STEARNS EAST BATHROOM RENOVATIONS
061 Stack
Housing and Dining Services
University of Colorado Boulder

PR007758/HSG10810

PROJECT MANUAL
December 4, 2013
For Bidding

ROSENM AN ASSOCIATES ARCHITECTS
STEARNS EAST BATHROOM RENOVATIONS
061 Stack
Housing and Dining Services
University of Colorado at Boulder
PR007758/HSG10810

PROJECT TEAM

OWNER
Design and Project Management
Housing and Dining Services
University of Colorado Boulder
3500 Marine Street
159 UCB
Boulder, CO 80309-0159
303.735.3707
Project Manager: Jon C. Keiser AIA, LEED® AP BD+C, CSI, CCCA

ARCHITECT
Rosenman Associates Architects
1638 Krameria Street
Denver, CO 80220
303.388.4580
Principal-in-Charge: Seth Rosenman, AIA

MECHANICAL ENGINEER
Envision Mechanical Engineers
9777 Pyramid Court
Suite 230
Englewood, CO 80112
303.688.0223
Principal-in-Charge: Jay Ferrare, CPD, LEED® AP

ELECTRICAL ENGINEER
JCN Engineering
3281 Routt Street
Wheat Ridge CO 80033
303.239.0736
Principal-in-Charge: Jeff Nielsen, PE
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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:

**INSERT NAME OF AGENCY AND ADDRESS WHERE BID SHOULD BE DELIVERED**

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

- Project # PR007758/HSG10810
- Project Name Stearns East Bathroom Renovations – 61 stack
- Name and Address of Bidder _________________________________________________________
- Date of Opening  Friday, January 3, 2014
- Time of Opening  11:00am

A bid with missing or inconsistent information may be considered non-responsive and may not be evaluated. The University will be the sole judge in determining the acceptability of an offer. **The University also reserves the right to reject any or all bids in part or in whole and to waive technicalities. Any decision shall be considered final.**

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 (2) business days prior to the bid opening date.

7. **ADDENDA:** Owner/architect initiated addenda shall not be issued later than two (2) 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:
http://www.colorado.gov/cs/Satellite/DPA-EO/DEO/1247524014223
http://www.colorado.edu/facilitiesmanagement/pdc/construction/open.html

10. CONTRACTOR QUALIFICATIONS:

A. Prime Contractors:
   a. Prime Contractors bidding this project must complete “University of Colorado (UCB)
      Contractor Statement of Experience,” and submit it with their Bid.
   b. The Prime Contractor must meet the following minimum requirements and provide written
      information substantiating their qualifications for evaluation. A Bidder may be found to be
      non-responsive and their bid rejected if the minimum requirements are not met.
      (1) The Prime Contractor must have successfully completed three (3) projects of
          $ 300,000.00 (or larger) in the last five (5) years which were similar in complexity
          and type to this project. For each project list:
          Name and location of project, along with a brief description of the project (include
          size & function).
          Name, address and phone number of client/ owner and their representative.
          Contract value and type of contract (prime or subcontract).
          Year in which work was completed.
      (2) The Contractor must have successfully completed an aggregate of $ 300,000.00
          of projects in the last five (5) years which were similar in complexity and type on
          which he acted as the prime contractor (may be the same projects listed in item
          (1), if applicable).
      (3) The firm must have been in business as a Contractor for the last five (5) years.

B. Subcontractors
   a. The Prime Contractor is required to provide subcontractors which meet minimum
      qualifications for the trades listed below.
      The right is reserved to reject subcontractors that do not meet the minimum
      requirements. The Prime Contractor will be required to replace rejected subcontractor(s)
      with one(s) that meet the minimum requirements with no increase in the Bid Amount prior
      to the Award of Contract.
      Prime Contractor and Subcontractor(s) are advised that there are conditions within the
      Contract Documents requiring special knowledge and experience to properly execute.
      The University will require verification of experience to adequately provide materials and
      perform labor required for the following:
      - Plumbing
      - Fire Alarm and/or Fire Sprinkler
      - Electrical
      b. For the trades listed (subcontractors) above, the apparent low bidder must submit, within
         72 hours of receipt of bids except for holidays and weekends, the “University of Colorado
         Contractor’s Statement of Experience.
      c. In addition to the information requested in Item (1), the Subcontractor must meet the
         following minimum requirements and provide written information substantiating their
         qualifications for evaluation. A Bidder may be found to be non-responsive and their bid
         rejected if the minimum requirements are not met
         (1) The firm must have been in business for the last five (5) years as trade proposed
             for this work.
(2) The firm must have successfully completed at least two (2) projects of similar size, type, and complexity in the last five (5) years. The information must include the following:
   (a) Building type description (function use)
   (b) Building gross square footage
   (c) Subcontract description (be specific)
   (d) Subcontract amount
   (e) Subcontract change orders
   (f) Building owner representative and current telephone number
   (g) Building architect name and current telephone number
   (h) General contract name and current telephone number

(3) This firm shall give evidence of being able to be bonded up to the value of his work for this project. A letter shall be provided by the bonding agency assuring capability of bonding this subcontract amount.

11. **SITE ACCESS:** Contractors / Bidders may schedule a time subsequent to the Site Inspection / Pre-bid Conference to take measurements or further observe existing conditions by contacting:

   Jon C. Keiser, Project Manager  
   University of Colorado at Boulder  
   Department of Housing & Dining Services  
   (303) 735-3707   EMAIL: jon.keiser@colorado.edu

12. **BID SCHEDULE:**
Publication date: Tuesday, November 26, 2013  
Plans specification available: Friday, December 6, 2013 (Facilities Management Website)  
Mandatory pre-bid conference: Friday, December 6, 2013 @ 1:30pm (Stearns Central room 178)  
Last day for questions: Tuesday, December 17, 2013 before 2:00pm  
Last day for addenda issue: Thursday, December 19, 2013 before 4:00pm  
Bid date: Friday, January 3, 2014 before 11:00am

END
To all Contractors working within the City of Boulder:

Under Boulder’s Revised Code, the contractor is deemed to be the consumer of materials used in the construction project. Contractors may not avoid payment of the City of Boulder sales or use tax by placing provisions in a construction agreement or by using the name of a tax-exempt entity on an invoice or purchase order, regardless that the contractor is indicated thereon as the agent of a tax-exempt entity. **No exemption certificate issued by the Colorado Department of Revenue or any other taxing authority shall be recognized as a basis for exemption from sales or use taxes.**

Estimated use tax must be remitted to the City of Boulder prior to the start of the project. The tax is computed on the full contract price of the project. Follow these steps to compute and remit the sales/use tax to the City:

1. Multiply the full contract price by 0.5 and then multiply the resulting product by the tax rate of 3.41% (0.0341). This is the tax that is due to the City prior to the start of the project.
2. Remit the tax to the Sales Tax Department at 1777 Broadway, P.O. Box 791, Boulder, CO 80306-0791 along with a copy of this completed form.
3. At the completion of the project the construction company has two options for closing out the project with the city.
   - Use the formula in (1.) above to compute the final tax due based on the final contract price (including all change orders). Remit the additional tax due or file a request for refund with the City; or
   - Request that the city perform a full audit. Contact Ed Kaiser at 303-441-3921 or kaisere@bouldercolorado.gov to inform the City of which option you have chosen.

Contractor Name:______________________________________________________
Address:_____________________________________________________________
Phone #:________________________Contact Person:________________________
Project Name:_________________________________________________________
Project Address:_______________________________________________________

Full Contract price   A.______________________
Multiply ‘A’ by 0.5    B.______________________
Multiply ‘B’ by 0.0341  C.______________________

“C” is the amount of tax due to the City of Boulder. If you have any questions regarding sales/use tax or this process, contact Ed Kaiser at the above phone number or address.

Date received:_______________________  City Authority Signature:__________________________

1777  BROADWAY      P.O.  BOX  791        BOULDER,        CO      80306        303/441-3921
The University of Colorado does not discriminate on the basis of race, color, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status in admission and access to, and treatment and employment in, its educational programs and activities.

Stearns Towers (East)
600 30th Street
Boulder, CO 80309
University of Colorado Boulder

CONTRACTOR’S
STATEMENT OF EXPERIENCE

Project Name: Stearns East Bathroom Renovations – 61 stack

Project No. PR 007758/HSG10810

Project Manager: Jon C. Keiser
Phone: 303-735-3707
Email: jon.keiser@colorado.edu

Architect/Engineer: Rosenman Associates

This is a project specific qualification form. Any proposed Sub Contractor, not currently on the UCB Standing Order Contractor program, must fill this out on each project and submit with bid.
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UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR’S QUALIFICATION STATEMENT

INFORMATION FORM

STATEMENT OF ________________________________ (Contractor)

ADDRESS ____________________________________________
(Street or PO Box) ____________________________ (City) ________
(State) (Zip)

TELEPHONE/FAX NO. ____________________________
(telephone) ____________________________ (fax)

DATE OF EXPERIENCE STATEMENT _________________

PRINCIPLE OWNER/OFFICER ______________________
(Names(s) and Official Title(s))

Please indicate below if your company qualifies as one of the following:

Minority Business Enterprise (MBE) YES __ NO __
Justification: ______________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

Woman-Owned Business Enterprise (WBE) YES __ NO __
Justification: ______________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

Small Business Enterprise (SBE) YES __ NO __
Justification: ______________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

Disadvantaged Business Enterprise (DBE) YES __ NO __
Justification: ______________________________________
_________________________________________________________________
_________________________________________________________________
UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR’S QUALIFICATION STATEMENT

TYPES OF WORK

(1) If you are a General Contractor interested in bidding on all types of construction, mark “All Classes of Construction” only.

(2) If you are interested in contracting directly with the University for certain types of work only, mark in the column provided after the particular types of work on which you wish to bid.

<table>
<thead>
<tr>
<th>TYPES OF WORK</th>
<th>MARK WITH (X)</th>
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<tbody>
<tr>
<td>1. All Classes of Construction</td>
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<tr>
<td>2. General</td>
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<td>3. Mechanical</td>
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<td>4. Electrical</td>
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<td>5. Excavating and Grading</td>
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<td>6. Concrete</td>
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<td>7. Structural Steel</td>
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<td>8. Steel and Miscellaneous Iron</td>
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<td>9. Painting and Decorating</td>
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<td>10. Laboratory Equipment</td>
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<td>11. <strong>Elevator Installation</strong></td>
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<td>12. Plumbing</td>
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<td>13. Heating and Ventilating</td>
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<td>14. Air Conditioning</td>
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<td>15. Boiler and Equipment</td>
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<td>16. Environmental (Describe)</td>
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<td>17. Other (Describe)</td>
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<td>18. Other (Describe)</td>
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<td>19. Other (Describe)</td>
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<td>20. Other (Describe)</td>
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UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR’S QUALIFICATION STATEMENT

IDENTIFICATION
(The signatory of this questionnaire guarantees the truth and accuracy of all statements and of all answers to questions hereinafter made.)

LEGAL NAME ____________________________________________

PRINCIPAL OFFICE _______________________________________
(Street or PO Box) (City) (State) (Zip)

_____ A Corporation _____ A Copartnership _____ An Individual _____ Combination

GENERAL INFORMATION

A. Are you licensed as a contractor? Yes ( ) No ( )

Licensed in the name of Location License No. & Type


B. How many years has your organization been in business as a contractor under your present business name? __________________________

C. How many years experience in construction work has your organization had? ________ (Type)

(a) As a prime contractor? ____________ (b) As a subcontractor?

D. Have you or your organization, or any officer or partner thereof, failed to complete a contract? ________________

If so, give details __________________________________________________________

E. If you have a controlling interest in any firms presently qualified with the University, show names thereof:

______________________________________________________________

F. We normally perform ________% of the work with our own forces.

List trades: _______________________________________________________

Where qualification is based on a combination of several organizations, show the experience and equipment of the combined organizations.
G. Has your firm been involved in any litigation in the past five (5) years? Yes (  ) No (  )
   If yes, explain (listing type, kind, plaintiff, defendant, etc. and state the current status).

H. Are there any activities or interests of officers, principle stockholders, or employees of
   your firm or other factors which would place your firm and the University of Colorado
   at Boulder in a position of “Conflict of Interests”? Yes (  ) No (  ) If yes, or in doubt, explain.

I. Has your firm ever been involved in any bankruptcy action as a bankrupt?
   Yes (  ) No (  ) If yes, explain.
1. Name the persons with whom you have been associated in business as partners or business associates in each of the last five (5) years.

   __________________________________________
   __________________________________________
   __________________________________________

2. Show the construction experience of the principal individuals of your present organization in the following tabulation:

<table>
<thead>
<tr>
<th>Individual’s Name</th>
<th>Present Position or Office in Your Organization</th>
<th>Years of Construction Experience</th>
<th>Magnitudes and Type of Work</th>
<th>In What Capacity</th>
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</table>
PROJECT EXPERIENCE

Show the projects your organization has completed during the last five years in the following tabulation:

<table>
<thead>
<tr>
<th>Year Completed</th>
<th>Project</th>
<th>Type of Work (See Page 2)</th>
<th>Location</th>
<th>Contract Value</th>
<th>Contracting Authority</th>
<th>In what Capacity</th>
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WORK CURRENTLY UNDER CONTRACT

<table>
<thead>
<tr>
<th>Expected Completion Date</th>
<th>Project</th>
<th>Type of Work (See Page 1)</th>
<th>Location</th>
<th>Contract Value</th>
<th>Contracting Authority</th>
<th>Architect or Engineer</th>
</tr>
</thead>
</table>

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SURETIES

List the Surety Companies that have bonded your work for the past five (5) years:

<table>
<thead>
<tr>
<th>Name of Surety and Name and Address of Agent</th>
<th>Project and Location</th>
<th>Period of Bond From</th>
<th>Period of Bond To</th>
<th>General Comments</th>
</tr>
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UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR’S QUALIFICATION STATEMENT

CORPORATION / CO-PARTNERSHIP

CORPORATION:
(If a corporation, answer this:)

When Incorporated ____________________________
In What State ________________________________
President’s Name ______________________________
Vice President’s Name __________________________
Secretary’s Name ______________________________
Treasurer’s Name ______________________________

CO-PARTNERSHIP:
(If a co-partnership, answer this:)

Date of Organization __________________________
State whether partnership is general, limited, or association

Name and address of each partner:

__________________________________________  ________________________________________
(name)                                       (name)

__________________________________________  ________________________________________
(address)                                     (address)

WHERE QUALIFICATION IS BASED ON A COMBINATION OF ORGANIZATIONS, THE
APPROPRIATE (ATTACHED) AFFIDAVITS MUST BE EXECUTED FOR EACH
MEMBER OF SUCH COMBINATION.
UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR’S QUALIFICATION STATEMENT

AFFIDAVIT FOR CORPORATION

certifies and says: That he is
(Name of officer)
of the
(Official capacity)
corporation submitting this statement of experience: that he/she has read the same, and that the same is true of his/her own knowledge: that the statement is for the purpose of inducing the University of Colorado to supply the submittor with plans and specifications, and that any vendor, or other agency therein named is hereby authorized to supply the University of Colorado with any information necessary to verify the statement: and that furthermore, should this statement at any time cease to properly and truly represent his/her condition in any substantial respect, it will refrain from further bidding on University work until it shall have submitted a revised and corrected statement.

I certify and declare under penalty of perjury that the foregoing is true and correct:

Subscribed on ___________ at __________, __________, State of ______________
(date) (city) (county)

NOTE: Use full corporate name and attach corporate seal here. ______________________
(Officer must sign here)

NOTE: Statement will be returned unless affidavit is completed in EVERY respect.
UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR’S QUALIFICATION STATEMENT

AFFIDAVIT FOR CO-PARTNERSHIP

______________________________________ certifies and says: That he/she is a
partner of
(Name of partner)

the partnership of __________________________________: That said partnership
(Name of Firm)

submitted this statement of experience: that he/she has read the same, and that the
same is true of his/her own knowledge: that the statement is for the purpose of inducing
the University of Colorado to supply the submittor with plans and specifications, and that
any vendor, or other agency therein named is hereby authorized to supply the University
of Colorado with any information necessary to verify the statement: and that
furthermore, should this statement at any time cease to properly and truly represent the
condition of said firm in any substantial respect, it will refrain from further bidding on
University work until they shall have submitted a revised and corrected statement.

I certify and declare under penalty of perjury that the foregoing is true and correct:

Subscribed on ____________ at ____________ , ____________, State of ________________
(date) (city) (county)

The foregoing statement and affidavit are hereby offered.

_________________________________________ (Member of Firm must sign here)

_________________________________________ (Title)

_________________________________________ (Name of Firm)

( Remaining members of Firm sign here)

NOTE: Statement will be returned unless affidavit is completed in EVERY respect.
UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR’S QUALIFICATION STATEMENT

AFFIDAVIT FOR INDIVIDUAL

_________________________________________ doing business ________________________
(Name of individual)          (Name of Firm)

certifies and says: That he/she is the person submitting this statement of experience: that he/she has read the same, and that the same is true of his/her own knowledge: that the statement is for the purpose of inducing the University of Colorado to supply the submittor with plans and specifications, and that any vendor, or other agency therein named is hereby authorized to supply the University of Colorado with any information necessary to verify the statement: and that furthermore, should this statement at any time cease to properly and truly represent his/her condition in any substantial respect, it will refrain from further bidding on University work until it shall have submitted a revised and corrected statement.

I certify and declare under penalty of perjury that the foregoing is true and correct:

Subscribed on __________ at __________, __________, State of _________________
(date)       (city)           (county)

NOTE: Statement will be returned unless affidavit is completed in EVERY respect. ______________________
(Applicant must sign here)
QUALIFICATION

The University of Colorado will qualify or disqualify a Contractor on the basis of:

(1) The information contained in this statement and
(2) Past contract experience with the University.

NOTIFICATION

The University of Colorado will, in writing, notify Contractors of their qualification or disqualification.

END
Special Contract Conditions For Construction Projects in Occupied Student Housing

Purpose

These Special Contract Conditions are required because this project involves construction within or adjacent to student residences. As such, the Contractor, all workers, subcontractors, deliverymen and anyone else coming on to the work site must be informed of the requirements to respect the students' privacy and enjoyment of their residence halls or apartments. The work must be done in a manner that maintains the security of the residence halls or apartments, limits contact with the students, provides advance notice of any work that may affect the residents, and limits communications about the project to those persons designated by the University.

General Rules

1. Contractor is required to comply with the University of Colorado's Sexual Harassment Policy, copy attached hereto and incorporated herein. Contractor's personnel must adhere to the University of Colorado policy and conduct themselves in a manner that does not constitute sexual harassment (as defined in the policy) as a result of interacting with and around the University of Colorado faculty, staff and students.

Contractor is required to inform each subcontractor of the University's policy prohibiting sexual harassment. **Subcontractors, if any, are required to inform subcontractor personnel of the University’s policy prohibiting sexual harassment and to provide all subcontractor personnel copies of the University of Colorado Sexual Harassment Policy.**

2. No smoking in any residence hall or apartment building spaces. This includes living and dining spaces, restrooms, circulation areas, attics, mechanical rooms, basements and/or crawl spaces. Any smoking is to be done outside the building and far enough away that smoke cannot enter windows or ventilation systems.

3. The Contractor is required to ensure that noise prior to the daily official start of work does not disrupt students. These noise concerns may include, but are not limited to, equipment warm up, radios and voice noise within the construction site that can be heard within the residence hall room or apartment, and the arrival of early morning deliveries of equipment, concrete, supplies, etc.

With the exception of certain dates during the academic calendar year, working hours for construction adjacent to or in occupied-building construction are 8:00 A.M. to 5:00 P.M. Monday through Friday. The University may stipulate per bid and Request For Proposal (RFP) documents, the opportunity to work for extended periods of time. The hours established in the RFP/bid supersedes this document. This will be standard
unless specifically stated otherwise in the contract. Any request to work during additional hours must be made at least 72 hours in advance of the work and is subject to approval of the Project Manager.

4. No eating, drinking, music or radios are allowed outside designated construction areas in the residence hall building or apartment areas. Prior to the start of work, and with the approval of the University Project Manager, if space is available, one area may be designated for meal and coffee breaks. Eating and drinking in any other part of the facility are prohibited. Wrappers, cups and other trash shall be properly disposed of in receptacles after each break. No trash is to be left in the designated eating area.

5. The Contractor is not to use any of the building furnishings at any time for any reason. In the event furniture has to be moved for access, the contractor must notify the University Project Manager and return the furniture in good condition to its original location immediately after the work is done.

6. Construction personnel are not authorized to be in any Housing Department space outside the construction site/work area. Requests for permission to be outside the construction site/work area for business purposes should be directed to the University Project Manager in order to enter these areas.

7. The Project Manager retains the right to require the Contractor to remove a worker from the project, if the Project Manager determines, in his/her sole discretion, that the worker violated a provision of the Agreement. The worker has the right to a meeting with the Project Manager and the Contractor at which time the Project Manager will inform the worker of the allegations made against him/her. The worker will be given the opportunity to present his/her response before a final decision is made.

Security Requirements

1. University Keys / Cardkeys
   a. Security of housing facilities is of paramount concern. If keys are required, the contractor must check out and sign for all keys at the housing Lock Shop. Keys to student rooms, student living areas, student use areas (lounges, classrooms, recreation areas, common bathrooms, etc.) will be issued only for special circumstances where their use is absolutely required by the contractor. These keys must be checked out at the start of the work day and returned at the end of the work day, every day. Keys not directly accessing student living areas (e.g. mechanical room keys) may be checked out for the duration of the project, with the permission of the University project manager.
   b. Master keys accessing multiple student living areas will not be issued to contractors.
   c. When a contractor signs for a key, they take full responsibility for that key. A lost key may result in re-keying an entire building or complex, the cost of which will be charged to the contractor. Doors are not to be propped open at any time. Contractors working in a secured building are not to let anyone in.
When leaving a facility at the end of a work day, the contractor must make sure that the construction site is secure.

d. Requests for exceptions to the key policy must be made, in writing, to the University project manager, who will consult with the affected Housing Assistant/Associate Director of Housing prior to determining keys to be issued to the contractor.

2. Except for emergencies, special security arrangements must be made at least 72 hours in advance with the University Project Manager in order to enter any occupied residential space, including a student room or apartment, or remove anything from a student’s room or apartment. Special care is to be exercised when access is required into students’ rooms or apartments or any other area outside the construction site. The University Project Manager or their designee must be notified in advance of this need and the Contractor is required to ensure compliance with all University safety and security standards and regulations. Should items need to be removed from a student occupied room or apartment the University Project Manager or his designee will assist with and/or oversee the removal and replacement of the item.

3. Seventy-Two hour notice must be given prior to any work being started or removal of any items. All of the above rules pertaining to smoking, food and drink, furnishings and housekeeping apply when working in a student’s room or apartment. Furnishings shall not be used for construction purposes. Everything in a student’s room or apartment is a personal belonging and must be respected as such.

4. The contractor is required to ensure that all personnel, including subcontractors and their personnel, wear University issued identification badges. Jackets and/or shirts with company names and logos are helpful but all workers are required to obtain and display the required University issued ID. Badges will be authorized by the University project manager or appropriate Housing Department personnel.

5. Contractor and University Project Manager are responsible to respond immediately to security and safety concerns, report to campus Police and notify owner for immediate response and action.

6. It is strongly recommended that contractors and subcontractors work in pairs (not alone) in occupied residence housing or dining space unless approval is granted by the University Project Manager.

7. For projects occurring within or adjacent to Security Sensitive HDS facility areas [campus buildings where students and faculty reside (e.g. residence halls)], all employees of the selected contracting firm that works in Housing & Dining Facilities must pass a (background Security Sensitive check using the Colorado Bureau of Investigation as the approved source for the background check. Link at: https://www.cbirecordscheck.com/.

   a. Contractor Responsibility for Conducting Background Check

Contractors performing Security Sensitive work are responsible for conducting Background Checks on all employees, agents, and subcontractors that provide services to CU-Boulder and, upon CU-
Boulder request, certifying that such employees and agents have satisfactorily completed the Background Check.

b. Required Contract Provision
The following provision shall be included in all contracts with Security Sensitive contractors:
Contractor acknowledges that Contractor’s activities involve heightened risks as a result of access or exposure by Contractor’s employees or agents to one or more Security Sensitive environments. Contractor expressly acknowledges that Contractor shall take all commercially reasonable measures to mitigate any such risks, which measures shall include but are not limited to conducting criminal history checks, financial background checks when appropriate, and reference checks on all employees or agents who will be performing work at the University. Upon University request, Contractor shall certify in writing that it has complied with this provision and that all employees, agents, and subcontractors performing work hereunder have satisfactorily completed Contractor’s background check.

c. The contractor shall submit to the University HDS Project Manager the names of the individuals proposed for the project and a confirmation for each that these individuals have passed the required background check. This list must be certified by an officer of the company by signature. Questions in regards to the results of the background check should be addressed to the CU representative for the project who will then escalate internally as necessary.

Scheduling and Planning

1. Weekly construction meetings will review contractor’s need to access residential space, approximate dates, locations, time periods and define specific space where contractors need access.

2. University shall provide dates in which no construction shall take place, or times of work that need to be modified temporarily.

3. Contractor shall refer to General Rules, Section 3, when establishing their planning and scheduling of the project.

Communication

1. The Project Architect and/or person responsible for weekly construction meeting minutes is required to record security, Fire & Life Safety, Environmental Health & Safety, scheduling and student service concerns in the minutes. In addition, a separate meeting may be held as required between the residents and Department of Housing during construction. The notes from these meetings shall also be attached to the weekly construction meeting minutes. It is the responsibility of the contractor to
respond promptly to correct any identified security issues and provide the University Project Manager with an update regarding the status within 24 hours of notification.

Weekly construction meetings will require the contractor to review all required residential access processes and shut down of utilities for upcoming work required. Contractor will be required to provide times, dates and location of work and what impact if any to the student residents. Appropriate security will be required and will need to be coordinated with the University Project Manager.

2. The Contractor, Architect and University Project Manager shall all use their best efforts to inform all workers, subcontractors, deliverymen and anyone else coming on to the work site that matters about the project and related security issues should first be communicated to the Contractor's Superintendent. The Contractor's Superintendent should then only discuss the issues with the University Project Manager and/or his/her designate. Such communications should not be addressed to students or employees of the residence hall or apartment complex. The University Project Manager shall be responsible for communicating matters to the residence hall's or apartment's staff, as necessary or appropriate.

THESE GENERAL RULES ARE SUBJECT TO REVISION AND CHANGE WITHOUT QUALIFICATION. CHANGES AND REVISIONS WILL BE COMMUNICATED TO CONTRACTORS WHEN THEY ARE MADE.
RECEIPT OF SPECIAL CONTRACT CONDITIONS
FOR
CONSTRUCTION PROJECTS IN OCCUPIED STUDENT HOUSING

Project Name                      Project Number

Project Location

University Project Manager (Print Name)

I acknowledge receipt of the Special Contract Conditions for Construction Projects in Occupied Student Housing. I also acknowledge receipt of the University of Colorado Sexual Harassment Policy.

I understand it is my responsibility to abide by the provisions described in this document.

Name (Print)                      Company

Signature                         Date
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

BID

Institution/Agency: University of Colorado Boulder
Project No./Name: PR007758/HSG10810 Stearns East Bathroom Renovations (61 stack)

Bidder Acknowledges Receipt of Addenda Numbers:

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<td>(Refer to Bid Alternate Form SC-6.13.1 Attached, If Applicable)</td>
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Bidder’s Time of Completion

- a. Time Period from Notice to Proceed to Substantial Completion: 71 calendar days
- b. Time Period from Substantial Completion to Final Acceptance: 3 calendar days
- c. Total Time of Completion of Entire Project (a + b): 74 calendar days

1. BID: Pursuant to the advertisement by the State of Colorado dated 11/26/2013, 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. For State Public Works, not less than eighty percent of the labor employed on such projects shall consist of Colorado Labor C.R.S 8-17-101.

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 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.

Dated this __________ Day of __________, 20__________

THE BIDDER:

Company Name

Address (including city, state and zip)

Phone number:

Email Address:

Signature

Name (Print) and Title

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.
Know all men by these presents:

Whereas, hereinafter called the “Principal”, is submitting a proposal for the above described project, to the State of Colorado, hereinafter called the “Obligee”.

Whereas, the Advertisement for Bids has required as a condition of receiving the Proposals that the Principal submit with the proposal guarantee in an amount not less than five per cent (5%) of the Proposal, which sum it is specifically agreed is to be forfeited as liquidated damages in the event that the Principal defaults in his obligation as hereinafter specified, and, in pursuance of which requirement, this Bid is made, executed and delivered.

Now therefore, the Principal and a corporation of the State of ____________, duly authorized to transact business in Colorado, as Surety, are held and firmly bound unto the Obligee, in the sum of five per cent (5%) of the Principal’s total bid price, lawful money of the United States for the payment of which sum, well and truly to be made to the Obligee, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Further that, a condition of the obligation that the Principal shall maintain his proposal in full force and effect for thirty (30) days after the opening of the proposals for the project, or, if the Principal’s Proposal is accepted, the Principal shall, within the prescribed time, execute the required Agreement, furnish the required Performance Bond, Labor and Material Payment Bond, Insurance Policy, Certificates of Insurance and Certification and Affidavit Regarding Illegal Aliens, then this obligation shall be null and void, otherwise it shall remain in full force and effect, and subject to forfeiture upon demand as liquidated damages.

In witness whereof said Principal and Surety have executed this Bond, this _______ day of ____________, A.D., 2013.

The Principal

(Corporate Seal)

Company Name

Address (including city, state and zip)

Phone number:

Signature

Name (Print) and Title

Email address: _______________________________________________________________

The Surety

(Corporate Seal)

By ______________________________

Secretary Attorney-in-Fact

This Bond must be accompanied by power of attorney, effectively dated. Failure to provide a properly executed Bid Bond with a properly executed power of attorney will result in the Bidder’s proposal being deemed non-responsive.
TO:

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

Your Proposal, deemed to be in the best interest of the State of Colorado, in the amount of Thousand, and no/100 Dollars* ($    *) is hereby accepted, pending final execution of the Agreement.

Base Bid $  
Total Contract Amount $  *

You are required to execute the approved Agreement and to furnish the Performance Bond, Labor and Material Payment Bond, Insurance Policy and Certificates of Insurance within ten (10) days from the date of this Notice.

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

By ______________________________________  By ______________________________________
State Buildings Programs  Principal Representative
(Institution or Agency)  Date  Date
(Authorized Delegate)  William N. Ward, AIA  Ronald L. Ried, Director
Interim Director, Planning, Design & Construction  Facilities Management Business Services

When completely executed, this form is to be sent by certified mail to the Contractor by the Principal Representative or by any other means to which the parties agree.
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

University of Colorado Boulder

CONTRACTOR'S DESIGN/BID/BUILD (D/B/B) AGREEMENT
(STATE FORM SC-6.21)

CONTRACT ID NUMBER:
AGENCY IDENTIFICATION NUMBER:
PROJECT NUMBER: PR007758/HSG10810
PROJECT NAME: Stearns East Bathroom Renovations – 61 stack
PROJECT MANAGER: Jon C. Keiser
CONTRACTOR:
STATE OF COLORADO
CONTRACTOR'S DESIGN/BID/BUILD AGREEMENT
(STATE FORM SC-6.21)

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SIGNATURE APPROVALS

Attachment: Signed Notice of Award

Exhibits:
- A Contractor's Bid (Form SC-6.13)
- B Performance Bond (Form SC-6.22)
- C Labor and Material Payment Bond (Form SC-6.221)
- D Insurance Certificates
- E Certification and Affidavit Regarding Unauthorized Immigrants (required at contract signing prior to commencing work)
- F Contract Management Information Contractor
STATE OF COLORADO  
CONTRACTOR’S DESIGN/BID/BUILD (D/B/B) AGREEMENT  
(STATE FORM SC-6.21)

Agency I.D. No.: _________ Contract I.D. No.: _________ Project No. PR007758/HSG10810

1. PARTIES. THIS AGREEMENT is entered into by and between the STATE OF COLORADO, acting by and through the Regents of the University of Colorado, a body corporate, hereinafter referred to as the Principal Representative, and  having its offices at  hereinafter referred to as the Contractor.

2. EFFECTIVE DATE AND NOTICE OF NONLIABILITY. This Agreement shall not be effective or enforceable until it is approved and signed by the State Controller or its designee (hereinafter called the “Effective Date”), but shall be effective and enforceable thereafter in accordance with its provisions. The State shall not be liable to pay or reimburse Contractor for any performance hereunder or be bound by any provision hereof prior to the Effective Date.

WHEREAS, the Principal Representative intends to re-furbish 8 community bathrooms (including new piping to mains) in the 61 stack (rooms 261-961). Hereinafter called the Project; and

WHEREAS, authority exists in Law and Funds have been budgeted, appropriated, and otherwise made available, and a sufficient unencumbered balance thereof remains available for payment in Fund Number /Account Number_, Contract Encumbrance Number ____________, and

WHEREAS, this is a phase one waived contract, waiver number 156 Contractors Agreement for Capital Construction Form SC6.21.

WITNESSETH, that the State of Colorado and the Contractor agree as follows:

ARTICLE 1. PERFORMANCE OF THE WORK
The Contractor shall perform all of the Work required for the complete and prompt execution of everything described or shown in, or reasonably implied from the Contract Documents for the above referenced Project.

ARTICLE 2. PROVISIONS OF THE CONTRACT DOCUMENTS
The Contractor agrees to perform the Work to the highest industry standards and to the satisfaction of the State of Colorado and its Architect/Engineer in strict accordance with the provisions of the Contract Documents.

ARTICLE 3. TIME OF COMPLETION
The Contractor agrees to Substantially Complete the Project within 71 calendar days from the date of the Notice to Proceed, in addition, the Contractor agrees to finally complete the Project from Substantial Completion to Final Acceptance within 3 calendar days for a total time of completion of the entire Project of 74 calendar days. The Contractor shall perform the Work with due diligence to completion.

ARTICLE 4. ESSENTIAL CONDITION
Timely completion of the Project is an essential condition of this Agreement. The Contractor shall be subject to any liquidated damages described in Article 7D for failure to satisfactorily complete the Work within the time periods in Article 3 above.

ARTICLE 5. CONTRACT SUM
The Contractor shall be paid for the performance of this Agreement, subject to any additions and deductions as provided for in Articles 32, 34 and 35 of The General Conditions of the Construction Contract SC-6.23, the sum of and no/100 Dollars* ($ _ _ _). Base Bid: $ _ _ _  Total Contract Amount $ _ _ _ *
ARTICLE 6. CONTRACT DOCUMENTS
The Contract Documents, as enumerated in Article 1 of The General Conditions of the Contractor's Design/Bid/Build (D/B/B) Agreement SC-6.23, are all essential parts of this Agreement and are fully incorporated herein.

The General Conditions of the Construction Contract & Supplementary General Conditions can be found at http://www.colorado.edu/facilitiesmanagement/pdc/construction/forms.html

ARTICLE 7. OPTIONAL PROVISIONS AND ELECTIONS
The provisions of this Article 7 alter the Articles (The General Conditions of the Contractor's Design/Bid/Build Agreement SC-6.23) or enlarge upon them as indicated:
The Principal Representative and or the State Buildings Programs shall mark boxes and initial where applicable.

A. MODIFICATION OF ARTICLE 45. GUARANTEE INSPECTIONS AFTER COMPLETION
If the box below is marked the six month guarantee inspection is not required.
☐ □ _______ Principal Representative initial

B. MODIFICATION OF ARTICLE 27. LABOR AND WAGES
If the box is marked the Federal Davis-Bacon Act shall be applicable to the Project. The minimum wage rates to be paid on the Project shall be furnished by the Principal Representative and included in the Contract Documents.
☐ □ _______ Principal Representative initial

C. MODIFICATION OF ARTICLE 39. NON-BINDING DISPUTE RESOLUTION – FACILITATED NEGOTIATIONS
If the box is marked, and initialed by the State as noted, the requirement to participate in facilitated negotiations shall be deleted from this Contract. Article 39, Non-Binding Dispute Resolution – Facilitated Negotiations, shall be deleted in its entirety and all references to the right to the same where ever they appear in the contract shall be similarly deleted.
The box may be marked only for projects with an estimated value of less than $500,000.
☐ □ _______ Principal Representative initial

D. MODIFICATION OF ARTICLE 46. TIME OF COMPLETION AND LIQUIDATED DAMAGES
If an amount is indicated immediately below, liquidated damages shall be applicable to this Project as, and to, the extent shown below. Where an amount is indicated below, liquidated damages shall be assessed in accordance with and pursuant to the terms of The General Conditions of the Design/Bid/Build Agreement Article 46, Time of Completion And Liquidated Damages, in the amounts and as here indicated. The election of liquidated damages shall limit and control the parties right to damages only to the extent noted.

1. For the inability to use the Project, for each day after the number of calendar days specified in the Contractor's bid for the Project and the Agreement for achievement of Substantial Completion, until the day that the Project has achieved Substantial Completion and the Notice of Substantial Completion is issued, the Contractor agrees that an amount equal to One Thousand Five Hundred Dollars and no cents ($1500.00) shall be assessed against Contractor from amounts due and payable to the Contractor under the Contract, or the Contractor and the Contractor's Surety shall pay to the Principal Representative such sum for any deficiency, if amounts on account thereof are deducted from remaining amounts due, but amounts remaining are insufficient to cover the entire assessment.

2. For damages related to or arising from additional administrative, technical, supervisory and professional expenses related to and arising from the extended closeout period, for each day in excess of the number of calendar days specified in the Contractor's bid for the Project and the Agreement to finally complete the Project as defined by the issuance of the Notice of Final Acceptance) after the issuance of the final Notice of Substantial Completion, the Contractor agrees that an amount equal to Five Hundred Dollars and no cents ($500.00) shall be assessed against Contractor from amounts due and payable to the Contractor under the Contract, or the Contractor and the Contractor's Surety shall pay to the Principal Representative such sum for any deficiency, if amounts on account thereof are deducted from remaining amounts due but amounts remaining are insufficient to cover the entire assessment.
E. NOTICE IDENTIFICATION
All Notices pertaining to General Conditions or otherwise required to be given shall be transmitted in writing, to
the individuals at the addresses listed below, and shall be deemed duly given when received by the parties at
their addresses below or any subsequent persons or addresses provided to the other party in writing.

Notice to Principal Representative:

With copies to (State Buildings Programs (or Delegate) State of Colorado):

Notice to Contractor:

With copies to: FM Accounting

ARTICLE 8. SAFETY and SECURITY – “Contractor understands that concern for the safety and well-being of
University students and staff is of particular importance to the University. Contractor expressly acknowledges that it
is Contractor’s duty to take reasonable precautions to protect the University’s students and staff. The extent of
such precautions will depend on the particular circumstances of the work to be performed. However, to the extent
that work to be performed involves security-sensitive functions or security-sensitive areas (e.g. unsupervised
access to minors or work involving access to security-sensitive data), such precautions may include, but are not
limited to, conducting criminal history checks on employees or agents assigned to such work at the University.”
SIGNATURE APPROVALS:

THE PARTIES HERETO HAVE EXECUTED THIS CONTRACT

*Persons signing for Contractor hereby swear and affirm that they are authorized to act on Contractor’s behalf and acknowledge that the State is relying on their representations to that effect. Principal is not a recognized title and will not be accepted.

