Technology, Inc.</td>
<td>(800) 938-7488 (315) 463-6463 <a href="http://www.usitt.org">www.usitt.org</a></td>
</tr>
<tr>
<td>WASTEC</td>
<td>Waste Equipment Technology Association</td>
<td>(800) 424-2869 (202) 244-4700 <a href="http://www.wastec.org">www.wastec.org</a></td>
</tr>
<tr>
<td>WCLIB</td>
<td>West Coast Lumber Inspection Bureau</td>
<td>(800) 283-1486 (503) 639-0651 <a href="http://www.wclib.org">www.wclib.org</a></td>
</tr>
</tbody>
</table>
WCMA  Window Covering Manufacturers Association  (212) 297-2122
www.wcmanet.org

WDMA  Window & Door Manufacturers Association  (800) 223-2301
www.wdma.com (312) 321-6802

WI  Woodwork Institute
(Formerly: WIC - Woodwork Institute of California)
(916) 372-9943
www.wicnet.org

WMMPA  Wood Moulding & Millwork Producers Association
(See MMPA)

WSRCA  Western States Roofing Contractors Association  (800) 725-0333
www.wsrca.com (650) 938-5441

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

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.

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

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

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

ICC-ES  ICC Evaluation Service, LLC  (800) 423-6587
www.icc-es.org (562) 699-0543

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  (202) 761-0011
www.usace.army.mil

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

DOC Department of Commerce
National Institute of Standards and Technology
www.nist.gov

DOD Department of Defense
http://dodssp.daps.dla.mil

DOE Department of Energy
www.energy.gov

EPA Environmental Protection Agency
www.epa.gov

FAA Federal Aviation Administration
www.faa.gov

FG Federal Government Publications
www.gpo.gov

GSA General Services Administration
www.gsa.gov

HUD Department of Housing and Urban Development
www.hud.gov

LBL Lawrence Berkeley National Laboratory
Environmental Energy Technologies Division
http://eetd.lbl.gov

OSHA Occupational Safety & Health Administration
www.osha.gov

SD Department of State
www.state.gov

TRB Transportation Research Board
National Cooperative Highway Research Program
www.trb.org

USDA Department of Agriculture
Agriculture Research Service
U.S. Salinity Laboratory
www.ars.usda.gov

USDA Department of Agriculture
Rural Utilities Service
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.

**CFR**  
Code of Federal Regulations  
Available from Government Printing Office  
[www.gpo.gov/fdsys](http://www.gpo.gov/fdsys)  
(866) 512-1800  
(202) 512-1800

**DOD**  
Department of Defense  
Military Specifications and Standards  
Available from Department of Defense Single Stock Point  
[http://dodssp.daps.dla.mil](http://dodssp.daps.dla.mil)  
(215) 697-2664

**DSCC**  
Defense Supply Center Columbus  
(See FS)

**FED-STD**  
Federal Standard  
(See FS)

**FS**  
Federal Specification  
Available from Department of Defense Single Stock Point  
[http://dodssp.daps.dla.mil](http://dodssp.daps.dla.mil)  
(215) 697-2664

Available from Defense Standardization Program  
[www.dsp.dla.mil](http://www.dsp.dla.mil)

Available from General Services Administration  
[www.gsa.gov](http://www.gsa.gov)  
(800) 488-3111  
(202) 619-8925

Available from National Institute of Building Sciences/Whole Building Design Guide  
[www.wbdg.org/ccb](http://www.wbdg.org/ccb)  
(202) 289-7800
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

1.01  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.

1.02  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 11 00 "Summary of Work" for work restrictions and limitations on utility interruptions.

1.03  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.

1.04  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 timeframe 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.

1.05 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.

1.06 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

2.01 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.

2.02 TEMPORARY FACILITIES
A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
   1. Store combustible materials apart from building.
   2. Comply with Section 01 10 00 “Summary” for use of site for staging areas.

2.03 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.
C. Thermometer: Outdoor, re-settable type indicating daily maximum and minimum temperatures.
   1. Locate in a shaded-from-the-sun, conveniently readable location that will give reasonably accurate readings of the actual air temperature and be reached easily for resetting.
D. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL
A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate, expand and modify facilities as required by progress of the Work.
B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.
C. Use qualified workers for the installation of temporary facilities.

3.02 TEMPORARY UTILITY INSTALLATION
A. General: Install temporary service or connect to existing service.
1. Arrange with utility company, University, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services. Comply with requirements in Section 01 10 00 “Summary” for existing utility disruption procedures.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction. Where available, connect to University's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to University. At Substantial Completion, restore these facilities to condition existing before initial use.

1. Obtain and pay for all required water taps.

D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

1. Toilets: Use of University's existing toilet facilities is not permitted.
2. Provide temporary toilets within available site area in location approved by University which will best serve the needs of construction personnel.
3. Supply and maintain toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each sanitary facility, and provide appropriate waste paper containers for used materials.
4. At Contractor's option, provide drinking water for construction personnel by either water-system-connected drinking fountains or by containerized tap dispensers with paper cups (or both).