Project Name/Number: PR007758/HSG10810 Stearns East Bathroom Renovations – 61 stack
Contract ID No.: __________________________________________

THE CONTRACTOR

Legal Name of Contracting Entity

*Signature

By __________________________________________
Name (print) __________________________________________
Title __________________________________________
Date: __________________________________________

STATE OF COLORADO, acting by and through:
The Regents of the University of Colorado Boulder, A Body Corporate

By: ____________________________
Ronald L. Ried, Director
Facilities Management Business Services

Date: ____________________________

APPROVED
DEPARTMENT OF PERSONNEL & ADMINISTRATION
STATE BUILDINGS PROGRAMS
State Architect (or authorized Delegate)

By: ____________________________
William N. Ward, AIA
Interim Director, Planning, Design & Construction

Date: ____________________________

ALL CONTRACTS MUST BE APPROVED BY THE STATE CONTROLLER:

CRS §24-30-202 requires the State Controller to approve all State Contracts. This Contract is not valid until signed and dated below by the State Controller or delegate. Contractor is not authorized to begin performance until such time. If Contractor begins performing prior thereto, the State of Colorado is not obligated to pay Contractor for such performance or for any goods and/or services provided hereunder.

APPROVED:
STATE OF COLORADO
STATE CONTROLLER’S OFFICE
State Controller (or authorized Delegate)

By: ____________________________
Laura Ragin, Controller
Accounting & Business Support

Date: ____________________________
STATE OF COLORADO
CONTRACTOR'S DESIGN/BID/BUILD AGREEMENT
(STATE FORM SC-6.21)

EXHIBIT C

LABOR AND MATERIAL PAYMENT BOND (Form SC-6.221)
EXHIBIT D

INSURANCE CERTIFICATE(S) (attached)
Certification and Affidavit Regarding Unauthorized Immigrants (required at contract signing prior to commencing work) (UI-1, attached)
Institution/Agency: University of Colorado Boulder
Project No./Name: PR007758/HSG10810 Stearns East Bathroom Renovations – 61 stack

KNOW ALL PERSONS BY THESE PRESENTS:

That the Contractor

as Principal and hereinafter called “Principal,”

and

as Surety and hereinafter called “Surety,” a corporation organized and existing under the laws of ________________ are held and firmly bound unto the STATE OF COLORADO acting by and through the Regents of the University of Colorado, a body corporate, hereinafter called the “Principal Representative”, in the sum of ____________________________ Dollars ($________________________) for the payment whereof the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly, by these presents.

WHEREAS, the Principal and the State of Colorado acting by and through the Principal Representative have entered into a certain Contract, hereinafter called “Contract,” dated ______________________, for the construction of a PROJECT described as

which Contract is hereby by reference made a part hereof;
NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION, is such that, if the Principal shall promptly, fully and faithfully perform all the undertakings, covenants, terms, conditions and agreements of said Contract during the original term of said Contract any extensions thereof that may be granted by the Principal Representative with or without notice to the Surety, and during the life of any guaranty required under the Contract, and shall also well and truly perform and fulfill all undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

AND THE SAID SURETY, for value received hereby stipulates and agrees that whenever the Principal shall be, and declared by the Principal Representative to be in default under said Contract, the State of Colorado having performed its obligations thereunder, the Surety may promptly remedy the default or shall promptly (1) Complete the Contract in accordance with its terms and conditions, or (2) Obtain a bid or bids for submittal to the Principal Representative for completing the Contract in accordance with its terms and conditions, and upon determination by the Principal Representative and Surety of the lowest responsible bidder, arrange for a contract between such bidder and the State of Colorado acting by and through the Principal Representative and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion, less the balance of the contract price but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount hereinafter set forth. The term “balance of the contract price” as herein used shall mean the total amount payable to the Principal under the Contract and any amendments thereto, less the amount properly paid by the State of Colorado to the Contractor.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the State of Colorado.

IN WITNESS WHEREOF said Principal and Surety have executed this Bond, this ______ day of ______________________, A.D. __________.

(Corporate Seal)  
THE PRINCIPAL  

ATTEST:  

By: _______________________________  
Title: _______________________________  

Secretary  

(Corporate Seal)  

SURETY  

By: _______________________________  
Attorney-in-fact  

THIS BOND MUST BE ACCOMPANIED BY POWER OF ATTORNEY, EFFECTIVELY DATED  

Note: This bond is issued simultaneously with another bond conditioned for the full and faithful payment for all labor and material of the contract.
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

LABOR AND MATERIAL BOND

Institution/Agency: University of Colorado Boulder
Project No./Name: PR007758/HSG10810 Stearns East Bathroom Renovations – 61 stack

BONDING COMPANY: DO NOT MAKE ANY CHANGES TO THE LANGUAGE IN THIS BOND.

KNOW ALL PERSONS BY THESE PRESENTS:

That the Contractor

as Principal and hereinafter called "Principal,"

and

as Surety and hereinafter called "Surety," a corporation organized and existing under the laws of __________ are held and firmly bound unto the STATE OF COLORADO acting by and through the Regents of the University of Colorado, a body corporate, hereinafter called the "Principal Representative", in the sum of _______________ Dollars ($______________) together with interest at the rate of eight per cent (8%) per annum on all payments becoming due in accordance with said Contract, from the time such payments shall become due until such payment shall be made, for the payment of which, well and truly made to the Obligees, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly, by these presents.

WHEREAS, the Principal and the State of Colorado acting by and through the Principal Representative have entered into a certain Contract, hereinafter called "Contract," dated ________________ for the construction of a PROJECT described as

which Contract is hereby by reference made a part hereof;
NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal and the Surety shall fully indemnify and save harmless the State of Colorado and the Principal Representative from and against any and all costs and damages, including patent infringements, which either may suffer by reason of any failure or failures of the Principal promptly and faithfully to perform all terms and conditions of said Contract and shall fully reimburse and repay the State of Colorado and the Principal Representative all outlay and expense which the State of Colorado and the Principal Representative may incur in making good any such failure or failures, and further, if the Principal and his subcontractors shall duly and promptly pay for any and all labor, materials, team hire, sustenance, provisions, provender, rental machinery, tools, or equipment and other supplies which have been or shall be used or consumed by said Principal or his subcontractors in the performance of the work of said Contract, and it said Principal shall duly and promptly pay all his subcontractors the sums due them for any and all materials, rental machinery, tools, or equipment and labor that have been or shall be furnished, supplied, performed or used in connection with performance of said Contract, and shall also fully indemnify and save harmless the State of Colorado and the Principal Representative to the extent of any and all expenditures which either or both of them may be required to make by reason of any failures or defaults by the Principal or any subcontractor in connection with such payments; then this obligation shall be null and void, otherwise it shall remain in full force and effect.

It is expressly understood and agreed that any alterations which may be made in the terms of said Contract or in the work to be done under said Contract, or any extension(s) of time for the performance of the Contract, or any forebearance on the part of either the State of Colorado or the Principal to any of the others, shall not in any way release the Principal and the Surety, or either of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety of any such alteration, extension or forbearance being hereby waived.

IN WITNESS WHEREOF, the Principal and the Surety have executed this Bond, this __________ day of _______, A.D., 20______.

(Corporate Seal)  

THE PRINCIPAL

ATTEST:

By: ____________________________
Title: __________________________

Secretary
(Corporate Seal)

SURETY

By: ____________________________
Attorney-in-fact

THIS BOND MUST BE ACCOMPANIED BY POWER OF ATTORNEY, EFFECTIVELY DATED

Note: This bond is issued simultaneously with another bond conditioned for the full and faithful performance of the contract.
THE GENERAL CONDITIONS OF THE CONTRACTOR’S DESIGN/BID/BUILD (D/B/B) AGREEMENT
(STATE FORM SC-6.23)
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Note: The sections of the General Conditions indicated in *italics* (Articles 35 General and 35A, 35B, 37, 38, 46, 48B, 49 and 50) are regulatory and cannot be modified except through appropriate rule making procedures through the Division of Finance and Procurement, Department of Personnel & Administration.
General Conditions of the Contractor’s Design/Bid/Build Agreement

ARTICLE 1. DEFINITIONS

A. CONTRACT DOCUMENTS
The Contract Documents consist of the following some of which are procedural documents used in the administration and performance of the Agreement:

1. Contractor’s Design/Bid/Build Agreement; (SC-6.21);
2. Performance Bond (SC-6.22) and Labor and Material Payment Bond (SC-6.221);
3. General Conditions of the Contractor's Design/Bid/Build Agreement (SC-6.23) and if applicable, Supplementary General Conditions;
4. Detailed Specification Requirements, including all addenda issued prior to the opening of the bids; and,
5. Drawings, including all addenda issued prior to the opening of the bids.
6. Change Orders (SC-6.31) and Amendments (SC-6.0), if any, when properly executed.
7. Authorization to Bid (SBP-6.10)
8. Information for Bidders (SBP-6.12);
9. Bid (SBP-6.13);
10. Bid Bond (SBP-6.14);
11. Notice of Award (SBP-6.15);
12. Builder’s risk insurance certificates of insurance (ACORD 25-S);
13. Liability and workers’ compensation certificates of insurance;
14. Notice to Proceed (Design/Bid/Build) (SBP-6.26);
15. Notice of Approval of Occupancy/Use (SBP-01);
16. Notice of Partial Substantial Completion (SBP-071);
17. Notice of Substantial Completion (SBP-07);
18. Notice of Partial Final Acceptance (SC-6.27);
19. Notice of Final Acceptance (SBP-6.271);
20. Notice of Partial Contractor's Settlement (SC-7.3);
21. Notice of Contractor's Settlement (SBP-7.31);
22. Application and Certificate for Contractor’s Payment (SBP-7.2);
23. Other procedural and reporting documents or forms referred to in the General Conditions, the Supplementary General Conditions, the Specifications or required by the State Buildings Programs or the Principal Representative, including but not necessarily limited to Pre-Acceptance Check List (SBP-05) and the Building Inspection Record (SBP-BIR). A list of the current standard State Buildings Programs forms applicable to this Contract may be obtained from the Principal Representative on request.

B. DEFINITIONS OF WORDS AND TERMS USED
1. AGREEMENT. The term “Agreement” shall mean the written agreement entered into by the State of Colorado acting by and through the Principal Representative and the Contractor for the performance of the Work and payment therefore, on State Form SC-6.21. The term Agreement when used without reference to State Form SC-6.21 may also refer to the entirety
of the parties’ agreement to perform the Work described in the Contract Documents or reasonably inferable there from. The term “Contract” shall be interchangeable with this latter meaning of the term Agreement.

2. ARCHITECT/ENGINEER. The term “Architect/Engineer” shall mean either the architect of record or the engineer of record under contract to the State of Colorado for the Project identified in the Contract Documents.

3. OCCUPANCY. The term “Occupancy” means occupancy taken by the State as Owner after the Date of Substantial Completion at a time when a building or other discrete physical portion of the Project is used for the purpose intended. The Date of Occupancy shall be the date of such first use, but shall not be prior to the date of execution of the Notice of Approval of Occupancy/Use. Prior to the date of execution of a Notice of Approval of Occupancy/Use, the state shall have no right to occupy and the project may not be considered safe for occupancy for the intended use.

4. CHANGE ORDER. The term “Change Order” means a written order, signed by a Procurement Officer, directing the Contractor to make changes in the Work, in accordance with Article 35A, The Value of Changed Work.

5. COLORADO LABOR. The term “Colorado labor” shall be defined, as provided in § 8-17-101, C.R.S., as any person who is a resident of the state of Colorado, at the time of employment, without discrimination as to race, color, creed, sex, age, or religion except when sex or age is a bona fide occupational qualification, or shall have such other meaning as the term may otherwise be given in § 8-17-101, C.R.S., as amended.

6. CONTRACTOR. The word “Contractor” shall mean the person, company, firm, corporation or other legal entity entering into a contract with the State of Colorado acting by and through the Principal Representative.

7. DAYS. The term “days” whether singular or plural shall mean calendar days unless expressly stated otherwise. Where the term “business days” is used it shall mean business days of the State of Colorado.

8. DRAWINGS. The term “Drawings” shall mean all drawings approved by appropriate State officials which have been prepared by the Architect/Engineer showing the work to be done, except that where a list of drawings is specifically enumerated in the Supplementary General Conditions or division 1 of the Specifications, the term shall mean the drawings so enumerated, including all addenda drawings.

9. EMERGENCY FIELD CHANGE ORDER. The term “Emergency Field Change Order” shall mean a written change order for extra work or a change in the work necessitated by an emergency as defined in Article 35C executed on State form SC 6.31 and identified as an Emergency Field Change Order. The use of such orders is limited to emergencies and to the amounts shown in Article 35C.

10. FINAL ACCEPTANCE. The terms “final acceptance” or “finally complete” mean the stage in the progress of the work, after substantial completion, when all remaining items of work have been completed, all requirements of the Contract Documents are satisfied and the Notice of Acceptance can be issued. Discrete physical portions of the Project may be separately and partially deemed finally complete at the discretion of the Principal Representative when that portion of the Project reaches such stage of completion and a partial Notice of Acceptance can be issued.

11. NOTICE. The term “Notice” shall mean any communication in writing from either contracting party to the other by such means of delivery that receipt cannot properly be denied. Notice shall be provided to the person identified to receive it in Article 7E (Contractor’s Agreement SC-6.21), Notice Identification, or to such other person as either party identifies in writing to receive Notice. Notice by facsimile transmission where proper transmission is evidence shall be adequate where facsimile numbers are included in Article 7E (Contractor’s Agreement SC-6.21). Notwithstanding an email delivery or return receipt, email Notice shall not be adequate. Acknowledgment of receipt of a voice message shall not be deemed to waive the requirement that Notice, where required, shall be in writing.
12. OWNER. The term “Owner” shall mean the Principal Representative.
13. PRINCIPAL REPRESENTATIVE. The term “Principal Representative” shall be defined, as provided in § 24-30-1301(11), C.R.S., as the governing board of a state department, institution, or agency; or if there is no governing board, then the executive head of a state department, institution, or agency, as designated by the governor or the general assembly and as specifically identified in the Contract Documents, or shall have such other meaning as the term may otherwise be given in § 24-30-1301(11), C.R.S., as amended. The Principal Representative may delegate authority. The Contractor shall have the right to inquire regarding the delegated authority of any of the Principal Representative’s representatives on the project and shall be provided with a response in writing when requested.
14. PROCUREMENT OFFICER. The term “Procurement Officer” means any person duly authorized to enter into and administer contracts and make written determinations with respect thereto. “Procurement Officer” includes an authorized representative of the Principal Representative acting within the limits of his or her authority.
15. PRODUCT DATA. The term “Product Data” shall mean all submittals in the form of printed manufacturer’s literature, manufacturer’s specifications, and catalog cuts.
16. REASONABLY INFERABLE: The phrase “reasonably inferable” means that if an item or system is either shown or specified, all material and equipment normally furnished with such items or systems and needed to make a complete installation shall be provided whether mentioned or not, omitting only such parts as are specifically excepted, and shall include only components which the Contractor could reasonably anticipate based on his or her skill and knowledge using an objective, industry standard, not a subjective standard. This term takes into consideration the normal understanding that not every detail is to be given on the Drawings and Specifications. The phrase shall not, however, be construed to make the Contractor, rather than the Architect/Engineer, responsible for producing the Drawings and Specifications.
17. SAMPLES. The term “Samples” shall mean examples of materials or work provided to establish the standard by which the Work will be judged.
18. SC. The term “SC” means “State Contract” which is used in connection with labeling applicable State form documents (e.g., “SC 6.23” is the State form number for these General Conditions of the Contractor’s Design/Bid/Build Agreement).
19. SBP. The term “SBP” means “State Buildings”, which is used in connection with labeling applicable State form documents (e.g., “SBP-01” is the form number for Notice of Approval of Occupancy/Use).
20. SHOP DRAWINGS. The term “Shop Drawings” shall mean any and all detailed drawings prepared and submitted by Contractor, Subcontractor at any tier, vendors or manufacturers providing the products and equipment specified on the Drawings or called for in the Specifications.
21. SPECIFICATIONS. The term “Specifications” shall mean the requirements of the CSI divisions of the project manual prepared by the Architect/Engineer describing the work to be accomplished.
22. STATE BUILDINGS PROGRAMS. Shall refer to the Office of the State Architect within the Department of Personnel & Administration of Colorado State government responsible for project administration, review, approval and coordination of plans, construction procurement policy, contractual procedures, and code compliance and inspection of all buildings, public works and improvements erected for state purposes; except public roads and highways and projects under the supervision of the division of wildlife and the division of parks and outdoor recreation as provided in § 24-30-1301, et seq, C.R.S. The term State Buildings Programs shall also mean that individual within a State Department agency or institution, including institutions of higher education, who has signed an agreement accepting delegation to perform all or part of the responsibilities and functions of State Buildings Programs.
23. SUBMITTALS. The term “submittals” means drawings, lists, tables, documents and samples prepared by the Contractor to facilitate the progress of the work as required by these General Conditions or the Drawings and Specifications. They consist of Shop Drawings, Product Data, Samples, and various administrative support documents including but not limited to lists of subcontractors, construction progress schedules, schedules of values, applications for payment, inspection and test results, requests for information, various document logs, and as-
built drawings. Submittals are required by the Contract Documents, but except to the extent expressly specified otherwise are not themselves a part of the Contract Documents.

24. **SUBSTANTIAL COMPLETION.** The terms “substantial completion” or “substantially complete” mean the stage in the progress of the work when the construction is sufficiently complete, in accordance with the Contract Documents as modified by any Change Orders, so that the Work, or at the discretion of the Principal Representative, any designated portion thereof, is available for its intended use by the Principal Representative and a Notice of Substantial Completion can be issued. Portions of the Project may, at the discretion of the Principal Representative, be designated as substantially complete.

25. **SURETY.** The term “Surety” shall mean the company providing the labor and material payment and performance bonds for the Contractor as obligor.

26. **WORK.** The term “Work” shall mean all or part of the labor, materials, equipment, and other services required by the Contract Documents or otherwise required to be provided by the Contractor to meet the Contractor’s obligations under the Contract.

**ARTICLE 2. EXECUTION, CORRELATION, INTENT OF DOCUMENTS, COMMUNICATION AND COOPERATION**

**A. EXECUTION**
The Contractor, within ten (10) days from the date of Notice of Award, will be required to:

1. Execute the Agreement, State Form SC-6.21;
2. Furnish fully executed Performance and Labor and Material Payment Bonds on State Forms SC-6.22 and SC-6.221; and
3. Furnish certificates of insurance evidencing all required insurance on standard Acord forms designed for such purpose.
4. Furnish certified copies of any insurance policies requested by the Principal Representative.

**B. CORRELATION**
By execution of the Agreement the Contractor represents that the Contractor has visited the site, has become familiar with local conditions and local requirements under which the Work is to be performed, including the building code programs of the State Buildings Program as implemented by the Principal Representative, and has correlated personal observations with the requirements of the Contract Documents.

**C. INTENT OF DOCUMENTS**
The Contract Documents are complementary, and what is called for by any one document shall be as binding as if called for by all. The intention of the documents is to include all labor, materials, equipment and transportation necessary for the proper execution of the Work. Words describing materials or work which have a well-known technical or trade meaning shall be held to refer to such recognized standards.

In any event, if any error exists, or appears to exist, in the requirements of the Drawings or Specifications, or if any disagreement exists as to such requirements, the Contractor shall have the same explained or adjusted by the Architect/Engineer before proceeding with the work in question. In the event of the Contractor’s failure to give prior written Notice of any such errors or disagreements of which the Contractor or the Subcontractors at any tier are aware, the Contractor shall, at no additional cost to the Principal Representative, make good any damage to, or defect in, work which is caused by such omission.

Where a conflict occurs between or within standards, Specifications or Drawings, which is not resolved by reference to the precedence between the Contract Documents, the more stringent or higher quality requirements shall apply so long as such more stringent or higher quality requirements are reasonably inferable. The Architect/Engineer shall decide which requirements will provide the best installation.

With the exception noted in the following paragraph, the precedence of the Contract Documents is in the following sequence:

1. The Agreement (SC-6.21);
2. The Supplementary General Conditions, if any;
3. The General Conditions (SC-6.23); and
4. Drawings and Specifications, all as modified by any addenda.

Change Orders and Amendments, if any, to the Contract Documents take precedence over the original Contract Documents.

Notwithstanding the foregoing order of precedence, the Special Provisions of Article 52 of the General Conditions, Special Provisions, shall take precedence, rule and control over all other provisions of the Contract Documents.

Unless the context otherwise requires, form numbers in this document are for convenience only. In the event of any conflict between the form required by name or context and the form required by number, the form required by name or context shall control. The Contractor may obtain State forms from the Principal Representative upon request.

D. PARTNERING, COMMUNICATIONS AND COOPERATION

In recognition of the fact that conflicts, disagreements and disputes often arise during the performance of construction contracts, the Contractor and the Principal Representative aspire to encourage a relationship of open communication and cooperation between the employees and personnel of both, in which the objectives of the Contract may be better achieved and issues resolved in a more fully informed atmosphere.

The Contractor and the Principal Representative each agree to assign an individual who shall be fully authorized to negotiate and implement a voluntary partnering plan for the purpose of facilitating open communications between them. Within thirty days (30) of the Notice to Proceed, the assigned individuals shall meet to discuss development of an informal agreement to accomplish these goals.

The assigned individuals shall endeavor to reach an informal agreement, but shall have no such obligation. Any plans these parties voluntarily agree to implement shall result in no change to the contract amount, and no costs associated with such plan or its development shall be recoverable under any contract clause. In addition, no plan developed to facilitate open communication and cooperation shall alter, amend or waive any of the rights or duties of either party under the Contract unless and except by written Amendment to the Contract, nor shall anything in this clause or any subsequently developed partnering plan be deemed to create fiduciary duties between the parties unless expressly agreed in a written Amendment to the Contract. It is also recognized that projects with relatively low contract values may not justify the expense or special efforts required. In the case of small projects with an initial Contract value under $500,000, the requirements of the preceding paragraph shall not apply.

ARTICLE 3. COPIES FURNISHED

The Contractor will be furnished, free of charge, the number of copies of Drawings and Specifications as specified in the Contract Documents, or if no number is specified, all copies reasonably necessary for the execution of the work.

ARTICLE 4. OWNERSHIP OF DRAWINGS

Drawings or Specifications, or copies of either, furnished by the Architect/Engineer, are not to be used on any other work. At the completion of the Work, at the written request of the Architect/Engineer, the Contractor shall endeavor to return all Drawings and Specifications.

The Contractor may retain the Contractor’s Contract Document set, copies of Drawings and Specifications used to contract with others for any portion of the Work and a marked up set of as-built drawings.

ARTICLE 5. ARCHITECT/ENGINEER’S STATUS

The Architect/Engineer is the representative of the Principal Representative for purposes of administration of the Contract, as provided in the Contract Documents and the Agreement. In case of termination of

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employment or the death of the Architect/Engineer, the Principal Representative will appoint a capable
Architect/Engineer against whom the Contractor makes no reasonable objection, whose status under the
Contract shall be the same as that of the former Architect/Engineer.

ARTICLE 6. ARCHITECT/ENGINEER DECISIONS AND JUDGMENTS,
ACCESS TO WORK AND INSPECTION

A. DECISIONS
The Architect/Engineer shall, within a reasonable time, make decisions on all matters relating to the
execution and progress of the Work or the interpretation of the Contract Documents, and in the
exercise of due diligence shall be reasonably available to the Contractor to timely interpret and make
decisions with respect to questions relating to the design or concerning the Contract Documents.

B. JUDGMENTS
The Architect/Engineer is, in the first instance, the judge of the performance required by the Contract
Documents as it relates to compliance with the Drawings and Specifications and quality of
workmanship and materials.

The Architect/Engineer shall make judgments regarding whether directed work is extra or outside the
scope of Work required by the Contract Documents at the time such direction is first given. If, in the
Contractor's judgment, any performance directed by the Architect/Engineer is not required by the
Contract Documents or if the Architect/Engineer does not make the judgment required, it shall be a
condition precedent to the filing of any claim for additional cost related to such directed work that the
Contractor, before performing such work, shall first obtain in writing, the Architect/Engineer's written
decision that such directed work is included in the performance required by the Contract Documents.
If the Architect/Engineer's direction to perform the work does not state that the work is included in the
performance required by the Contract Documents, the Contractor shall, in writing, request the
Architect/Engineer to advise in writing whether the directed work will be considered extra work or work
included in the performance required by the Contract Documents.

The Architect/Engineer shall respond to any such written request for such a decision within three (3)
business days and if no response is provided, or if the Architect/Engineer’s written decision is to the
effect that the work is included in the performance required by the Contract Documents, the Contractor
may file with the Principal Representative and the Architect/Engineer a Notice of claim in accordance
with Article 36, Claims. Whether or not a Notice of claim is filed, the Contractor shall proceed with the
ordered work. Disagreement with the decision of the Architect/Engineer shall not be grounds for the
Contractor to refuse to perform the work directed or to suspend or terminate performance.

C. ACCESS TO WORK
The Architect/Engineer, the Principal Representative and representatives of State Buildings Programs
shall at all times have access to the work. The Contractor shall provide proper facilities for such
access and for their observations or inspection of the work.

D. INSPECTION
The Architect/Engineer has agreed to make, or that structural, mechanical, electrical engineers or
other consultants will make, periodic visits to the site to generally observe the progress and quality of
the Work to determine in general if the Work is proceeding in accordance with the Contract
Documents. Observation may extend to all or any part of the Work and to the preparation, fabrication
or manufacture of materials.

Without in any way meaning to be exclusive or to limit the responsibilities of the Architect/Engineer or
the Contractor, the Architect/Engineer has agreed to observe, among other aspects of the Work, the
following for compliance with the Contract Documents:

1. Bearing surfaces of excavations before concrete is placed based upon the findings and
   recommendations of the Principal Representative’s soils engineering consultant;
2. Reinforcing steel after installation and before concrete is poured;
3. Structural concrete;
4. Laboratory reports on all concrete testing based upon the findings and recommendations of the Principal Representative's testing consultant;
5. Structural steel during and after erection and prior to its being covered or enclosed;
6. Steel welding; Principal Representative will furnish steel welding inspection consultant/agency if required or necessary for the project;
7. Mechanical and plumbing work following its installation and prior to its being covered or enclosed;
8. Electrical work following its installation and prior to its being covered or enclosed;
9. Compaction testing reports based upon the findings and recommendations of the Principal Representative's testing consultant; and
10. Any special or quality control testing required in the Contract Documents provided by the Principal Representative's testing consultant.

If the Specifications, the Architect/Engineer's instructions, laws, ordinances of any public authority require any work to be specifically tested or approved, the Contractor shall give the Architect/Engineer timely notice of its readiness for observation by the Architect/Engineer or inspection by another authority, and if the inspection is by another authority, of the date fixed for such inspection, required certificates of inspection being secured by the Contractor. The Contractor shall give all required Notices to the Principal Representative or his or her designee for inspections required for the building inspection program. It shall be the responsibility of the Contractor to determine the Notice required by the State pursuant to Building Inspection Record for the Project, according to State form SBP-B.I.R., or the equivalent form required by the Principal Representative as approved by the State Buildings Program. If any such work is covered up without approval or consent of the Architect/Engineer or prior to any building code inspection, it must, if required by the Architect/Engineer, the Principal Representative or the State Buildings Programs, be uncovered for examination, at the Contractor's expense. If such work is found to be not in accordance with the Contract Documents, the Contractor shall pay such costs, unless he or she shall show that the defect in the work was caused by another contractor engaged by the Principal Representative. In that event, the Principal Representative shall pay such cost. In addition, examination of questioned work may be ordered, and if so ordered, the work must be uncovered by the Contractor. If such work be found in accordance with the Contract Documents, the Contractor shall be reimbursed the cost of examination and replacement.

ARTICLE 7. CONTRACTOR’S SUPERINTENDENCE AND SUPERVISION
The Contractor shall employ, and keep present on the Project during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Architect/Engineer and the Principal Representative. The superintendent shall not be changed except with the consent of the Architect/Engineer and the Principal Representative, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in his or her employ. The superintendent shall represent the Contractor in his or her absence and all directions given to the superintendent shall be as binding as if given to the Contractor. Directions received by the superintendent shall be documented by the superintendent and confirmed in writing with the Contractor.

The Contractor shall give efficient supervision to the Work, using his or her best skill and attention. He or she shall carefully study and compare all Drawings, Specifications and other written instructions and shall without delay report any error, inconsistency or omission which he or she may discover in writing to the Architect/Engineer. The Contractor shall not be liable to the Principal Representative for damage to the extent it results from errors or deficiencies in the Contract Documents or other instructions by the Architect/Engineer, unless the Contractor knew or had reason to know, that damage would result by proceeding and the Contractor fails to so advise the Architect/Engineer.

The superintendent shall see that the Work is carried out in accordance with the Contract Documents and in a uniform, thorough and first-class manner in every respect. The Contractor's superintendent shall establish all lines, levels, and marks necessary to facilitate the operations of all concerned in the Contractor's Work. The Contractor shall lay out all work in a manner satisfactory to the Architect/Engineer, making permanent
records of all lines and levels required for excavation, grading, foundations, and for all other parts of the Work.

ARTICLE 8. MATERIALS AND EMPLOYEES
Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation and other facilities necessary for the execution and completion of the Work.

Unless otherwise specified, all materials shall be new and both workmanship and materials shall be first class and of uniform quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor is fully responsible for all acts and omissions of the Contractor's employees and shall at all times enforce strict discipline and good order among employees on the site. The Contractor shall not employ on the Work any person reasonably deemed unfit by the Principal Representative or anyone not skilled in the work assigned to him.

ARTICLE 9. SURVEYS, PERMITS, LAWS, TAXES AND REGULATIONS
A. SURVEYS
The Principal Representative shall furnish all surveys, property lines and bench marks deemed necessary by the Architect/Engineer, unless otherwise specified.

B. PERMITS AND LICENSES
Permits and licenses necessary for the prosecution of the Work shall be secured and paid for by the Contractor. Unless otherwise specified in the Specifications, no local municipal or county building permit shall be required. However, State Buildings Programs requires each Principal Representative to administer a building code inspection program, the implementation of which may vary at each agency or institution of the State. The Contractors' employees shall become personally familiar with these local conditions and requirements and shall fully comply with such requirements. State electrical and plumbing permits are required, unless the requirement to obtain such permits is altered by State Building's Programs. The Contractor shall obtain and pay for such permits.

Easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Principal Representative, unless otherwise specified.

C. TAXES
1. REFUND OF SALES AND USE TAXES
The Contractor shall pay all local taxes required to be paid, including but not necessarily limited to all sales and use taxes. If requested by the Principal Representative prior to issuance of the Notice to Proceed or directed in the Supplementary General Conditions or the Specifications, the Contractor shall maintain records of such payments in respect to the Work, which shall be separate and distinct from all other records maintained by the Contractor, and the Contractor shall furnish such data as may be necessary to enable the State of Colorado, acting by and through the Principal Representative, to obtain any refunds of such taxes which may be available under the laws, ordinances, rules or regulations applicable to such taxes. When so requested or directed, the Contractor shall require Subcontractors at all tiers to pay all local sales and use taxes required to be paid and to maintain records and furnish the Contractor with such data as may be necessary to obtain refunds of the taxes paid by such Subcontractors. No State sales and use taxes are to be paid on material to be used in this Project. On application by the purchaser or seller, the Department of Revenue shall issue to a Contractor or to a Subcontractor at any tier, a certificate or certificates of exemption per § 39-26-114(1)(d), C.R.S., and § 39-26-203, C.R.S.

2. FEDERAL TAXES
The Contractor shall exclude the amount of any applicable federal excise or manufacturers’ taxes from the proposal. The Principal Representative will furnish the Contractor, on request exemption certificates.

D. LAWS AND REGULATIONS
The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn or specified. If the Contractor observes that the Drawings or Specifications require work which is at variance therewith, the Contractor shall without delay notify the Architect/Engineer in writing and any necessary changes shall be adjusted as provided in Article 35, Changes In The Work.

The Contractor shall bear all costs arising from the performance of work required by the Drawings or Specifications that the Contractor knows to be contrary to such laws, ordinances, rules or regulations, if such work is performed without giving Notice to the Architect/Engineer.

ARTICLE 10. PROTECTION OF WORK AND PROPERTY
A. GENERAL PROVISIONS
The Contractor shall continuously maintain adequate protection of all work and materials, protect the property from injury or loss arising in connection with this Contract and adequately protect adjacent property as provided by law and the Contract Documents. The Contractor shall make good any damage, injury or loss, except to the extent:

1. Directly due to errors in the Contract Documents;
2. Caused by agents or employees of the Principal Representative; and,
3. Due to causes beyond the Contractor’s control and not to fault or negligence; provided such damage, injury or loss would not be covered by the insurance required to be carried by the Contractor;

B. SAFETY PRECAUTIONS
The Contractor shall take all necessary precautions for the safety of employees on the Project, and shall comply with all applicable provisions of federal, State and municipal safety laws and building codes to prevent accidents or injury to persons on, about or adjacent to the premises where the Work is being performed. He or she shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of workers and the public and shall post danger signs warning against the hazards created by such features of construction as protruding nails, hoists, well holes, elevator hatchways, scaffolding, window openings, stairways and falling materials; and he or she shall designate a responsible member of his or her organization on the Project, whose duty shall be the prevention of accidents. The name and position of any person so designated shall be reported to the Architect/Engineer by the Contractor.

The Contractor shall provide all necessary bracing, shoring and tying of all structures, decks and framing to prevent any structural failure of any material which could result in damage to property or the injury or death of persons; take all precautions to insure that no part of any structure of any description is loaded beyond its carrying capacity with anything that will endanger its safety at any time during the execution of this Contract; and provide for the adequacy and safety of all scaffolding and hoisting equipment. The Contractor shall not permit open fires within the building enclosure. The Contractor shall construct and maintain all necessary temporary drainage and do all pumping necessary to keep excavations and floors, pits and trenches free of water. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work, except as otherwise noted.

The Contractor shall take due precautions when obstructing sidewalks, streets or other public ways in any manner, and shall provide, erect and maintain barricades, temporary walkways, roadways, trench covers, colored lights or danger signals and any other devices necessary or required to assure the safe passage of pedestrians and automobiles.
C. EMERGENCIES

In an emergency affecting the safety of life or of the Work or of adjoining property, the Contractor without special instruction or authorization from the Architect/Engineer or Principal Representative, is hereby permitted to act, at his or her discretion, to prevent such threatened loss or injury; and he or she shall so act, without appeal, if so authorized or instructed. Provided the Contractor has no responsibilities for the emergency, if the Contractor incurs additional cost not otherwise recoverable from insurance or others on account of any such emergency work, the Contract sum shall be equitably adjusted in accordance with Article 35, Changes In The Work.

ARTICLE 11. DRAWINGS AND SPECIFICATIONS ON THE WORK

The Contractor shall keep on the job site one copy of the Contract Documents in good order, including current copies of all Drawings and Specifications for the Work, and any approved Shop Drawings, Product Data or Samples, and as-built drawings. As-built drawings shall be updated weekly by the Contractor and Subcontractors to reflect actual constructed conditions including dimensioned locations of underground work and the Contractor's failure to maintain such updates may be grounds to withhold portions of payments otherwise due in accordance with Article 33, Payments Withheld. All such documents shall be available to the Architect/Engineer and representatives of the State. In addition, the Contractor shall keep on the job site one copy of all approved addenda, Change Orders and requests for information issued for the Work.

The Contractor shall develop procedures to insure the currency and accuracy of as-built drawings and shall maintain on a current basis a log of requests for information and responses thereto, a Shop Drawing and Product Data submittal log, and a Sample submittal log to record the status of all necessary and required submittals.

ARTICLE 12. REQUESTS FOR INFORMATION AND SCHEDULES

A. REQUESTS FOR INFORMATION

The Architect/Engineer shall furnish additional instructions with reasonable promptness, by means of drawings or otherwise, necessary for the proper execution of the Work. All such drawings and instructions shall be consistent with the Contract Documents and reasonably inferable there from. The Architect/Engineer shall determine what additional instructions or drawings are necessary for the proper execution of the Work.

The Work shall be executed in conformity with such instructions and the Contractor shall do no work without proper drawings, specifications or instructions. If the Contractor believes additional instructions, specifications or drawings are needed for the performance of any portion of the Work, the Contractor shall give Notice of such need in writing through a request for information furnished to the Architect/Engineer sufficiently in advance of the need for such additional instructions, specifications or drawings to avoid delay and to allow the Architect/Engineer a reasonable time to respond. The Contractor shall maintain a log of the requests for information and the responses provided.

B. SCHEDULES

1. SUBMITTAL SCHEDULES

Prior to filing the Contractor’s first application for payment, a schedule shall be prepared which may be preliminary to the extent required, fixing the dates for the submission and initial review of required Shop Drawings, Product Data and Samples for the beginning of manufacture and installation of materials, and for the completion of the various parts of the Work. It shall be prepared so as to cause no delay in the Work or in the work of any other contractor. The schedule shall be subject to change from time to time in accordance with the progress of the Work, and it shall be subject to the review and approval by the Architect/Engineer. It shall fix the dates at which the various Shop Drawings Product Data and Samples will be required from the Architect/Engineer. The Architect/Engineer, after review and agreement as to the time provided for initial review, shall review and comment on the Shop Drawings, Product Data and Samples in accordance with that schedule. The schedule shall be finalized, prepared and submitted with respect to each of the elements of the Work in time to avoid delay, considering reasonable periods for review, manufacture or installation.
At the time the schedule is prepared, the Contractor, the Architect/Engineer and Principal Representative shall jointly identify the Shop Drawing, Product Data and Samples, if any, which the Principal Representative shall receive simultaneously with the Architect/Engineer for the purposes of owner coordination with existing facility standards and systems. The Contractor shall furnish a copy for the Principal Representative when so requested. Transmittal of Shop Drawings and Product Data copies to the Principal Representative shall be solely for the convenience of the Principal Representative and shall neither create nor imply responsibility or duty of review by the Principal Representative.

The Contractor may also, or at the direction of the Principal Representative at any time shall, prepare and maintain a schedule, which may also be preliminary and subject to change to the extent required, fixing the dates for the initial responses to requests for information or for detail drawings which will be required from the Architect/Engineer to allow the beginning of manufacture, installation of materials and for the completion of the various parts of the Work. The schedule shall be subject to review and approval by the Architect/Engineer. The Architect/Engineer shall, after review and agreement, furnish responses and detail drawings in accordance with that schedule. Any such schedule shall be prepared and approved in time to avoid delay, considering reasonable periods for review, manufacture or installation, but so long as the request for information schedule is being maintained, it shall not be deemed to transfer responsibility to the Contractor for errors or omissions in the Contract Documents where circumstances make timely review and performance impossible.

The Architect/Engineer shall not unreasonably withhold approval of the Contractor’s schedules and shall inform the Contractor and the Principal Representative of the basis of any refusal to agree to the Contractor’s schedules. The Principal Representative shall attempt to resolve any disagreements.

2. SCHEDULE OF VALUES
Within twenty-one (21) calendar days after the date of the Notice to Proceed, the Contractor shall submit to the Architect/Engineer and Principal Representative, for approval, and to the State Buildings Programs when specifically requested, a complete itemized schedule of the values of the various parts of the Work, as estimated by the Contractor, aggregating the total price. The schedule of values shall be in such detail as the Architect/Engineer or the Principal Representative shall require, prepared on forms acceptable to the Principal Representative. It shall, at a minimum, identify on a separate line each division of the Specifications including the general conditions costs to be charged to the Project. The Contractor shall revise and resubmit the schedule of values for approval when, in the opinion of the Architect/Engineer or the Principal Representative, such resubmittal is required due to changes or modifications to the Contract Documents or the Contract sum.

The total cost of each line item so separately identified shall, when requested by the Architect/Engineer or the Principal Representative, be broken down into reasonable estimates of the value of:

a. Material, which shall include the cost of material actually built into the Project plus any local sales or use tax paid thereon; and,
b. Labor and other costs.

The cost of subcontracts shall be incorporated in the Contractor’s schedule of values, and when requested by the Architect/Engineer or the Principal Representative, shall be separately shown as line items.

The Architect/Engineer shall review the proposed schedules and approve it after consultation with the Principal Representative, or advise the Contractor of any required revisions within ten (10) days of its receipt. In the event no action is taken on the submittal within ten days, the
Contractor may utilize the schedule of values as its submittal for payment until it is approved or until revisions are requested.

When the Architect/Engineer deems it appropriate to facilitate certification of the amounts due to the Contractor, further breakdown of subcontracts, including breakdown by labor and materials, may be directed.

This schedule of values, when approved, will be used in preparing Contractor’s applications for payment on State Form SC-7.2, Application for Payment.

3. CONSTRUCTION SCHEDULES
Within twenty-one (21) calendar days after the date of the Notice to Proceed, the Contractor shall submit to the Architect/Engineer and the Principal Representative, and to the State Buildings Programs when specifically requested, on a form acceptable to them, an overall timetable of the construction schedule for the Project. Unless the Supplementary General Conditions or the Specifications allow scheduling with bar charts or other less sophisticated scheduling tools, the Contractor’s schedule shall be a critical-path method (CPM) construction schedule. The CPM schedule shall start with the date of the Notice to Proceed and include submittals activities, the various construction activities, change order work (when applicable), close-out, testing, demonstration of equipment operation when called for in the Specifications, and acceptance. The CPM shall at a minimum correlate to the schedule of values line items and shall be cost loaded if requested by the Architect/Engineer or Principal Representative. The completion time shall be the time specified in the Agreement and all Project scheduling shall allocate float utilizing the full period available for construction as specified in the Agreement on State Form SC 6.13, without indication of early completion, unless such earlier completion is approved in writing by the Principal Representative and State Building Programs.

The time shown between the starting and completion dates of the various elements within the construction schedule shall represent one hundred per cent (100%) completion of each element.

All other elements of the CPM schedule shall be as required by the Specifications. In addition, the Contractor shall submit monthly updates of the construction schedule. These updates shall reflect the Contractor’s “work in place” progress.

When requested by the Architect/Engineer, the Principal Representative or the State Buildings Programs, the Contractor shall revise the construction schedule to reflect changes in the schedule of values.

When the testing of materials is required by the Specifications, the Contractor shall also prepare and submit to the Architect/Engineer and the Principal Representative a schedule for testing in accordance with Article 14, Samples and Testing.

ARTICLE 13. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES
A. SUBMITTAL PROCESS
The Contractor shall check and field verify all dimensions. The Contractor shall check, approve and submit to the Architect/Engineer in accordance with the schedule described in Article 12, Requests for Information and Schedules, all Shop Drawings, Product Data and Samples required by the specifications or required by the Contractor for the work of the various trades. All Drawings and Product Data shall contain identifying nomenclature and each submittal shall be accompanied by a letter of transmittal identifying in detail all enclosures. The number of copies of Shop Drawings and Product Data to be submitted shall be as specified in the Specifications and if no number is specified then three copies shall be submitted.

The Architect/Engineer shall review and comment on the Shop Drawings and Product Data within the time provided in the agreed upon schedule for conformance with information given and the design
concept expressed in, or reasonably inferred from, the Contract Documents. The nature of all corrections to be made to the Shop Drawings and Product Data, if any, shall be clearly noted, and the submittals shall be returned to the Contractor for such corrections. If a change in the scope of the Work is intended by revisions requested to any Shop Drawings and Product Data, the Contractor shall be requested to prepare a change proposal in accordance with Article 35, Changes In The Work. On resubmitted Shop Drawings, Product Data or Samples, the Contractor shall direct specific attention in writing on the transmittal cover to revisions other than those corrections requested by the Architect/Engineer on any previously checked submittal. The Architect/Engineer shall promptly review and comment on, and return, the resubmitted items.

The Contractor shall thereafter furnish such other copies in the form approved by the Architect/Engineer as may be needed for the prosecution of the work.

B. FABRICATION AND ORDERING
Fabrication shall be started by the Contractor only after receiving approved Shop Drawings from the Architect/Engineer. Materials shall be ordered in accordance with approved Product Data. Work which is improperly fabricated, whether through incorrect Shop Drawings, faulty workmanship or materials, will not be acceptable.

C. DEVIATIONS FROM DRAWINGS OR SPECIFICATIONS
The review and comments of the Architect/Engineer of Shop Drawings, Product Data or Samples shall not relieve the Contractor from responsibility for deviations from the Drawings or Specifications, unless he or she has in writing called the attention of the Architect/Engineer to such deviations at the time of submission, nor shall it relieve the Contractor from responsibility for errors of any sort in Shop Drawings or Product Data. Review and comments on Shop Drawings or Product Data containing identified deviations from the Contract Documents shall not be the basis for a Change Order or a claim based on a change in the scope of the Work unless Notice is given to the Architect/Engineer and Principal Representative of all additional costs, time and other impacts of the identified deviation by bringing it to their attention in writing at the time the submittals are made, and any subsequent change in the Contract sum or the Contract time shall be limited to cost, time and impacts so identified.

D. CONTRACTOR REPRESENTATIONS
By preparing, approving, and/or submitting Shop Drawings, Product Data and Samples, the Contractor represents that the Contractor has determined and verified all materials, field measurements, and field construction criteria related thereto, and has checked and co-ordinated the information contained within each submittal with the requirements of the Work, the Project and the Contract Documents and prior reviews and approvals.

ARTICLE 14. SAMPLES AND TESTING
A. SAMPLES
The Contractor shall furnish for approval, with such promptness as to cause no delay in his or her work or in that of any other Contractor, all Samples as directed by the Architect/Engineer. The Architect/Engineer shall check and approve such Samples, with reasonable promptness, but only for conformance with the design intent of the Contract Documents and the Project, and for compliance with any submission requirements given in the Contract Documents.

B. TESTING - GENERAL
The Contractor shall provide such equipment and facilities as the Architect/Engineer may require for conducting field tests and for collecting and forwarding samples to be tested. Samples themselves shall not be incorporated into the Work after approval without the permission of the Architect/Engineer.

All materials or equipment proposed to be used may be tested at any time during their preparation or use. The Contractor shall furnish the required samples without charge and shall give sufficient Notice of the placing of orders to permit the testing thereof. Products may be sampled either prior to shipment or after being received at the site of the Work.
Tests shall be made by an accredited testing laboratory. Except as otherwise provided in the Specifications, sampling and testing of all materials, and the laboratory methods and testing equipment, shall be in accordance with the latest standards and tentative methods of the American Society of Testing Materials (ASTM). The cost of testing which is in addition to the requirements of the Specifications shall be paid by the Contractor if so directed by the Architect/Engineer, and the Contract sum shall be adjusted accordingly by Change Order; provided however, that whenever testing shows portions of the Work to be deficient, all costs of testing including that required to verify the adequacy of repair or replacement work shall be the responsibility of the Contractor.

C. TESTING - CONCRETE AND SOILS

Unless otherwise specified or provided elsewhere in the Contract Documents, the Principal Representative will contract for and pay for the testing of concrete and for soils compaction testing through an independent laboratory or laboratories selected and approved by the Principal Representative. The Contractor shall assume the responsibility of arranging, scheduling and coordinating the concrete sample collection efforts and soils compaction efforts. Testing shall be performed in accordance with the requirements of the Specifications, and if no requirements are specified, the Contractor shall request instructions and testing shall be as directed by the Architect/Engineer or the soils engineer, as applicable, and in accordance with standard industry practices.

The Principal Representative and the Architect/Engineer shall be given reasonable advance notice of each concrete pour and reserve the right to either increase or decrease the number of cylinders or the frequency of tests.

Soil compaction testing shall be at random locations selected by the soils engineer. In general, soils compaction testing shall be as directed by the soils engineer and shall include all substrate prior to backfill or construction.

D. TESTING - OTHER

Additional testing required by the Specifications will be accomplished and paid for by the Principal Representative in a manner similar to that for concrete and soils unless noted otherwise in the Specifications. In any case, the Contractor will be responsible for arranging, scheduling and coordinating additional tests. Where the additional testing will be contracted and paid for by the Principal Representative the Contractor shall give the Principal Representative not less than one month advance written Notice of the date the first such test will be required.

ARTICLE 15. SUBCONTRACTS

The Contractor shall, within twenty one (21) days after the date of the Notice of Award, submit to the Architect/Engineer, the Principal Representative and State Buildings Programs a preliminary list of Subcontractors. It shall be as complete as possible at the time, showing all known Subcontractors planned for the work. The list shall be supplemented as other Subcontractors are determined by the Contractor and any such supplemental list shall be submitted to the Architect/Engineer, the Principal Representative and State Buildings Programs not less than ten (10) days before the Subcontractor commences work.

The Contractor’s list shall include those Subcontractors, if any, which the Contractor indicated in its bid would be employed for specific portions of the Work if such indication was requested in the bid documents issued by the State. The substitution of any Subcontractor listed in the Contractor’s bid shall be justified in writing not less than ten (10) days after the date of the Notice of Award, and shall be subject to the approval of the Principal Representative. For reasons such as the Subcontractor’s refusal to perform as agreed, subsequent unavailability or later discovered bid errors, or other similar reasons, but not including the availability of a lower Subcontract price, such substitution may be approved. The Contractor shall bear any additional cost incurred by such substitutions.

The Contractor shall not employ any Subcontractor that the Architect/Engineer, within seven (7) days after the date of receipt of the Contractor’s list of Subcontractors or any supplemental list, objects to in writing as being unacceptable to either the Architect/Engineer, the Principal Representative or State Buildings
Programs. If a Subcontractor is deemed unacceptable, the Contractor shall propose a substitute Subcontractor and the Contract sum shall be adjusted by any demonstrated difference between the Subcontractor’s bids, except where the Subcontractor has been debarred by the State or fails to meet qualifications of the Contract Documents to perform the work proposed.

The Contractor shall be fully responsible to the Principal Representative for the acts and omissions of Subcontractors and of persons either directly or indirectly employed by them. All instructions or orders in respect to work to be done by Subcontractors shall be given to the Contractor.

ARTICLE 16. RELATIONS OF CONTRACTOR AND SUBCONTRACTOR
The Contractor agrees to bind each Subcontractor to the terms of these General Conditions and to the requirements of the Drawings and Specifications, and any Addenda thereto, and also all the other Contract Documents, so far as applicable to the work of such Subcontractor. The Contractor further agrees to bind each Subcontractor to those terms of the General Conditions which expressly require that Subcontractors also be bound, including without limitation, requirements that Subcontractors waive all rights of subrogation, provide adequate general commercial liability and property insurance, automobile insurance and workers’ compensation insurance as provided in Article 25, Insurance.

Nothing contained in the Contract Documents shall be deemed to create any contractual relationship whatsoever between any Subcontractor and the State of Colorado acting by and through its Principal Representative.

ARTICLE 17. MUTUAL RESPONSIBILITY OF CONTRACTORS
Should the Contractor cause damage to any separate contractor on the work, the Contractor agrees, upon due Notice, to settle with such contractor by agreement, if he or she will so settle. If such separate contractor sues the Principal Representative on account of any damage alleged to have been so sustained, the Principal Representative shall notify the Contractor, who shall defend such proceedings if requested to do so by Principal Representative. If any judgment against the Principal Representative arises there from, the Contractor shall pay or satisfy it and pay all costs and reasonable attorney fees incurred by the Principal Representative, in accordance with Article 52C, Indemnification, provided the Contractor was given due Notice of an opportunity to settle.

ARTICLE 18. SEPARATE CONTRACTS
The Principal Representative reserves the right to enter into other contracts in connection with the Project or the Contract. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his or her work with theirs. If any part of the Contractor’s work depends, for proper execution or results, upon the work of any other contractor, the Contractor shall inspect and promptly report to the Architect/Engineer any defects in such work that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and report shall constitute an acceptance of the other contractor’s work as fit and proper for the reception of work, except as to defects which may develop in the other Contractor’s work after the execution of the Contractor’s work.

To insure the proper execution of subsequent work, the Contractor shall measure work already in place and shall at once report to the Architect/Engineer any discrepancy between the executed work and the Drawings.

ARTICLE 19. USE OF PREMISES
The Contractor shall confine apparatus, the storage of materials and the operations of workmen to limits indicated by law, ordinances, permits and any limits lines shown on the Drawings. The Contractor shall not unreasonably encumber the premises with materials.

The Contractor shall enforce all of the Architect/Engineer’s instructions and prohibitions regarding, without limitation, such matters as signs, advertisements, fires and smoking.
ARTICLE 20. CUTTING, FITTING OR PATCHING
The Contractor shall do all cutting, fitting or patching of work that may be required to make its several parts come together properly and fit it to receive or be received by work of other Contractors shown upon, or reasonably inferred from, the Drawings and Specifications for the complete structure, and shall provide for such finishes to patched or fitted work as the Architect/Engineer may direct. The Contractor shall not endanger any work by cutting, excavating or otherwise altering the work and shall not cut or alter the work of any other Contractor save with the consent of the Architect/Engineer.

ARTICLE 21. UTILITIES

A. TEMPORARY UTILITIES
Unless otherwise specifically stated in the Specifications or on the Drawings, the Principal Representative shall be responsible for the locations of all utilities as shown on the Drawings or indicated elsewhere in the Specifications, subject to the Contractor's compliance with all statutory or regulatory requirements to call for utility locates. When actual conditions deviate from those shown the Contractor shall comply with the requirements of Article 37, Differing Site Conditions. The Contractor shall provide and pay for the installation of all temporary utilities required to supply all the power, light and water needed by him and other Contractors for their Work and shall install and maintain all such utilities in such manner as to protect the public and workmen and conform with any applicable laws and regulations. Upon completion of the work, he or she shall remove all such temporary utilities from the site. The Contractor shall pay for all consumption of power, light and water used by him or her and the other Contractors, without regard to whether such items are metered by temporary or permanent meters. The Superintendent shall have full authority over all trades and Subcontractors at any tier to prevent waste. The cut-off date on permanent meters shall be either the agreed date of the date of the Notice of Substantial Completion or the Notice of Approval of Occupancy/Use of the Project.

B. PROTECTION OF EXISTING UTILITIES
Where existing utilities, such as water mains, sanitary sewers, storm sewers and electrical conduits, are shown on the Drawings, the Contractor shall be responsible for the protection thereof, without regard to whether any such utilities are to be relocated or removed as a part of the Work. If any utilities are to be moved, the moving must be conducted in such manner as not to cause undue interruption or delay in the operation of the same.

C. CROSSING OF UTILITIES
When new construction crosses highways, railroads, streets, or utilities under the jurisdiction of State, city or other public agency, public utility or private entity, the Contractor shall secure proper written permission before executing such new construction. The Contractor will be required to furnish a proper release before final acceptance of the Work.

ARTICLE 22. UNSUITABLE CONDITIONS
The Contractor shall not work at any time, or permit any work to be done, under any conditions contrary to those recommended by manufacturers or industry standards which are otherwise proper, unsuited for proper execution, safety and performance. Any cost caused by ill-timed work shall be borne by the Contractor unless the timing of such work shall have been directed by the Architect/Engineer or the Principal Representative, after the award of the Contract, and the Contractor provided Notice of any additional cost.

ARTICLE 23. TEMPORARY FACILITIES

A. OFFICE FACILITIES
The Contractor shall provide and maintain without additional expense for the duration of the Project temporary office facilities, as required and as specified, for his or her own use and the use of the Architect/Engineer, representatives of the Principal Representative and State Buildings Programs.

B. TEMPORARY HEAT
The Contractor shall furnish and pay for all the labor, facilities, equipment, fuel and power necessary to supply temporary heating, ventilating and air conditioning, except to the extent otherwise specified, and shall be responsible for the installation, operation, maintenance and removal of such facilities and
equipment. Unless otherwise specified, the permanent HVAC system shall not be used for temporary heat in whole or in part. If the Contractor desires to put the permanent system into use, in whole or in part, the Contractor shall set it into operation and furnish the necessary fuel and manpower to safely operate, protect and maintain that HVAC system. Any operation of all or any part of the permanent HVAC system including operation for testing purposes shall not constitute acceptance of the system, nor shall it relieve the Contractor of his or her one-year guarantee of the system from the date of the Notice of Substantial Completion of the entire Project, and if necessary due to prior operation, the Contractor shall provide manufacturers’ extended warranties from the date of the Contractor’s use prior to the date of the Notice of Substantial Completion.

C. WEATHER PROTECTION
The Contractor shall, at all times, provide protection against weather, so as to maintain all work, materials, apparatus and fixtures free from injury or damages.

D. DUST PARTITIONS
If the Work involves work in an occupied existing building, the Contractor shall erect and maintain during the progress of the work, suitable dust-proof temporary partitions, or more permanent partitions as specified, to protect such building and the occupants thereof.

E. BENCH MARKS
The Contractor shall maintain any site bench marks provided by the Principal Representative and shall establish any additional benchmarks specified by the Architect/Engineer as necessary for the Contractor to layout the work and ascertain all grades and levels as needed.

F. SIGN
The Contractor shall erect and permit one 4’ x 8’ sign only at the site to identify the Project as specified or directed by the Architect/Engineer which shall be maintained in good condition during the life of the Project.

G. SANITARY PROVISION
The Contractor shall provide and maintain suitable, clean, temporary sanitary toilet facilities for any and all workmen engaged on the Work, for the entire construction period, in strict compliance with the requirement of all applicable codes, regulations, laws and ordinances, and no other facilities, new or existing, may be used by any person on the Project. When the Project is complete the Contractor shall promptly remove them from the site, disinfect, and clean or treat the areas as required. If any new construction surfaces in the Project other than the toilet facilities provided for herein are soiled at any time, the entire areas so soiled shall be completely removed from the Project and rebuilt. In no event may present toilet facilities of any existing building at the site of the work be used by employees of any contractor.

ARTICLE 24. CLEANING UP
The Contractor shall keep the building and premises free from all surplus material, waste material, dirt and rubbish caused by employees or work, and at the completion of the Work shall remove all such surplus material, waste material, dirt, and rubbish, as well as all tools, equipment and scaffolding, and shall wash and clean all window glass and plumbing fixtures, perform cleanup and cleaning required by the Specifications and leave all of the work clean unless more exact requirements are specified.

ARTICLE 25. INSURANCE
A. GENERAL
The Contractor shall procure and maintain all insurance requirements and limits as set forth below, at his or her own expense, for the length of time set forth in Contract requirements. The Contractor shall continue to provide evidence of such coverage to State of Colorado on an annual basis during the aforementioned period including all of the terms of the insurance and indemnification requirements of this agreement. All below insurance policies shall include a provision preventing cancellation without thirty (30) days’ prior notice by certified mail. A completed Certificate of Insurance shall be filed with the Principal Representative and State Buildings Programs within ten (10) days after the date of the
Notice of Award, said Certificate to specifically state the inclusion of the coverages and provisions set forth herein and shall state whether the coverage is “claims made” or “per occurrence”.

**B. COMMERCIAL GENERAL LIABILITY INSURANCE (CGL)**

This insurance must protect the Contractor from all claims for bodily injury, including death and all claims for destruction of or damage to property (other than the Work itself), arising out of or in connection with any operations under this Contract, whether such operations be by the Contractor or by any Subcontractor under him or anyone directly or indirectly employed by the Contractor or by a Subcontractor. All such insurance shall be written with limits and coverages as specified below and shall be written on an occurrence form.

- **General Aggregate**: $2,000,000
- **Products – Completed Operations Aggregate**: $2,000,000
- **Each Occurrence**: $1,000,000
- **Personal Injury**: $1,000,000

The following coverages shall be included in the CGL:

1. Per project general aggregate (CG 25 03 or similar)
2. Additional Insured status in favor of the State of Colorado and any other parties as outlined in The Contract and must include both ONGOING Operations AND COMPLETED Operations per CG2010 10/01 and CG 2037 10/01 or equivalent as permitted by law.
3. The policy shall be endorsed to be **primary and non-contributory** with any insurance maintained by Additional Insureds.
4. A waiver of Subrogation in favor of all Additional Insured parties.
5. Personal Injury Liability
6. Contractual Liability coverage to support indemnification obligation per Article 53.1
7. Explosion, collapse and underground (xcu)

The following exclusionary endorsements are prohibited in the CGL policy:

1. Damage to Work performed by Subcontract/Vendor (CG 22-94 or similar)
2. Contractual Liability Coverage Exclusion modifying or deleting the definition of an “insured contract” from the unaltered SO CG 0001 1001 policy from (CG 24 26 or similar)
3. If applicable to the Work to be performed: Residential or multi-family
4. If applicable to the Work to be performed :Exterior insulation finish systems
5. If applicable to the Work to be performed: Subsidence or Earth Movement

The Contractor shall maintain general liability coverage including Products and Completed Operations insurance, and the Additional Insured with primary and non-contributory coverage as specified in this Contract for three (3) years after completion of the project.

**C. AUTOMOBILE LIABILITY INSURANCE** and business auto liability covering liability arising out of any auto (including owned, hired and non-owned autos).

- **Combined Bodily Injury and Property Damage Liability** (Combined Single Limit): $1,000,000 each accident

  **Coverages:**
  - Specific waiver of subrogation

**D. WORKERS’ COMPENSATION INSURANCE**

The Contractor shall procure and maintain Workers’ Compensation Insurance at his or her own expense during the life of this Contract, including occupational disease provisions for all employees per statutory requirements. Policy shall contain a waiver of subrogation in favor of the State of Colorado.
The Contractor shall also require each Subcontractor to furnish Workers’ Compensation Insurance, including occupational disease provisions for all of the latter’s employees, and to the extent not furnished, the Contractor accepts full liability and responsibility for Subcontractor’s employees.

In cases where any class of employees engaged in hazardous work under this Contract at the site of the Project is not protected under the Workers’ Compensation statute, the Contractor shall provide, and shall cause each Subcontractor to provide, adequate and suitable insurance for the protection of employees not otherwise protected.

E. UMBRELLA LIABILITY INSURANCE (for construction projects exceeding $10,000,000, provide the following coverage):
The Contractor shall maintain umbrella/excess liability insurance on an occurrence basis in excess of the underlying insurance described in Section B-D above. Coverage shall follow the terms of the underlying insurance, included the additional insured and waiver of subrogation provisions. The amounts of insurance required in Sections above may be satisfied by the Contractor purchasing coverage for the limits specified or by any combination of underlying and umbrella limits, so long as the total amount of insurance is not less than the limits specified in each section previously mentioned.

Each occurrence $5,000,000
Aggregate $5,000,000

F. BUILDER’S RISK INSURANCE
Unless otherwise expressly stated in the Supplementary General Conditions (e.g. where the State elects to provide for projects with a completed value of less than $1,000,000), the Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder’s risk “all-risk” or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made or until no person or entity other than the Owner has an insurable interest in the property, or the Date of Notice specified on the Notice of Acceptance, State Form SBP-6.27 or whichever is later.

This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project as named insureds.

All associated deductibles shall be the responsibility of the Contractor. Such policy may have a deductible clause but not to exceed ten thousand dollars ($10,000.00).

Property insurance shall be on an “all risk” or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect’s and Contractor’s services and expenses required as a result of such insured loss.

Contractor shall maintain Builders Risk coverage including partial use by Owner.
The Contractor shall waive all rights of subrogation as regards the State of Colorado and the Principal Representative, its officials, its officers, its agents and its employees, all while acting within the scope and course of their employment For damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section or other property insurance applicable
to the Work. The Contractor shall require all Subcontractors at any tier to similarly waive all such rights of subrogation and shall expressly include such a waiver in all subcontracts.

Upon request, the amount of such insurance shall be increased to include the cost of any additional work to be done on the Project, or materials or equipment to be incorporated in the Project, under other independent contracts let or to be let. In such event, the Contractor shall be reimbursed for this cost as his or her share of the insurance in the same ratio as the ratio of the insurance represented by such independent contracts let or to be let to the total insurance carried.

The Principal Representative, with approval of the State Controller, shall have the power to adjust and settle any loss. Unless it is agreed otherwise, all monies received shall be applied first on rebuilding or repairing the destroyed or injured work.

G. POLLUTION LIABILITY INSURANCE
If Contractor is providing directly or indirectly work with pollution/environmental hazards, the Contractor must provide or cause those conducting the work to provide Pollution Liability Insurance coverage. Pollution Liability policy must include contractual liability coverage. State of Colorado must be included as additional insureds on the policy. The policy limits shall be in the amount of $1,000,000 with maximum deductible of $25,000 to be paid by the Subcontractor/Vendor.

H. ADDITIONAL MISCELLANEOUS INSURANCE PROVISIONS
Certificates of Insurance and/or insurance policies required under this Contract shall be subject to the following stipulations and additional requirements:

1. Any and all deductibles or self-insured retentions contained in any Insurance policy shall be assumed by and at the sole risk of the Contractor;
2. If any of the said policies shall fail at any time to meet the requirements of the Contract Documents as to form or substance, or if a company issuing any such policy shall be or at any time cease to be approved by the Division of Insurance of the State of Colorado, or be or cease to be in compliance with any stricter requirements of the Contract Documents, the Contractor shall promptly obtain a new policy, submit the same to the Principal Representative and State Building Programs for approval if requested, and submit a Certificate of Insurance as hereinbefore provided. Upon failure of the Contractor to furnish, deliver and maintain such insurance as provided herein, this Contract, in the sole discretion of the State of Colorado, may be immediately declared suspended, discontinued, or terminated. Failure of the Contractor in obtaining and/or maintaining any required insurance shall not relieve the Contractor from any liability under the Contract, nor shall the insurance requirements be construed to conflict with the obligations of the Contractor concerning indemnification;
3. All requisite insurance shall be obtained from financially responsible insurance companies, authorized to do business in the State of Colorado and acceptable to the Principal Representative;
4. Receipt, review or acceptance by the Principal Representative of any insurance policies or certificates of insurance required by this Contract shall not be construed as a waiver or relieve the Contractor from its obligation to meet the insurance requirements contained in these General Conditions.

ARTICLE 26. CONTRACTOR’S PERFORMANCE AND PAYMENT BONDS
The Contractor shall furnish a Performance Bond and a Labor and Material Payment Bond on State Forms SC-6.22, Performance Bond, and SC-6.221, Labor and Material Payment Bond, or such other forms as State Buildings Programs may approve for the Project, executed by a corporate Surety authorized to do business in the State of Colorado and in the full amount of the Contract sum. The expense of these bonds shall be borne by the Contractor and the bonds shall be filed with State Buildings Programs.

If, at any time, a Surety on such a bond is found to be, or ceases to be in strict compliance with any qualification requirements of the Contract Documents or the bid documents, or loses its right to do business in the State of Colorado, another Surety will be required, which the Contractor shall furnish to State
Buildings Programs within ten (10) days after receipt of Notice from the State or after the Contractor otherwise becomes aware of such conditions.

ARTICLE 27. LABOR AND WAGES
In accordance with laws of Colorado, C.R.S. § 8-17-101, et. seq., as amended, Colorado labor shall be employed to perform the work to the extent of not less than eighty percent (80%) of each type or class of labor in the several classifications of skilled and common labor employed on the Project. If the Federal Davis-Bacon Act shall be applicable to the Project, as indicated in Article 7B (Contractor’s Agreement 6.21), Modification of Article 27, the minimum wage rates to be paid on the Project will be specified in the Contract Documents.

ARTICLE 28. ROYALTIES AND PATENTS
The Contractor shall be responsible for assuring that all rights to use of products and systems have been properly arranged and shall take such action as may be necessary to avoid delay, at no additional charge to the Principal Representative, where such right is challenged during the course of the work. The Contractor shall pay all royalties and license fees required to be paid and shall defend all suits or claims for infringement of any patent rights and shall save the State of Colorado harmless from loss on account thereof, in accordance with Article 52C, Indemnification; provided, however, the Contractor shall not be responsible for such loss or defense for any copyright violations contained in the Contract Documents prepared by the Architect/Engineer or the Principal Representative of which the Contractor is unaware, or for any patent violations based on specified processes that the Contractor is unaware are patented or that the Contractor should not have had reason to believe were patented.

ARTICLE 29. ASSIGNMENT
Except as otherwise provided hereafter the Contractor shall not assign the whole or any part of this Contract without the written consent of the Principal Representative. This provision shall not be construed to prohibit assignments of the right to payment to the extent permitted by C.R.S. § 4-9-406, et. seq., as amended, provided that written Notice of assignment adequate to identify the rights assigned is received by the Principal Representative and the controller for the agency, department, or institution executing this Contract (as distinguished from the State Controller). Such assignment of the right to payment shall not be deemed valid until receipt by the Principal Representative and such controller and the Contractor assumes the risk that such written Notice of assignment is received by the Principal Representative and the controller for the agency, department, or institution involved. In case the Contractor assigns all or part of any moneys due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due due to the Contractor shall be subject to all claims of all persons, firms, and corporations for services rendered or materials supplied for the performance of the work called for in this Contract, whether said service or materials were supplied prior to or after the assignment. Nothing in this Article shall be deemed a waiver of any other defenses available to the State against the Contractor or the assignee.

ARTICLE 30. CORRECTION OF WORK BEFORE ACCEPTANCE
The Contractor shall promptly remove from the premises all work or materials condemned or declared irreparably defective as failing to conform to the Contract Documents on receipt of written Notice from the Architect/Engineer or the Principal Representative, whether incorporated in the Work or not. If such materials shall have been incorporated in the Work, or if any unsatisfactory work is discovered, the Contractor shall promptly replace and re-execute his or her work in accordance with the requirements of the Contract Documents without expense to the Principal Representative, and shall also bear the expense of making good all work of other contractors destroyed or damaged by the removal or replacement of such defective material or work.

If the Contractor does not remove such condemned or irreparably defective work or material within a reasonable time, the Principal Representative may, after giving a second seven (7) day advance Notice to the Contractor and the Surety, remove them and may store the material at the Contractor’s expense. The Principal Representative may accomplish the removal and replacement with its own forces or with another Contractor. If the Contractor does not pay the expense of such removal and pay all storage charges within ten (10) days thereafter, the Principal Representative may, upon ten (10) days’ written Notice, sell such
material at auction or at private sale and account for the net proceeds thereof, after deducting all costs and expenses which should have been borne by the Contractor. If the Contractor shall commence and diligently pursue such removal and replacement before the expiration of the seven day period, or if the Contractor shall show good cause in conjunction with submittal of a revised CPM schedule showing when the work will be performed and why such removal of condemned work should be scheduled for a later date, the Principal Representative shall not proceed to remove or replace the condemned work.

Should any defective work or material be discovered during the process of construction, or should reasonable doubt arise as to whether certain material or work is in accordance with the Contract Documents, the value of such defective or questionable material or work shall not be included in any application for payment, or if previously included, shall be deducted by the Architect/Engineer from the next application submitted by the Contractor.

If the Contractor does not perform repair, correction and replacement of defective work, in lieu of proceeding by issuance of a Notice of intent to remove condemned work as outlined above, the Principal Representative may, not less than seven (7) days after giving the original written Notice of the need to repair, correct, or replace defective work, deduct all costs and expenses of replacement or correction as instructed by the Architect/Engineer from the Contractor’s next application for payment in addition to the value of the defective work or material. The Principal Representative may also make an equitable deduction from the Contract sum by unilateral Change Order, in accordance with Article 33, Payments Withheld and Article 35, Changes In The Work.

If the Contractor disagrees with the Notice to remove work or materials condemned or declared irreparably defective, the Contractor may request facilitated negotiation of the issue and the Principal Representative’s right to proceed with removal and to deduct costs and expenses of repair shall be suspended and tolled until such time as the parties meet and negotiate the issue.

During construction, whenever the Architect/Engineer has advised the Contractor in writing, in the Specifications, by reference to Article 6, Architect/Engineer Decisions And Judgments, of these General Conditions or elsewhere in the Contract Documents of a need to observe materials in place prior to their being permanently covered up, it shall be the Contractor’s responsibility to notify the Architect/Engineer at least forty-eight (48) hours in advance of such covering operation. If the Contractor fails to provide such notification, Contractor shall, at his or her expense, uncover such portions of the work as required by the Architect/Engineer for observation, and reinstall such covering after observation. When a covering operation is continued from day to day, notification of the commencement of a single continuing covering operation shall suffice for the activity specified so long as it proceeds regularly and without interruption from day to day, in which event the Contractor shall coordinate with the Architect/Engineer regarding the continuing covering operation.

ARTICLE 31. APPLICATIONS FOR PAYMENTS
A. CONTRACTOR’S SUBMITTALS
On or before the first day of each month and no more than five days prior thereto, the Contractor may submit applications for payment for the work performed during such month covering the portion of the Work completed as of the date indicated, and payments on account of this Contract shall be due within thirty (30) days after the last day of the period for which payment is requested. The Contractor shall submit the application for payment to the Architect/Engineer on State forms SBP-7.2, Certificate for Contractor’s Payment, or such other format as the State Buildings Programs shall approve, in an itemized format in accordance with the schedule of values or a cost loaded CPM when required, supported to the extent reasonably required by the Architect/Engineer or the Principal Representative by receipts or other vouchers, showing payments for materials and labor, prior payments and payments to be made to Subcontractors and such other evidence of the Contractor’s right to payments as the Architect/Engineer or Principal Representative may direct.

If payments are made on account of materials not incorporated in the Work but delivered and suitably stored at the site, or at some other location agreed upon in writing, such payments shall be conditioned upon submission by the Contractor of bills of sale or such other procedure as will establish the
Principal Representative’s title to such material or otherwise adequately protect the Principal Representative’s interests, and shall provide proof of insurance whenever requested by the Principal Representative or the Architect/Engineer, and shall be subject to the right to inspect the materials at the request of either the Architect/Engineer or the Principal Representative.

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.

B. ARCHITECT/ENGINEER CERTIFICATION
In accordance with the Architect/Engineer’s agreement with the Principal Representative, the Architect/Engineer after appropriate observation of the progress of the work shall certify to the Principal Representative the amount that the Contractor is entitled to, and forward the application to the Principal Representative. If the Architect/Engineer certifies an amount different from the amount requested or otherwise alters the Contractor’s application for payment, a copy shall be forwarded to the Contractor.

If the Architect/Engineer is unable to certify all or portions of the amount requested due to the absence or lack of required supporting evidence, the Architect/Engineer shall advise the Contractor of the deficiency. If the deficiency is not corrected at the end of ten (10) days, the Architect/Engineer may either certify the remaining amounts properly supported to which the Contractor is entitled, or return the application for payment to the Contractor for revision with a written explanation as to why it could not be certified.

C. RETAINAGE WITHHELD
Unless otherwise provided in the Supplementary General Conditions, an amount equivalent to five percent (5%) of the amount shown to be due the Contractor on each application for payment shall be withheld until the work required by the Contract has been performed. The withheld percentage of the contract price of any such work, improvement, or construction shall be administered according to § 24-91-101, et seq., C.R.S., as amended, and except as provided in § 24-91-103, C.R.S., as amended, and Article 31D, shall be retained until the Work or discrete portions of the Work, have been completed satisfactorily, finally or partially accepted, and advertised for final settlement as further provided in Article 41.

D. RELEASE OF RETAINAGE
The Contractor may, for satisfactory and substantial reasons shown to the Principal Representative’s satisfaction, make a written request to the Principal Representative and the Architect/Engineer for release of part or all of the withheld percentage applicable to the work of a Subcontractor which has completed the subcontracted work in a manner finally acceptable to the Architect/Engineer, the Contractor, and the Principal Representative. Any such request shall be supported by a written approval from the Surety furnishing the Contractor’s bonds and any surety that has provided a bond for the Subcontractor. The release of any such withheld percentage shall be further supported by such other evidence as the Architect/Engineer or the Principal Representative may require, including but not limited to, evidence of prior payments made to the Subcontractor, copies of the Subcontractor’s contract with the Contractor, any applicable warranties, as-built information, maintenance manuals and other customary close-out documentation. Neither the Principal Representative nor the Architect Engineer shall be obligated to review such documentation nor shall they be deemed to assume any obligations to third parties by any review undertaken.

The Contractor’s obligation under these General Conditions to guarantee work for one year from the date of the Notice of Substantial Completion or the date of any Notice of Partial Substantial Completion of the applicable portion or phase of the Project, shall be unaffected by such partial release; unless a Notice of Partial Substantial Completion is issued for the work subject to the release of retainage.
Any rights of the Principal Representative which might be terminated by or from the date of any final acceptance of the Work, whether at common law or by the terms of this Contract, shall not be affected by such partial release of retainage prior to any final acceptance of the entire Project.

The Contractor remains fully responsible for the Subcontractor’s work and assumes any risk that might arise by virtue of the partial release to the Subcontractor of the withheld percentage, including the risk that the Subcontractor may not have fully paid for all materials, labor and equipment furnished to the Project.

If the Principal Representative considers the Contractor’s request for such release satisfactory and supported by substantial reasons, the Architect/Engineer shall make a “final inspection” of the applicable portion of the Project to determine whether the Subcontractor’s work has been completed in accordance with the Contract Documents. A final punch list shall be made for the Subcontractor’s work and the procedures of Article 41, Completion, Final Inspection, Acceptance and Settlement, shall be followed for that portion of the work, except that advertisement of the intent to make final payment to the Subcontractor shall be required only if the Principal Representative has reason to believe that a supplier or Subcontractor to the Subcontractor for which the request is made, may not have been fully paid for all labor and materials furnished to the Project.

ARTICLE 32. CERTIFICATES FOR PAYMENTS
State Form SBP-7.2, Certificate For Contractor's Payment, and its continuation detail sheets, when submitted, shall constitute the Certificate of Contractor’s Application for Payment, and shall be a representation by the Contractor to the Principal Representative that the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and materials for which payment is requested have been incorporated into the Project except as noted in the application. If requested by the Principal Representative the Certificate of Contractor's Application for Payment shall be sworn under oath and notarized.