E. 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".
F. 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.

G. 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.

H. Electric Power Service: Provide weatherproof, grounded, electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations. Include, as required, transformers, overload protected disconnects, automatic ground fault interrupters and main distribution switchgear. Maintain equipment in a condition acceptable to University.

1. Install electric power service overhead unless otherwise indicated.

2. Where available capacity exists in existing system, connect temporary service to University's existing power source, as directed by University.

3. Provide separate connection for power and for lighting.

4. Provide sufficient 220v outlets for special tools, welding equipment and similar devices requiring such service at locations where required.

5. Provide sufficient circuits and duplex 120v single phase outlets so located that any part of the work can be reached with a 75 foot extension cord to accommodate normal power tools and supplemental lighting.

I. 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. Install lighting for Project identification sign.

4. Where permanent light fixtures have been used for temporary lighting, supply temporary lamps and replace with new lamps at time of Completion.

5. Provide lighting in stairways and exits at all times.

J. Telephone Service: Provide temporary telephone service in Contractor’s field office and distribute to each work station.

   1. Pay for line installation, monthly charges, and expenses necessary to extend service from minimum point of presence (MPOP) as determined by University I/S.

   2. Provide temporary telephone service in common-use facilities for use by all construction personnel.

   3. Provide answering machine and a dedicated telephone line for a facsimile machine.

   4. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.03 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

   1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.

   2. Maintain support facilities until Architect/Engineer schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to University.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.

   1. Surface temporary access road with road base material of not less than 4 inch thickness and compact.

   2. Provide temporary signage and temporary pedestrian access ways or other special considerations necessary for continued University operations.

   3. Provide stop sign(s) at all points of egress from construction site to meet standards established in the Manual of Uniform Traffic Code Devices (MUTCD).

   4. Maintain University access to areas affected by temporary access roads during inclement weather.

   5. Provide dust-control treatment that is nonpolluting and non-tracking. Reapply treatment as required to minimize dust.

   6. Restore to original condition to satisfaction of University when no longer required.
C. Temporary Walks: Construct and maintain temporary walks around the construction work and to offices, toilets and similar locations on the site.

D. Traffic Controls: Comply with requirements of authorities having jurisdiction.
   1. Protect existing site improvements to remain including curbs, pavement, and utilities.
   2. Maintain access for fire-fighting equipment and access to fire hydrants.

E. Parking: Comply with requirements in Section 01 10 00 “Summary.”

F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
   1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
   2. Remove snow and ice as required to minimize accumulations.

G. 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. Obtain necessary permits and approvals from City and County of Denver.
   2. Provide waste chutes as required in accordance with applicable laws and regulations.

H. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel. The selection of type, size and number of hoisting facilities is the solely responsibility of the Contractor.
   1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

I. Temporary Elevator Use: Use of elevators is not permitted without prior written approval of the Architect/Engineer and University Project Manager.
   1. If so approved, only one designated elevator may be used subject to the requirements of "Existing Elevator Use" paragraph below.

J. 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.

K. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.

L. 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.

M. 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.

3.04 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. Security: Provide security program and facilities to protect the Work, existing facilities, and University operations and to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
   1. Coordinate with University Police.
   2. Provide lockable entrances and lock entrances at end of each work day.
   3. After review and approval by University, install temporary enclosure around partially completed areas of construction.
   4. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting wherever required to prevent accidents and losses.

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

G. Covered Walkway: Where regulations require or where a public roadway/walkway adjoins the Project site and materials may be hoisted across the walkway, erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.
   1. Construct covered walkways using scaffold or shoring framing.
   2. Provide overhead waterproof decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
   3. Paint and maintain appearance of walkway for duration of the Work in a manner acceptable to the Architect/Engineer and University.
   4. Extend back wall beyond structure to complete the enclosure fence.

H. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
   1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
   2. Coordinate temporary enclosures with ventilating and drying-of-the-work requirements, so as to avoid dangerous conditions and deleterious effects.
   3. Close openings through floor or roof decks and horizontal surfaces with load-bearing wood-framed construction.

I. 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 hoist ways 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.

J. 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.

3.05 MOISTURE AND MOLD CONTROL

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

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
   1. Do not permit temporary offices and similar temporary or permanent spaces to be used as living quarters or for other unintended occupancies or uses.

B. Maintenance: Maintain facilities in good operating condition until removal.
   1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Janitorial Services: Provide daily janitorial services for temporary offices, toilets, and similar areas at the project site. Require users of other temporary facilities to maintain clean and orderly premises.

D. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.

E. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

F. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion, unless Architect/Engineer requests that it be retained for a longer period of time. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
   1. Materials and facilities that constitute temporary facilities are property of Contractor. University reserves right to take possession of Project identification signs.
   2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 70 00 "Closeout Procedures."

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

PART I GENERAL

1.01 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.

1.02 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 25 00 "Substitution Procedures" for requests for substitutions.
2. Section 01 42 00 "References" for applicable industry standards for products specified.
3. Section 01 70 00 "Contract Closeout" for submittal of project warranties.

1.03 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.
1.04 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.


1.05 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).

1.06 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 weather-tight 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.

1.07 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 warranty 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

2.01 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.
2.02 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 70 00
CONTRACT CLOSE-OUT

PART 1 - GENERAL

1.01 WORK INCLUDED
A. Contract close-out procedures and warranty requirements.

1.02 REFERENCED SECTIONS
A. Section 013300 - Submittals

1.03 CLOSE-OUT PROCEDURES
A. The Construction and finish Work clean-up shall consist of the removal of all excess dirt, trash, scrap, debris, and other excess materials, from the job site, drive and parking areas. Removal shall also include temporary construction items, trailer, and equipment from the Project, and leave the premises in the same conditions upon beginning of the Work.
B. Contractor shall rinse all building surfaces affected by the completion of the Work to remove all dust, debris, and other construction related debris.
C. Prior to request for final review by the Engineer and Owner, procure certification to the effect that construction has been completed in accordance with local code requirements from Building Inspector, and other inspecting agencies having jurisdiction as provided by law. Forward certificates to Engineer with letter requesting formal, final review.
D. When Contractor considers Work has reached final completion, submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract documents and is ready for Engineer's review.
E. Prior to final payment, upon substantial completion of project and prior to acceptance by the Owner, a formal "Punch List" shall be developed. This is not to preclude that punch lists shall be made by the Contractor to check the completion of his Work prior to final punch list inspection.
F. The Punch List will be jointly developed by the Owner, Contractor, Sub-contractors, and Engineer. A punch list of Contractor responsible items will be developed and a schedule for the completion of these items will be agreed upon by the cognizant parties.
G. The Engineer will forward the final formal consolidated punch list to the Contractor for correction with one (1) copy to the Owner.
H. The Contractor will then be given a limited, but reasonable period of time to complete the items. The Contractor is to notify the Engineer when all punch list items have been completed.
I. In addition to submittals required by the conditions of the Contract, provide submittals required by governing authorities, and submit a final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.
J. The Engineer’s review will be made upon receiving formal notification, in writing, from the Contractor that the work is complete. The Engineer will notify the Owner when the punch list items have been completed and the project is ready for final acceptance and payment.

K. Provide documentation accounting final repair quantities with final Application for Payment. Engineer will issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order.

1.04 POST-JOB SUBMITTALS
A. Provide all post-job submittals as required by Section 013300 - Submittals.
B. Submit documentation prior to final application for payment.

1.05 WARRANTIES
A. Upon completion of the project and prior to final payment, warranties required by technical divisions of Specifications shall be properly executed in duplicate and submitted to the Engineer. Delivery of warranty shall not relieve Contractor from any obligation assumed under the Contract.

B. Submit Contractor’s Warranty as specified. In addition, where separate warranties for certain portions of Work are for longer periods, Contractor’s Warranty and Manufacturer’s warranty shall be extended to cover such longer periods.

C. Warranties shall become valid and operative upon verification of Substantial Completion by Engineer. Warranties shall not apply to Work where damage is result of abuse or neglect by Owner or successor(s) in interest.

D. Neither final payment, final certificate, nor any provision of the Contract Documents relieves the Contractor from his responsibilities under the warranties.

E. If, at any time, deficiencies in the Work are discovered which result from a deliberate attempt to defraud the Owner, the Contractor will be held liable for, but not limited to, replacement or correction, regardless of the time limit on the warranty.

F. If the Contractor, after receipt of written notification from Owner, fails to proceed promptly to comply with the terms of the warranty, the Owner may have the defects corrected and the Contractor and his Surety shall be liable for all expense incurred.

G. All warranty repairs made shall be detailed to match and blend with adjacent work. Warranty obligations shall include taking necessary steps to provide as close a match and blend (elevation, finish, texture, color, etc.) as possible.

**PART 2 PRODUCTS:** NOT USED.

**PART 3 EXECUTION:** NOT USED.

**END OF SECTION 01 70 00**
SECTION 01 73 00
EXECUTION

PART 1 GENERAL

1.01 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.

1.02 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 11 00 "Summary of Work" for limits on use of Project site and procedures related to utility interruptions.

1.03 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.

1.04 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:
      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.

1.05 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-resistant 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**

**2.01 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

3.01  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.

3.02  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."

3.03 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.
3.04 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.

3.05 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."
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."

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.

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.

3.06 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.

3.07 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.