ARTICLE 33. PAYMENTS WITHHELD
The Architect/Engineer, the Principal Representative or State Buildings Programs may withhold, or on account of subsequently discovered evidence nullify, the whole or any part of any application on account of, but not limited to any of the following:

1. Defective work not remedied;
2. Claims filed or reasonable evidence indicating probable filing of claims;
3. Failure of the Contractor to make payments to Subcontractors for material or labor;
4. A reasonable doubt that the Contract can be completed for the balance of the contract price then unpaid;
5. Damage or injury to another contractor or any other person, persons or property except to the extent of coverage by a policy of insurance;
6. Failure to obtain necessary permits or licenses or to comply with applicable laws, ordinances, codes, rules or regulations or the directions of the Architect/Engineer;
7. Failure to submit a monthly construction schedule;
8. Failure of the Contractor to keep work progressing in accordance with the time schedule;
9. Failure to keep a superintendent on the work;
10. Failure to maintain as built drawings of the work in progress;
11. Unauthorized deviations by the Contractor from the Contract Documents; or
12. On account of liquidated damages.

In addition, the Architect Engineer, Principal Representative or State Buildings Programs may withhold or nullify the whole or any part of any application for any reason noted elsewhere in these General Conditions of the Contractor’s Design/Bid/Build Agreement. Nullification shall mean reduction of amounts shown as previously paid on the application. The amount withheld or nullified may be in such amount as the Architect/Engineer or the Principal Representative estimates to be required to allow the State to accomplish the Work, cure the failure and cover any damages or injuries, including an allowance for attorneys fees and
costs where appropriate. When the grounds for such withholding or nullifying are removed, payment shall be made for the amounts thus withheld or nullified on such grounds.

**ARTICLE 34. DEDUCTIONS FOR UNCORRECTED WORK**

If the Architect/Engineer and the Principal Representative deem it inexpedient to correct work injured or not performed in accordance with the Contract Documents, the Principal Representative may, after consultation with the Architect/Engineer and ten (10) days’ Notice to the Contractor of intent to do so, make reasonable reductions from the amounts otherwise due the Contractor on the next application for payment. Notice shall specify the amount or terms of any contemplated reduction. The Contractor may during this period elect to correct or perform the work. If the Contractor does not elect to correct or perform the work, an equitable deduction from the Contract sum shall be made by Change Order, in accordance with Article 35, Changes In The Work, unilaterally if necessary. If either party elects facilitation of this issue after Notice is given, the ten-day notice period shall be extended and tolled until facilitation has occurred.

**ARTICLE 35. CHANGES IN THE WORK**

The Principal Representative, or such other Procurement Officer as the Principal Representative may designate, without invalidating the Agreement, and with the approval of State Buildings Programs and the State Controller, may order extra work or make changes with or without the consent of the Contractor as hereafter provided, by altering, adding to or deducting from the Work, the Contract sum being adjusted accordingly. All such changes in the Work shall be within the general scope of and be executed under the conditions of the Contract, except that any claim for extension of time made necessary due to the change or any claim of other delay or other impacts caused by or resulting from the change in the Work shall be presented by the Contractor and adjusted by Change Order to the extent known at the time such change is ordered and before proceeding with the extra or changed work. Any claims for extension of time or of delay or other impacts, and any costs associated with extension of time, delay or other impacts, which are not presented before proceeding with the change in the Work, and which are not adjusted by Change Order to the extent known, shall be waived.

The Architect/Engineer shall have authority to make minor changes in the Work, not involving extra cost, and not inconsistent with the intent of the Contract Documents, but otherwise, except in an emergency endangering life or property, no extra work or change in the Contract Documents shall be made unless by 1) a written Change Order, approved by the Principal Representative, State Buildings Programs, and the State Controller prior to proceeding with the changed work; or 2) by an Emergency Field Change Order approved by the Principal Representative and State Buildings Programs as hereafter provided in Article 35C, Emergency Field Ordered Changed Work; or 3) by an allocation in writing of any allowance already provided in the encumbered contract amount, the Contract sum being later adjusted to decrease the Contract sum by any unallocated or unexpended amounts remaining in such allowance. No change to the Contract sum shall be valid unless so ordered.

**A. THE VALUE OF CHANGED WORK**

1. The value of any extra work or changes in the Work shall be determined by agreement in one or more of the following ways:
   a. By estimate and acceptance of a lump-sum amount;
   b. By unit prices specified in the Agreement, or subsequently agreed upon, that are extended by specific quantities;
   c. By actual cost plus a fixed fee in a lump sum amount for profit, overhead and all indirect and off-site home office costs, the latter amount agreed upon in writing prior to starting the extra or changed work.

2. Where the Contractor and the Principal Representative cannot agree on the value of extra work, the Principal Representative may order the Contractor to perform the changes in the Work and a Change Order may be unilaterally issued based on an estimate of the change in the Work prepared by the Architect/Engineer. The value of the change in the Work shall be the Principal Representative’s determination of the amount of equitable adjustment attributable to the extra work or change. The Principal Representative’s determination shall be subject to
appeal by the Contractor pursuant to the claims process in Article 36, Claims. The Principal Representative is the Procurement Officer for purposes of all of the remedies provisions of the Contract.

3. Except as otherwise provided in Article 35B, Detailed Breakdown, below, the Cost Principles of the Colorado Procurement Rules in effect on the date of this Contract, pursuant to § 24-107-101, C.R.S., as amended, shall govern all Contract changes.

B. DETAILED BREAKDOWN

In all cases where the value of the extra or changed work is not known based on unit prices in the Contractor’s bid or the Agreement, a detailed change proposal shall be submitted by the Contractor on a Change Order Proposal (SC-6.312), or in such other format as the State Buildings Program approves, with which the Principal Representative may require an itemized list of materials, equipment and labor, indicating quantities, time and cost for completion of the changed work.

Such detailed change proposals shall be stated in lump sum amounts and shall be supported by a separate breakdown, which shall include estimates of all or part of the following when requested by the Architect/Engineer or the Principal Representative:

1. Materials, indicating quantities and unit prices including taxes and delivery costs if any (separated where appropriate into general, mechanical and electrical and/or other Subcontractors’ work; and the Principal Representative may require in its discretion any significant subcontract costs to be similarly and separately broken down).
2. Labor costs, indicating hourly rates and time and labor burden to include Social Security and other payroll taxes such as unemployment, benefits and other customary burdens.
3. Costs of project management time and superintendence time of personnel stationed at the site, and other field supervision time, but only where a time extension, other than a weather delay, is approved as part of the Change Order, and only where such project management time and superintendence time is directly attributable to and required by the change; provided however that additional cost of on-site superintendence shall be allowable whenever in the opinion of the Architect/Engineer the impact of multiple change requests to be concurrently performed will result in inadequate levels of supervision to assure a proper result unless additional superintendence is provided.
4. Construction equipment (including small tools). Expenses for equipment and fuel shall be based on customary commercially reasonable rental rates and schedules. Equipment and hand tool costs shall not include the cost of items customarily owned by workers.
5. Workers’ compensation costs, if not included in labor burden.
6. The cost of commercial general liability and property damage insurance premiums but only to the extent charged the Contractor as a result of the changed work.
7. Overhead and profit, as hereafter specified.
8. Builder’s risk insurance premium costs.
9. Bond premium costs.
10. Testing costs not otherwise excluded by these General Conditions.
11. Subcontract costs.
Unless modified in the Supplementary General Conditions, overhead and profit shall not exceed the percentages set forth in the table below.

<table>
<thead>
<tr>
<th>To the Contractor or to Subcontractors</th>
<th>OVERHEAD</th>
<th>PROFIT</th>
<th>COMMISSION</th>
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</thead>
<tbody>
<tr>
<td>for the portion of work performed with their own forces:</td>
<td>10%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>To the Contractor or to Subcontractors for work performed by others at a tier immediately below either of them:</td>
<td>5%</td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>

Overhead shall include: a) insurance premium for policies not purchased for the Project and itemized above, b) home office costs for office management, administrative and supervisory personnel and assistants, c) estimating and change order preparation costs, d) incidental job burdens, e) legal costs, f) data processing costs, g) interest costs on capital, h) general office expenses except those attributable to increased rental expenses for temporary facilities, and all other indirect costs, but shall not include the Social Security tax and other direct labor burdens. The term “work” as used in the proceeding table shall include labor, materials and equipment and the “Commission” shall include all costs and profit for carrying the subcontracted work at the tiers below except direct costs as listed in items 1 through 11 above if any.

On proposals for work involving both additions and credits in the amount of the Contract sum, the overhead and profit will be allowed on the net increase only. On proposals resulting in a net deduct to the amount of the Contract sum, profit on the deducted amount shall be returned to the Principal Representative at fifty percent (50%) of the rate specified. The inadequacy of the profit specified shall not be a basis for refusal to submit a proposal.

Except in the case of Change Orders or Emergency Field Change Orders agreed to on the basis of a lump sum amount or unit prices as described in paragraphs 35A1 and 35A2 above, The Value of Changed Work, the Contractor shall keep and present a correct and fully auditable account of the several items of cost, together with vouchers, receipts, time cards and other proof of costs incurred, summarized on a Change Order form (SC-6.31) using such format for supporting documentation as the Principal Representative and State Buildings Programs approve. This requirement applies equally to work done by Subcontractors. Only auditable costs shall be reimbursable on Change Orders where the value is determined on the basis of actual cost plus a fixed fee pursuant to paragraph 35A3 above, or where unilaterally determined by the Principal Representative on the basis of an equitable adjustment in accordance with the Procurement Rules, as described above in Article 35A, The Value Of Changed Work.

Except for proposals for work involving both additions and credits, changed work shall be adjusted and considered separately for work either added or omitted. The amount of adjustment for work omitted shall be estimated at the time it is directed to be omitted, and when reasonable to do so, the agreed adjustment shall be reflected on the schedule of values used for the next Contractor’s application for payment.

The Principal Representative reserves the right to contract with any person or firm other than the Contractor for any or all extra work; however, unless specifically required in the Contract Documents, the Contractor shall have no responsibility without additional compensation to supervise or coordinate the work of persons or firms separately contracted by the Principal Representative.

C. HAZARDOUS MATERIALS

1. The Principal Representative represents that it has undertaken an examination of the site of the Work and has determined that there are no hazardous substances, as defined below, which the Contractor could reasonably encounter in its performance of the Work. In the event the Principal
Representative so discovers hazardous substances, the Principal Representative shall render harmless such hazards before the Contractor commences the work.

2. In the event the Contractor encounters any materials reasonably believed to be hazardous substances which have not been rendered harmless, the Contractor shall immediately stop work in the area affected and report the condition to the Principal Representative, in writing. For purposes of this Agreement, “hazardous substances” shall include asbestos, lead, polychlorinated biphenyl (PCB) and any or all of those substances defined as “hazardous substance”, "hazardous waste", or "dangerous or extremely hazardous wastes” as those terms are used in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA), and shall also include materials regulated by the Toxic Substances Control Act (TSCA), the Clean Air Act, the Air Quality Act, the Clean Water Act, and the Occupational Safety and Health Act. The Work in the affected area shall not therefore be resumed except by written agreement of the Principal Representative and the Contractor, if in fact materials that are hazardous substances have not been rendered harmless. The Work in the affected area shall be resumed only in the absence of the hazardous substances or when it has been rendered harmless or by written agreement of the Principal Representative and the Contractor.

3. The contractor shall not be required to perform work without consent in any areas where it reasonably believes hazardous substances that have not been rendered harmless are present.

D. EMERGENCY FIELD CHANGE ORDERED WORK

The Principal Representative, without invalidating the Agreement, and with the approval of State Buildings Programs and without the approval of the State Controller, may order extra work or make changes in the case of an emergency that is a threat to life or property or where the likelihood of delays in processing a normal Change Order will result in substantial delays and or significant cost increases for the Project. Emergency Field Orders are not to be used solely to expedite normal Change Order processing absent a clear showing of a high potential for significant and substantial cost or delay. Such changes in the Work may be directed through issuance of an Emergency Field Change Order signed by the Contractor, the Principal Representative (or by a designee specifically appointed to do so in writing), and approved by the Director of State Buildings Program or his or her delegate. The change shall be directed using an Emergency Field Change Order form (SC-6.31E).

If the amount of the adjustment of the Contract price and time for completion can be determined at the time of issuance of the Emergency Field Change Order, those adjustments shall be reflected on the face of the Emergency Field Change Order. Otherwise, the Emergency Field Change Order shall reflect a not to exceed (NTE) amount for any schedule adjustment (increasing or decreasing the time for completion) and an NTE amount for any adjustment to Contract sum, which NTE amount shall represent the maximum amount of adjustment to which the Contractor will be entitled, including direct and indirect costs of changed work, as well as any direct or indirect costs attributable to delays, inefficiencies or other impacts arising out of the change. Emergency Field Change Orders directed in accordance with this provision need not bear the approval signatures of the State Controller.

On Emergency Field Change Orders where the price and schedule have not been finally determined, the Contractor shall submit final costs for adjustment as soon as practicable. No later than seven (7) days after issuance, except as otherwise permitted, and every seven days thereafter, the Contractor shall report all costs to the Principal Representative and the Architect/Engineer. The final adjustment of the Emergency Field Change Order amount and the adjustment to the Project time for completion shall be prepared on a normal Change Order form (SC-6.31) in accordance with the procedures described in Article 35A, The Value of Changed Work, and B, Detailed Breakdown, above. Unless otherwise provided in writing signed by the Director of State Buildings Programs to the Principal Representative and the Contractor, describing the extent and limits of any greater authority, individual
Emergency Field Change Orders shall not be issued for more than $25,000, nor shall the cumulative value of Emergency Field Change Orders exceed an amount of $100,000.

E. APPROPRIATION LIMITATIONS - § 24-91-103.6, C.R.S., as amended

The amount of money appropriated, as shown on the Agreement (SC-6.21), is equal to or in excess of the Contract amount. No Change Order, Emergency Field Change Order, or other type of order or directive shall be issued by the Principal Representative, or any agent acting on his or her behalf, which directs additional compensable work to be performed, which work causes the aggregate amount payable under the Contract to exceed the amount appropriated for the original Contract, as shown on the Agreement (SC-6.21), unless one of the following occurs: (1) the Contractor is provided written assurance from the Principal Representative that sufficient additional lawful appropriations exist to cover the cost of the additional work; or (2) the work is covered by a contractor remedy provision under the Contract, such as a claim for extra cost. By way of example only, no assurance is required for any order, directive or instruction by the Architect/Engineer or the Principal Representative to perform work which is determined to be within the performance required by the Contract Documents; the Contractor's remedy shall be as described elsewhere in these General Conditions.

Written assurance shall be in the form of an Amendment to the Contract reciting the source and amount of such appropriation available for the Project. No remedy granting provision of this Contract shall obligate the Principal Representative to seek appropriations to cover costs in excess of the amounts recited as available to pay for the work to be performed.

ARTICLE 36. CLAIMS

It is the intent of these General Conditions to provide procedures for speedy and timely resolution of disagreements and disputes at the lowest level possible. In the spirit of on the job resolution of job site issues, the parties are encouraged to use the partnering processes of Article 2D, Partnering, Communications and Cooperation, before turning to the more formal claims processes described in this Article 36, Claims. The use of non-binding dispute resolution, whether through the formal processes described in Article 39, Non-Binding Dispute Resolution – Facilitated Negotiations, or through less formal alternative processes developed as part of a partnering plan, are also encouraged. Where such process cannot resolve the issues in dispute, the claims process that follows is intended to cause the issues to be presented, decided and where necessary, documented in close proximity to the events from which the issues arise. To that end, and in summary of the remedy granting process that follows commencing with the next paragraph of this Article 36, Claims, the Contractor shall 1) first, seek a decision by the Architect/Engineer, and 2) shall second, informally present the claim to Principal Representative as described hereafter, and 3) failing resolution in the field, give Notice of intent to exercise statutory rights of review of a formal contract controversy, and 4) seek resolution outside the Contract as provided by the Procurement Code.

If the Contractor claims that any instructions, by detailed drawings, or otherwise, or any other act or omission of the Architect/Engineer or Principal Representative affecting the scope of the Contractor's work, involve extra cost, extra time or changes in the scope of the Work under this Contract, the Contractor shall have the right to assert a claim for such costs or time, provided that before either proceeding to execute such work (except in an emergency endangering life or property), or filing a Notice of claim, the Contractor shall have obtained or requested a written decision of the Architect/Engineer following the procedures as provided in Article 6A and B, Architect/Engineer Decisions and Judgments, respectively; provided, however, that in the case of a directed change in the Work pursuant to Article 36A4, no written judgment or decision of the Architect/Engineer is required. If the Contractor is delayed by the lack of a response to a request for a decision by the Architect/Engineer, the Contractor shall give Notice in accordance with Article 38, Delays And Extensions Of Time.

Unless it is the Architect/Engineer's judgment and determination that the work is not included in the performance required by the Contract Documents, the Contractor shall proceed with the work as originally directed. Where the Contractor's claim involves a dispute concerning the value of work unilaterally directed pursuant to Article 35A3 the Contractor shall also proceed with the work as originally directed while his or her claim is being considered.
The Contractor shall give the Principal Representative and the Architect/Engineer Notice of any claim promptly after the receipt of the Architect/Engineer’s decision, but in no case later than three (3) business days after receipt of the Architect/Engineer’s decision (or no later than ten (10) days from the date of the Contractor’s request for a decision when the Architect/Engineer fails to decide as provided in Article 6). The Notice of claim shall state the grounds for the claim and the amount of the claim to the extent known in accordance with the procedures of Article 35, Changes In The Work. The period in which Notice must be given may be extended by the Principal Representative if requested in writing by the Contractor with good cause shown, but any such extension to be effective shall be in writing.

The Principal Representative shall respond in writing, with a copy to the Architect/Engineer, within a reasonable time, and except where a request for facilitation of negotiation has been made as hereafter provided, in no case later than seven (7) business days (or at such other time as the Contractor and Principal Representative agree) after receipt of the Contractor’s Notice of claim regarding such instructions or alleged act or omission. If no response to the Contractor’s claim is received within seven (7) business days of Contractor’s Notice (or at such other time as the Contractor and Principal Representative agree) and the instructions have not been retracted, it shall be deemed that the Principal Representative has denied the claim.

The Principal Representative may grant or deny the claim in whole or in part, and a Change Order shall be issued if the claim is granted. To the extent any portion of claim is granted where costs are not clearly shown, the Principal Representative may direct that the value of that portion of the work be determined by any method allowed in Article 35A, The Value of Changed Work. Except in the case of a deemed denial, the Principal Representative shall provide a written explanation regarding any portion of the Contractor’s claim that is denied.

If the Contractor disagrees with the Principal Representative’s judgment and determination on the claim and seeks an equitable adjustment of the Contract sum or time for performance, he or she shall give Notice of intent to exercise his or her statutory right to seek a decision on the contract controversy within ten (10) days of receipt of the Principal Representative’s decision denying the claim. A “contract controversy,” as such term is used in the Colorado Procurement Code, § 24-109-106, C.R.S., shall not arise until the initial claim process described above in this Article 36 has been properly exhausted by the Contractor. The Contractor's failure to proceed with work directed by the Architect/Engineer or to exhaust the claim process provided above in this Article 36, shall constitute an abandonment of the claim by the Contractor and a waiver of the right to contest the decision in any forum.

At the time of filing the Notice of intent to exercise his or her statutory right to seek a decision on the contract controversy, the Contractor may request that the Principal Representative defer a decision on the contract controversy until a later date or until the end of the Project. If the Principal Representative agrees, he or she shall so advise the Contractor in writing. If no such request is made, or if the Principal Representative does not agree to such a request, the Principal Representative shall render a written decision within twenty (20) business days and advise the Contractor of the reasons for any denial. Unless the claim has been decided by the Principal Representative (as opposed to delegates of the Principal Representative), the person who renders the decision on this statutory contract controversy shall not be the same person who decided the claim. To the extent any portion of the contract controversy is granted where costs are not clearly shown, the Principal Representative may direct that the value of that portion of the work be determined by any method allowed in Article 35A, The Value of Changed Work. In the event of a denial the Principal Representative shall give Notice to the Contractor of his or her right to administrative and judicial reviews as provided in the Colorado Procurement Code, § 24-109-201 et seq., C.R.S., as amended. If no decision regarding the contract controversy is issued within twenty (20) business days of the Contractor’s giving Notice (or such other date as the Contractor and Principal Representative have agreed), and the instructions have not been retracted or the alleged act or omission have not been corrected, it shall be deemed that the Principal Representative has ruled by denial on the contract controversy. Except in the case of a deemed denial, the Principal Representative shall provide an explanation regarding any portion of the contract controversy that involves denial of the Contractor’s claim.
Either the Contractor or the Principal Representative may request facilitation of negotiations concerning the claim or the contract controversy, and if requested, the parties shall consult and negotiate before the Principal Representative decides the issue. Any request for facilitation by the Contractor shall be made at the time of the giving of Notice of the claim or Notice of the contract controversy. Facilitation shall extend the time for the Principal Representative to respond by commencing the applicable period at the completion of the facilitated negotiation, which shall be the last day of the parties’ meeting, unless otherwise agreed in writing.

Disagreement with the decision of the Architect Engineer, or the decision of the Principal Representative to deny any claim or denying the contract controversy, shall not be grounds for the Contractor to refuse to perform the work directed or to suspend or terminate performance. During the period that any claim or contract controversy decision is pending under this Article 36, Claims, the Contractor shall proceed diligently with the work directed.

In all cases where the Contractor proceeds with the work and seeks equitable adjustment by filing a claim and or statutory appeal, the Contractor shall keep a correct account of the extra cost, in accordance with Article 35B, Detailed Breakdown supported by receipts. The Principal Representative shall be entitled to reject any claim or contract controversy whenever the foregoing procedures are not followed and such accounts and receipts are not presented.

The payments to the Contractor in respect of such extra costs shall be limited to reimbursement for the current additional expenditure by the Contractor made necessary by the change in the work, plus a reasonable amount for overhead and profit, determined in accordance with Article 35B, Detailed Breakdown, determined solely with reference to the additional work, if any, required by the change.

**ARTICLE 37. DIFFERING SITE CONDITIONS**

**A. NOTICE IN WRITING**

The Contractor shall promptly, and where possible before conditions are disturbed, give the Architect/Engineer and the Principal Representative Notice in writing of:

1. subsurface or latent physical conditions at the site differing materially from those indicated in or reasonably assumed from the information provided in the Contract Documents; and,
2. unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.

The Architect/Engineer shall promptly investigate the conditions, and if it is found that such conditions do materially so differ and cause an increase or decrease in the Contractor’s costs of performance of any part of the work required by the Contract Documents, whether or not such work is changed as a result of such conditions, an equitable adjustment shall be made and the Contract sum shall be modified in accordance with Article 35, Changes In The Work.

If the time required for completion of the work affected by such materially differing conditions will extend the work on the critical path as indicated on the CPM schedule, the time for completion shall also be equitably adjusted.

**B. LIMITATIONS**

No claim of the Contractor under this clause shall be allowed unless the Contractor has given the Notice required in Article 37A, Notice In Writing, above. The time prescribed for presentation and adjustment in Articles 36, Claims and 38, Delays And Extensions Of Time, shall be reasonably extended by the State to the extent required by the nature of the differing conditions; provided, however, that even when so extended no claim by the Contractor for an equitable adjustment hereunder shall be allowed if not quantified and presented prior to the date the Contractor requests a final inspection pursuant to Article 41A, Notice Of Completion.
ARTICLE 38. DELAYS AND EXTENSIONS OF TIME

If the Contractor is delayed at any time in the progress of the Work by any act or neglect of the State of Colorado or the Architect/Engineer, or of any employee or agent of either, or by any separately employed Contractor or by strikes, lockouts, fire, unusual delay in transportation, unavoidable casualties or any other causes beyond the Contractor’s control, including weather delays as defined below, the time of Completion of the Work shall be extended for a period equal to such portion of the period of delays directly affecting the completion of the Work as the Contractor shall be able to show he or she could not have avoided by the exercise of due diligence.

The Contractor shall provide Notice in writing to the Architect/Engineer, the Principal Representative and State Buildings Programs within three (3) business days from the beginning of such delay and shall file a written claim for an extension of time within seven (7) business days after the period of such delay has ceased, otherwise, any claim for an extension of time is waived.

Provided that the Contractor has submitted reasonable schedules for approval when required by Article 12, Requests for Information and Schedules, if no schedule is agreed to fixing the dates on which the responses to requests for information or detail drawings will be needed, or Shop Drawings, Product Data or Samples are to be reviewed as required or allowed by Article 12B, Schedules, no extension of time will be allowed for the Architect/Engineer’s failure to furnish such detail drawings as needed, or for the failure to initially review Shop Drawings, Product Data or Samples, except in respect of that part of any delay in furnishing detail drawings or instructions extending beyond a reasonable period after written demand for such detailed drawings or instructions is received by the Architect/Engineer. In any event, any claim for an extension of time for such cause will be recognized only to the extent of delay directly caused by failure to furnish detail drawings or instructions or to review Shop Drawings, Product Data or Samples pursuant to schedule, after such demand.

All claims for extension of time due to a delay claimed to arise or result from ordered changes in the scope of the Work, or due to instructions claimed to increase the scope of the Work, shall be presented to the Architect/Engineer, the Principal Representative and State Buildings Programs as part of a claim for extra cost, if any, in accordance with Article 36, Claims, and in accordance with the Change Order procedures required by Article 35, Changes In The Work.

Except as otherwise provided in this paragraph, no extension of time shall be granted when the Contractor has failed to utilize a CPM schedule or otherwise identify the Project’s critical path as specified in Article 12, Requests for Information and Schedules, or has elected not to do so when allowed by the Supplementary General Conditions or the Specifications to use less sophisticated scheduling tools, or has failed to maintain such a schedule. Delay directly affecting the completion of the Work shall result in an extension of time only to the extent that completion of the Work was affected by impacts to the critical path shown on Contractor’s CPM schedule. Where the circumstances make it indisputable in the opinion of the Architect/Engineer that the delay affected the completion of the Work so directly that the additional notice of the schedule impact by reference to a CPM schedule was unnecessary, a reasonable extension of time may be granted.

Extension of the time for completion of the Work will be granted for delays due to weather conditions only when the Contractor demonstrates that such conditions were more severe and extended than those reflected by the ten-year average for the month, as evidenced by the Climatological Data, U. S. Department of Commerce, for the Project area.

Extensions of the time for completion of the Work due to weather will be granted on the basis of one and three tenths (1.3) calendar days for every day that the Contractor would have worked but was unable to work, with each separate extension figured to the nearest whole calendar day.

For weather delays and delays caused by events, acts or omissions not within the control of the Principal Representative or any person acting on the Principal Representative’s behalf, the Contractor shall be entitled to an extension of time only and shall not be entitled to recovery of additional cost due to or resulting from such delays. This Article does not, however, preclude the recovery of damages for delay by either party under other provisions in the Contract Documents.
ARTICLE 39. NON-BINDING DISPUTE RESOLUTION – FACILITATED NEGOTIATIONS

The Contractor and Principal Representative agree to designate one or more mutually acceptable persons willing and able to facilitate negotiations and communications for the resolution of conflicts, disagreements or disputes between them at the specific request of either party with regard to any Project decision of either of them or any decision of the Architect/Engineer. The designation of such person(s) shall not carry any obligation to use their services except that each party agrees that if the other party requests the intervention of such person(s) with respect to any such conflict, dispute or disagreement, the non-requesting party shall participate in good faith attempts to negotiate a resolution of the issue in dispute. If the parties cannot agree on a mutually acceptable person to serve in this capacity one shall be so appointed; provided, however, that either party may request the director of State Buildings Programs to appoint such a person, who, if appointed, shall be accepted for this purpose by both the Contractor and the Principal Representative.

The cost, if any, of the facilitative services of the person(s) so designated shall be shared if the parties so agree in any partnering plan; or in the absence of agreement the cost shall be borne by the party requesting the facilitation of negotiation.

Any dispute, claim, question or disagreement arising from or relating to the Contract or an alleged breach of the Contract may be subject to a request by either party for facilitated negotiation subject to the limitations hereafter listed, and the parties shall participate by consultation and negotiation with each other, as guided by the facilitator and with recognition of their mutual interests, in an attempt to reach an equitable solution satisfactory to both parties.

The obligation to participate in facilitated negotiations shall be as described above and elsewhere in these General Conditions, as by way of example in Article 36, Claims, or Article 34, Deductions for Uncorrected Work, and to the extent not more particularly described or limited elsewhere, each party’s obligations shall be as follows:

1. a party shall not initiate communication with the facilitator regarding the issues in dispute; except that any request for facilitation shall be made in writing with copies sent, faxed or delivered to the other party;
2. a party shall prepare a brief written description of its position if so requested by the facilitator (who may elect to first discuss the parties’ positions with each party separately in the interest of time and expense);
3. a party shall respond to any reasonable request for copies of documents requested by the facilitator, but such requests, if voluminous, may consist of an offer to allow the facilitator access to the parties’ documents;
4. a party shall review any meeting agenda proposed by a facilitator and endeavor to be informed on the subjects to be discussed;
5. a party shall meet with the other party and the facilitator at a mutually acceptable place and time, or, if none can be agreed to, at the time and place designated by the facilitator for a period not to exceed four hours unless the parties agree to a longer period;
6. a party shall endeavor to assure that any facilitation meeting shall be attended by any other persons in their employ that the facilitator requests be present, if reasonably available, including the Architect/Engineer;
7. each party shall participate in such facilitated face-to-face negotiations of the issues in dispute through persons fully authorized to resolve the issue in dispute;
8. each party shall be obligated to participate in negotiations requested by the other party and to perform the specific obligations described in paragraphs (1) through (10) this Article 39, Facilitated Negotiation, no more than three times during the course of the Project;
9. neither party shall be under any obligation to resolve any issue by facilitated negotiation, but each agrees to participate in good faith and the Principal Representative shall direct the Architect/Engineer to appropriately document any resolution or agreement reached and to execute any Amendment or Change Order to the Contract necessary to implement their agreement; and,
10. any discussions and documents prepared exclusively for use in the negotiations shall be deemed to be matters pertaining to settlement negotiations and shall not be subsequently available in further proceedings except to the extent of any documented agreement.

In accordance with State Fiscal Rules and Article 52F, Choice of Law; No Arbitration, nothing in this Article 39 shall be deemed to call for arbitration or otherwise obligate the State to participate in any form of binding alternative dispute resolution.

A partnering plan developed as described in Article 2D, Communications and Cooperation, may modify or expand the requirements of this Article but may not reduce the obligation to participate in facilitated negotiations when applicable. In the case of small projects estimated to be valued under $500,000, the requirements of this Article may be deleted from this Contract, by modification in Article 7 (Contractor’s Agreement SC-6.21), Optional Provisions And Elections. When so modified, the references to the parties’ right to elect facilitated negotiation elsewhere in these General Conditions shall be deleted.

ARTICLE 40. RIGHT OF OCCUPANCY
The Principal Representative shall have the right to take possession of and to use any completed or partially completed portions of the Work, even if the time for completing the entire Work or portions of the Work has not expired and even if the Work has not been finally accepted, and the Contractor shall fully cooperate with the Principal Representative to allow such possession and use. Such possession and use shall not constitute an acceptance of such portions of the Work.

Prior to any occupancy of the Project, an inspection shall be made by the Principal Representative, State Buildings Programs and the Contractor. Such inspection shall be made for the purpose of ensuring that the building is secure, protected by operation safety systems as designed, operable exits, power, lighting and HVAC systems, and otherwise ready for the occupancy intended and the Notice of Substantial Completion has been issued for the occupancy intended. The inspection shall also document existing finish conditions to allow assessment of any damage by occupants. The Contractor shall assist the Principal Representative in completing and executing State Form SBP-01, Approval of Occupancy/Use, prior to the Principal Representative’s possession and use. Any and all areas so occupied will be subject to a final inspection when the Contractor complies with Article 41, Completion, Final Inspection, Acceptance and Settlement.

ARTICLE 41. COMPLETION, FINAL INSPECTION, ACCEPTANCE AND SETTLEMENT
A. NOTICE OF COMPLETION
When the Work, or a discrete physical portion of the Work (as hereafter described) which the Principal Representative has agreed to accept separately, is substantially complete and ready for final inspection, the Contractor shall file a written Notice with the Architect/Engineer that the Work, or such discrete physical portion, in the opinion of the Contractor, is substantially complete under the terms of the Contract. The Contractor shall prepare and submit with such Notice a comprehensive list of items to be completed or corrected prior to final payment, which shall be subject to review and additions as the Architect/Engineer or the Principal Representative shall determine after inspection. If the Architect/Engineer or the Principal Representative believe that any of the items on the list of items submitted, or any other item of work to be corrected or completed, or the cumulative number of items of work to be corrected or completed, will prevent a determination that the Work is substantially complete, those items shall be completed by the Contractor and the Notice shall then be resubmitted.

B. FINAL INSPECTION
Within ten (10) days after the Contractor files written Notice that the Work is substantially complete, the Architect/Engineer, the Principal Representative, and the Contractor shall make a “final inspection” of the Project to determine whether the Work is substantially complete and has been completed in accordance with the Contract Documents. State Buildings Programs shall be notified of the inspection not less than three (3) business days in advance of the inspection. The Contractor shall provide the Principal Representative and the Architect/Engineer an updated punch list in sufficient detail to fully outline the following:

1. work to be completed, if any; and
2. work not in compliance with the Drawings or Specifications, if any.

A final punch list shall be made by the Architect/Engineer in sufficient detail to fully outline to the Contractor:

1. work to be completed, if any;
2. work not in compliance with the Drawings or Specifications, if any; and
3. unsatisfactory work for any reason, if any.

The required number of copies of the final punch list will be countersigned by the authorized representative of the Principal Representative and will then be transmitted by the Architect/Engineer to the Contractor, the Principal Representative, and State Buildings Programs. The Architect/Engineer's final punch list shall control over the Contractor's preliminary punch list.

C. NOTICE OF SUBSTANTIAL COMPLETION

Notice of Substantial Completion shall establish the date of substantial completion of the Project. The Contractor acknowledges and agrees that because the departments, agencies and institutions of the State of Colorado are generally involved with the business of the public at large, greater care must be taken in establishing the date of substantial completion than might otherwise be the case to ensure that a project or building or discrete physical portion of the Work is fully usable and safe for public use, and that such care necessarily raises the standard by which the concept of substantial completion is applied for a public building.

The Notice of Substantial Completion shall not be issued until the following have been fully established:

1. All required building code inspections have been called for and the appropriate code officials have affixed their signatures to the Building Inspection Record indicating successful completion of all required code inspections;
2. All required corrections noted on the Building Inspection Record shall have been completed unless the Architect/Engineer, the Principal Representative and State Buildings Programs, in their complete and absolute discretion, all concur that the condition requiring the remaining correction is not in any way life threatening, does not otherwise endanger persons or property, and does not result in any undue inconvenience or hardship to the Principal Representative or the public;
3. The building, structure or Project can be fully and comfortably used by the Principal Representative and the public without undue interference by the Contractor’s employees and workers during the completion of the final punch list taking into consideration the nature of the public uses intended and taking into consideration any stage or level of completion of HVAC system commissioning or other system testing required by the Specifications to be completed prior to issuance of the Notice of Substantial Completion;
4. The Project has been fully cleaned as required by these General Conditions, and as required by any stricter requirements of the Specifications, and the overall state of completion is appropriate for presentation to the public; and
5. The Contractor has provided a schedule for the completion of each and every item identified on the punch list which specifies the Subcontractor or trade responsible for the work, and the dates the completion or correction of the item will be commenced and finished; such schedule will show completion of all remaining final punch list items within the period indicated in the Contract for final punch list completion prior to Final Acceptance, with the exception of only those items which are beyond the control of the Contractor despite due diligence. The schedule shall provide for a reasonable punch list inspection process. Unless liquidated damages have been specified in Article 7D(2) (Contractor’s Agreement SC-6.21), the cost to the Principal Representative, if any, for re-inspections due to failure to adhere to the Contractor’s proposed punch-list completion schedule shall be the responsibility of the Contractor and may be deducted by the Principal Representative from final amounts due to the Contractor.
Substantial completion of the entire Project shall not be conclusively established by a decision by the Principal Representative to take possession and use of a portion, or all of the Project, where portions of the Project cannot meet all the criteria noted above. Notice of Substantial Completion for the entire Project shall, however, only be withheld for substantial reasons when the Principal Representative has taken possession and uses all of the Project in accordance with the terms of Article 40, Right Of Occupancy. Failure to furnish the required completion schedule shall constitute a substantial reason for withholding the issuance of any Notice of Substantial Completion.

The Contractor shall have the right to request a final inspection of any discrete physical portion of the Project when in the opinion of the Principal Representative, The Architect/Engineer and State Buildings Programs a final punch list can be reasonably prepared, without confusion as to which portions of the Project are referred to in any subsequent Notice of Partial Final Settlement which might be issued after such portion is finally accepted. Discrete physical portions of the Project may be, but shall not necessarily be limited to, such portions of the Project as separate buildings where a Project consists of multiple buildings. Similarly, an addition to an existing building where the Project also calls for renovation or remodeling of the existing building may constitute a discrete physical portion of the Project. In such circumstances, when in the opinion of the Principal Representative, the Architect/Engineer and State Buildings Programs, the requirements for issuance of a Notice of Substantial Completion can be satisfied with respect to the discrete portion of the Project, a partial Notice of Substantial Completion may be issued for such discrete physical portion of the Project.

D. NOTICE OF ACCEPTANCE

The Notice of Acceptance shall establish the completion date of the Project. It shall not be authorized until the Contractor shall have performed all of the work to allow completion and approval of the Pre-Acceptance Checklist (SBP-05).

Where partial Notices of Substantial Completion have been issued, partial Notices of Final Acceptance may be similarly issued when appropriate for that portion of the Work. Partial Notice of Final Acceptance may also be issued to exclude the work described in Change Orders executed during late stages of the Project where a later completion date for the Change Ordered work is expressly provided for in the Contract as amended by the Change Order, provided the work can be adequately described to allow partial advertisement of any Notice of Partial Final Settlement to be issued without confusion as to the work included for which final payment will be made.

E. SETTLEMENT

Final payment and settlement shall be made on the date fixed and published for such payment except as hereafter provided. The Principal Representative shall not authorize final payment until all items on the Pre-Acceptance check list (SBP-05) have been completed, the Notice of Acceptance issued, and the Notice of Contractors Settlement published. If the work shall be substantially completed, but Final Acceptance and completion thereof shall be prevented through delay in correction of minor defects, or unavailability of materials or other causes beyond the control of the Contractor, the Principal Representative in his or her discretion may release all amounts due to the Contractor except such amounts as may be in excess of three times the cost of completing the unfinished work or the cost of correcting the defective work, as estimated by the Architect/Engineer and approved by State Buildings Programs. Before the Principal Representative may issue the Notice of Contractor’s Settlement and advertise the Project for final payment, the Contractor shall have corrected all items on the punch list except those items for which delayed performance is expressly permitted, subject to withholding for the cost thereof, and shall have:

1. Delivered to the Architect/Engineer:
   a. All guarantees and warranties;
   b. All statements to support local sales tax refunds, if any;
   c. Three (3) complete bound sets of required operating maintenance instructions; and,
   d. One (1) set of as-built Contract Documents showing all job changes.
2. Demonstrated to the operating personnel of the Principal Representative the proper operation and maintenance of all equipment.

Upon completion of the foregoing the Project shall be advertised in accordance with the Notice of Contractor’s Settlement by two publications of Notice, the last publication appearing at least ten (10) days prior to the time of final settlement. Publication and final settlement should not be postponed or delayed solely by virtue of unresolved claims against the Project or the Contractor from Subcontractors, suppliers or materialmen based on good faith disputes; the resolution of the question of payment in such cases being directed by statute.

Except as hereafter provided, on the date of final settlement thus advertised, provided the Contractor has submitted a written Notice to the Architect/Engineer that no claims have been filed, and further provided the Principal Representative shall have received no claims, final payments and settlement shall be made in full. If any unpaid claim for labor, materials, rental machinery, tools, supplies or equipment is filed before payment in full of all sums due the Contractor, the Principal Representative and the State Controller shall withhold from the Contractor on the date established for final settlement, sufficient funds to insure the payment of such claim, until the same shall have been paid or withdrawn, such payment or withdrawal to be evidenced by filing a receipt in full or an order for withdrawal signed by the claimant or his or her duly authorized agent or assignee. The amount so withheld may be in the amount of 125% of the claims or such other amount as the Principal Representative reasonably deems necessary to cover expected legal expenses. Such withheld amounts shall be in addition to any amount withheld based on the cost to compete unfinished work or the cost to repair defective work. However, as provided by statute, such funds shall not be withheld longer than ninety (90) days following the date fixed for final settlement with the Contractor, as set forth in the published Notice of Contractor’s Settlement, unless an action at law shall have been commenced within that time to enforce such unpaid claim and a Notice of such action at law shall have been filed with the Principal Representative and the State Controller. At the expiration of the ninety (90) day period, the Principal Representative shall authorize the State Controller to release to the Contractor all other money not the subject of such action at law or withheld based on the cost to compete unfinished work or the cost to repair defective work.

Notices of Partial Final Settlement may be similarly advertised, provided all conditions precedent have been satisfied as though that portion of the work affected stood alone, a Notice of Partial Acceptance has been issued, and the consent of surety to the partial final settlement has been obtained in writing. Thereafter, partial final payments may be made to the Contractor subject to the same conditions regarding unpaid claims.

**ARTICLE 42. GENERAL WARRANTY AND CORRECTION OF WORK AFTER ACCEPTANCE**

The Contractor warrants that the materials used and the equipment furnished shall be new and of good quality unless specified to the contrary. The Contractor further warrants that the Work shall in all respects be free from material defects not permitted by the Specifications and shall be in accordance with the requirements of the Contract Documents. Neither the final certificate for payment nor any provision in the Contract Documents shall relieve the Contractor of responsibility for defects or faulty materials or workmanship. The Contractor shall be responsible to the Principal Representative for such warranties for the longest period permitted by any applicable statute of limitations.

In addition to these general warranties, and without limitation of these general warranties, for a period of one year after the date of any Notice of Substantial Completion, or any Notice of Partial Substantial Completion if applicable, the Contractor shall remedy defects, and faulty workmanship or materials, and work not in accordance with the Contract Documents which was not accepted at the time of the Notice of Final Acceptance, all in accordance with the provisions of Article 44, One-Year Guarantee And Special Guarantees And Warranties.
ARTICLE 43. LIENS
Colorado statutes do not provide for any right of lien against public buildings. In lieu thereof, § 38-26-107, C.R.S., provides adequate relief for any claimant having furnished labor, materials, rental machinery, tools, equipment, or services toward construction of the particular public work in that final payment may not be made to a Contractor until all such creditors have been put on Notice by publication in the public press of such pending payment and given opportunity for a period of up to ninety (90) days to stop payment to the Contractor in the amount of such claims.

ARTICLE 44. ONE-YEAR GUARANTEE AND SPECIAL GUARANTEES AND WARRANTIES

A. ONE-YEAR GUARANTEE OF THE WORK
The Contractor shall guarantee to remedy defects and repair or replace the Work for a period of one year from the date of the Notice of Substantial Completion or from the dates of any partial Notices of Substantial Completion issued for discrete physical portions of the Work. The Contractor shall remedy any defects due to faulty materials or workmanship and shall pay for, repair and replace any damage to other work resulting there from, which shall appear within a period of one year from the date of such Notice(s) of Substantial Completion. The Contractor shall also remedy any deviation from the requirements of the Contract Documents which shall later be discovered within a period of one year from the date of the Notice of Substantial Completion; provided, however, that the Contractor shall not be required to remedy deviations from the requirements of the Contract Documents where such deviations were obvious, apparent and accepted by the Architect/Engineer or the Principal Representative at the time of the Notice of Final Acceptance. The Principal Representative shall give Notice of observed defects or other work requiring correction with reasonable promptness. Such Notice shall be in writing to the Architect/Engineer and the Contractor.

The one year guarantee of the Contractor’s work may run separately for discrete physical portions of the Work for which partial Notices of Substantial Completion have been issued, however, it shall run from the last Notice of Substantial Completion with respect to all or any systems common to the work to which more than one Notice of Substantial Completion may apply.

This one-year guarantee shall not be construed to limit the Contractor’s general warranty described in Article 42, General Warranty and Correction of Work After Acceptance, that all materials and equipment are new and of good quality, unless specified to the contrary, and that the Work shall in all respects be free from material defects not permitted by the Specifications and in accordance with the requirements of the Contract Documents.

B. SPECIAL GUARANTEES AND WARRANTIES
In case of work performed for which product, manufacturers or other special warranties are required by the Specifications, the Contractor shall secure the required warranties and deliver copies thereof to the Principal Representative through the Architect/Engineer upon completion of the work.

These product, manufacturers or other special warranties, as such, do not in any way lessen the Contractor’s responsibilities under the Contract. Whenever guarantees or warranties are required by the Specifications for a longer period than one year, such longer period shall govern.

ARTICLE 45. GUARANTEE INSPECTIONS AFTER COMPLETION
The Architect/Engineer, the Principal Representative and the Contractor together shall make at least two (2) complete inspections of the work after the Work has been determined to be substantially complete and accepted. One such inspection, the “Six-Month Guarantee Inspection,” shall be made approximately six (6) months after date of the Notice of Substantial Completion, unless in the case of smaller projects valued under $500,000 this inspection is declined in Article 7A (Contractor’s Agreement SC-6.21), Modification of Article 45, in which case the inspection to occur at six months shall not be required. Another such inspection, the “Eleven-Month Guaranty Inspection” shall be made approximately eleven (11) months after the date of the Notice of Substantial Completion. The Principal Representative shall schedule and so notify all parties concerned, including State Buildings Programs, of these inspections. If more than one Notice of Substantial Completion has been issued at the reasonable discretion of the Principal Representative.
separate eleven month inspections may be required where the one year guarantees do not run reasonably concurrent.

Written punch lists and reports of these inspections shall be made by the Architect/Engineer and forwarded to the Contractor, the Principal Representative, State Buildings Programs, and all other participants within ten (10) days after the completion of the inspections. The punch list shall itemize all guarantee items, prior punch list items still to be corrected or completed and any other requirements of the Contract Documents to be completed which were not waived by final acceptance because they were not obvious or could not reasonably have been previously observed. The Contractor shall immediately initiate such remedial work as may be necessary to correct any deficiencies or defective work shown by this report, and shall promptly complete all such remedial work in a manner satisfactory to the Architect/Engineer, the Principal Representative and State Buildings Programs.

If the Contractor fails to promptly correct all deficiencies and defects shown by this report, the Principal Representative may do so, after giving the Contractor ten (10) days written Notice of intention to do so.

The State of Colorado, acting by and through the Principal Representative, shall be entitled to collect from the Contractor all costs and expenses incurred by it in correcting such deficiencies and defects, as well as all damages resulting from such deficiencies and defects.

ARTICLE 46. TIME OF COMPLETION AND LIQUIDATED DAMAGES

It is hereby understood and mutually agreed, by and between the parties hereto, that the date of beginning, rate of progress, and the time for completion of the Work to be done hereunder are ESSENTIAL CONDITIONS of this Agreement, and it is understood and agreed that the Work embraced in this Contract shall be commenced at the time specified in the Notice to Proceed (SC-6.26).

It is further agreed that time is of the essence of each and every portion of this Contract, and of any portion of the Work described on the Drawings or Specifications, wherein a definite and certain length of time is fixed for the performance of any act whatsoever. The parties further agree that where under the Contract additional time is allowed for the completion of the Work or any identified portion of the Work, the new time limit or limits fixed by such extension of the time for completion shall be of the essence of this Agreement.

The Contractor acknowledges that subject to any limitations in the Advertisement for Bids, issued for the Project, the Contractor’s bid is consistent with and considers the number of days to substantially complete the Project and the number of days to finally complete the Project to which the parties may have stipulated in the Agreement, which stipulation was based on the Contractor’s bid. The Contractor agrees that work shall be prosecuted regularly, diligently and uninterruptedly at such rate of progress as will ensure the Project will be substantially complete, and fully and finally complete, as recognized by the issuance of all required Notices of Substantial Completion and Notices of Final Acceptance, within any times stipulated and specified in the Agreement, as the same may be amended by Change Order or other written modification, and that the Principal Representative will be damaged if the times of completion are delayed.

It is expressly understood and agreed, by and between the parties hereto, that the times for the Substantial Completion of the Work or for the final acceptance of the Work as may be stipulated in the Agreement, and as applied here and in Article 7D (Contractor’s Agreement SC-6.21), Modifications of Article 46, are reasonable times for these stages of completion of the Work, taking into such consideration all factors, including the average climatic range and usual industrial conditions prevailing in the locality of the building operations.

If the Contractor shall neglect, fail or refuse to complete the Work within the times specified in the Agreement, such failure shall constitute a breach of the terms of the Contract and the State of Colorado, acting by and through the Principal Representative, shall be entitled to liquidated damages for such neglect, failure or refusal, as specified in Article 7D (Contractor’s Agreement SC-6.21), Modification of Article 46.

The Contractor and the Contractor’s Surety shall be jointly liable for and shall pay the Principal Representative, or the Principal Representative may withhold, the sums hereinafter stipulated as liquidated
damages for each calendar day of delay until the entire Project is 1) substantially completed, and the Notice (or all Notices) of Substantial Completion are issued, 2) finally complete and accepted and the Notice (or all Notices) of Acceptance are issued, or 3) both. Delay in substantial completion shall be measured from the Date of the Notice to Proceed and delay in final completion and acceptance shall be measured from the Date of the Notice of Substantial Completion.

In the first instance, specified in Article 7D(1) (Contractor’s Agreement SC-6.21), Modification of Article 46, liquidated damages, if any, shall be the amount specified therein, for each calendar day of delay beginning after the stipulated number of days for Substantial Completion from the date of the Notice to Proceed, until the date of the Notice of Substantial Completion. Unless otherwise specified in any Supplementary General Conditions, in the event of any partial Notice of Substantial Completion, liquidated damages shall accrue until all required Notices of Substantial Completion are issued.

In the second instance, specified in Article 7D(2) (Contractor’s Agreement SC-6.21), Modification of Article 46, liquidated damages, if any, shall be the amount specified in Article 7D (Contractor’s Agreement SC-6.21), Modification of Article 46, for each calendar day in excess of the number of calendar days specified in the Contractor’s bid for the Project and stipulated in the Agreement to finally complete the Project (as defined by the issuance of the Notice of Acceptance) after the final Notice of Substantial Completion has been issued.

In the third instance, when so specified in both Articles 7D(1) and (2) (Contractor’s Agreement SC-6.21), both types of liquidated damages shall be separately assessed where those delays have occurred.

The parties expressly agree that said amounts are a reasonable estimate of the presumed actual damages that would result from any of the breaches listed, and that any liquidated damages that are assessed have been agreed to in light of the difficulty of ascertaining the actual damages that would be caused by any of these breaches at the time this Contract was formed; the liquidated damages in the first instance representing an estimate of damages due to the inability to use the Project; the liquidated damages in the second instance representing an estimate of damages due to the additional administrative, technical, supervisory and professional expenses related to and arising from the extended closeout period including delivery of any or all guarantees and warranties, the submittals of sales and use tax payment forms, the calling for the final inspection and the completion of the final punch list.

The parties also agree and understand that the liquidated damages to be assessed in each instance are separate and distinct, although potentially cumulative, damages for the separate and distinct breaches of delayed substantial completion or final acceptance. Such liquidated damages shall not be avoided by virtue of the fact of concurrent delay caused by the Principal Representative, or anyone acting on behalf of the Principal Representative, but in such event the period of delay for which liquidated damages are assessed shall be equitably adjusted in accordance with Article 38, Delays And Extensions Of Time.

ARTICLE 47. DAMAGES
If either party to this Contract shall suffer damage under this Contract in any manner because of any wrongful act or neglect of the other party or of anyone employed by either of them, then the party suffering damage shall be reimbursed by the other party for such damage. Except to the extent of damages liquidated for the Contractor’s failure to achieve timely completion as set forth in Article 46, Time of Completion and Liquidated Damages, the Principal Representative shall be responsible for, and at his or her option may insure against, loss of use of any existing property not included in the Work, due to fire or otherwise, however caused. Notwithstanding the foregoing, or any other provision of this Contract, to the contrary, no term or condition of this contract shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protection, or other provisions of the Colorado Governmental Immunity Act, Section 24-10-101, et seq., CRS, as now or hereafter amended. The parties understand and agree that liability for claims for injuries to persons arising out of negligence of the State of Colorado, its departments, institutions, agencies, boards, officials and employees is controlled and limited by the provisions of Section 24-10-101, et seq., CRS, as now or hereafter amended and the risk management statutes, Section 24-30-1501, et seq., CRS, as now or hereafter amended.
Notice of intent to file a claim under this clause shall be made in writing to the party liable within a reasonable time of the first observance of such damage and not later than the time of final payment, except that in the case of claims by the Principal Representative involving warranties against faulty work or materials Notice shall be required only to the extent stipulated elsewhere in these General Conditions. Claims made to the Principal Representative involving extra cost or extra time arising by virtue of instructions to the Contractor to which Article 36, Claims, applies shall be made in accordance with Article 36. Other claims arising under the Contract involving extra cost or extra time which are made to the Principal Representative under this clause shall also be made in accordance with the procedures of Article 36, whether or not arising by virtue of instructions to the Contractor; provided however that it shall not be necessary to first obtain or request a written judgment of the Architect/Engineer.

Provided written Notice of intent to file a claim is provided as required in the preceding paragraph, nothing in this Article shall limit or restrict the rights of either party to bring an action at law or to seek other relief to which either party may be entitled, including consequential damages, if any, and shall not be construed to limit the time during which any action might be brought. Nothing in these General Conditions shall be deemed to limit the period of time during which any action may be brought as a matter of contract, tort, warranty or otherwise, it being the intent of the parties to allow any and all actions at law or in equity for such periods as the law permits. All such rights shall, however be subject to the obligation to assert claims and to appeal denials pursuant to Article 36, Claims, where applicable.

ARTICLE 48. STATE’S RIGHT TO DO THE WORK; TEMPORARY SUSPENSION OF WORK; DELAY DAMAGES

A. STATE’S RIGHT TO DO THE WORK

If after receipt of Notice to do so, the Contractor should neglect to prosecute the Work properly or fail to perform any provision of the Contract, the Principal Representative, after a second seven (7) days’ advance written Notice to the Contractor and the Surety may, without prejudice to any other remedy the Principal Representative may have, take control of all or a portion of the Work, as the Principal Representative deems necessary and make good such deficiencies deducting the cost thereof from the payment then or thereafter due the Contractor, as provided in Article 30, Correction Of Work Before Acceptance and Article 33, Payments Withheld, provided, however, that the Architect/Engineer shall approve the amount charged to the Contractor by approval of the Change Order.

B. TEMPORARY SUSPENSION OF WORK

The State, acting for itself or by and through the Architect/Engineer, shall have the authority to suspend the Work, either wholly or in part, for such period or periods as may be deemed necessary due to:

1. Unsuitable weather;
2. Faulty workmanship;
3. Improper superintendence;
4. Contractor’s failure to carry out orders or to perform any provision of the Contract Documents;
5. Loss of, or restrictions to, appropriations;
6. Conditions, which may be considered unfavorable for the prosecution of the Work.

If it should become necessary to stop work for an indefinite period, the Contractor shall store materials in such manner that they will not become an obstruction or become damaged in any way; and he or she shall take every precaution to prevent damage to or deterioration of the Work, provide suitable drainage and erect temporary structures where necessary.

Notice of suspension of work shall be provided to the Contractor in writing stating the reasons therefore. The Contractor shall again proceed with the work when so notified in writing.

The Contractor understands and agrees that the State of Colorado cannot predict with certainty future revenues and could ultimately lack the revenue to fund the appropriations applicable to this Contract. The Contractor further acknowledges and agrees that in such event that State may, upon Notice to the Contractor, suspend the work in anticipation of a termination of the Contract for the convenience of the
State, pursuant to Article 50, Termination For Convenience of State. If the Contract is not so terminated the Contract sum and the Contract time shall be equitably adjusted at the time the Principal Representative directs the work to be recommenced and gives Notice that the revenue to fund the appropriation is available.

C. DELAY DAMAGES
The Principal Representative and the State of Colorado shall be liable to the Contractor for the payment of any claim for extra costs, extra compensation or damages occasioned by hindrances or delays encountered in the work only when and to the limited extent that such hindrance or delay is caused by an act or omission within the control of the Principal Representative, the Architect/Engineer or other persons or entities acting on behalf of the Principal Representative. Further, the Principal Representative and the State of Colorado shall be liable to the Contractor for the payment of such a claim only if the Contractor has provided required Notice of the delay or impact, or has presented its claim for an extension of time or claim of other delay or other impact due to changes ordered in the work before proceeding with the changed work. Except as otherwise provided, claims for extension of time shall be Noticed and filed in accordance with Article 38, Delays and Extensions of Time, within three (3) business days of the beginning of the delay with any claim filed within seven (7) days after the delay has ceased, or such claim is waived. Claims for extension of time or for other delay or other impact resulting from changes ordered in the Work shall be presented and adjusted as provided in Article 35, Changes in the Work.

ARTICLE 49. STATE’S RIGHTS TO TERMINATE CONTRACT
A. GENERAL
If the Contractor should be adjudged bankrupt, or if he or she should make a general assignment for the benefit of his or her creditors, or if a receiver should be appointed to take over his affairs, or if he or she should fail to prosecute his or her work with due diligence and carry the work forward in accordance with the construction schedule and the time limits set forth in the Contract Documents, or if he or she should fail to subsequently perform one or more of the provisions of the Contract Documents to be performed by him, the Principal Representative may serve written Notice on the Contractor and the Surety on performance and payment bonds, stating his or her intention to exercise one of the remedies hereinafter set forth and the grounds upon which the Principal Representative bases his or her right to exercise such remedy.

In such event, unless the matter complained of is satisfactorily cleared within ten (10) days after delivery of such Notice, the Principal Representative may, without prejudice to any other right or remedy, exercise one of such remedies at once, having first obtained the concurrence of the Architect/Engineer in writing that sufficient cause exists to justify such action.

B. CONDITIONS AND PROCEDURES
1. The Principal Representative may terminate the services of the Contractor, which termination shall take effect immediately upon service of Notice thereof on the Contractor and his or her Surety, whereupon the Surety shall have the right to take over and perform the Contract. If the Surety does not provide Notice to the Principal Representative of its intent to commence performance of the Contract within ten (10) days after delivery of the Notice of termination, the Principal Representative may take over the Work, take possession of and use all materials, tools, equipment and appliances on the premises and prosecute the Work to completion by such means as he or she shall deem best. In the event of such termination of his or her service, the Contractor shall not be entitled to any further payment under the Contract until the Work is completed and accepted. If the Principal Representative takes over the Work and if the unpaid balance of the contract price exceeds the cost of completing the Work, including compensation for any damages or expenses incurred by the Principal Representative through the default of the Contractor, such excess shall be paid to the Contractor. If, however, the cost, expenses and damages as certified by the Architect/Engineer exceed such unpaid balance of the contract price, the Contractor and his or her Surety shall pay the difference to the Principal Representative.
2. The Principal Representative may require the Surety on the Contractor’s bond to take control of the Work and see to it that all the deficiencies of the Contractor are made good, with due diligence within ten (10) days of delivery of Notice to the Surety to do so. As between the Principal Representative and the Surety, the cost of making good such deficiencies shall all be borne by the Surety. If the Surety takes over the Work, either by election upon termination of the services of the Contractor pursuant to Section B(1) of this Article 49, State’s Right To Terminate Contract, or upon instructions from the Principal Representative to do so, the provisions of the Contract Documents shall govern the work to be done by the Surety, the Surety being substituted for the Contractor as to such provisions, including provisions as to payment for the Work, the times of completion and provisions of this Article as to the right of the Principal Representative to do the Work or to take control of all or a portion of the Work.

3. The Principal Representative may take control of all or a portion of the Work and make good the deficiencies of the Contractor, or the Surety if the Surety has been substituted for the Contractor, with or without terminating the Contract, employing such additional help as the Principal Representative deems advisable in accordance with the provisions of Article 48A, State's Right To Do The Work; Temporary Suspension Of Work; Delay Damages. In such event, the Principal Representative shall be entitled to collect from the Contractor and his or her Surety, or to deduct from any payment then or thereafter due the Contractor, the costs incurred in having such deficiencies made good and any damages or expenses incurred through the default of Contractor, provided the Architect/Engineer approves the amount thus charged to the Contractor.

If the Contract is not terminated, a Change Order to the Contract shall be executed, unilaterally if necessary, in accordance with the procedures of Article 35, Changes In The Work.

C. ADDITIONAL CONDITIONS

If any termination by the Principal Representative for cause is later determined to have been improper, the termination shall be automatically converted to and deemed to be a termination by the Principal Representative for convenience and the Contractor shall be limited in recovery to the compensation provided for in Article 50, Termination For Convenience Of State. Termination by the Contractor shall not be subject to such conversion.

ARTICLE 50. TERMINATION FOR CONVENIENCE OF STATE

A. NOTICE OF TERMINATION

The performance of Work under this Contract may be terminated, in whole or from time to time in part, by the State whenever for any reason the Principal Representative shall determine that such termination is in the best interest of State. Termination of work hereunder shall be effected by delivery to the Contractor of a Notice of such termination specifying the extent to which the performance of work under the Contract is terminated and the date upon which such termination becomes effective.

B. PROCEDURES

After receipt of the Notice of termination, the Contractor shall, to the extent appropriate to the termination, cancel outstanding commitments hereunder covering the procurement of materials, supplies, equipment and miscellaneous items. In addition, the Contractor shall exercise all reasonable diligence to accomplish the cancellation or diversion of all applicable outstanding commitments covering personal performance of any work terminated by the Notice. With respect to such canceled commitments, the Contractor agrees to:

1. settle all outstanding liabilities and all claims arising out of such cancellation of commitments, with approval or ratification of the Principal Representative, to the extent he or she may require, which approval or ratification shall be final for all purposes of this clause; and,

2. assign to the State, in the manner, at the time, and to the extent directed by the Principal Representative, all of the right, title, and interest of the Contractor under the orders and subcontracts so terminated, in which case the State shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.
The Contractor shall submit his or her termination claim to the Principal Representative promptly after receipt of a Notice of termination, but in no event later than three (3) months from the effective date thereof, unless one or more extensions in writing are granted by the Principal Representative upon written request of the Contractor within such three month period or authorized extension thereof. Upon failure of the Contractor to submit his or her termination claim within the time allowed, the Principal Representative may determine, on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.

Costs claimed, agreed to, or determined pursuant to the preceding and following paragraph shall be in accordance with the provisions of § 24-107-101, C.R.S., as amended and associated Cost Principles of the Colorado Procurement Rules as in effect on the date of this Contract.

Subject to the preceding provisions, the Contractor and the Principal Representative may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the termination under this clause, which amount or amounts may include any reasonable cancellation charges thereby incurred by the Contractor and any reasonable loss upon outstanding commitments for personal services which he or she is unable to cancel; provided, however, that in connection with any outstanding commitments for personal services which the Contractor is unable to cancel, the Contractor shall have exercised reasonable diligence to divert such commitments to other activities and operations. Any such agreement shall be embodied in an Amendment to this Contract and the Contractor shall be paid the agreed amount.

The State may from time to time, under such terms and conditions as it may prescribe, make partial payments against costs incurred by the Contractor in connection with the termination portion of this Contract, whenever, in the opinion of the Principal Representative, the aggregate of such payments is within the amount to which the Contractor will be entitled hereunder.

The Contractor agrees to transfer title and deliver to the State, in the manner, at the time, and to the extent, if any, directed by the Principal Representative, such information and items which, if the Contract had been completed, would have been required to be furnished to the State, including:

a. completed or partially completed plans, Drawings and information; and,

b. materials or equipment produced or in process or acquired in connection with the performance of the work terminated by the Notice.

Other than the above, any termination inventory resulting from the termination of the Contract may, with written approval of the Principal Representative, be sold or acquired by the Contractor under the conditions prescribed by and at a price or prices approved by the Principal Representative. The proceeds of any such disposition shall be applied in reduction of any payments to be made by the State to the Contractor under this Contract or shall otherwise be credited to the price or cost of work covered by this Contract or paid in such other manners as the Principal Representative may direct. Pending final disposition of property arising from the termination, the Contractor agrees to take such action as may be necessary, or as the Principal Representative may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the State has or may acquire an interest.

Any disputes as to questions of fact, which may arise hereunder, shall be subject to the Remedies provisions of the Colorado Procurement Code, §§ 24-109-101, et seq., C.R.S., as amended.

ARTICLE 51. CONTRACTOR’S RIGHT TO STOP WORK AND/OR TERMINATE CONTRACT
If the Work shall be stopped under an order of any court or other public authority for a period of three (3) months through no act or fault of the Contractor or of any one employed by him, then the Contractor may on seven (7) days’ written Notice to the Principal Representative and the Architect/Engineer stop work or terminate this Contract and recover from the Principal Representative payment for all work executed, any losses sustained on any plant or material, and a reasonable profit. If the Architect/Engineer shall fail to
issue or otherwise act in writing upon any certificate for payment within ten (10) days after it is presented and received by the Architect/Engineer, as provided in Article 31, Applications For Payments, or if the Principal Representative shall fail to pay the Contractor any sum certified that is not disputed in whole or in part by the Principal Representative in writing to the Contractor and the Architect/Engineer within thirty (30) days after the Architect/Engineer’s certification, then the Contractor may on ten (10) days’ written Notice to the Principal Representative and the Architect/Engineer stop work and/or give written Notice of intention to terminate this Contract.

If the Principal Representative shall thereafter fail to pay the Contractor any amount certified by the Architect/Engineer and not disputed in writing by the Principal Representative within ten (10) days after receipt of such Notice, then the Contractor may terminate this Contract and recover from the Principal Representative payment for all work executed, any losses sustained upon any plant or materials, and a reasonable profit. The Principal Representative’s right to dispute an amount certified by the Architect/Engineer shall not relieve the Principal Representative of the obligation to pay amounts not in dispute as certified by the Architect/Engineer.

ARTICLE 52. SPECIAL PROVISIONS
A. CONTROLLER’S APPROVAL CRS 24-30-202(1)
   This Contract shall not be deemed valid until it has been approved by the Colorado State Controller or designee.

B. FUND AVAILABILITY CRS 24-30-202(5.5)
   Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available

C. GOVERNMENTAL IMMUNITY
   No term or condition of this contract shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, of the Colorado Governmental Immunity Act, CRS §24-10-101 et seq., or the Federal Tort Claims Act, 28 U.S.C. §§1346(b) and 2671 et seq., as applicable now or hereafter amended.

D. INDEPENDENT CONTRACTOR 4 CCR 801-2
   Contractor shall perform its duties hereunder as an independent contractor and not as an employee. Neither Contractor nor any agent or employee of Contractor shall be deemed to be an agent or employee of the State. Contractor and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Contractor or any of its agents or employees. Unemployment insurance benefits will be available to Contractor and its employees and agents only if such coverage is made available by Contractor or a third party. Contractor shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this contract. Contractor shall not have authorization, express or implied, to bind the State to any agreement, liability or understanding, except as expressly set forth herein. Contractor shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by the State, and (c) be solely responsible for its acts and those of its employees and agents.

E. COMPLIANCE WITH LAW
   Contractor shall strictly comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. CHOICE OF LAW
   Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this contract. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. Any provision incorporated herein by reference which purports to negate this or any other Special Provision in whole
or in part shall not be valid or enforceable or available in any action at law, whether by way of complaint, defense, or otherwise. Any provision rendered null and void by the operation of this provision shall not invalidate the remainder of this contract, to the extent capable of execution.

G. BINDING ARBITRATION PROHIBITED
The State of Colorado does not agree to binding arbitration by any extra-judicial body or person. Any provision to the contrary in this contract or incorporated herein by reference shall be null and void.

H. SOFTWARE PIRACY PROHIBITION. Governor’s Executive Order D 002 00
State or other public funds payable under this contract shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Contractor hereby certifies and warrants that, during the term of this contract and any extensions, Contractor has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Contractor is in violation of this provision, the State may exercise any remedy available at law or in equity or under this contract, including, without limitation, immediate termination of this contract and any remedy consistent with federal copyright laws or applicable licensing restrictions.

I. EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST CRS 24-18-201 & CRS 24-50-507
The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this contract. Contractor has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Contractor’s services and Contractor shall not employ any person having such known interests.

J. VENDOR OFFSET CRS 24-30-202(1) & CRS 24-30-202.4
Subject to CRS §24-30-202.4 (3.5), the State Controller may withhold payment under the State’s vendor offset intercept system for debts owed to State agencies for: (a) unpaid child support debts or child support arrearages; (b) unpaid balances of tax, accrued interest, or other charges specified in CRS §39-21-101, et seq.; (c) unpaid loans due to the Student Loan Division of the Department of Higher Education; (d) amounts required to be paid to the Unemployment Compensation Fund; and (e) other unpaid debts owing to the State as a result of final agency determination or judicial action.

K. PUBLIC CONTRACTS FOR SERVICES. CRS §§17.5-101. [Not Applicable to agreements relating to the offer, issuance, or sale of securities, investment advisory services or fund management services, sponsored projects, intergovernmental agreements, or information technology services or products and services] Contractor certifies, warrants, and agrees that it does not knowingly employ or contract with an illegal alien who will perform work under this contract and will confirm the employment eligibility of all employees who are newly hired for employment in the United States to perform work under this contract, through participation in the E-Verify Program or the Department program established pursuant to CRS §8-17.5-102(5)(c), 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 Contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this contract, Contractor (a) shall not use E-Verify Program or Department program procedures to undertake pre-employment screening of job applicants while this contract is being performed, (b) shall notify the subcontractor and the contracting State agency within three days if Contractor has actual knowledge that a subcontractor is employing or contracting with an illegal alien for work under this contract, (c) shall terminate the subcontract if a subcontractor does not stop employing or contracting with the illegal alien within three days of receiving the notice, and (d) shall comply with reasonable requests made in the course of an investigation, undertaken pursuant to CRS §8-17.5-102(5), by the Colorado Department of Labor and Employment. If Contractor participates in the Department program, Contractor shall deliver to the contracting State agency, Institution of Higher Education or political subdivision a written, notarized affirmation, affirming that Contractor has examined the legal work status of such employee, and shall comply with all of the other requirements of the Department program. If Contractor fails to comply with any requirement of this provision or CRS §8-17.5-101 et seq., the contracting State agency, institution
of higher education or political subdivision may terminate this contract for breach and, if so terminated, Contractor shall be liable for damages.

L. **PUBLIC CONTRACTS WITH NATURAL PERSONS. CRS §24-76.5-101.**
Contractor, if a natural person eighteen (18) years of age or older, hereby swears and affirms under penalty of perjury that he or she (a) is a citizen or otherwise lawfully present in the United States pursuant to federal law, (b) shall comply with the provisions of CRS §24-76.5-101 et seq., and (c) has produced one form of identification required by CRS §24-76.5-103 prior to the effective date of this contract.

**ARTICLE 53. MISCELLANEOUS PROVISIONS**

A. **CONSTRUCTION OF LANGUAGE**
The language used in these General Conditions shall be construed as a whole according to its plain meaning, and not strictly for or against any party. Such construction shall, however, construe language to interpret the intent of the parties giving due consideration to the order of precedence noted in Article 2C, Intent of Documents.

B. **SEVERABILITY**
Provided this Agreement can be executed and performance of the obligations of the Parties accomplished within its intent, the provisions hereof are severable and any provision that is declared invalid or becomes inoperable for any reason shall not affect the validity of any other provision hereof, provided that the Parties can continue to perform their obligations under this Agreement in accordance with its intent.

C. **SECTION HEADINGS**
The captions and headings in this Agreement are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions.

D. **AUTHORITY**
Each person executing the Agreement and its Exhibits in a representative capacity expressly represents and warrants that he or she has been duly authorized by one of the parties to execute the Agreement and has authority to bind said party to the terms and conditions hereof.

E. **INTEGRATION OF UNDERSTANDING**
This Contract is intended as the complete integration of all understandings between the parties and supersedes all prior negotiations, representations, or agreements, whether written or oral. No prior or contemporaneous addition, deletion, or other amendment hereto shall have any force or effect whatsoever, unless embodied herein in writing. No subsequent novation, renewal, addition, deletion, or other amendment hereto shall have any force or effect unless embodied in a written Change Order or Amendment to this Contract.

F. **VENUE**
All suits or actions related to this Agreement shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

G. **NO THIRD PARTY BENEFICIARIES**
Enforcement of this Agreement and all rights and obligations hereunder are reserved solely to the Parties. Any services or benefits which third parties receive as a result of this Contract are incidental to the Contract, and do not create any rights for such third parties.

H. **WAIVER**
Waiver of any breach under a term, provision, or requirement of this Agreement, or any right or remedy hereunder, whether explicitly or by lack of enforcement, shall not be construed or deemed as a waiver of any subsequent breach of such term, provision or requirement, or of any other term, provision, or requirement.
I. INDEMNIFICATION
Contractor shall indemnify, save, and hold harmless the State, its employees and agents, against any and all claims, damages, liability and court awards including costs, expenses, and attorney fees, to the extent such claims are caused by any negligent act or omission of the Contractor, its employees, agents, subcontractors or assignees pursuant to the terms of this Contract, but not to the extent such claims are caused by any negligent act or omission of, or breach of contract by, the State, its employees, agents, other contractors or assignees, or other parties not under control of or responsible to the Contractor.

J. STATEWIDE CONTRACT MANAGEMENT SYSTEM
If the maximum amount payable to Contractor under this Contract is $100,000 or greater, either on the Effective Date or at anytime thereafter, this section shall apply.

Contractor agrees to be governed, and to abide, by the provisions of CRS 24-102-205, 24-102-206, 24-103-601, 24-103.5-101, 24-105-101, and 24-105-102 concerning the monitoring of vendor performance on state contracts and inclusion of contract performance information in a statewide contract management system.

Contractor’s performance shall be subject to Evaluation and Review in accordance with the terms and conditions of this Contract, State law, including C.R.S 24-103.5-101, and State Fiscal Rules, Policies and Guidance. Evaluation and Review of Contractor’s performance shall be part of the normal contract administration process and Contractor’s performance will be systematically recorded in the statewide Contract Management System. Areas of Evaluation and Review shall include, but shall not be limited to quality, cost and timeliness. Collection of information relevant to the performance of Contractor’s obligations under this Contract shall be determined by the specific requirements of such obligations and shall include factors tailored to match the requirements of Contractor’s obligations. Such performance information shall be entered into the statewide Contract Management System at intervals established herein and a final Evaluation, Review and Rating shall be rendered within 30 days of the end of the Contract term. Contractor shall be notified following each performance Evaluation and Review, and shall address or correct any identified problem in a timely manner and maintain work progress.

Should the final performance Evaluation and Review determine that Contractor demonstrated a gross failure to meet the performance measures established hereunder, the Executive Director of the Colorado Department of Personnel and Administration (Executive Director), upon request by the Principal Representative, and showing of good cause, may debar Contractor and prohibit Contractor from bidding on future contracts. Contractor may contest the final Evaluation, Review and Rating by: (a) filing rebuttal statements, which may result in either removal or correction of the evaluation (CRS 24-105-102(6)), or (b) under CRS 24-105-102(6), exercising the debarment protest and appeal rights provided in CRS 24-109-106, 107, 201 or 202, which may result in the reversal of the debarment and reinstatement of Contractor, by the Executive Director, upon a showing of good cause.

K. CORA DISCLOSURE
To the extent not prohibited by federal law, this Agreement and the performance measures and standards under CRS §24-103.5-101, if any, are subject to public release through the Colorado Open Records Act, CRS §24-72-101, et seq.
1. GENERAL CONDITIONS, ARTICLE 23.  F. SIGN – DELETE the entire section.

2. GENERAL CONDITIONS, ARTICLE 25 INSURANCE - DELETE the entire section and replace with the following:

The Contractor shall obtain and maintain, at its own expense and for the duration of the contract including any warranty periods under the Contract are satisfied, the insurance coverages set forth below.

By requiring such insurance, the Principal Representative shall not be deemed or construed to have assessed the risk that may be applicable to the Contractor its agents, representatives, employees or subcontractors under this contract. The insurance requirements herein for this Contract in no way limit the indemnity covenants contained in the Contract. The Principal Representative in no way warrants that the limits contained herein are sufficient to protect the Contractor from liabilities that might arise out of the performance of the work under this Contract by the Contractor, its agents, representatives, employees, or subcontractors. The Contractor shall assess its own risks and if it deems appropriate and/or prudent, maintain higher limits and/or broader coverages. The Contractor is not relieved of any liability or other obligations assumed or pursuant to the Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

COVERAGE AND LIMITS OF INSURANCE - - Contractor shall provide coverage with limits of liability not less than those stated below.

1. **Commercial General Liability – ISO CG 0001 or equivalent. Coverage to include:**
   - Premises and Operations
   - Explosions, Collapse and Underground Hazards
   - Personal / Advertising Injury
   - Products / Completed Operations
   - Liability assumed under an Insured Contract (including defense costs assumed under contract)
   - Independent Contractors
   - Additional Insured—Owners, Lessees or Contractors Endorsement, ISO Form 2010 (2004 Edition or equivalent)
   - Additional Insured—Owners, Lessees or Contractors Endorsement (Completed Operations), ISO CG 2037 (7/2004 Edition or equivalent)
   - The policy shall be endorsed to include the following additional insured language on the Additional Insured Endorsements specified above: “The Regents of the University of Colorado, a Body Corporate, named as an additional insured with respect to liability and defense of suits arising out of the activities performed by, or on behalf of the Contractor, including completed operations”.
   - Commercial General Liability Completed Operations policies must be kept in effect for up to three (3) years after completion of the project. For buildings with a
construction cost greater than $99 million, the Commercial General Liability Completed Operations policies must be kept in effect for up to eight (8) years after the completion of the project.

- An umbrella and/or excess liability policy may be used to meet the minimum liability requirements provided that the coverage is written on a “following form” basis.

<table>
<thead>
<tr>
<th>Liability Limits</th>
<th>General Aggregate</th>
<th>Products/Completed Operation Aggregate</th>
<th>Each Occurrence</th>
<th>Personal/Advertising Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary General Liability</td>
<td>$2,000,000</td>
<td>$2,000,000</td>
<td>$1,000,000</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Umbrella or Excess Liability*</td>
<td>$5,000,000</td>
<td>$5,000,000</td>
<td>$5,000,000</td>
<td>$5,000,000</td>
</tr>
</tbody>
</table>

*Umbrella or Excess Liability does not apply to projects totaling $500,000 or under.