3.08 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 safety. Replace damaged and malfunctioning controls and equipment.
D. Manufacturer's Field Service: Comply with qualification requirements in Section 01 40 00 "Quality Requirements."

3.09 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.
END OF SECTION 01 73 00
SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART I GENERAL

1.01 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.

1.02 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 70 00 "Contract Closeout" for general closeout procedures.
   2. Section 01 73 00 "Execution" for final property survey.

1.03 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

2.01 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 circuity.

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.
o. 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 RECORD 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. Project Number:
   c. Date:
   d. Designation: "PROJECT RECORD DRAWINGS."
   e. Name of Architect/Engineer:
   f. Name of Contractor:
2.02 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.

2.03 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.

2.04 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.

2.05 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

3.01 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 04 05 20
MASONRY RESTORATION

PART 1 GENERAL

1.01 WORK INCLUDED
A. Provide labor, materials, equipment, and supervision for the tuck pointing of existing tile on the Northwest elevation and for the removal and replacement of damaged tile on the Southwest elevation.
B. Clean adjacent tile to remove residual materials from repairs.

1.02 REFERENCES
A. ASTM C 91 - Specification for Masonry Cement
B. ASTM C 144 - Specification for Aggregate for Masonry Mortar
C. ASTM C 150 - Specification for Portland Cement
D. ASTM C 270 - Specification for Mortar for Unit Masonry
E. ANSI A137.1 – Specifications for Ceramic Tile
F. ANSI A118.1 – Standard Dry-Set Cement Mortar

1.03 QUALITY ASSURANCE
A. The Contractor shall have a minimum of five years experience performing similar masonry repairs to similar type structures.

1.04 SUBMITTALS
A. Submit product data for all materials to be used. Include manufacturer's application instructions and MSDS sheets for all products.
B. Masonry Sample:
   1. Complete a sample panel of 4 square feet in area for the masonry material indicated to be repaired, reconstructed or replaced.
   2. Submit mortar recipe(s) upon sample approval.
C. Submit samples of proposed replacement tile for review and approval by Owner.
1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. The Contractor shall provide all materials required to complete the work of this Section.

B. Deliver materials in manufacturer’s original containers, dry, undamaged, seals and labels intact.

C. Store materials in weather protected environment, clear of ground and moisture.

D. All materials shall be handled, transported, and stored in a manner that will preserve their quality and fitness for the work and in accordance with manufacturer’s requirements.

E. Any material that has deteriorated, or has been contaminated, shall not be used and shall be immediately removed from the site.

F. The use of asbestos containing materials or lead based paint is prohibited on this project.

G. Comply with applicable federal, state and local environmental regulations.

1.06 FIELD QUALITY CONTROL

A. Repairs shall be performed by a company with minimum of five years experience performing the work as required by these Specifications and in accordance with the guidelines and specifications published by the Tile Council of America.

B. Acquire repair materials from the same source for all repairs required in this Section.

C. Materials or repairs that do not conform to these Specifications shall be considered unacceptable. Such materials, whether in place or not, shall be removed from site.

D. Work observation and testing may be performed by the Owner. The performance of observation or testing by the Owner shall not relieve the Contractor of the responsibility to furnish materials that conform to, or of performing work in accordance with these Specifications.

E. All work shall be performed in accordance with these specifications and manufacturer’s requirements. Correct defects and irregularities as required.

F. Protect adjacent construction from masonry drippings.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not apply mortar when ambient temperature or the temperature of the base materials is below 40 degrees Fahrenheit or when subject to freezing or rainfall prior to drying.

B. Refer to material manufacturer’s specifications for any additional environmental requirements.
1.08 WARRANTY

A. Provide two-year Contractor’s Warranty for materials and workmanship.
B. Provide manufacturer's standard product warranties for materials.

PART 2 PRODUCTS

2.01 MATERIALS

A. Tile units: Furnish tile complying with “Standard Grade” requirements per ANSI A137.1, for types of tile indicated.
   2. Contractor supplied tile to match shape, size, and color of existing tile
   3. Contractor shall provide sample of tile for approval by owner before installation

B. Comply with ANSI Standard for Tile Installation Material and current Tile Council of America Handbook for products and materials indicated for setting and grouting.