2. **Automobile Liability**

   Bodily Injury and Property Damage for any owned, hired, and non-owned vehicles used in the performance of this contract

**Minimum Limits:**

   Bodily Injury/Property Damage (Each Accident) $ 1,000,000

3. **Workers Compensation**

   - Statutory Benefits (Coverage A)
   - Employers Liability (Coverage B)

   a. This requirement shall not apply when a contractor or subcontractor is exempt under Colorado Workers’ Compensation Act., **AND** when such contractor or subcontractor executes the appropriate sole proprietor waiver form.

**Minimum Limits:**

   Coverage A (Workers’ Compensation) Statutory
   Coverage B (Employers Liability)
   Each accident $ 100,000
   Disease each employee $ 100,000
   Disease policy limit $ 500,000

4. **Contractors Pollution Liability**

   - Coverage shall apply to sudden and gradual pollution conditions resulting from the escape of release of smoke, vapors, fumes, acids, alkalis, toxic chemicals, liquids, or gases, natural gas, waste materials, or other irritants, contaminants, or pollutants (including asbestos). Policy shall cover the Contractor’s completed operations.
   - If the coverage is written on a claims-made basis, the Contractor warrants that any retroactive date applicable to coverage under the policy precedes the effective date of this Contract; and that continuous coverage will be maintained or an extended
discovery period will be exercised for a period of three (3) years beginning from the
time that work under this contract is completed.

• The policy shall be endorsed to include the following as Additional Insureds:
The Regents of the University of Colorado, a Body Corporate, named as an
additional insured with respect to liability and defense of suits arising out of the
activities performed by, or on behalf of the Construction Manager, including
completed operations”.

• Endorsements CA9948 and MCS-90 are required on the Automobile Liability
Coverage if the Contractor is transporting any type of hazardous materials.

• Contractors Pollution Liability policies must be kept in effect for up to three (3)
years after completion of the project.

Minimum Limits:

<table>
<thead>
<tr>
<th></th>
<th>$ 2,000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Loss</td>
<td></td>
</tr>
<tr>
<td>Aggregate</td>
<td></td>
</tr>
</tbody>
</table>

5. **Builder’s Risk/ Installation Floater**

Unless otherwise provided or instructed by the Principal Representative, the Contractor shall
purchase and maintain, in a company or companies lawfully authorized to do business in the
jurisdiction in which the project is located, Builder’s Risk Insurance in the amount of the initial
contract amount as well as subsequent modifications for the entire project at the site on a
replacement cost basis without optional deductibles. This coverage is required for new
buildings or additions to existing buildings and for materials and equipment to be installed in
existing structures.

• Covered Cause of Loss: Special Form
• Include Theft and Vandalism
• Labor costs to repair damaged work
• Shall be written for 100% of the completed value (replacement cost basis)
• Deductible maximum is $50,000.00
• Waiver of Subrogation is to apply
• The Regents of the University of Colorado, a body corporate, shall be added as
Additional Named Insured on Builders Risk.

1. Policy must provide coverage from the time any covered property becomes the
responsibility of the Contractor, and continue without interruption during construction,
renovation, or installation, including any time during which the covered property is being
transported to the construction installation site, or awaiting installation, whether on or off
site.

2. The Policy shall be maintained, unless otherwise provided in the contract documents or
otherwise agreed in writing by all persons and entities who are beneficiaries of such
insurance, until final payment has been made or until no person or entity other than the
Principal Representative has insurable interest in the property to be covered, whichever is
later.

3. The Builder’s Risk insurance shall include interests of the Principal Representative, and if
applicable, affiliated or associated entities, the General Contractor, subcontractors and sub-
tier contractors in the project.

4. Builders’ Risk Coverage shall be on a **Special** Covered Cause of Loss Form and shall
include theft, vandalism, malicious mischief, collapse, false-work, temporary buildings and
debris removal including demolition, increased cost of construction, architect’s fees and expenses, flood (including water damage), earthquake, and if applicable, all below and above ground structures, piping, foundations including underground water and sewer mains, piling including the ground on which the structure rests and excavation, backfilling, filling, and grading. Equipment Breakdown Coverage (a.k.a. Boiler & Machinery) shall be included as required by the Contract Documents or by law, which shall specifically cover insured equipment during installation and testing (including hot testing, where applicable). Other coverages may be required if provided in contract documents.

5. The Builders’ Risk shall be written for 100% of the completed value (replacement cost basis) of the work being performed. The Builders’ Risk shall include the following provisions:
   a. Replacement Cost Basis - including modification of the valuation clause to cover all costs needed to repair the structure or work (including overhead and profits) and will pay based on the values figured at the time of rebuilding or repairing, not at the time of loss
   b. Modify or delete exclusion pertaining to damage to interior of building caused by an
      perils insured against are covered; also provide coverage for water damage

Note, if the addition, or renovation is to an existing building, The Principal Representative requires that the Contractor provide as an option to include the existing building into the Builders’ Risk Policy. The Principal Representative shall provide the replacement cost value of the existing building

6. At the option of the Principal Representative, the Principal Representative may include Soft Costs (including Loss of Use)/Delay in Opening Endorsement under the builder’s risk policy. The Principal Representative agrees to provide the necessary exposure base information for quotation by the Builder’s Risk carrier. The Principal Representative agrees to pay the premium associated with the Soft Costs coverage, the Principal Representative decides to purchase this coverage.

7. The Builders’ Risk Policy shall specifically permit occupancy of the building during construction. Partial occupancy or use of the work shall not commence until the insurance company or companies providing insurance have consented to such partial occupancy or use. The Principal Representative and Contractor shall take reasonable steps to obtain consent of the insurance company or companies and delete any provisions with regard to restrictions within any Occupancy Clauses within the Builders’ Risk Policy. The Builders’ Risk Policy shall remain in force until acceptance of the project by the Principal Representative.

8. The deductible shall not exceed $50,000 and shall be the responsibility of the Contractor except for losses such as flood (not water damage), earthquake, windstorm, tsunami, volcano, etc. Losses in excess of $50,000 insured shall be adjusted in conjunction with the Principal Representative. Any insurance payments/proceeds shall be made payable to the Principal Representative subject to requirements of any applicable mortgagee clause. The Contractor shall pay subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require subcontractors to make payments to their sub-subcontractors in similar manner.

The Principal Representative shall have the authority to adjust and settle any losses in excess of $50,000 with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Principal Representative exercise of this power. It is expressly agreed that nothing in this section shall be subject to arbitration and any references to arbitration are expressly deleted.
9. The Policy shall be amended to show 45 days notice of cancellation. Such notice shall be given to the Principal Representative and Contractor. If requested, the Contractor shall file with the Principal Representative a copy of the policy that includes the insurance coverages required in this section. The policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to the Project.

If the Contractor does not intend to purchase such Builder’s Risk Insurance required by the Contract and with all of the coverages in the amount described above, the Contractor shall so inform the Principal Representative as stated in writing prior to commencement of the work. The Principal Representative may then affect insurance that will protect the interests of the Principal Representative, the General Contractor, Subcontractors and sub-tier contractors in the project. Coverages applying shall be the same as stated above including other coverages that may be required by the Principal Representative. The cost shall be charged to the Contractor. Coverage shall be written for 100% of the completed value of the work being performed, with a deductible not to exceed $50,000 per occurrence for most projects.

All deductibles will be assumed by the Contractor. Waiver of Subrogation is to apply against all parties named as insureds, but only to the extent the loss is covered, and Beneficial Occupancy Endorsements are to apply.

If the Principal Representative is damaged by the failure or neglect of the Contractor to purchase or maintain insurance as described above, without so notifying the Principal Representative, then the Contractor shall bear all reasonable costs properly attributable thereto.

**ADDITIONAL INSURANCE REQUIREMENTS**

1. All insurers must be licensed or approved to do business within the State of Colorado, and unless otherwise specified, all policies must be written on a per occurrence basis.
2. Contractor’s insurance carrier should possess a minimum A.M. Best’s Insurance Guide rating of A- VI.
3. On insurance policies where the Principal Representative are named as additional insureds, the Principal Representative shall be additional insureds to the full limits of liability purchased by the Contractor even if those limits of liability are in excess of those required by this Contract.
4. Contractor shall furnish the Principal Representative with certificates of insurance (ACORD form or equivalent approved by the Principal Representative) as required by this Contract. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf.

All certificates and any required endorsements are to be received and approved by the Principal Representative before work commences. Each insurance policy required by this Contract must be in effect at or prior to commencement of work under this Contract and remain in effect for the duration of the project. Failure to maintain the insurance policies as required by this Contract or to provide evidence of renewal is a material breach of contract.
5. Upon request by the Principal Representative, Contractor must provide a copy of the actual insurance policy effecting coverage(s) required by the contract.
6. The Contractor’s insurance coverage shall be primary insurance and non-contributory with respect to all other available resources.
7. The Contractor shall advise the Principal Representative in the event any general aggregate or other aggregate limits are reduced below the required per occurrence limit. At their own expense, the Contractor will reinstate the aggregate limits to comply with the minimum

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UCB Supp. Cond. to SC-6.23
requirements and shall furnish to the Principal Representative a new certificate of insurance showing such coverage is in force.
8. Provide a minimum of thirty (30) days advance written notice to the Principal Representative for cancellation, non-renewal, or material changes to policies required under the Contract.

Failure of the Contractor to fully comply with these requirements during the term of the Contract may be considered a material breach of contract and may be cause for immediate termination of the Contract at the option of the Principal Representative. The Principal Representative reserves the right to negotiate additional specific insurance requirements at the time of the contract award.

Subcontractors
Contractor’s certificate(s) shall include all subcontractors as additional insureds under its policies or subcontractors shall maintain separate insurance as determined by the Contractor, however, subcontractor's limits of liability shall not be less than $1,000,000 per occurrence / $2,000,000 aggregate.

Non-Waiver
The parties hereto understand and agree that The Principal Representative is relying on, and does not waive or intend to waive by any provision of this Contract, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, et seq., as from time to time amended, or otherwise available to the Principal Representative or its officers, employees, agents, and volunteers.

Mutual Cooperation
The Principal Representative and Contractor shall cooperate with each other in the collection of any insurance proceeds which may be payable in the event of any loss, including the execution and delivery of any proof of loss or other actions required to effect recovery.

3. GENERAL CONDITIONS, ARTICLE 53 J. MISCELLANEOUS PROVISIONS – STATEWIDE CONTRACT MANAGEMENT SYSTEM- DELETE the entire section.
CHANGE ORDER BULLETIN

Change Order Bulletin No: __________________________ Date __________________

Contractor: ______________________________________

Institution or Agency: University of Colorado Boulder

Project No./Name: PR007758 / HSG10810 Stearns East Bathroom Renovations – 61 stack

Description of Work: ________________________________________________________________

This bulletin is issued to define the scope of revision in drawings and/or specifications for a contemplated change order. The work called for by these revisions shall be in accordance with the requirements of the original contract documents.

Please prepare and submit a proposal for the changes described below. For pricing use State Form SC-6.312. A formal change order State Form SC-6.31 will be issued after approval of your proposal by the Principal Representative and the Architect. Your proposal shall include a statement as to the effect this change will have on the time for completion of the project.

This bulletin is NOT an authorization to proceed.

DESCRIPTION OF CHANGE:

SPECIFICATION REVISIONS:

STATUS OF EXISTING WORK:

PREPARED BY: __________________________
ARCHITECT/ENGINEER OR CONTRACTOR

APPROVED BY: __________________________
PRINCIPAL REPRESENTATIVE
(INSTITUTION or AGENCY)
### PART I - WORK PERFORMED BY CONTRACTOR

<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
<th>Quantity</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Direct Labor Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Labor Overhead (Direct Labor Burdens)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Total Contractor's Labor Costs (Lines 1 and 2)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Direct Materials Costs</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Materials Overhead (Delivery Costs &amp; Taxes)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Total Materials Costs (Lines 4 and 5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Total Equipment Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>PART I - TOTAL CONTRACTOR'S L, M &amp; E COSTS (Lines 3, 6 and 7)</td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

### PART II - WORK PERFORMED BY SUBCONTRACTOR

<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
<th>Quantity</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>Direct Labor Costs</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Labor Overhead (Direct Labor Burdens)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Total Subcontractor's Labor Costs (Lines 9 and 10)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>12.</td>
<td>Direct Materials Costs</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Materials Overhead (Delivery Costs &amp; Taxes)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Total Subcontractor's Materials Costs (Lines 12 and 13)</td>
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<td></td>
<td></td>
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<tr>
<td>15.</td>
<td>Total Subcontractor's Equipment Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Total Subcontractor's L, M &amp; E Costs (Line 11, 14 and 15)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Subcontractor's Overhead (Indirect Costs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Subcontractor's Profit (on line 16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>PART II - TOTAL SUBCONTRACTOR'S COSTS (Lines 16, 17 and 18)</td>
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</table>

### PART III - CONTRACTOR'S OVERHEAD & PROFIT

<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
<th>Quantity</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.</td>
<td>Contractor's Overhead (Indirect Costs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>Contractor's Profit (on line 19)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>PART III - TOTAL CONTRACTOR OVERHEAD &amp; PROFIT (Lines 20 and 21)</td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

### PART IV - CONTRACTOR'S MARKUP ON SUBCONTRACTOR

<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
<th>Quantity</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.</td>
<td>Contractor's Commission on Subcontractor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>Contractor's Profit (on line 19)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>PART IV - TOTAL CONTRACTOR MARKUP ON SUBCONTRACTOR (Lines 23 and 24)</td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

### PART V - SUBTOTAL C.O. PROPOSAL (Parts I and II and III and IV)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part V (Subtotal)</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

### PART VI - CONTRACTOR'S BOND COST

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part VI</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

### PART VII - GRAND TOTAL CHANGE ORDER PROPOSAL (Sum of Totals: Parts V and VI)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Total</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

### PART VIII - CONTRACT TIME (CALENDAR DAYS CHANGED)

- **Extended**: 
- **No Change**: 
- **Reduced**: 

**Days**

**THE TIME OF COMPLETION MAY CHANGE BY THE CALENDAR DAYS INDICATED (ABOVE) FROM THE TOTAL NUMBER OF DAYS LISTED IN THE CONTRACTOR'S AGREEMENT TO COMPLETE THE ENTIRE PROJECT.**

### CONTRACTOR'S CERTIFICATE:

This is to certify that, to the best of my knowledge and belief, the cost/price data submitted in response to the listed C.O. Bulletin, are accurate, complete and current as of _______.

**Firm:** __________________________

**Name & title:** __________________________

**Signature:** __________________________

**Date:** __________________________

* The proposal shall remain in full force and effect for a period of ________ calendar days from date of signature.

---

### ARCHITECT/ENGINEER'S CERTIFICATE:

This is to certify that I have analyzed the proposal and find, to the best of my knowledge and belief, that the proposal represents current, fair, factual and competitive cost/price data.

**Firm:** __________________________

**Name & title:** __________________________

**Signature:** __________________________

**Date:** __________________________

---

### PRINCIPAL REPRESENTATIVE (Institution or Agency)

**Date:** __________________________

---

### STATE BUILDINGS PROGRAMS (or Authorized Delegate)

**Date:** __________________________
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

CHANGE ORDER

Change Order No: _______________ Contract ID No. N/A Date _______________

Contractor: ____________________________

Institution or Agency: University of Colorado Boulder

Project No./Name: PR007758/HSG10810  Stearns East Bathroom Renovations – 61 stack

Your Change Order Proposal(s), dated _____ is hereby being designated for approval of the following work:

(Note: If more space is needed for description of work, attach additional 8-1/2” x 11” sheets hereto.)

This change order was originated by the Contractor  , Architect/Engineer , State  , and I/We do hereby recommend acceptance and approval of the change to the Contractor’s Agreement Dated _____ (Exhibit A) which is by this reference, made a part hereof, and identified as Exhibit _____ with an increase , a decrease , no change , of $.

The Time of Completion is extended calendar days , is unchanged , is reduced calendar days, from the total number of days listed in the Contractor’s Agreement to complete the entire Project. The revised total number of days to complete the entire Project aggregating this Change Order and previously approved Change Order(s) per the Summary of Changes chart below, is _____ calendar days. If the completion date was extended or reduced, the new completion date of the Project is _____ (M/D/YYYY).

<table>
<thead>
<tr>
<th>Description of Work/Date</th>
<th>Time of Completion/Calendar Days Extended/Reduced</th>
<th>Dollar Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Contract (Exhibit A) - partial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Order #1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Order #2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Totals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
*Persons signing for Architect/Engineer/Contractor hereby swear and affirm that they are authorized to act on Architect/Engineer/Contractor’s behalf and acknowledge that the State is relying on their representations to that effect. **Principal is not a recognized title and will not be accepted.**

<table>
<thead>
<tr>
<th>Architect/Engineer Firm</th>
<th>Name and Title (print)</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Signature</th>
</tr>
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<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Contractor (Name of Firm)</th>
<th>Name and Title (print)</th>
<th>Date</th>
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<tr>
<th>Signature</th>
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<table>
<thead>
<tr>
<th>University of Colorado Boulder</th>
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<tbody>
<tr>
<td>Institution or Agency</td>
</tr>
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<td>-----------------------</td>
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<table>
<thead>
<tr>
<th>CONTRACT STATUS</th>
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</thead>
<tbody>
<tr>
<td>Original Contract Value</td>
</tr>
<tr>
<td>Previous increases by CO/Amend</td>
</tr>
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<tr>
<td>Previous decreases by CO/Amend</td>
</tr>
<tr>
<td>Value After Prior CO’s/Amend</td>
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<tr>
<td>This CO/Amend</td>
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<tr>
<td>Increases ☐ Decreases ☐</td>
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<tr>
<td>CURRENT CONTRACT VALUE</td>
</tr>
</tbody>
</table>
Environmental Compliance Document (ECD)

The purpose of this document is to ensure all contractors and subcontractors working on the University of Colorado’s Boulder Campus are aware of potential hazards which may be encountered during the course of the project. Additionally, this document outlines contractor responsibilities when working on campus in regards to regulatory requirements and campus standards. Contractors working on the Boulder campus must comply with all applicable University, City, State and Federal environmental regulations and standards. It is the responsibility of the project manager to provide this ECD to all contractors working on campus. Additionally, it is the Project Manager’s responsibility to ensure all signed copies of the ECD are in the project folder.

If you have questions regarding this document or health and safety on campus please contact the Environmental Health & Safety Department (EH&S) at 303-492-6025.

Project Details

<table>
<thead>
<tr>
<th>EHS Number:</th>
<th>Project Number:</th>
<th>PR007758/HSG10810</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Number:</td>
<td>608</td>
<td>Location/Room(s):</td>
</tr>
<tr>
<td>Project Manager:</td>
<td>Jon C. Keiser</td>
<td>Project Coordinator: Cynthia London</td>
</tr>
<tr>
<td>Project Name:</td>
<td>Stearns East Bathroom Renovations – 61 stack</td>
<td></td>
</tr>
<tr>
<td>Scope of work:</td>
<td></td>
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</tr>
</tbody>
</table>

EHS Inspector | Date |

Use of Asbestos Free Materials
The Contractor acknowledges that not all asbestos building materials have or were ever completely banned (EPA/TSCA-1999). The Contractor hereby certifies that to the best of his/her knowledge, information and belief, the materials incorporated into the project, and as used during the construction process, are free of any type of asbestos containing materials (ACM). This Certification includes all materials to be installed and used by any and all Contractors, all Sub-Contractors, and all other Contractors performing work in the University of Colorado Boulder Facilities.

Limitations
This report is based upon site conditions at time of inspection and is valid for 180 days. Any change to the scope of work and/or expiration of this site assessment will require re-inspection. No new materials containing asbestos may be used for any part of the construction for this project. If the scope of work changes or materials previously not identified are discovered, all work must stop and EHS must be notified immediately.

I have read and understand the information contained in this document and agree to abide by its requirements.

Contractor Signature _________________________ Date:____________________

Contractor Representative _______________________________

ECD Contents:
Section 1: Asbestos and Lead Sample Results and Required Actions
Section 2: Contractor Pre-Construction Water Quality Certification
Section 3: Environmental Responsibilities
Section 4: Environmental Health and Safety Reminders
SECTION 1: Asbestos and Lead Hazard Communication

ASBESTOS SAMPLE DATA

House at 1712 Marine St. (TB 32)

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Material Description</th>
<th>Location¹</th>
</tr>
</thead>
<tbody>
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<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Material Description</th>
<th>Location¹</th>
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</table>

¹ Indicates surface location of the material (N=North wall; E=East wall; S=South wall; W=West wall; F=Floor; C=Ceiling). For example: FNEW indicates that the material can be found on the Floor, North wall, East wall and West wall

ASBESTOS - CONCLUSIONS AND REQUIRED ACTIONS

TB32 is scheduled to be abated asbestos containing materials (ACMs) and hazardous materials starting in February 2013 and be completed by April 2013, and is also scheduled to be demolished starting in June 2013 and be completed in August 2013.

The site will be backfilled post demolition and seeded/sod installed and left as a undeveloped lot at that time. No further action will be required.

LEAD CONTAINING MATERIALS AND REQUIRED ACTIONS

<table>
<thead>
<tr>
<th>Room #</th>
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<tr>
<th>Lead Containing Materials</th>
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<tbody>
<tr>
<td>Material Description</td>
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<table>
<thead>
<tr>
<th>Non - Lead Containing Materials</th>
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<tbody>
<tr>
<td>Material Description</td>
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</tbody>
</table>

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LEAD - CONCLUSIONS AND REQUIRED ACTIONS

TB32 is scheduled to be abated asbestos containing materials (ACMs) and hazardous materials starting in February 2013 and be completed by April 2013, and is also scheduled to be demolished starting in June 2013 and be completed in August 2013.

The site will be backfilled post demolition and seeded/sod installed and left as a undeveloped lot at that time. No further action will be required.

SECTION 2: Contractor Pre-Construction Water Quality Certification

Per City of Boulder and CDPHE requirements, discharge of any process water or materials from projects or construction sites to sanitary or storm sewers must comply with all applicable laws and regulations.

NO DISCHARGES OF PROCESS WATER OR OTHER MATERIALS ARE ALLOWED TO STORM SEWERS (gutters, parking lots, outdoor drains, certain floor drains, tunnel drains, landscaped areas, foundation drains, etc.)—these types of discharges go directly to Boulder Creek without treatment, and severe penalties including monetary fines can be incurred by Contractors who illicitly discharge process water or other materials to storm drains.

Sanitary sewer discharges (sinks, toilets, showers, certain floor drains, etc.) which are treated at the City of Boulder Water Treatment Plant must meet certain requirements. Generally, dilute water-based solutions can be disposed in the sanitary sewer in small volumes (<5 gallons).

Examples of typical project-related wastes that are approved for Sanitary Sewer disposal are:
- Soaps, Detergents, and Non-Ionic Surfactants, diluted in water
- Clean-up and rinses from latex paint, such as brush washing
- Drywall mud rinses, such as cleaning of tools
- Dilute antifreeze solutions

Examples of project-related wastes that cannot be disposed in the Sanitary Sewer are:
- Oils or greases
- Oil-based paints or paint thinner, including residues
- Concentrated or full-strength corrosive chemicals, acidic or caustic
- Flammable solvents
- Toxic chemicals, or solutions that contain metals (lead, mercury, etc.)

CONTRACTORS: In the spaces below please indicate any/all potential discharges of process water, chemicals, de-watering, or other materials to sewer systems or landscape areas that are expected to result from project activities:

<table>
<thead>
<tr>
<th>Description of Discharge</th>
<th>Discharge Point</th>
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<tbody>
<tr>
<td>Example: clean-up from drywall mudding operations</td>
<td>sanitary sewer</td>
</tr>
<tr>
<td>Asbestos abatement decontamination shower unit waste water will be filtered down to 5 microns</td>
<td>Sanitary sewer</td>
</tr>
</tbody>
</table>

EHS -62 Page 3 of 5
Contractors are required to locate drains or other water discharge points in the area of the project and provide measures to protect from illicit discharges during contractor activities.

For example, berms or drain covers can be used to protect drains from accidental spills. Chemical products can be protected from spills by use of pans, trays, or other types of secondary containment during storage. A spill kit or spill supplies should be kept on-hand during the project in case of accidental releases. Prevent spills from reaching any drains if it’s safe to do so.

Immediately notify 911 and EH&S 303-492-6025 of accidental hazardous materials releases. For assistance with determining where a drain leads to (storm vs. sanitary, especially floor drains), contact the Facilities Management service center at 303-492-5522.

**SECTION 3: Environmental Responsibilities**

Contractors working on the UCB campus must comply with all applicable University, City, State and Federal environmental regulations and standards. This includes but is not limited to:

- Developing and implementing Storm Water Management Plans, obtaining associated permits (i.e. dewatering), and using erosion control techniques and Best Management Practices (BMP’s) to protect drains and sewer systems from inappropriate discharges, paying special attention to preventing any contaminants from entering storm sewers or surface water collection systems.

- Properly managing and disposing of hazardous and regulated materials.

- Controlling dust, odors, vapors, debris and run-off during project activities.

- Reporting spills or releases of hazardous materials immediately! Call 911 and during weekdays report to EH&S 303-492-6025.

You are expected do your part to promote awareness and compliance. Violations can result in serious penalties and fines for contractors!

**SECTION 4: Environmental Health and Safety Reminders**

**Spills and Emergencies**

Post contingency/preparedness plan; prevent releases to the environment; call 911 immediately to report hazardous spills, & weekdays report to EH&S 303-492-6025

**Construction Waste & Debris**

Keep saw-cut slurry, drywall mud, grout and mortar, paint, sediment, and all other wastes and process water OUT OF GUTTERS, STREETS, STORM DRAINS, AND PARKING LOTS! Use proper BMP’s to protect from run-off and discharges, see website for examples of BMP’s related to project activities: http://www.bouldercolorado.gov/website/government/index.html; sweep and shovel solid materials to contractor supplied construction dumpster; allow solids to settle before pouring off water to the sanitary sewer. Identify drains in advance and designate sanitary sewer drain(s) where it’s OK to dump liquids that are pre-approved by EH&S 303-492-6025.

**OSHA**

Follow applicable regulations for confined space entry (e.g. tunnels), MSDS, product identification & labeling, PPE, trenching and shoring, fall protection, welding vision screens, etc.
Asbestos & Lead-Based Paint
Assume all building materials are asbestos-containing unless written report(s) indicate otherwise. A pre-construction Asbestos and lead site inspection is required prior to beginning any project on campus – Questions? All asbestos and Lead abatement activities on campus must be in compliance with applicable regulations and follow guidelines set forth in CU-EHS Asbestos and Lead Programs. Call EH&S Asbestos Coordinator 303-492-6026.

Dust Control
Use wet methods, exhaust fans, HEPA vacuums, barriers, etc.; watch for fire alarms in buildings that could be activated by dusts; visible emissions are not permitted.

Hazardous Materials & Waste
Includes paints and solvents, oils, fuels, coolants, corrosives, cleaners, pesticides, PCB light ballasts, mercury vapor lamps, smoke detectors, rechargeable and lead acid batteries, and many other materials and products. Do not place in the trash or down the drain. Coordinate disposal with EH&S Haz Mat Unit 303-492-8531.

Odors and Vapors, IAQ
Use protective measures such as barriers, smoke eaters, exhaust fans, ventilation system controls, etc. to capture harmful odors/vapors; watch for building air intakes & coordinate work with building occupants to avoid exposures/complaints.

De-watering
Water must be visibly clear without petroleum “sheen” to be discharged; solids must be settled-out or removed prior to discharge. Dewatering permits may be required from the Colorado Department of Public Health and Environment (CDPHE) - Water Quality Division 303-692-3500.

Utility Locates
Before digging, ALWAYS call the Utility Notification Center of Colorado (UNCC) 1-800-922-1987.
STATE OF COLORADO  
OFFICE OF THE STATE ARCHITECT  
STATE BUILDINGS PROGRAMS

NOTICE TO PROCEED (DESIGN/BID/BUILD CONTRACT)

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<thead>
<tr>
<th>Date of Notice:</th>
<th>(10 days prior to start of construction)</th>
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<tr>
<td>Date to be inserted by the Principal Representative</td>
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<tr>
<th>Date/Description of Contract Documents:</th>
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<table>
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<tr>
<th>Institution/Agency:</th>
<th>University of Colorado Boulder</th>
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<tr>
<th>Project No./Name:</th>
<th>PR007758/HSG10810  Stearns East Bathroom Renovations – 61 stack</th>
</tr>
</thead>
</table>

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

To:

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

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

The start date of the project: June 2, 2014 (Actual on-site construction)

The substantial completion date of the project: August 1, 2014

The final completion date of the project: August 4, 2014

*Actual on-site construction may not commence until all applicable building permits have been obtained by the Contractor.*

By

<table>
<thead>
<tr>
<th>State Buildings Programs</th>
<th>Date</th>
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<tbody>
<tr>
<td>(Authorized Delegate)</td>
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<tr>
<td>William N. Ward, AIA</td>
<td></td>
</tr>
<tr>
<td>Interim Director, Planning, Design &amp; Construction</td>
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</table>

By

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<tr>
<th>Principal Representative</th>
<th>Date</th>
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<tr>
<td>(Institution or Agency)</td>
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<tr>
<td>Ronald L. Ried, Director</td>
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<tr>
<td>Facilities Management Business Services</td>
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</tr>
</tbody>
</table>

When completely executed, this form is to be sent by certified mail to the Contractor by the Principal Representative; or by any other means to which the parties agree.
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS
CERTIFICATION AND AFFIDAVIT REGARDING UNAUTHORIZED IMMIGRANTS

Institution/Agency:  University of Colorado Boulder
Project No./Name:  PR007758/HSG10810  Stearns East Bathroom Renovations – 61 stack

A.  CERTIFICATION STATEMENT  CRS 8-17.5-101 & 102 (HB 06-1343, SB 08-193)

The Vendor, whose name and signature appear below, certifies and agrees as follows:

1. The Vendor shall comply with the provisions of CRS 8-17.5-101 et seq. The Vendor shall not knowingly employ or contract with an unauthorized immigrant to perform work for the State or enter into a contract with a subcontractor that knowingly employs or contracts with an unauthorized immigrant.

2. The Vendor certifies that it does not now knowingly employ or contract with an unauthorized immigrant who will perform work under this contract, and that it will participate in either (i) the "E-Verify Program", jointly administered by the United States Department of Homeland Security and the Social Security Administration, or (ii) the "Department Program" administered by the Colorado Department of Labor and Employment in order to confirm the employment eligibility of all employees who are newly hired to perform work under this contract.

3. The Vendor 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 Vendor fails to comply with any requirement of this provision or CRS 8-17.5-101 et seq., the State may terminate work for breach and the Vendor shall be liable for damages to the State.

or

B.  SOLE PROPRIETOR AFFIDAVIT  CRS 24-76.5-101 (HB 06S-1023)

1. If the Vendor is a sole proprietor, the undersigned hereby swears or affirms under penalty of perjury under the laws of the State of Colorado that (check one):
   - I am a United States citizen, or
   - I am a Permanent Resident of the United States, or
   - I am lawfully present in the United States pursuant to Federal law.

I understand that this sworn statement is required by law because I am a sole proprietor entering into a contract to perform work for the State of Colorado. I understand that state law requires me to provide proof that I am lawfully present in the United States prior to starting work for the State. I further acknowledge that I will comply with the requirements of CRS 24-76.5-101 et seq. and will produce the required form of identification prior to starting work. I acknowledge that making a false, fictitious, or fraudulent statement or representation in this sworn affidavit is punishable under the criminal laws of Colorado as perjury in the second degree under CRS 18-8-503 and it shall constitute a separate criminal offense each time a public benefit is fraudulently received.

CERTIFIED and AGREED to this ______ day of ____________________.

VENDOR:

Vendor Full Legal Name

BY:

Signature of Authorized Representative  Title

State Form UI-1
Issued 7/2008
### CLOSING-OUT CHECKLIST*

<table>
<thead>
<tr>
<th>Institution or Agency:</th>
<th>University of Colorado at Boulder</th>
<th>Final Punch List Date</th>
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<tbody>
<tr>
<td>Architect/Engineer:</td>
<td></td>
<td></td>
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<tr>
<td>Contractor:</td>
<td></td>
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<tr>
<td>Project No./Name:</td>
<td>PR007758/HSG10810 Stearns East Bathroom Renovations – 61 stack</td>
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</table>

After Contractor or Construction Manager is satisfied that work is complete, a date for final review is established. Architect/Engineer inspection is made with Contractor(s) and Principal Representative and State Buildings Programs (SBP) present. Forms are processed as required.

<table>
<thead>
<tr>
<th></th>
<th>DATE COMPLETED</th>
<th>SIGNOFF INITIALS</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a.</td>
<td>Final inspections have been made and permission to occupy Project is obtained through SBP Delegate. The <strong>Building Inspection Cards are</strong> completely signed off and attached.</td>
<td></td>
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</tr>
<tr>
<td>1b.</td>
<td>If Principal Representative wishes to occupy entire project or portions of Project before completion (Beneficial Occupancy) Project review of condition and responsibility is conducted and noted. (Fill out Form SBP-01 in addition to this form).</td>
<td></td>
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<tr>
<td>2.</td>
<td>Notify the local fire department of the date the building will be occupied.</td>
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<tr>
<td>3.</td>
<td>Coordination for final utility and service connections, meters, etc., has been made (water, gas, sewer, electricity and telecommunication) and in full operating order.</td>
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<tr>
<td>4.</td>
<td>Sterilization of plumbing systems has been performed.</td>
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<tr>
<td>5.</td>
<td>Operational tests of systems and equipment have been performed as required.</td>
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<tr>
<td>6.</td>
<td>Systems adjustments, such as balancing, equipment operations, etc., have been performed. Reports have been submitted to Architect/Engineer and approved.</td>
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<td>7.</td>
<td>State personnel are instructed in system and equipment operations as required by contract.</td>
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<td>8.</td>
<td>Instructions, manuals, guides, charts, etc., are transmitted to Principal Representative.</td>
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<tr>
<td>9.</td>
<td>Principal Representative furnish equipment and furnishing are coordinated and placed.</td>
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<tr>
<td>10.</td>
<td>Review drawing, specifications, addenda, change orders, etc. for work to be done and note.</td>
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</tbody>
</table>
11. On the Contract Close-out Punch List (Form SBP-06) the final punch list items deficient or still required are made by the Architect and includes lists furnished by the consultants and promptly distributed to all parties.

12. Schedule for corrections, deficiencies, and items to be supplied is established by Contractor, Assistant Contractor and trades as to location of specific defects if necessary.

13. Final Change Orders are processed (must be completed prior to contract acceptance).

14. The Principal Representative shall not authorize final payment until all items on the punch lists have been completed, the Notice of Acceptance issued and the Notice of Contractor’s Settlement Date is published.

15. Permanent keying, keys and keying instructions have been performed.

16. Extra materials, spares, etc., are delivered to Principal Representative.

17. Record drawings (as-built) requirements have been submitted to A/E.

18. Guarantee/Warranty requirements are met.

19. All records, reports, files, documents, etc., of construction inspector are in order and turned over to Owner as arranged, and to SBP as applicable.

20. Removal of Contractor’s temporary work; cleanup and debris removal is understood and performed.

21. Post-contract maintenance conditions, such as equipment, landscaping, etc., are understood and arranged for.

* Verification, item by item, as applicable, to be submitted with Notice of Acceptance Form SC-6.27.

<table>
<thead>
<tr>
<th>DATE COMPLETED</th>
<th>SIGNOFF INITIALS</th>
<th>REMARKS</th>
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<table>
<thead>
<tr>
<th>Architect/Engineer</th>
<th>Date</th>
</tr>
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<tbody>
<tr>
<td>William N. Ward</td>
<td></td>
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<tr>
<td>Interim Director, Planning, Design &amp; Construction</td>
<td></td>
</tr>
<tr>
<td>State Buildings Programs</td>
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<td>(or Authorized Delegate)</td>
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<table>
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<tr>
<th>Contractor</th>
<th>Date</th>
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<tr>
<td>Ronald L. Ried, Director</td>
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<tr>
<td>Facilities Business Services</td>
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<tr>
<td>Principal Representative</td>
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<td>(Institution or Agency)</td>
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STATE OF COLORADO  
OFFICE OF THE STATE ARCHITECT  
STATE BUILDINGS PROGRAMS  

PRE-ACCEPTANCE CHECKLIST*  

<table>
<thead>
<tr>
<th>Institution or Agency:</th>
<th>University of Colorado Boulder</th>
<th>Final Punch List Date</th>
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</thead>
<tbody>
<tr>
<td>Architect/Engineer:</td>
<td>Rosenman Associates</td>
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<tr>
<td>Contractor:</td>
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<tr>
<td>Project No./Name:</td>
<td>PR007758/HSG10810 Stearns East Bathroom Renovations – 61 stack</td>
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Pursuant to Colorado Department of Public Health and Environment, Air Quality Control Commission Regulation No. 8 Part B – Asbestos, Section V.H.1.d, the undersigned Architect/Engineer and Contractor, as duly authorized representatives for their firms, hereby certify that to the best of his/her knowledge, information and belief, the materials incorporated into the project, and as used during the construction process, are free of any type of asbestos containing materials (ACM). The undersigned acknowledge that not all asbestos building materials have or were ever completely banned (EPA/TSCA-1999).

After Contractor is satisfied that work is complete as per Notice of Substantial Completion Punch List, a date for final review is established. Architect/Engineer inspection is made with Contractor(s) and Principal Representative and State Buildings Programs (SBP) present. Forms are processed as required.

1. The Notice of Approval of Occupancy/Use has been fully executed and the Inspection Cards are completely signed-off.  
2. Schedule for corrections, deficiencies, and items to be supplied are established by Contractor.  
3. Final Change Orders are processed (must be completed prior to Notice of Acceptance).  
4. The Principal Representative shall not authorize final payment until all items on the punch list have been completed, the Notice of Acceptance issued and the Notice of Contractor’s Settlement Date is published.  
5. Permanent keying, keys and keying instructions have been performed.  
6. Extra materials as per specifications are delivered to Principal Representative.  
7. As-built drawings have been submitted to Architect/Engineer.  
8. Guarantee/Warranty documentation requirements are met.  
9. Removal of Contractor’s temporary work including cleanup and debris removal.  
10. State personnel are instructed in system and equipment operations as required by contract.  
11. All Instructions, manuals, guides, and charts have been transmitted to Principal Representative.  

<table>
<thead>
<tr>
<th>DATE COMPLETED</th>
<th>A/E SIGNOFF</th>
<th>REMARKS</th>
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State Form SBP-05  
Rev. 8/2010  5/2013 ucb  
Page 1 of 2
## Approvals

<table>
<thead>
<tr>
<th>Architect/Engineer</th>
<th>Date</th>
<th>Contractor</th>
<th>Date</th>
</tr>
</thead>
<tbody>
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<thead>
<tr>
<th>State Buildings Programs (or Authorized Delegate)</th>
<th>Date</th>
<th>Principal Representative (Institution or Agency)</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>William N. Ward, AIA Interim Director, Planning, Design &amp; Construction</td>
<td></td>
<td>Ronald L. Ried, Director Facilities Management Business Services</td>
<td></td>
</tr>
</tbody>
</table>
NOTICE OF SUBSTANTIAL COMPLETION

Date of Substantial Completion: [Date to be inserted by the Principal Representative]

Institution/Agency: University of Colorado Boulder
Project No./Name: PR007758/HSG10810 Stearns East Bathroom Renovations – 61 stack

TO: Jon C. Keiser, Project Manager
University of Colorado Boulder
Department of Housing & Dining Services
Campus Box 451 UCB
Boulder, CO 80309-0451
(Principal Representative)

And Enter GC Name here
(Contractor)

This is to advise you that the Work has been reviewed, inspected and determined, to the best knowledge, information and belief of the Architect/Engineer, to be substantially complete as of the date noted above in accordance with the criteria outlined in Article 41 of The General Conditions of the Contract and the Specifications, including without limitation a) suitable for occupancy, b) inspected for code compliance with Building Inspection Records signed by code officials for the State, Inspection Cards completely signed-off or a Temporary Certificate, or Certificate, of Occupancy has been issued, c) determined to be fully and comfortably usable, and d) fully cleaned and appropriate for presentation to the public.

A punch list of work to be completed, work not in compliance with the Drawings or Specifications, and unsatisfactory work is attached hereto, along with the Contractor’s schedule for the completion of each and every item identified on the punch list specifying the Subcontractor or trade responsible for the work, and the dates the completion or correction will be commenced and finished within any period indicated in the Agreement for punch list completion prior to Final Acceptance.

Except as stated on the reverse side of this Notice of Substantial Completion, all manufacturers’ warranties, other special warranties and the Contractor’s one-year obligation to perform remedial work, shall commence on the Date of Substantial Completion noted above.

This Notice of Substantial Completion shall be effective and establish the Date of Substantial Completion only when fully executed on the reverse by the Contractor and the Principal Representative. The Principal Representative accepts the Work as substantially complete as of the Date of Substantial Completion herein noted. The Contractor agrees to complete or correct the Work identified on the attached punch list and to do so in accordance with attached punch list completion schedule.
The responsibilities of the Principal Representative and the Contractor for security, maintenance, heat, utilities, and insurance shall be as specified in the Contract Documents or as otherwise hereafter noted:

Exceptions, if any, to the commencement of warranties shall be:

The attached final punch list consists of _________ pages, and the attached Contractor’s schedule showing the dates of commencement and completion of each punch list item consists of _________ pages.

When completely executed, this form shall be sent to the Contractor and the Principal Representative with a copy to State Buildings Programs.
NOTICE OF FINAL ACCEPTANCE

Date of Notice of Acceptance: Date to be inserted by A/E after consultation with the Principal Representative

Institution/Agency: University of Colorado Boulder

Project No./Name: PR007758/HSG10810 Stearns East Bathroom Renovations – 61 stack

TO:

Notice is hereby given that the State of Colorado, acting by and through the Regents of the University of Colorado Boulder, accepts as complete* the above numbered project.

By
William N. Ward, AIA
Interim Director, Planning, Design & Construction
State Buildings Programs
(Authorized Delegate)

By
Ronald L. Ried, Director
Facilities Management Business Services
Principal Representative
(Institution or Agency)

*When completely executed, this form is to be sent by certified mail to the Contractor by the Principal Representative.
NOTICE OF APPROVAL OF OCCUPANCY/USE

Date of Occupancy: [Date to be inserted by the Architect/Engineer after consultation with Principal Representative]

Institution/Agency: University of Colorado Boulder

Project No./Name: PR007758/HSG10810 Stearns East Bathroom Renovations - 61 stack

Portion(s) of project for which occupancy is approved:

Type of Occupancy: [ ] Total or [ ] Partial

The items identified below if applicable must be completed with before Occupancy is approved.

<table>
<thead>
<tr>
<th>Date Completed</th>
<th>A/E Signoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The Notice of Substantial Completion has been issued and the Building Inspection Record is Cards are completely signed-off (or a Temporary Certificate, or Certificate, of Occupancy has been issued and copies attached.</td>
<td></td>
</tr>
<tr>
<td>2a. Notification has been made to the local Fire Department concerning which portion(s) of the building will be occupied and the date(s).</td>
<td></td>
</tr>
<tr>
<td>2b. Fire alarms, smoke detection systems and building fire sprinkler systems have been fully checked and are operable.</td>
<td></td>
</tr>
<tr>
<td>2c. The building’s fire connections must be installed and operable, if applicable.</td>
<td></td>
</tr>
<tr>
<td>3. Coordination for final utility and service connections and meters (water, gas, sewer, electricity and telecommunication) has been made and systems are in full operating order.</td>
<td></td>
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<tr>
<td>4. Sterilization of plumbing systems has been performed.</td>
<td></td>
</tr>
<tr>
<td>5. Operational test of systems and equipment has been performed as required.</td>
<td></td>
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<tr>
<td>6. Systems adjustments such as balancing, equipment operations, etc., have been performed. Reports have been submitted to the Architect/Engineer for approval.</td>
<td></td>
</tr>
<tr>
<td>7. Principal Representative furnished equipment and furnishings are coordinated and placed.</td>
<td></td>
</tr>
</tbody>
</table>
8. All elements left unfinished must be in such condition that there would be no hazard to the health or safety of the occupants.

9. All restroom facilities must be fully functional and operable.

10. All light fixtures must be installed and operable.

11. All exit lights and emergency lighting systems have been checked and are operable.

12. All windows have been glazed and hardware is available for ventilation purposes.

13. All routes of egress must be clear of construction materials and debris at all times.

14. There must be a means of pedestrian access to each building. Contractor must have sidewalks installed before occupancy and pedestrian barricades and other means of public protection as required.

Occupancy does not constitute acceptance of the project as being complete. It simply provides the Principal Representative the opportunity to occupy/use the project or the applicable portion thereof prior to final completion and acceptance. Occupants can expect to be impacted by the Contractor's efforts to complete the project. The Contractor would not repair any damage caused by the occupants.

Architect/Engineer

Date

Principal Representative
(Institution or Agency)
Ronald L. Ried, Director
Facilities Management Business Services

Date

State Buildings Programs
(or Authorized Delegate)
William N. Ward, AIA
Interim Director, Planning, Design & Construction

Date

Contractor

Date
STATE OF COLORADO  
OFFICE OF THE STATE ARCHITECT  
STATE BUILDINGS PROGRAMS

NOTICE OF CONTRACTOR’S SETTLEMENT

Institution/Agency: University of Colorado Boulder
Notice Number: PR007758/HSG10810
Project No./Title: Stearns East Bathroom Renovations – 61 stack

Notice is hereby given that on the date specified for final settlement will be made by the STATE OF COLORADO with hereinafter called the "CONTRACTOR", for and on account of the contract for the construction of a PROJECT as referenced above.

1. Any person, co-partnership, association or corporation who has an unpaid claim against the said project, for or on account of the furnishing of labor, materials, team hire, sustenance, provisions, provender, rental machinery, tools, or equipment and other supplies used or consumed by such Contractor or any of his subcontractors in or about the performance of said work, may at any time up to and including said time of such final settlement, file a verified statement of the amount due and unpaid on account of such claim.

2. All such claims shall be filed with the Authority for College, Institution, Department or Agency.

3. Failure on the part of a creditor to file such statement prior to such final settlement will relieve the State of Colorado from any and all liability for such claim.

Authorized Facility Manager or Authorized Individual

Name: Jon C. Keiser
Approval Date: 
Agency: University of Colorado Boulder
Phone: 303-735-3707
Fax: 303-492-4082
Email: Jon.keiser@colorado.edu (project manager)

MEDIA OF PUBLICATION:

PUBLICATION DATES:
First:

NOTES TO EDITOR:
Transmit one copy of the Affidavit of Publication, and invoice, to: University of Colorado Boulder, Department of Facilities Management, Campus Box 453 UCB, Boulder, CO 80309-0453.

State Form SBP-7.3
Rev. 7/2010
Post Construction Warranty Report

Project: PR007758/HSG10810  Stearns East Bathroom Renovations – 61 stack
Warranty Contractor: _____________________________
Date Warranty Begins: ___________________________ Date Warranty Expires: ___________________________
Facilities Management (F/M)  FAX No. 303-492-4082 Reported By: _____________________________
Campus Box 453 UCB, Boulder, CO  80309-0453  F/M Rep. Informed: ___________________________

Date Reported: ___________________________ Taken By: ___________________________

Extended Warranty Item:

Description of Warranty Item:

Date Reported to Contractor: ___________________________

Contractor Response:

Date of Resolution: ___________________________

Note:

Post construction warranty rpt
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

CERTIFICATE FOR CONTRACTOR'S PAYMENT

PAY APPLICATION #: __________________ FROM: ________ TO: ________ P.O. NO: ________

CONTRACTOR: University of Colorado - Boulder

PROJECT #/TITLE: PR007758/HSG10810  Stearns East bathroom Renovations - 61 stack

<table>
<thead>
<tr>
<th>AMENDMENTS/CHANGE ORDER SUMMARY</th>
<th>Deductions (L)</th>
<th>Additions (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior amendments / Change Orders CO#s:</td>
<td></td>
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<tr>
<td>Approved This Period</td>
<td>Number</td>
<td>Date</td>
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<tr>
<td>Total</td>
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</tbody>
</table>

Application is made for Progress for work completed and in place and stored on site on the above Project. As indicated on the following page(s).

| ORIGINAL CONTRACT SUM (K/E) | $0.00 |
| NET CHANGE FROM AMENDMENTS/CHANGE ORDERS (L + M/E) | $0.00 |
| PRESENT CONTRACT TOTAL (N/E) | $0.00 |

Current to Date Total Amount Earned (Due to Date (I)) | Retainage | Current to Date Payment Less Retainage | $0.00 | $0.00 |
Prior Payments Total Amount Earned | Retainage | Prior Payments Less Retainage | $0.00 |
This Payment Total Amount Earned | Retainage | This Payment Less Retainage | $0.00 |

Total Approved this Period | $0.00 | $0.00 |
Warrant Amount | $0.00 |

Net change by Amendments / Change Orders (L + M) | $0.00 |

Contractor certifies that all work and materials included in this estimate complies with the terms and conditions of the conditions construction contract and authorized changes thereto.

INSTITUTION/AGENCY (or Authorized Delegate) | Date |
STATE BUILDINGS PROGRAMS (or Authorized Delegate) | Date |
CONTRACTOR | Date |
ARCHITECT/ENGINEER | Date |

ARCHITECTS/ENGINEER'S CERTIFICATION

In accordance with the Contract and this Application for Payment, the above Contractor is entitled to a payment of: $0.00

State Form SBP-7.2
Rev. 2/2008
<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description of Work</th>
<th>Material</th>
<th>Labor and Other</th>
<th>Totals (C + D)</th>
<th>Materials On-Site But Not In Place</th>
<th>WORK IN PLACE</th>
<th>Total Amount Due to Date (F+G+H)</th>
<th>% Complete and in Place (I / E)</th>
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<td>(K)</td>
<td>ORIGINAL CONTRACT TOTALS (SUM)</td>
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<td>$0.00</td>
<td>$0.00</td>
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<tr>
<td>(L)</td>
<td>AMENDMENTS/CHANGE ORDER DEDUCTIONS</td>
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<td></td>
<td>#DIV/0</td>
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<tr>
<td>(M)</td>
<td>AMENDMENTS/CHANGE ORDER ADDITIONS</td>
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<td>PRESENT CONTRACT TOTALS</td>
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### PROJECT SUBMITTAL LOG

**Project**  
PR007758/HSG10810 Stearns East Bathroom Renovations - 61 stack

**Contractor:**  
Report Date

<table>
<thead>
<tr>
<th>Spec. Section No.</th>
<th>Sub No.</th>
<th>Contr No.</th>
<th>Description</th>
<th>Contr/ SUB Contr</th>
<th>Submit Date</th>
<th>Date Rec From Contr</th>
<th>No. of Copies Rec</th>
<th>Action</th>
<th>Date Returned to Architect</th>
<th>Distribution copies-Trans</th>
<th>DAYS OUT TO Architect</th>
<th>DAYS OUT TO Contractor</th>
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**NOTES:**

a. The Submittal Log lists the specification section that requires submittals. It is the Contractor’s responsibility to reference the appropriate subsection of the specification section for specific individual submittal requirements and to submit accordingly.

b. The Submittal Log does not necessarily list all specification sections that require submittals. The Contractor is responsible for any additional submittals that may be called for and required on drawings in the individual schedules and notes.
SECTION 01000- GENERAL

1.01 CONDITIONS AND REQUIREMENTS

Division 1 - General Requirements shall govern work under all Divisions of the Specifications.

1.02 SPECIFICATION LANGUAGE EXPLANATION

Specifications are of abbreviated, simplified or streamlined type and include incomplete sentences. Omissions of words or phrases such as "the Contractor shall," "in conformity therewith," "shall be," "as noted on the Drawings," "a," "the" are intentional. Supply omitted words or phrases by inference in same manner as they are when "NOTE" occurs on Drawings. Supply words "shall be" or "shall" by inference when colon is used within sentences or phrases. Supply words "on the Drawings" by inference when "as indicated" is used with sentences or phrases.

Where reference is made to specifications, societies, institutes, or associations or manufacturer's directions, they are, except as may be inconsistent herewith, made part of specifications, to same extent as if written out in full herein. Use latest edition, at time of bidding, if a date is not given.

1.05 ABBREVIATIONS

References in Contract Documents to trade associations, technical societies, recognized authorities and other institutions include following organizations, which are sometimes referred to only by corresponding abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>Aluminum Association</td>
</tr>
<tr>
<td>AAMA</td>
<td>Architectural Aluminum Manufacturer's Association</td>
</tr>
<tr>
<td>ACI</td>
<td>American Concrete Institute</td>
</tr>
<tr>
<td>AIMA</td>
<td>Acoustical and Insulating Materials Association (successor to AMA and IBI)</td>
</tr>
<tr>
<td>AISC</td>
<td>American Institute of Steel Construction</td>
</tr>
<tr>
<td>AISI</td>
<td>American Iron and Steel Institute</td>
</tr>
<tr>
<td>AITC</td>
<td>American Institute of Timber Construction</td>
</tr>
<tr>
<td>AMA</td>
<td>Acoustical Materials Association</td>
</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute (successor to USASI and ASA)</td>
</tr>
<tr>
<td>APA</td>
<td>American Plywood Association</td>
</tr>
<tr>
<td>ASHRAE</td>
<td>American Society of Heating, Refrigerating and Air Conditioning Engineers</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing Materials</td>
</tr>
<tr>
<td>AWI</td>
<td>Architectural Woodwork Institute</td>
</tr>
<tr>
<td>AWPA</td>
<td>American Wood Preservers Association</td>
</tr>
<tr>
<td>AWS</td>
<td>American Welding Society</td>
</tr>
<tr>
<td>CDA</td>
<td>Copper Development Associations, Inc.</td>
</tr>
<tr>
<td>CM/GC</td>
<td>Construction Manager/General Contractor</td>
</tr>
<tr>
<td>CRA</td>
<td>California Redwood Association</td>
</tr>
<tr>
<td>CRSI</td>
<td>Concrete Reinforcing Steel Institute</td>
</tr>
<tr>
<td>CS</td>
<td>Commercial Standard (U.S. Department of Commerce)</td>
</tr>
</tbody>
</table>
1.04 LAYING OUT WORK

The Contractor will furnish reference bench mark and maintain bench mark and all other grades, lines, and levels and dimensions as indicated in the Contract Documents. Report any errors or inconsistencies in above to Owner before commencing work.

Except as delegated by subcontract or normal trade practice, the Contractor will be responsible for all lines, elevations, and measurements of work indicated.
1.05 EXAMINATION OF SITE

A. Failure to visit the site will in no way relieve any Contractor from the necessity of furnishing materials or performing work that may be required to complete work in accordance with the Contract Documents without additional cost to Owner.

1.06 COORDINATION OF CONTRACT DOCUMENTS AND FIELD CONDITIONS:

A. Review of Contract Documents and field conditions: Contractor shall verify all dimensions in field prior to performing any work to ensure proper coordination between trades.

B. Any discrepancies discovered in the documents are to be reported to the Architect upon discovery, prior to proceeding with the Work.
SECTION 01010- SUMMARY OF WORK

PART 1 - GENERAL

1.01 SCHEDULE OF DRAWINGS, SPECIFICATIONS AND ADDENDA

The following Drawings and Project Manual, and any Addenda form the Contract Documents.

A. Set(s) of Drawings & specifications dated December 4, 2013. Drawing list is as follows:

<table>
<thead>
<tr>
<th>Sheet No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>A0.0</td>
<td>61 Stack- Cover Sheet</td>
</tr>
<tr>
<td>A0.1</td>
<td>61 Stack- Code Information</td>
</tr>
<tr>
<td>A1.1</td>
<td>61 Stack- Plans</td>
</tr>
<tr>
<td>A2.1</td>
<td>61 Stack- Interior Elevations</td>
</tr>
<tr>
<td>A3.1</td>
<td>61 Stack- Sections &amp; Details</td>
</tr>
<tr>
<td>A3.2</td>
<td>61 Stack- Details</td>
</tr>
<tr>
<td>P0.1</td>
<td>61 Stack- Plumbing Legend &amp; Schedules</td>
</tr>
<tr>
<td>P1.1</td>
<td>61 Stack- Plumbing Demolition &amp; New Plan</td>
</tr>
<tr>
<td>E2.0</td>
<td>61 Stack- Electrical Plans, Legend &amp; Schedules</td>
</tr>
</tbody>
</table>


C. Addenda: All Addenda issued prior to bidding.

1.02 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 complete renovation of eight bathrooms in Stearns East Tower in Williams Village (Community Bathrooms 261 through 961).
   a. All existing finishes and fixtures and some walls will be removed by others, under a separate contract.
   b. New walls, and all new finishes and fixtures will be provided under this contract. Salvaged water closets will be reinstalled.
   c. Some rough plumbing will be removed and replaced inside chases, from fixtures to mains.
   d. Branch sprinkler piping will be replaced and new sprinkler heads will be installed provided and installed.
   e. Lighting fixtures, electrical receptacles and fire alarm devices will be provided and installed.

1.03 WORK PERFORMED BY THE UNIVERSITY

A. All demolition and hazardous material abatement will be performed under a separate contract. Demolition shown on the drawings is provided for information only.
1.05 OWNER-FURNISHED, CONTRACTOR-INSTALLED PRODUCTS

A. The University will furnish certain items delivered to the jobsite as shown on the drawings and as identified in the Specifications. Contractor will receive, unload, move, set in position, anchor and connect such items and put them into operating condition.
   a. Products:
      i. Solid surfacing components as specified and shown.
      ii. Toilet accessories as specified and shown.

B. The Contractor will be responsible for coordinating its work to accommodate these items including, but not limited to, physical space fit, utility connections and rough-in, power wiring and electrical characteristics.

C. Include in Project scheduling the latest times when information for such items is required and so notify the University in writing.

D. Cooperate with University in scheduling the delivery of these items and be responsible for accommodating their storage and protection in the building and their replacement or repair due to damage as a result of Contractor’s operations.

1.06 CONTRACTORS

A. All new construction work will be executed under one prime construction contract between the Owner and the Contractor.

B. Except as indicated otherwise, all work under this contract will be under the direction of the prime contractor.

1.07 JOB CONDITIONS

A. Areas of the building immediately adjacent to areas under construction will be occupied by the public during the work of this project. Conduct the work of this project in a manner that will minimize disruption of the Owner's occupancy of adjacent areas.

B. Do not interrupt building access and use, except as permitted by the Owner.

Provide eight (8) work days notice to the Owner of construction activities which will severely impact the occupancy and use of adjacent areas.

C. Provide temporary barriers and/or partitions as required to protect the occupants of the building and the general public from injury due to the work of this project; and/or to protect adjacent areas of the building from the spread of dust and dirt caused by the work or this project.

Remove temporary barriers and partitions upon completion of the Project.

1. Temporary partitions shall be constructed of 1/2" plywood on the construction face nominal 2" X 4" wood studs and 1/2" gypsum wallboard on the public occupied face.

D. Do not interrupt power, lighting, plumbing, telephone and HVAC services to occupied areas without Owner's approval. Such interruptions must be scheduled at least eight (8) work days in advance and have Owner's approval.

E. There will be 2 (two) additional construction projects occurring concurrently with this project in Stearns East Tower. The 2 elevators will get heavy use and wait times will be
increased. Contractor is to anticipate and provide for this condition in scheduling work activities.

F. The construction sequence is to have the General Abatement Contractor (GAC), under separate contract with Owner, begin abatement of asbestos and lead in the bathrooms on the Ninth floor starting May 14, 2014, and be complete and demobilized by June 1, 2014. The GAC will also complete “clean” demolition as part of their scope of work. The General Contractor (GC) will start their scope of work on June 2, 2014 and must be substantially complete with entire scope of work on or before August 1, 2014. GC has option to turn bathrooms over to Owner incrementally as they are substantially complete or turn entire project over at one time.

G. All work requiring “Hot Work Permit” must occur between the hours of 7am to 3pm Monday thru Saturday. See Section 01060 REGULATORY REQUIREMENTS, 1.06 Hot Work Permits, for additional information.

1.08 PROTECTION OF WORK AND ADJACENT PROPERTY

A. At the completion of the project, Contractor shall restore existing buildings, landscaping, parking facilities and property to same condition as prior to the start of the work.

B. In addition to the requirements of the General Conditions of the Contract for Construction, the Contractor shall:
   1. Notify, in writing, the Owner of University or private property which interferes with the work and arrange with them for disposition of such property.
   2. Weather Protection: Provide protection against rain, snow, wind, ice, storms, or heat so as to maintain work, materials, apparatus, and fixtures free from injury or damage. At the end of each day's work, cover new work likely to be damaged.
   3. Water Protection: Provide protection from damage at all times from rain water, ground water, backing up of drains or sewers, and other water. Provide pumps and equipment enclosures to provide this protection.
   4. The Contractor will maintain free of obstructions and debris, all designated corridors and emergency exits, handicap access ramps and sidewalks to building

1.09 EXISTING FURNITURE AND EQUIPMENT

The Owner will remove existing movable furniture and equipment from the areas in which the Contractor is working. Notify the Owner not less than three days prior to starting work in areas where furniture and equipment is impeding access to fan coil units to have Owner require moving.

1.10 CONTRACTOR'S ACCESS PARKING AND STAGING AREAS

A. Work included in this project will need to be performed within the limitations of available access at the site. The University shall limit the area available for staging and parking due to the additional number of construction projects planned during the execution of this contract. Contractor shall adjust the means and methods of construction to allow for the restrictions surrounding the site.
B. All parking on campus except for some one-hour zones on city streets and a few metered spaces is under control and authority of the Parking and Transportation Services (PTS) of the University. All University parking is by permit only.

C. Types of parking and staging are defined as follows:

General Staging Areas are approved areas adjacent to the site when available or in University designated group staging yards. General Staging Areas may be used for any purpose, including employee parking, on a space available basis, but must be coordinated through the UCB Project Manager and PTS. Vehicles may not park outside of general staging areas except in areas coordinated and approved by PTS.

Restricted Staging Areas are approved areas near the site for the construction dumpster, off-loading of equipment, contractor's work trailer, and materials that are soon to be incorporated into the work. No vehicles shall park in a restricted staging area for more than 20 minutes between the hours of 8:00 a.m. and 5:00 p.m. weekdays.

Contractor Employee Parking are areas for workers needing parking on campus. Coordinate through UCB Project Manager and PTS. A limited number of parking permits will be available for Contractor purchase. These parking permits will be for use in gravel parking lot 623.

D. The restrictions in this Section are in addition to any other restrictions or rules provided by PTS. Fees shall be assessed for the use of any PTS facility for staging and construction activities.

E. The designated staging area for this project shall be: in East end of parking lot 630, limited interior staging area will be provided in room 37/38 (Darley North basement). Restricted loading and unloading will be at the Darley Loading Dock area, 20 minutes maximum time limit unless prior approval and coordination with Owner and other Contractors working in building.

F. Vehicles parked on sidewalks or in landscape areas outside the designated staging areas cause damage to University property. The contractor shall reimburse the University $25.00 per vehicle per occurrence for vehicles parked outside the designated staging areas. This amount shall be in addition to any fines which might be levied by PTS.

1.11 OCCUPANCY REQUIREMENTS

A. Owner may occupy designated areas for the purpose of storage of furnishings and equipment and installation of equipment.

B. Execute Certificate of Substantial Completion for each designated portion of work prior to Owner occupancy. Contractor shall allow:
   1. Access for Owner personnel.
   2. Use of parking facilities.
   3. Operation of HVAC and electrical systems.

C. On occupancy, Owner will provide, for occupied areas:
   1. Operation of HVAC and electrical systems.

END OF SECTION 01010
SECTION 01020- ADMINISTRATION AND SUPERVISION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to work of this section.

1.02 SURVEYS, LAYOUTS, AND LEVELS

A. General: Working from lines and levels established by the existing building, and as shown in relation to the work, establish and maintain bench marks and other dependable markers to set the lines and levels for the work of construction as needed to properly locate every element of the work of the entire project. Calculate and measure required dimensions as shown (within recognized tolerances if not otherwise indicated); do not scale the drawings to determine dimensions. Continuously advise tradesmen performing the work of the marked lines and levels provided for use in the layout of work.

1.03 PROJECT RECORD DOCUMENTS

A. Maintain at job site, one copy of:
   1. Contract Drawings
   2. Specifications
   3. Addenda
   4.Reviewed Shop Drawings
   5. Change Orders
   6. Other Modifications to Contract
   7. Field Test Records
   8. As-Built Drawings

B. Maintain documents in clean, dry, legible condition and do not use record documents for construction purposes. Make documents available at all times for inspection by the Consultant and Owner.

C. Label each document "Project Record" in 1" or larger printed letters.

D. Record drawing information in colored pencil with different colors for the various systems and defined by color legend.

E. Record drawings and specifications shall include the following:
   1. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure. Location of concealed valves, dampers, controls, balancing devices, junction boxes, clean-outs, and other items requiring access or maintenance.
   2. Field changes of dimension and detail, changes made by Change Order or Field Order and details not on original contract drawings.
   3. Fire protection and alarm systems shop drawings.
F. Submit all record drawings to the Consultant at the completion of the project.

1.04 CLEANING

A. Cleaning and Protection Work: At the time each unit of work or element of the construction is completed (substantially) in each area of the Project, clean the unit or element to a condition suitable for occupancy and use (as intended), and restore minor or superficial damage. Replace units and elements which are damaged beyond successful restoration. Clean and restore adjoining surfaces and other work which was soiled or damaged (superficially) during the installation; replace other work damaged beyond successful restoration. Where the performance of subsequent work could possibly result in damage to the complete unit or element, provide protective covering or other provisions to minimize possible damage. Repeat cleaning and protection operations during remainder of construction period, wherever work might otherwise be damaged by sustained soiling or exposure.

B. During Construction: Oversee cleaning and ensure that building, grounds, and public properties are maintained free from accumulation of waste materials and rubbish. At reasonable intervals during daily progress of work, clean up site and access and dispose of waste materials, rubbish, and debris. Vacuum clean interior building areas when ready and continue vacuum cleaning on an as-needed basis until building is ready for acceptance or occupancy.

1.05 PROJECT SIGN

A. Erect no project sign or job-site sign of any kind, except warning signs as specified in Section 01500, without written authorization of the Owner.

1.06 COORDINATION

A. The Contractor shall coordinate the work so as not to interfere with the building custodian’s normal cleanup activities.

B. The Contractor shall be responsible for coordinating all the work of the project. The Contractor shall coordinate the efforts of all subcontractor(s) and the deliveries of suppliers so that the work progresses in an orderly fashion without delay towards timely completion of a complete project in accordance with the drawings and specifications.

C. The Contractor shall note that concurrent with his work, other contractors, suppliers, and the Owner's facilities and maintenance personnel may be working in relatively close proximity. The Contractor will be solely responsible for coordinating his work with that of other contractors and will make no claims for failure to do so.

1.08 METHODS OF CONSTRUCTION

A. The procedure and method of construction is the prerogative and the responsibility of the Contractor. If professional assistance is required to safely implement method of construction, the Contractor shall, on his own, employ professional help.

END OF SECTION 01020
SECTION 01041- PROJECT COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

A. General Contractor is responsible for all of the work of this contract.
   1. Assign and subcontract portions of the work as required to assure that all work is
      constructed in compliance with these documents.
   2. Coordinate the work of the several subcontractors for the project.
   3. Coordinate work of this contract with work by separate contractors.

B. Each subcontractor shall:
   1. Coordinate work of his own employees and subcontractors.
   2. Expedite his work to assure compliance with schedules.
   3. Coordinate his work with that of other subcontractors and work by separate
      contractor.
   4. Comply with orders and instructions of owner.

C. Related Requirements
   1. All Division 1 Sections.

1.02 CONSTRUCTION ORGANIZATION AND START-UP

A. Establish on-site lines of authority and communications.
   1. Attend pre-construction meeting with subcontractors upon commencement of the
      project.
   2. Establish procedures for intra-project communications.
      a. Submittals.
      b. Reports and records.
      c. Recommendations.
      d. Coordination Drawings.
      e. Schedules.
      f. Resolution of conflicts.

   a. Consult with Architect to obtain interpretation.
   b. Assist in resolution of questions or conflicts which may arise.
   c. Transmit written interpretations to subcontractors, and to other
      concerned parties.

4. Assist in obtaining permits and approvals.
   a. Obtain building permits and special permits required for work or for
      temporary facilities.
   b. Verify that subcontractors have obtained inspections for work and for
      temporary facilities.

5. Control the use of site.
   a. Supervise field engineering and site layout.
   b. Allocate space for each subcontractor's use for field offices, sheds, work
      and storage areas.
   c. Establish access, traffic and parking allocations and regulations.
   d. Monitor use of site during construction.
1.03 CONTRACTOR DUTIES

A. Construction Schedules.
   1. Coordinate schedules with several subcontractors.
   2. Monitor schedules as work progresses.
      a. Identify potential variances between schedules and probable completion dates for each phase.
      b. Recommend adjustments in schedule to meet required completion dates.
      c. Adjust schedules of subcontractors as required.
      d. Document changes in schedule.
   3. Observe work of each subcontractor to monitor compliance with schedule.
      a. Verify that labor and equipment are adequate for the work and the schedule.
      b. Verify that product procurement schedules are adequate.
      c. Verify that product deliveries are adequate to maintain schedule.

B. Process Shop Drawings, Product Data and Samples.
   1. Review for compliance with Contract Documents.
      a. Field dimensions and clearance dimensions.
      b. Relation to available space.
      c. Relation to other trades, equipment and systems.
      d. Submit to Architect.

C. Monitor the use of temporary utilities.
   1. Verify that adequate services are provided and maintained.

D. Inspection and Testing.
   1. Inspection work to assure performance in accord with requirements of Contract Documents.
   2. Administer special testing and inspections of suspected work.
   3. Reject work which does not comply with requirements of Contract Documents.
   4. Coordinate testing laboratory services.
      a. Verify that required laboratory personnel are present.
      b. Verify that tests are made in accordance with specified standards.
      c. Review test reports for compliance with specified criteria.
      d. Recommend and administer required retesting.

E. Monitor contractor's periodic cleaning.
   1. Enforce compliance with specifications.
   2. Resolve any conflicts.

F. Coordinate changes.
   1. Recommend necessary or desirable changes.
   2. Assist owner in negotiating change orders.
   3. Promptly notify all subcontractors of pending changes.

G. Maintain Reports and Records at Job Site available to Architect and Subcontractors.
   1. Log progress of work of each subcontractor.
   2. Records
      a. Contracts.
      b. Purchase orders.
c. Materials and equipment records.
d. Applicable handbooks, codes and standards.

3. Obtain information from subcontractors and maintain file of Project Record Documents.
4. Assemble documentation for handling of claims and disputes.

H. Coordinate work of this Contract and requirements of this section with work by Separate Contract including but not limited to:
   1. Removal of asbestos containing materials by separate contract.

1.04 CONTRACT CLOSEOUT

A. Coordinate equipment start-up.
   1. Provide seven days notification prior to start-up of each item.
   2. Ensure that each piece of equipment or system is ready for operation.
   3. Execute start-up under supervision of responsible persons in accordance with manufacturer's instructions.
   4. Perform required testing and balancing.
   5. Record dates of start of operation of systems and equipment. Submit written report that equipment or system has been properly installed and is functioning correctly.
   6. Provide written notice of beginning of warranty period for equipment put into service.

B. Demonstration and Instructions
   1. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to Substantial Completion.
   2. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, seasonal operation, and shutdown of each item of equipment.

C. At completion of work of each Section, conduct an inspection to assure that
   1. Specified cleaning has been accomplished.
   2. Temporary facilities have been removed from site.

D. At completion
   1. Conduct an inspection to list work to be completed or corrected.
   2. Supervise correction and completion of work as established in Certificate of Completion.

E. When a portion of the Project is occupied prior to final completion, coordinate established responsibilities of each subcontractor.

F. Final completion.
   1. When each Subcontractor determines that work is finally complete, conduct an inspection to verify completion of work.
   2. Assist owner and architect in inspection.

G. Administer contract closeout.
   1. Receive and review Subcontractor's final submittals.
   2. Transmit to architect with recommendation for action.

END OF SECTION 1041
**SECTION 01042- MECHANICAL AND ELECTRICAL COORDINATION**

**PART 1 - GENERAL**

1.01 **SUMMARY**

A. Carefully coordinate the interface between Division 15 (Mechanical) and Division 16 (Electrical) before submitting any equipment for review or commencing installation.

B. Responsibility: Unless otherwise indicated, all motor and controls for Division 15 equipment shall be furnished, set in place and wired in accordance with the following schedule:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>FURNISHED UNDER</th>
<th>SET IN PLACE UNDER</th>
<th>POWER WIRING UNDER</th>
<th>CONTROL WIRING UNDER</th>
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</thead>
<tbody>
<tr>
<td>Equipment Motor</td>
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<td>16</td>
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<tr>
<td>Automatically Controlled Starter/contractors:</td>
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<tr>
<td>Factory Mounted &amp; Wired</td>
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<td>In Motor Control Centers</td>
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<tr>
<td>Manually Controlled Starter/Contractors:</td>
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<td>Factory Mounted &amp; Wired</td>
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<tr>
<td>Motor Speed Controllers</td>
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<td>Disconnect (Note 1) Switches</td>
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<td>Contactors</td>
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<td>Thermal Overload (Note 1) Switches</td>
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<tr>
<td>Manual Operation (Note 2)</td>
<td>16</td>
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<tr>
<td>Switches</td>
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<td>Control Relays (Note 2)</td>
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<tr>
<td>ITEM</td>
<td>FURNISHED UNDER</td>
<td>SET IN PLACE UNDER</td>
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<td>Control Transformers</td>
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<tr>
<td>Control Circuit Outlets</td>
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<tr>
<td>Thermostats (Note 2)</td>
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<td>Time Switches (Note 2) Not in Control Panel</td>
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<tr>
<td>Push Button Stations, Pilot Lights</td>
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<tr>
<td>Thermostats (Note 2) Controls: Integral with Equipment or Directly Applied to Ducts, Pipes, etc.</td>
<td>15</td>
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<td>16</td>
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<tr>
<td>Valve Motors, Damper Motors, Solenoid Valves, etc.</td>
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<tr>
<td>EP Valves or Switches, P.E. Switches, etc.</td>
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<tr>
<td>Control Circuit Outlets</td>
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<tr>
<td>Fire Alarm Systems</td>
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<td>Fire Sprinkler Alarm</td>
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<td>Firestats</td>
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<tr>
<td>Smoke Detectors Including Relays for Fan Control</td>
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<tr>
<td>Control Air Compressor</td>
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<td>Refrigerated Air Dryer</td>
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<tr>
<td>Equipment Interlocks</td>
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<tr>
<td>Boiler and Water Heaters</td>
<td>15</td>
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</tbody>
</table>
NOTES:
1. If furnished as part of factory wired equipment furnished and set in place under Division 15, wiring and connections under Division 16.
2. If float switches, line thermostats, P.E. switches, time switches, or other controls carry the FULL LOAD CURRENT to any motor, they shall be furnished under Division 15, but they shall be set in place and connected under Division 16 except that where such items are an integral part of the mechanical equipment, or directly attached to ducts, piping, or other mechanical equipment, they shall be set in place under Division 15 and connected under Division 16. If they do not carry the FULL LOAD CURRENT to any motor, they shall be furnished, set in place and wired under Division 15.

C. Control Wiring: Consists of wiring in pilot circuits of contact or starters, sensors, controllers, and relays, and wiring for valve and damper operators.
   1. Connections: Connections to all controls directly attached to ducts, piping and mechanical equipment shall be made with flexible connections.

D. Starters: Provide magnetic starters for all three phase motors and equipment complete with:
   1. Control transformers.
   2. 120V holding coils.
   3. Integral hand-off-auto switch.
   4. Auxiliary contacts required for system operation plus one (1) spare.

E. Remote Switches and Push Button Stations: Provide all remote switches and/or push button stations required for manually operated equipment (if no automatic controls have been provided) complete with pilot lights of an approved type lighted by current from load side of starter.

F. Special Requirements: Motors, starters and other electrical equipment installed in moist areas or areas of special conditions, such as explosion proof, shall be designed and approved for installation in such areas with appropriate enclosure.

G. Identification: Provide identification of purpose for each switch and/or push button station furnished. Identification may be either engraved plastic sign or permanent mounting to wall below switch, or stamping on switch cover proper. All such identification signs and/or switch covers in finished areas shall match other hardware in the immediate areas.

H. Control Voltage:
   1. Maximum allowable control voltage 120V. Fully protect control circuit conductors in accordance with National Electrical Code.
   2. Provide 20A breakers in emergency panels under Division 16 as required for Building Management System Air Temperature Controls (BMS/ATC). Provide all control transformers, control wiring and connections to circuits under Section 15950 of Division 15.

I. Related Requirements
   1. Section 16480: Electric Motors
      a. Coordinate with efficiency requirements.

J. Contractor must review all concrete embedded items (including conduit) with owner prior to placement.
PART 2 - PRODUCTS

2.01 MOTOR HORSEPOWER

A. In general, all motors 1/2 HP and above shall be three phase, all motors less than 1/2 HP shall be single phase.

B. Voltage and phase of motors as scheduled on the electrical drawings shall take precedence in the case of a conflict between the mechanical and electrical drawings or General Condition 2.01 A., above.

C. Work under Division 15 includes coordinating the electrical requirements of all mechanical equipment with the requirements of the work under Division 16, before ordering the equipment.

1. If motor horsepower is changed under the work of Division 15, without a change in duty of the motor's driven device, coordination of additional electrical work (if any) and additional payment for the work (if any) shall be provided under the section of Division 15 initiating the change. Increases or decreases in motor horsepower from that specified shall not be made without written approval from the Engineer.

PART 3 - EXECUTION

NOT USED.

END OF SECTION 1042
SECTION 01045- CUTTING AND PATCHING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included: This section establishes general requirements in addition to those indicated in the General Conditions of the Contract for Construction pertaining to cutting, fitting, and patching of the work required to:
   1. Make the several parts fit properly.
   2. Uncover work to provide for installation, inspection, or both, of ill-timed work.
   3. Remove and replace work not conforming to requirements of Contract Documents.
   4. Patch new construction into existing construction.