C. Mortar:
   1. All components shall conform to the following:
      a. Thinset mortar: Laticrete 254 Platinum. Color to match existing material and be approved by Owner.
      b. Portland Cement: color as required to match existing, Type I or III (depending on weather conditions) conforming to ASTM C150.
      c. Sand aggregate (natural or manufactured) conforming to ASTM C144. Sand must be free from materials that might cause staining.
      d. Pigment: finely ground mineral pigment, high purity, non-fading, lime-proof, weather resistant, and factory mixed, bagged, and labeled.
      e. Potable water free from deleterious acids, alkalis or organic materials.
      f. No admixtures are permitted unless submitted to and accepted by Engineer

D. Bonding agent: Thorobond, manufactured by BASF. Alternates must be submitted to and accepted by Engineer.
PART 3 EXECUTION

3.01 GENERAL
A. Execute the work of this Section in accordance with these Specifications, the details on the Drawings, and the appropriate manufacturer's specifications.
B. Protect building surfaces against damage from work of this section.
C. Adhere to manufacturer's specifications regarding environmental requirements, surface preparation, application methods, etc., where more stringent than required by these specifications.
D. Verify substrate surface condition is adequately prepared to receive the work of this Section.
E. Prior to the use of any materials of this Section, refer to the “Safety” section of the Materials Safety Data Sheets (MSDS) provided by the material manufacturer for applicable cautions and warnings.

3.02 PROPORTIONING AND MIXING OF MORTAR
A. Proportion mortar components to meet type specified, and to match the submitted mortar recipe.
B. Mix materials thoroughly by machine to ensure uniform consistency and color. Additional water may be added to achieve desired workability.
C. Do not use mortar that has begun to set. Mortar may be re-tempered by adding water. Place mortar within two hours after mixing.

3.03 MIXING OF TUCKPOINTING GROUT
A. Prehydrate grout by dry mixing all components, and then adding only enough water to produce a stiff mix such that mortar will hold its shape when compressed into a ball.
B. Allow mortar to stand for a minimum of 1 hour, maximum of 1-1/2 hours.
C. Add remaining water necessary to produce a workable consistency for tuckpointing. Water shall be added in small amounts by hand.
D. All tuck-pointing mortar shall be placed within 2-1/2 hours of pre-hydration, and within 1 hour of the addition of final water. Re-tempering of the tuckpointing mortar is permitted within the allowable time.
**3.04 PREPARATION**

A. **Tile Replacement:**

1. **Substrate Preparation:** Prepare and clean substrate in accordance with installation standards and manufacturer’s instructions, as follows:
   a. Remove protrusions, bumps, and ridges by grinding or chipping.
   b. Repair, fill, and level cracks, holes, depressions and rough or chipped areas in substrate using patching material recommended by setting materials manufacturer.
   c. Slab to have light broom finish when tiles are installed by thin-set method.
   d. Ensure that the substrate is within the following tolerance for vertical surfaces. The maximum variation in substrate shall not exceed 1/8-inch in ten feet from the required plane, depending on substrate.

B. **Tuck pointing:**

1. Protect adjacent surfaces in such a way as not to damage adjoining surfaces and the existing structure and finishes.

**3.05 COLD WEATHER PRACTICES**

A. Tuck pointing may be performed in freezing weather when methods of protection are utilized.

B. Comply with applicable sections of “Recommended Practices for Cold Weather Construction” as published by International Masonry Industry All Weather Council.

C. Maintain existing surfaces at temperatures to prevent mortar from freezing or causing other damage to mortar.

**3.06 GENERAL INSTALLATION**

A. Install tile to match surrounding work (bond, plane, etc.). Keep work plumb and true to line.

B. Tile units are to be placed in thin set mortar beds.

C. When mortar becomes “thumbprint hard,” tool mortar joints to match existing.

D. Keep tile clean as the Work progresses to remove mortar build-up and smears.

E. Make surfaces free of moisture, oil, grease, dirt, and other contaminants.

**3.07 TUCKPOINTING**

A. Immediately prior to application of mortar, dampen joints to be tuck pointed. Prior to application of pointing mortar, allow masonry units to absorb surface water.

B. Existing mortar joints shall be chipped or ground out to a minimum uniform depth of 1/4-inch. Depth shall not exceed ½-inch. Avoid damage to adjacent tile edges and faces.

C. Remove loose dust and debris from joints by brushing, or blowing with compressed air. Rinse areas with plain water prior to tuck-pointing, and allow to surface dry.
D. Install tuck-pointing mortar in approximately 1/8-inch layers maximum, compressing each layer to ensure a good bond. Install subsequent layers after preceding layer has become “thumbprint hard.” When the final layer becomes “thumbprint hard,” tool joint to match existing.

E. Keep masonry clean as the Work progresses to remove mortar buildup and smears.

F. Dry brush the pointed areas at the end of each workday. Clean all work areas by approved methods, such that the Work area meets or exceeds original conditions.

G. The finished appearance of tuck-pointed areas shall be uniform and match the approved sample and existing joints.

3.08 TILE REMOVAL AND REPLACEMENT

A. Remove tile from areas where existing tile is significantly damaged; remove tile to extent necessary to eliminate same. Actual removal and repair areas shall be coordinated with Owner and/or Engineer prior to removals.

1. Cut our mortar joints surrounding masonry units that are to be removed and replaced.

   i. Units removed may be broken and removed, providing surrounding units to remain are not damaged.

   ii. Once the units are removed, carefully chisel out the old mortar and remove dust and debris.

B. Wet masonry units and joints thoroughly before repairing. Allow water to soak into the immediately adjacent wall area before applying new mortar. Install new masonry and mortar when existing surfaces are in saturated, surface dry state.

C. Replace removed masonry sections with masonry and mortar joint position and geometry to match existing.

D. If depth of repair behind tile is greater than 1/8-inch:

   1. Apply bonding agent to the surface of the repair area
   2. Install brown coat over bonding agent
   3. Install thin set mortar over new brown coat.
   4. Place tile in fresh mortar, press, push and pull the tile slightly to achieve as near 100% coverage and contact of tile with setting material and substrate as possible. The coverage shall be no less than 85% and be sufficiently distributed to give full support of the tile. Make sure that all corners and edges are well supported with mortar. Leave no hollow corners or edges. NOTE: 95-100% coverage is mandatory for wet or exterior areas. A skim coat (“back-butter”) of mortar can be placed onto the entire back of the tile using a trowel in order to assist in optimum adhesion and coverage of the mortar being used.

E. Mix mortar in accordance with manufacturer’s instructions. Mix no more mortar than can be used within 2½ hours of mixing or sooner if so recommended by manufacturer.
F. Apply mortar fully to bed and head joints. Fully embed replacement tile in mortar, in complete, tight contact with adjacent surfaces. Notify Engineer prior to masonry replacement if any deficiencies are discovered.

G. Mortar joints shall be tooled when the mortar is “thumb print” hard. Tool joints to match profile of original mortar joints.

H. Protect all walls, windows, doors, roof below, and adjacent areas to the Work from falling mortar.

I. At the end of each workday, protect unfinished work areas to prevent water penetration through open wall sections.

3.09 CLEANING

A. Clean exposed masonry surfaces on completion.

B. Remove mortar droppings and other foreign substances from wall surfaces.

C. First wet surfaces with clean water, then wash down with a solution of soapless detergent specially prepared for cleaning tile.

D. Brush with stiff fiber brushes while washing, and immediately thereafter hose down with clean water.

E. Free clean surfaces from traces of detergent, foreign streaks or stains. Protect materials during cleaning operations including adjoining construction.

END OF SECTION 04 05 20
SECTION 07 92 01
JOINT SEALANTS

PART 1 - GENERAL

1.01 WORK INCLUDED
A. Provide labor, materials, equipment, and supervision to complete the following:
   1. Wet seal window gaskets at corners (All elevations)
   2. Repair sealant at head and sill framing joints (All elevations)
   3. Repair horizontal and vertical expansion joint sealant between panels (Southeast elevation)

1.02 SUBMITTALS
A. Submit product data and manufacturer's installation instructions for the following materials.
   1. Sealants and Sealant Tape
   2. Backer Rod
   3. Primer
   4. Bond Breaker Tape
   5. Solvent
B. Submit letter from sealant manufacturer indicating whether the material is intended for remedial sealing applications and use with existing substrate materials.
C. Submit sealant manufacturer's certification if primer is a detriment to sealant performance at specific substrate and sealant locations.
D. Submit letter from sealant manufacturer indicating the proposed sealant material is compatible with the substrate and their intent to issue warranty for the project.
E. Submit manufacturer schedule of testing of the proposed sealant installation.

1.03 PRODUCT DELIVERY, STORAGE, AND HANDLING
A. The Contractor shall provide all materials required to complete the work of this Section.
B. Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.
C. Store materials in weather protected environment, clear of ground and moisture.
D. All materials shall be handled, transported, and stored in a manner that will preserve their quality and fitness for the work.
E. Any material that has deteriorated, or has been contaminated, shall not be used and shall be immediately removed from the site.
F. The use of asbestos containing or lead containing materials is prohibited on this project.
1.04 FIELD QUALITY CONTROL

A. Protect building surfaces against damage from work of this section.
B. Do not apply sealants when the ambient temperature or the temperature of the base material is below 40 degrees Fahrenheit.
C. Work observation and testing may be performed by the Owner.
D. Coordinate with sealant manufacturer for sealant adhesion testing as required by manufacturer for issuance of warranties.
E. All work shall be done in accordance with manufacturer’s requirements. Correct defects and irregularities as required.
F. Maintain a log of daily progress of the Work and provide this information to Owner weekly. Document on elevation drawings that work which is accomplished each day, and indicate which material batch numbers were used.
G. Notify Engineer orally, followed in writing, of any condition which Contractor believes will yield unsatisfactory performance, or of any items of non-conformity between these Specifications and manufacturer’s recommendations or instructions.

PART 2 - PRODUCTS

2.01 SEALANT MANUFACTURERS:
A. Basis of Design:
   1. Dow Corning Products

2.02 SEALANT PRODUCTS
A. Window gasket wet seal (All elevations):
   1. Dow Corning 795, Color black.
B. Sealant repair at window head and sill framing joints (All elevations):
   1. Dow Corning 795, color to match window frames
   2. Dow Corning 123 Silicone Seal, width to meet needs, color to match window frames.
   3. Custom color may be required for window frame sealants and should be included in pricing.
C. Expansion joint sealant repair (Southeast elevation):
   1. Sealant: Dow Corning 790, color to match existing tiles.
   2. Backer Rod: As recommended by sealant manufacturer, reticulated closed-cell polyethylene foam; oversized 25 percent of joint width.
D. Solvents: Coordinate with sealant manufacturer for compatible solvents for substrate preparation.
E. Primer: Prime all surfaces unless otherwise shown to be detrimental to adhesion.
PART 3 - EXECUTION

3.01 GENERAL
A. Execute the work of this Section in accordance with these Specifications and the sealant manufacturer's specifications.
B. Protect building surfaces against damage from work of this section.
C. Verify substrate surface condition is adequately prepared to receive the work of this Section.
D. Prior to the use of any materials of this Section, refer to the “Safety” section of the Materials Safety Data Sheets (MSDS) provided by the material manufacturer for applicable cautions and warnings.
E. Prime all substrates unless the manufacturer provides specific documentation that adhesion is compromised by priming the substrates.

3.02 EXAMINATION
A. Contractor shall verify that all joint surfaces are clean, sound, dry, free of defects and that dimensions are within sealant manufacturer's size requirements.
B. Commencement of sealant installation shall be evidence that contractor has verified compliance of existing conditions.

3.03 JOINT INSTALLATION
A. Prepare joints in accordance with sealant manufacturer's instructions.
B. The surfaces must be free of moisture, oil, grease, dirt, other debris, and existing sealants.
C. Use backer rod or bond breaker tape to ensure correct sealant depth and to prevent three-sided adhesion.
D. Apply sealants with appropriate equipment and pressure to ensure penetration of sealant into required joint depth. Ensure that solvents do not mix with sealant in application equipment.
E. Tool sealants smooth and slightly concave. Avoid feather-edging sealant on substrate. Wet or dry tool, as recommended by sealant manufacturer.
F. After final tooling, do not disturb sealant until sealant is fully cured. Ensure that sealant is full smooth bead, and free of ridges, wrinkles, sags, air pockets and embedded impurities.
G. Apply sealant at all joints in accordance with sealant manufacturer's instructions, and dry tool finish. The minimum sealant adhesion width shall be ¼ inch per face.
H. Window gasket wet seal
   1. Install sealant into the corners of the windows where gaskets have shrunk.
   2. Sealant should fill opening and engage the existing gaskets by at least 3/8” at each side.
I. Sealant repair at window head and sill framing joints
   1. Remove existing sealant from metal to metal framing joints at head and sill
2. Mark a straight line along window frames at location of sealant application for sealant tape. Ensure that tape will be straight and true.
3. Remove any remaining loose debris.
4. All sealant application shall be to the metal frame. Sealant tape joint shall be flexible with a void between the two edge beads to allow minor movement due to thermal stimuli.
5. All edges shall be tied into to perimeter and wet seals to form complete barrier.
6. Install sealant and sealant tape at joint in accordance with manufacturer specifications.

J. Expansion joint sealant repair
1. Remove existing sealants and backer rod from expansion joints
2. Install new backer rod according to manufacturer’s specifications
3. Install sealant between panels in accordance with manufacturer’s specifications

3.04 ADHESION TESTING
A. Coordinate adhesion testing with manufacturer throughout the Work. Manufacturer shall provide schedule of testing based on Contractor’s proposed work schedule. Conduct field-testing after sealant has cured in accordance with manufacturer’s recommendations. Repair test areas as necessary.
B. Test results shall be submitted to Engineer and Owner.

3.05 CLEANING
A. Clean excess sealant on finished surfaces in accordance with manufacturer's recommendations.
B. Remove markings caused by the work of this Section from finished surfaces. In areas where finished surfaces are soiled by work of this Section, consult manufacturer of surfaces for cleaning advice and conform to their instructions.

END OF SECTION 07 92 01
LAURENCE STREET CENTER
LSC FACADE (SKIN) REPAIRS CARRY FORWARD 2014-2015
PROJECT NUMBER 15-104284
UNIVERSITY OF COLORADO, DENVER
1380 LAWRENCE STREET
2016 FACADE REPAIRS

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GENERAL NOTES:
1. WET SEAL WINDOW GASKETS IN LOCATIONS WHERE GASKETS ARE SHOWN - ALL ELEVATIONS.
2. REMOVE AND REPAIR SEALANT AT BRICK JOINTS - ALL ELEVATIONS.
3. NORTHWEST ELEVATION, TYPICAL DETERIORATED MORTAR JOINTS.
4. SOUTHWEST ELEVATION: REMOVE AND REPLACE DETERIORATED HORIZONTAL AND VERTICAL EXPANSION JOINTS.
5. SOUTHWEST ELEVATION: REMOVE AND REPLACE DAMAGED TILES - CONTRACTOR TO VERIFY.
6. CONTRACTOR TO KEEP TRACK OF REPAIR QUANTITIES DURING WORK.

NOTE 1: TYPICAL

NOTE 2: TYPICAL
GENERAL NOTES:
1. REMOVE AND REPLACE MORTAR Joints at ALL ELEVATIONS.
2. REMOVE AND REPAIR SEALANT AT MULLION Joints at ALL ELEVATIONS.
3. REMOVE AND REPLACE TIES,厳しいジョイント DETERMINED MORTAR JOINTS
4. REMOVE AND REPLACE MORTAR JOINTS in CRACKED, DEFECTIVE, HORIZONTAL, and VERTICAL EXPANSION JOINTS.
5. CONTRACTOR TO KEEP TRACK OF REPAIR QUANTITIES DURING WORK.

NOTE 1: TYPICAL
NOTE 2: TYPICAL
NOTE 3: TYPICAL

NORTHWEST ELEVATION

SITE MAP

A2

1380 LAWRENCE STREET
UNIVERSITY OF COLORADO, DENVER
5261 HILLCREST STREET
DENVER, COLORADO 80202

NORTHWEST ELEVATION

LAWRENCE STREET
NORTH
GENERAL NOTES
1. WET SEAL WINDOW GASKETS IN LOCATIONS WHERE GASKETS ARE SHINKING, ALL ELEVATIONS
2. REMOVE AND REPLACE SEALANT AT MULLION JOINTS, ALL ELEVATIONS
3. NORTHWEST ELEVATION (COMMON)
   DETERIORATED MULLION JOINTS
4. SOUTHEAST ELEVATION: REMOVE AND REPLACE DETERIORATED HORIZONTAL AND VERTICAL EXPANSION JOINTS
5. CONTRACTOR TO REMOVE AND REPLACE DAMAGED TILES - CONTRACTOR TO VERIFY LOCATIONS AND QUANTITIES
6. CONTRACTOR TO KEEP TRACK OF REPAIR QUANTITIES DURING WORK.
LEVELING COAT AND SETTING BED

1/2" BROWN COAT

1/2" SCRATCH COAT

PANEL BACKED STUCCO NETTING

1/2" EXTERIOR GYPSUM BOARD

WET SEAL GAPS AT SHRUNKEN GASKETS, ALL ELEVATIONS

MIN 1" OVERLAP WITH EXISTING GASKETS

REMOVE AND REPLACE VERTICAL AND HORIZONTAL EXPANSION JOINTS AT PANELS ON SOUTHEAST ELEVATION

10 WINDOW GASKET WET SEAL

D1

NTS

13 DETERIORATED EXPANSION JOINTS

REMOVE AND REPLACE CLOSED CELL BACKER ROD

REMOVE EXISTING SEALANT AND INSTALL SILICONE SEALANT

EXISTING KEY-BACKED CERAMIC TILE

14 VERTICAL EXPANSION JOINT REPAIR

D1 3/8" T

EXISTING KEY-BACKED CERAMIC TILE

REMOVE EXISTING SEALANT AND INSTALL SILICONE SEALANT

REMOVE AND REPLACE CLOSED CELL BACKER ROD

15 HORIZONTAL EXPANSION JOINT REPAIR

D1 5/8" T

INSTALL SILICONE SEALANT TAPE OVER METAL TO METAL HEAD AND SILL JOINTS, ALL ELEVATIONS

11 SEALANT REPAIR AT SILL JOINT

D1 NT5

12 SEALANT REPAIR AT HEAD JOINT

D1 NT5

16 GA STEEL STUD & TRACK FRAME

9 ORIGINAL PANEL DESIGN

D1 NT5
REPLACE BROKEN TILES (SOUTHWEST ELEVATION)

16. TYPICAL BROKEN TILES
D2 / NTS

EXISTING BROWN COAT
EXISTING SCRATCH COAT

GRIND OUT MORTAR JOINT
AND REMOVE EXISTING
DAMAGED TILE PIECES

17. DETERIORATED MORTAR JOINTS
D2 / NTS

EXISTING BROWN COAT
EXISTING SCRATCH COAT

IF DEPTH (D) OF REPAIR IS
GREATER THAN 3/8", INSTALL
BONDING AGENT AND BROWN COAT
BEHIND THINSET MORTAR

EXISTING TILE

18. TILE REMOVAL
D2
3/8" - 1/2"

NEW MORTAR JOINT
NEW TILE TO MATCH
EXISTING

THINSET MORTAR
NEW BROWN COAT (FOR D=3/8")
BONDING AGENT (FOR D=3/8")

19. TILE REPLACEMENT
D2
3/8" - 1/2"