B. Related Work:
   1. In addition to requirements specified, upon the Consultant's request, uncover work to provide for inspection of covered work, and remove samples of installed materials for testing.
   2. Do not cut or alter work performed under separate contract without the Consultant's written permission.

1.02 QUALITY ASSURANCE

A. Perform all cutting and patching in strict accordance with pertinent requirements of the Specifications and, in the event no such requirements are determined, in conformance with the Consultant's written direction.
   1. Use skilled workmen to perform all cutting and patching work.
   2. Use methods least likely to damage existing surfaces and materials to remain, while providing proper surfaces to receive installation of repair, patching, and/or new work.

B. Visual Quality:
   1. Do not cut and patch work exposed to public view, and the exterior and/or interior of the building in a manner that will result in an unacceptable appearance as determined by the Consultant.
   2. Do not cut and patch work in a manner that will result in obvious appearance that cutting and patching work was done.
   3. When cutting existing structural concrete, do not extend saw cuts beyond the corners of the required opening on either side of the opening.

1.03 EXISTING CONSTRUCTION

A. Where cutting and patching of existing construction is required; prior to start of work, inform Owner of existing construction to be disturbed. Owner will determine if elements of existing construction contain asbestos. Do not proceed with work until after Owner has examined areas to be disturbed. Refer to Exhibit A, Project Pre-Inspection for Possible Presence of Asbestos for additional information concerning the possible presence of materials containing asbestos.
1.04 SUBMITTALS

A. Submit proposed cutting and patching procedures in writing for the following categories of work prior to proceeding with this work:

1. Cutting new openings in existing structural concrete walls, parapets, and suspended slabs.
2. Cutting new openings in existing roofs and roofing materials.

B. Submittals shall comply with Section 01300.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Except as otherwise indicated in pertinent sections of these specifications, or as directed by the Consultant, use materials which are identical to existing materials in workmanship, appearance, and performance.

B. If identical materials are not available, match existing as closely as possible, especially existing visual characteristics.

PART 3 - EXECUTION

3.01 INSPECTION

A. Before proceeding, inspect existing conditions, including elements subject to movement or damage during cutting, excavating, backfilling, and patching.

B. After uncovering the work, inspect conditions affecting installation of new work.

C. If uncovered conditions are not as anticipated or if existing construction is not as indicated on the Drawings, immediately notify the Consultant for further instructions.

3.02 PREPARATION

A. Provide shoring, bracing, and support as required to maintain structured integrity of the project.

B. Take all necessary action required to protect adjacent existing surfaces from damage due to the work of this section.

C. Take all precautions necessary to protect existing surfaces and materials, new work, and the work of this section from damage due to adverse weather conditions.

D. Provide temporary support of work to cut and adjacent work to prevent failure or damage due to the work of this section.

E. Properly prepare substrate surfaces exposed during cutting as required to receive the work of this or other sections of these specifications in strict compliance with manufacturer's recommendations and these specifications.
3.03 EXECUTION

A. Perform all required cutting and patching as required or reasonably implied under pertinent sections of these specifications.

B. Perform cutting and demolition by methods which will prevent damage to other portions of the work and will provide proper finished installation complying with the specified tolerances and finishes.

3.04 PERFORMANCE

A. Execute cutting and demolition by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs and new work. Saw-cut and otherwise isolate areas to be demolished.

B. Repair or otherwise rebuild and/or construct all surfaces affected by cutting and demolition. Execute fitting and adjustment of products to provide totally finished installation to comply with tolerances, finishes, and profiles of adjacent surfaces, whether new or existing.

C. Restore work which has been cut or exposed by demolition; install new construction in compliance with specifications for type of new work to be done or as required to match existing adjacent surfaces. In no case shall any exposed existing surface be left in a raw, marred, or unfinished surface.

D. Refinish entire surfaces as necessary to provide an even finish.
   1. Continuous Surfaces: To nearest intersections.

END OF SECTION 01045
SECTION 01060- REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:
A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 - Specification sections, apply to work of this section.

1.02 SUMMARY:
A. Section Includes:
   1. General administrative requirements and procedures and related applicable codes.

1.03 APPROVAL AND RECOMMENDATION AGENCIES:
A. The University of Colorado at Boulder has jurisdiction for the interpretation and enforcement of code requirements for construction of projects.

1.04 CODES:
A. All Contractors shall comply with all applicable codes, ordinances and regulations in effect at the time of bid openings.

APPROVED STATE BUILDING CODES

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.

The 2012 edition of the International Building Code (IBC)
(as adopted by the Colorado State Buildings Program as follows: Chapter 1 as amended, Chapters 2-35 and Appendices C and I)

The 2012 edition of the International Mechanical Code (IMC)
(as adopted by the Colorado State Buildings Program as follows: Chapters 2-15 and Appendix A)

(as adopted by the Colorado State Buildings Program)

The 2011 edition of the National Electrical Code (NEC)
(National Fire Protection Association Standard 70) (as adopted by the Colorado State Electrical Board)

The 2009 edition of the International Plumbing Code (IPC)
(as adopted by the Colorado Examing Board of Plumbers as follows: Chapter 1 Section 101,2,102, 105, 107, Chapters 2-13 and Appendices B, D, E, F and G)

The 2009 edition of the International Fuel Gas Code (IFGC)
(as adopted by the Colorado Examining Board of Plumbers as follows: Chapter 1 Section 101,102, 105, 107, Chapters 2-8 and Appendices A, B, and C)
The National Fire Protection Association Standards (NFPA)

The 2010 edition of the ASME Boiler and Pressure Vessel Code
(as adopted by the Department of Labor and Employment/Boiler Inspection Section as follows: sections I, IV, VIII-Divisions 1 and 2 and 3, X and B31.1)

The 2011 edition of the National Boiler Inspection Code (NBIC)
(as adopted by the Department of Labor and Employment/Boiler Inspection Section)

The 2012 edition of the Controls and Safety Devices for Automatically Fired Boilers CSD-1
(as adopted by the Department of Labor and Employment/Boiler Inspection Section)

(as adopted by the Department of Labor and Employment/Boiler Inspection Section)

The 2007 edition of ASME A17.1 Safety Code for Elevators and Escalators
(as adopted by the Department of Labor and Employment/Conveyance Section and as amended by ASME International)

The 2005 edition of ASME A17.3 Safety Code for Existing Elevators and Escalators
(as adopted by the Department of Labor and Employment/Conveyance Section and as amended by ASME International)

The 2005 edition of ASME A18.1 Safety Standard for Platform Lifts and Stairway Chairlifts
(as adopted by the Department of Labor and Employment/Conveyance Section and as amended by ASME International)

The current edition of the Rules and Regulations Governing the Sanitation of Food Service Establishments
(as adopted by the Department of Public Health and Environment/Colorado State Board of Health)

(as adopted by the Colorado General Assembly as follows: CRS 9-5-101, as amended, for accessible housing)

(as adopted by the Colorado General Assembly as follows: CRS 9-5-101, as amended, for accessible housing)

Note: Additional codes, standards and appendices may be adopted by the state agencies and institutions in addition to the minimum codes and standards herein adopted by State Buildings Programs.

1. The 2012 edition of the IBC became effective on July 1 of 2013. Consult the state electrical and plumbing boards and the state boiler inspector and conveyance administrator and the Division of Fire Safety for adoption of current editions and amendments to their codes.

2. Projects should be designed and plans and specifications should be reviewed based upon the approved codes at the time of A/E contract execution. If an agency prefers to design to a different code such as a newer edition of a code that State Buildings Programs has not yet adopted, the agency must contact SBP for approval and then amend the A/E contract with a revised Exhibit C,
Approved State Building Codes. Please note that the state plumbing and electrical boards enforce the editions of their codes that are in effect at the time of permitting not design.

3. The state’s code review agents, or the State Buildings Programs approved agency building official, shall review all documents for compliance with the codes stipulated herein. Note: The Department of Public Health and Environment, Division of Consumer Protection will review drawings for food service related projects.

4. This policy does not prohibit the application of various life safety codes as established by each agency for specific building types and funding requirements. NFPA 101 and other standards notwithstanding, approved codes will supersede where their minimum requirements are the most restrictive in specific situations. If a conflict arises, contact State Buildings Programs for resolution.

5. It is anticipated that compliance with the federal Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG) and Colorado Revised Statutes Section 9-5-101 will be met by compliance with the 2009 International Building Code and ICC/ANSI A117.1. However, each project may have unique aspects that may require individual attention to these legislated mandates.

6. The 2006 edition of the International Building Code (IBC) is to be applied to factory-built nonresidential structures as established by the Division of Housing within the Department of Local Affairs.

A. Appendices

Appendices are provided to supplement the basic provisions of the codes. Approved IBC Appendices are as follows:

1. Mandatory
   IBC Appendix Chapter C - Agricultural Buildings
   IBC Appendix Chapter I - Patio Covers

2. Optional
   Any non-mandatory appendix published in the International Building Code may be utilized at the discretion of the agency. Use of an appendix shall be indicated in the project code approach.

B. Amendments

International Building Code, Chapter 1 as amended
By State of Colorado.

C. Referenced Codes

1. While not adopted in entirety, portions of the following codes are referenced in the International Building Code (IBC), the International Mechanical Code (IMC), the International Energy Conservation Code (IECC) the International Plumbing Code (IPC), and the International Fuel Gas Code (IFGC). These following codes would be applied as reference standards.

   2009 International Fire Code (IFC)
   2009 International Existing Building Code (IEBC)
D. **Referenced Standards**

The IBC, IMC, IECC, IPC and IFGC standards shall be utilized to provide specific, or prescriptive, requirements on how to achieve the requirements established in the code. These standards may be unique to the code or may be derived from other established industry standards. Recognized standards may also be used to show compliance with the standard of duty established by the code.

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**CHAPTER 1**

**SCOPE AND ADMINISTRATION**

**PART 1—SCOPE AND APPLICATION**

**SECTION 101**

**GENERAL**

101.1 **Title.** These regulations shall be known as the *Building Code* of the Department of Personnel & Administration/Office of the State Architect (DPA/OSA), hereinafter referred to as “this code”.

101.2 **Scope.** The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

**Exception:** Detached one- and two-family *dwellings* and multiple single-family *dwellings* (townhouses) not more than three *stories* above grade plane in height with a separate *means of egress* and their accessory structures shall comply with the *International Residential Code*.

101.2.1 **Appendices.** Provisions in the appendices shall not apply unless specifically adopted.

101.3 **Intent.** The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, *means of egress* facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations.

101.4 **Referenced codes.** The other codes listed in Sections 101.4.1 through 101.4.6 and referenced elsewhere in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference.

101.4.1 **Gas.** The provisions of the *International Fuel Gas Code* shall apply to the installation of gas piping from the point of delivery, gas appliances and related accessories as covered in this code. These requirements apply to gas piping systems extending from the point of delivery to the inlet connections of appliances and the installation and operation of residential and commercial gas appliances and related accessories.

101.4.2 **Mechanical.** The provisions of the *International Mechanical Code* shall apply to the installation, alterations, repairs and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

101.4.3 **Plumbing.** The provisions of the *International Plumbing Code* shall apply to the installation, *alteration*, repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances, and where connected to a water or sewage system and all aspects of a medical gas system.

101.4.6 **Energy.** The provisions of the *International Energy Conservation Code* shall apply to all matters governing the
design and construction of buildings for energy efficiency.

SECTION 102
APPLICABILITY

102.1 General. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

102.2 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

102.3 Application of references. References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

102.4 Referenced codes and standards. The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

102.5 Partial invalidity. In the event that any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

102.6 Existing structures. The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code or as is deemed necessary by DPA/OSA through its code review agent for the general safety and welfare of the occupants and the public.

PART 2—ADMINISTRATION AND ENFORCEMENT

SECTION 104
DUTIES AND POWERS OF BUILDING OFFICIAL

104.1 General. DPA/OSA as the building official is hereby authorized and directed to enforce the provisions of this code. DPA/OSA shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions. Such interpretations, policies and procedures shall be in compliance with the intent and purpose of this code. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code.

104.2 Plan reviews. DPA/OSA through its code review agent shall review construction documents and issue compliance notices for the erection, and alteration, demolition and moving of buildings and structures and inspect the premises for which such compliance notices have been issued.

104.4 Inspections. DPA/OSA through its code review agent shall make all of the required inspections, or DPA/OSA shall have the authority to accept reports of inspection by approved agencies or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency or by the responsible individual. DPA/OSA is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise.

104.9 Approved materials and equipment. Materials, equipment and devices approved by DPA/OSA through its code review agent shall be constructed and installed in accordance with such approval.

104.9.1 Used materials and equipment. The use of used materials which meet the requirements of this code for new materials is permitted. Used equipment and devices shall not be reused unless approved by DPA/OSA through its code review agent.

104.10 Modifications. Wherever there are practical difficulties involved in carrying out the provisions of this code, DPA/OSA shall have the authority to grant modifications for individual cases, upon application of the owner or owner’s representative, provided DPA/OSA shall first find that special individual reason makes the strict letter of
this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. The details of action granting modifications shall be recorded and entered in the files of DPA/OSA.

104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where DPA/OSA through its code review agent finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

104.11.1 Research reports. Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from approved sources.

104.11.2 Tests. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, DPA/OSA through its code review agent shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, DPA/OSA through its code review agent shall approve the testing procedures. Tests shall be performed by an approved agency.

SECTION 105
PLAN REVIEWS

105.1 Required. Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first contact a DPA/OSA code review agent.

105.2 Work exempt from plan review. Exemptions from plan review requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction. Plan review shall not be required for the following:

Building:

1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, provided the floor area does not exceed 120 square feet (11 m2).
2. Fences not over 6 feet (1829 mm) high.
3. Oil derricks.
4. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids.
5. Water tanks supported directly on grade if the capacity does not exceed 5,000 gallons (18 925 L) and the ratio of height to diameter or width does not exceed 2:1.
6. Sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any basement or story below and are not part of an accessible route.
7. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
8. Temporary motion picture, television and theater stage sets and scenery.
9. Prefabricated swimming pools accessory to a Group R-3 occupancy that are less than 24 inches (610 mm) deep, do not exceed 5,000 gallons (18,925 L) and are installed entirely above ground.
10. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems.
11. Swings and other playground equipment accessory to detached one- and two-family dwellings.
12. Window awnings supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support of Groups R-3 and U occupancies.
13. Nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.

Electrical:

Repairs and maintenance: Minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.

Radio and television transmitting stations: The provisions of this code shall not apply to electrical equipment used for radio and television transmissions, but do apply to equipment and wiring for a power supply and the installations of towers and antennas.

Temporary testing systems: A plan review shall not be required for the installation of any temporary system required for the testing or servicing of electrical equipment or apparatus.

Gas:

1. Portable heating appliance.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

Mechanical:

1. Portable heating appliance.
2. Portable ventilation equipment.
3. Portable cooling unit.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any part that does not alter its approval or make it unsafe.
6. Portable evaporative cooler.
7. Self-contained refrigeration system containing 10 pounds (5 kg) or less of refrigerant and actuated by motors of 1 horsepower (746 W) or less.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe, provided, however, that if any concealed trap, drain pipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to replace the same with new material, such work shall be considered as new work and a plan review shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

105.2.1 Emergency repairs. Where equipment replacements and repairs must be performed in an emergency situation, plan review information shall be submitted promptly to DPA/OSA through its code review agent.
105.2.2 Repairs. Application or notice to DPA/OSA through its code review agent is not required for ordinary repairs to structures, replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles. Such repairs shall not include the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements; nor shall ordinary repairs include addition to, alteration of, replacement or relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring or mechanical or other work affecting public health or general safety.

105.2.3 Public service agencies. A plan review shall not be required for the installation, alteration or repair of generation, transmission, distribution or metering or other related equipment that is under the ownership and control of public service agencies by established right.

105.4 Validity of compliance notice. The issuance or granting of a compliance notice shall not be construed to be an approval of any violation of any of the provisions of this code or of any other ordinance of the jurisdiction. The issuance of a compliance notice based on construction documents and other data shall not prevent DPA/OSA through its code review agent from requiring the correction of errors in the construction documents and other data.

105.7 Placement of building inspection record. The building inspection record based on the compliance notice inspection recommendations shall be kept on the site of the work until the completion of the project.

SECTION 106
FLOOR AND ROOF DESIGN LOADS

106.1 Live loads posted. Where the live loads for which each floor or portion thereof of a commercial or industrial building is or has been designed to exceed 50 psf (2.40 kN/m2), such design live loads shall be conspicuously posted by the owner in that part of each story in which they apply, using durable signs. It shall be unlawful to remove or deface such notices.

106.2 Issuance of notice of approval of occupancy/use. A notice of approval of occupancy/use required by Section 111 shall not be issued until the floor load signs, required by Section 106.1, have been installed.

106.3 Restrictions on loading. It shall be unlawful to place, or cause or permit to be placed, on any floor or roof of a building, structure or portion thereof, a load greater than is permitted by this code.

SECTION 107
SUBMITTAL DOCUMENTS

107.1 General. Submittal documents consisting of construction documents, statement of special inspections, geotechnical report and other data shall be submitted. The construction documents shall be prepared by a registered design professional where required by the statutes of the state of Colorado. Where special conditions exist, DPA/OSA through its code review agent is authorized to require additional construction documents to be prepared by a registered design professional.

Exception: DPA/OSA is authorized to waive the submission of construction documents and other data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such that review of construction documents is not necessary to obtain compliance with this code.

107.2 Construction documents. Construction documents shall be in accordance with Sections 107.2.1 through 107.2.5.

107.2.1 Information on construction documents. Construction documents shall be dimensioned and drawn upon suitable material. Construction documents shall be of sufficient clarity to indicate the location, nature and extent
of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations.

107.2.2 Fire protection system shop drawings. Shop drawings for the fire protection system(s) shall be submitted to indicate conformance to this code and the construction documents and shall be approved prior to the start of system installation. Shop drawings shall contain all information as required by the referenced installation standards in Chapter 9.

107.2.3 Means of egress. The construction documents shall show in sufficient detail the location, construction, size and character of all portions of the means of egress in compliance with the provisions of this code. In other than occupancies in Groups R-2, R-3, and I-1, the construction documents shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces.

107.2.4 Exterior wall envelope. Construction documents for all buildings shall describe the exterior wall envelope in sufficient detail to determine compliance with this code. The construction documents shall provide details of the exterior wall envelope as required, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves or parapets, means of drainage, water-resistive membrane and details around openings.

The construction documents shall include manufacturer’s installation instructions that provide supporting documentation that the proposed penetration and opening details described in the construction documents maintain the weather resistance of the exterior wall envelope. The supporting documentation shall fully describe the exterior wall system which was tested, where applicable, as well as the test procedure used.

107.2.5 Site plan. The construction documents submitted with the application for permit shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from lot lines, the established street grades and the proposed finished grades and, as applicable, flood hazard areas, floodways, and design flood elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. DPA/OSA through its code review agent is authorized to waive or modify the requirement for a site plan when the application for plan review is for alteration or repair or when otherwise warranted.

107.2.5.1 Design flood elevations. Where design flood elevations are not specified, they shall be established in accordance with Section 1612.3.1.

107.3 Examination of documents. DPA/OSA through its code review agent shall examine or cause to be examined the accompanying submittal documents and shall ascertain by such examinations whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances.

107.3.3 Phased approval. DPA/OSA through its code review agent is authorized to issue a compliance notice for the construction of foundations or any other part of a building or structure before the construction documents for the whole building or structure have been submitted, provided that adequate information and detailed statements have been filed complying with pertinent requirements of this code. The holder of such compliance notice for the foundation or other parts of a building or structure shall proceed at the holder’s own risk with the building operation and without assurance that a compliance
notice for the entire structure will be granted.

107.3.4 Design professional in responsible charge.

107.3.4.1 General. The registered design professional in responsible charge shall be responsible for reviewing and coordinating submittal documents prepared by others, including phased and deferred submittal items, for compatibility with the design of the building.

107.3.4.2 Deferred submittals. For the purposes of this section, deferred submittals are defined as those portions of the design that are not submitted at the time of the plan review and that are to be submitted to DPA/OSA through its code review agent within a specified period.

Deferral of any submittal items shall have the prior approval of DPA/OSA through its code review agent. The registered design professional in responsible charge shall list the deferred submittals on the construction documents for review by DPA/OSA through its code review agent.

Documents for deferred submittal items shall be submitted to the registered design professional in responsible charge who shall review them and forward them to DPA/OSA through its code review agent with a notation indicating that the deferred submittal documents have been reviewed and found to be in general conformance to the design of the building. The deferred submittal items shall not be installed until the deferred submittal documents have been approved by DPA/OSA through its code review agent.

107.4 Amended construction documents. Work shall be installed in accordance with the approved construction documents, and any changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents.

SECTION 108
TEMPORARY STRUCTURES AND USES

108.1 General. DPA/OSA through its code review agent is authorized to issue a compliance notice for temporary structures and temporary uses. Such compliance notice shall be limited as to time of service, but shall not be permitted for more than 180 days. DPA/OSA through its code review agent is authorized to grant extensions for demonstrated cause.

108.2 Conformance. Temporary structures and uses shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.

108.3 Temporary power. DPA/OSA through its code review agent is authorized to give permission to temporarily supply and use power in part of an electric installation before such installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat or power in NFPA 70.

SECTION 109
FEES

109.1 Payment of fees. Refer to DPA/OSA Building Code Compliance Policy.

SECTION 110
INSPECTIONS

110.1 General. Construction or work for which a plan review is required shall be subject to inspection by DPA/OSA through its code review agent and such construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall
not be valid. It shall be the duty of the holder of the notice to proceed to cause the work to remain accessible and exposed for inspection purposes. Neither DPA/OSA, its code review agent nor state agency shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

110.2 Preliminary inspection. Before issuing a compliance notice, DPA/OSA through its code review agent is authorized to examine or cause to be examined buildings, structures and sites for which an application has been filed.

110.3 Required inspections. DPA/OSA through its code review agent, upon notification, shall make the inspections set forth in Sections 110.3.1 through 110.3.10.

110.3.1 Footing and foundation inspection. Footing and foundation inspections shall be made after excavations for footings are complete and any required reinforcing steel is in place. For concrete foundations, any required forms shall be in place prior to inspection. Materials for the foundation shall be on the job, except where concrete is ready mixed in accordance with ASTM C 94, the concrete need not be on the job.

110.3.2 Concrete slab and under-floor inspection. Concrete slab and under-floor inspections shall be made after in-slab or under-floor reinforcing steel and building service equipment, conduit, piping accessories and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the subfloor.

110.3.3 Lowest floor elevation. In flood hazard areas, upon placement of the lowest floor, including the basement, and prior to further vertical construction, the elevation certification required in Section 1612.5 shall be submitted to DPA/OSA through its code review agent.

110.3.4 Frame inspection. Framing inspections shall be made after the roof deck or sheathing, all framing, fireblocking and bracing are in place and pipes, chimneys and vents to be concealed are complete and the rough electrical, plumbing, heating wires, pipes and ducts are approved.

110.3.5 Lath and gypsum board inspection. Lath and gypsum board inspections shall be made after laithering and gypsum board, interior and exterior, is in place, but before any plastering is applied or gypsum board joints and fasteners are taped and finished.

Exception: Gypsum board that is not part of a fire-resistance-rated assembly or a shear assembly.

110.3.6 Fire- and smoke-resistant penetrations. Protection of joints and penetrations in fire-resistance-rated assemblies, smoke barriers and smoke partitions shall not be concealed from view until inspected and approved.

110.3.7 Energy efficiency inspections. Inspections shall be made to determine compliance with Chapter 13 and shall include, but not be limited to, inspections for: envelope insulation R- and U-values, fenestration U-value, duct system R-value, and HVAC and water-heating equipment efficiency.

110.3.8 Other inspections. In addition to the inspections specified above, DPA/OSA through its code review agent is authorized to make or require other inspections of any construction work to ascertain compliance with the provisions of this code and other laws that are enforced by DPA/OSA.

110.3.9 Special inspections. For special inspections, see Section 1704.

110.3.10 Final inspection. The final inspection shall be made after all work required is completed.

110.4 Inspection agencies. DPA/OSA through its code review agent is authorized to accept reports of approved inspection agencies, provided such agencies satisfy the requirements as to qualifications and reliability.

110.5 Inspection requests. It shall be the duty of the holder of the notice to proceed or
their duly authorized agent to notify DPA/OSA through its code review agent when work is ready for inspection. It shall be the duty of the notice to proceed holder to provide access to and means for inspections of such work that are required by this code.

110.6 Approval required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of DPA/OSA through its code review agent. The code review agent, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the holder of the notice to proceed or his or her agent wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the code review agent.

SECTION 111
CERTIFICATE OF OCCUPANCY

111.1 Use and occupancy. No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made, until DPA/OSA has issued a notice of approval of occupancy/use therefor as provided herein. Issuance shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction.

Exception: Notices of approval of occupancy/use are not required for work exempt from plan review under Section 105.2.

111.3 Temporary occupancy. DPA/OSA is authorized to issue a temporary notice of approval of occupancy/use for discrete portions of work before the completion of the entire work provided that such portion or portions shall be occupied safely.

1.05 OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA):

A. The Contractor shall have sole responsibility for compliance on the job site to all applicable portions of the Occupational Safety and Health Act. The Contractor is responsible for other regulatory requirements as they relate to occupational Health and Safety requirements. For example, NIOSH, ANSI, and MSA.

B. Protection of life, health and public welfare as it relates to the execution of the construction contract is the responsibility of the Contractor. The Owner’s Representative may, at their discretion, observe, inspect, or comment on plans, procedures, or actions employed at the project as they relate to safety of life, health or public welfare. If conditions are imposed by the Owner which interfere with, or imply actions detrimental to safety, written notice shall be returned to the Owner for action prior to affecting any unsafe conditions.

C. Contractors shall use OSHA Lock Out / Tag Out procedures when working with energized equipment.

D. All contractors entering confined spaces owned by CU or while conducting work under contract with CU shall develop a written program and utilize procedures that, at a minimum, comply with all federal, state and local confined space standards and all applicable regulatory requirements. Contractors shall, independent of the University, monitor the space to obtain their own data to ensure a safe entry and exit. Any data generated by a contractor’s confined space entry, should be provided to the Facilities Management confined Space Program Manager.
E. When contractors perform work that may involve Facilities Management controlled permit required confined spaces, Facilities Management will:
1. Inform contractors of permit required confined spaces and that entry is allowed only after compliance with the confined space entry standard;
2. Require contractors planning to enter a confined space to provide the Facilities Management Confined Space Program Manager in charge of that space, 48-hour advance notice of such planned entry. The contractors entry will be in accordance with the current Occupational Safety and Health Administration confined space entry standard and a signed document stating such, shall be provided to the FM Confined Space Program Manager prior to entry.

F. The FM Confined Space Program Manager, following receipt of notice of contractor planned entry, will:
1. Apprise contractor of the hazards identified in the confined space and of any prior experience that is documented on the space;
2. Appraise the contractor of any precautions or procedures that CU has implemented for the protection of workers in or near the confined space;
3. Coordinate entry operations with the contractor when both Facilities Management and contractor personnel are working in or around the confined space;
4. Debrief the contractor at the end of the entry operations regarding hazards confronted or created.

1.06 HOT WORK PERMITS

A. All contractors shall be required to obtain a Hot Work Permit, three (3) working days in advance, for work that involves welding, heat treating, grinding, thawing pipe, hot riveting, soldering and brazing, power driven fasteners and similar activities involving spark, flame or heat. Compliance with the requirements of the applicable fire code, the International Building Code, and NFPA Standard 51B are mandatory and all contractors performing hot work activities shall read and understand these code requirements. To obtain a current Hot Work Permit, go to website:
http://fm.colorado.edu/firesafety/hotwork.html

B. Contractors shall read and comply with the procedures and requirements for Fire Watch, Fire Alarm Interruption and Fire Suppression Interruption as found on the following websites:

Fire Watch Procedures:
http://fm.colorado.edu/firesafety/firewatch.html

Fire Alarm and Detection System Interruption/Outage:
http://fm.colorado.edu/firesafety/firealarmdetectsys.html

Fire Suppression System Interruption/Outage:
http://fm.colorado.edu/firesafety/firesuppressionsystems.html

C. No hot work shall be conducted in any campus facility without a hot work permit. Any person or firm who conducts hot work without a permit shall be fined one thousand dollars ($1,000) for each occurrence and their non-permitted activities shall be stopped immediately until they obtain a hot work permit. Contractor shall be responsible for any damages caused as a result of improper hot work activities or the work stoppage.

D. Individuals or firms who obtain a permit shall fully read, understand and implement the requirements of the permit. Any person or firm who conducts hot work without the full implementation of the permit requirements shall be fined five hundred dollars ($500) the first time and one thousand dollars ($1,000) for subsequent occurrences. When the
requirements of the hot work permit are not being implemented, the improper activities shall be stopped immediately until a hot work permit is obtained. Contractor shall be responsible for any damages caused as a result of improper hot work activities or the work stoppage. Any contractor who is found to be in non-compliance a third time, will not be allowed to work on campus until further notice by Facilities Management.

E. The campus inspectors, project managers and fire marshal shall have the authority to stop improper or non-permitted hot work activities.

F. The Contractor shall notify the CU Fire Alarm Supervisor to deactivate all smoke alarms in the vicinity of the work prior to any demolition and construction work activity. Failure of the Contractor to comply with the smoke alarm deactivation requirement and cause a false alarm and arrival of the Boulder Fire Department shall be a $400 fine per occurrence.

1.07 PERMITS

A. The contractor must obtain a no fee building permit prior to starting work from Office Manager, Facilities Management at (303) 492-2904 in the Planning, Design and Construction Office, Research Laboratory No. 2, 1540 30th Street, Boulder, Colorado. Building permits are required on all projects except the following:

1. Fences not over 6 feet high & general landscape work
2. Retaining walls which are not over 4 feet in height, unless supporting a surcharge of impounding Class I, II or III-A liquids
3. Platforms, walks and driveways not more than 30 inches above grade and not over any basement or story below.
4. Painting, papering, and similar finish work that meet the requirements of chapter 8 of UBC. (Uniform Building Code).
5. Temporary motion picture, television and theater stage sets and scenery. Review for fire-safety issues is required.

B. The contractor must post the permit(s) in a prominent location at the jobsite including all inspection reports. The contractor shall have an updated set of contract documents available at the jobsite for all inspections.

1.08 INSPECTIONS

A. The Contractor must schedule all required inspections 48 hours in advance by calling (303) 492-2922. CU or their designated inspectors will complete these inspections within 48 hours with the exception of weekends and state holidays.

B. The contractor is required to arrange for the following inspections:

1. Required inspections: General. Reinforcing steel or structural framework of any part of any building of structure shall not be covered or concealed without first obtaining the approval of the building official.
2. Lath or gypsum board inspection: To be made after lathing and gypsum board, interior and exterior, is in place, but before any plastering is applied or before gypsum board joints and fasteners are taped and finished.
3. Final inspection: To be made after finish grading and the building is completed and ready for occupancy.
4. Special inspection: Special inspection may be required on special projects and special types of construction.
5. Re-inspections: A re-inspection fee may be assessed for each inspection or reinspection when such portion of work for which inspection is called is not complete or when corrections called for are not made.

C. The Contractor will be responsible for all cost related to re-inspections and will be billed at a rate of $50.00 per hour for CU re-inspections and at the testing agency bill-out rate for other re-inspections.
1.09 UNIVERSITY OF COLORADO SEXUAL HARASSMENT POLICY

A. Contractors should be aware of and review the University of Colorado at Boulder’s policies that prohibit discrimination and harassment on the basis of race, color, national origin, sex, age, disability, creed, religion, sexual orientation or veteran status. These policies are located on the web at: http://www.colorado.edu/odh/ Contractor personnel must adhere to these policies and conduct themselves in a manner that does not discriminate or harass as a result of interacting with an around the University of Colorado faculty, staff and students and visitors.

1.10 FIRE ALARM INTERRUPTION

A. Contractor shall contact CU Fire Alarm Systems Supervisor at 303-492-0633 prior to all interruptions or shutdowns of fire alarm systems. Interruptions or shutdowns shall be scheduled three (3) working days in advance with CU Fire Alarm Systems Shop, CU Project Manager and building proctor. Contractor shall provide a fire watch as directed by CU Fire Alarm Systems Shop during interruption or shutdown.

B. The Contractor shall be responsible for preventing nuisance alarm due to activities at their work site. Common sources of nuisance alarms are:
   1. Smoke (soldering, welding, cooking, etc.)
   2. Grinding
   3. Dust (drilling, sweeping, canister vacuums, sand blasting, etc.)
   4. Water leaking (plumbing leaks, overflows)
   5. Water sprayed on or near detectors (pressure washing or cleaning with water)
   6. Popcorn or other food burning in microwaves
   7. Static electricity (covering or uncovering detectors)
   8. Changing filters on air handling units (dust)
   9. Steam (leaks, pressure pop-offs)
  10. Broken or frozen sprinkler heads
  11. Sprinkler drain valves turned by mistake
  12. Vandalism

Precautions to prevent nuisance alarms are:
   1. During construction projects, treat all buildings, except totally new construction, as though they were occupied buildings with live systems.
   2. Do not assume that all detectors are in plain sight. Contact University personnel for verification.
   3. Maintain dust control measures per UCB Standards:
      a. Maintaining barriers
      b. Covering air returns
      c. Asking CU personnel to cap or disable smoke detectors (Note any capping or disabling of fire safety devices is to be done ONLY by CU personnel, not contractors.)
      d. Avoiding recirculation of dust or smoke through the building air handling system.
   4. Follow campus hot work procedures. Refer to specification Section 01060, paragraph 1.06.

Do not expose fire alarm devices to water or extreme temperatures. Contact Fire Systems Group for any actions that affect fire detection, alarm, and suppression systems.
1.11 STORMWATER MANAGEMENT PLAN (SWMP)

A. Stormwater Management Plan (SWMP): Prior to any construction activity disturbing one acre of land or more, an approved SWMP and a Stormwater Permit for Construction Activity application from the Colorado Department of Public Health and Environment (CDPHE) are required. The SWMP shall be prepared in accordance with the CDPHE requirements for “Contents of the Stormwater Management Plan” and the UDFCD’s Urban Storm Drainage Criteria Manual, Volume 3, “Best Management Practices” (UDFCD Drainage Criteria Manual). Stormwater quality management and erosion control measures are to be constructed and maintained in accordance with the SWMP and the UDFCD Drainage Criteria Manual.

1.12 ENVIRONMENTAL/STORMWATER POLLUTION PREVENTION

A. Contractors working on the UCB campus must comply with all applicable University, City, State and Federal environmental regulations and standards. The contractor shall keep material such as saw-cut slurry, drywall mud, grout and mortar, paint, sediment, and all other wastes and process water out of gutters, streets, storm drains and parking lots. The contractor shall also be responsible for proper disposal of all waste materials. Immediately notify 911, EH&S 303-492-6025 and project manager of accidental hazardous materials releases.

B. Contractors are required to locate drains or other water discharge points in the area of the project and provide measures to protect from illicit discharges, prior to construction activities. For assistance with determining where a drain leads to (storm vs. sanitary, especially floor drains), contact the Facilities Management service center at 303-492-5522.

C. The contractor shall be responsible for all costs associated with damages and clean-up as a result of contractor caused illicit discharges of process water or other materials into the storm water system. Also, in addition to any penalties or fines imposed by the City, State or Federal agencies, the contractor shall be fined one thousand dollars ($1,000) by UCB for the first time an incident occurs and may be put on probation from working on campus. The contractor will be prohibited from working on campus, until further notice by UCB, if they are found to be responsible for an illicit discharge a second time.

D. For the purpose of eliminating storm water pollution, the contractor shall implement effective Best Management Practices (BMPs). BMPs include general good housekeeping practices, appropriate scheduling of activities, operational practices, maintenance procedures and other measures to prevent the discharge of pollutants directly or indirectly to the storm water system. These BMPs shall be maintained for the duration of the contractor's work. Contractors are required to visit website: http://www.bouldercolorado.gov/www/pace/government/index.html for examples of BMP’s that are applicable to project activities. The Contractor shall ensure that all applicable employees and sub-contractors who work on site are trained and comply with storm water pollution prevention methods and proper BMP’s.

E. In addition to the BMP’s the contractor will be required to sign an Environmental Responsibilities form for all projects. The contractor shall post a copy of this form on site, throughout the duration of the project, in a visible area for all workers to see. Also, the contractor will be required to fill out a Pre-Construction Water Quality Certification form indicating any/all potential discharges of process water, chemicals, de-watering, or other materials to sewer systems or landscape areas that are expected to result from project activities.
1.13 UTILITY LOCATES

Contractor MUST CALL 811 (or 1-800-922-1987) for utility locates BEFORE DIGGING on any project at the University of Colorado at Boulder. This includes even small projects such as, but not limited to, planting trees or shrubs, sidewalk removal/installation or fence post installation. Digging without calling can disrupt service to the campus or surrounding neighborhoods and potentially result in fines and repair costs.

END OF SECTION 01060
SECTION 01075- SPECIFICATION SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included:
   1. Specification system format.
   2. Grammar (syntax) description.

1.02 DESCRIPTION

A. These specifications have been derived from automated specification systems, and include minor deviations from format and traditional writing forms. Such deviations must be recognized as a normal result of this production technique, and no other meaning will be implied or permitted.

B. Imperative language of the technical sections is directed to the Contractor. The term "provide" used repeatedly in the text is defined to mean..."furnish and install, complete, in place and ready for operation and use unless specifically indicated otherwise."

C. Specifications are of abbreviated, simplified or streamlined type and include incomplete sentences. Omissions of work or phrases such as "the Contractor shall", "in conformity therewith," "shall be," "as noted on the Drawings", "A", "The", are intentional. Supply omitted words or phrases by inference in same manner as they are when "Note" occurs on Drawings. Supply words "on the Drawings" by inference when "as indicated" is used with sentences or phrases.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION
SECTION 01100- SPECIAL PROJECT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Remodel Work scheduling.
   2. Construction sequence scheduling.

B. Related Sections:
   1. Section 01500 - Temporary Facilities and Controls.

1.02 SYSTEM DESCRIPTION

A. An essential condition of this Contract shall be the scheduling and conduct of all phases of construction operations in such a manner that the Owner’s operations and use of the existing buildings and campus shall be uninterrupted at all times, except for such limited interruption as is required and approved by the owner.

B. Contractor shall repair at his own expense all damage done to Owner’s property, unknown utilities and adjoining public property as a result of Contractor’s construction activities.

1.03 PROJECT/SITE CONDITIONS

A. Access and use of site:
   1. Contractor shall use the designated site access for construction offices and material storage in such a manner that access to existing buildings and campus remain accessible at all times for use.
   2. Confine operations to as limited a use of the existing building and campus as possible. A route of access to and from the work for employees shall be agreed upon and it shall be the Contractor’s responsibility to see that the agreed route is maintained in order to prevent unwarranted or unnecessary traffic through the existing buildings or site.

B. Owner notice and approval:
   1. All arrangements and scheduling in connection with the work of this Contract shall be made with and subject to the approval of the Consultant and the Owner.
   2. All work under this Contract which will require interruption of service of the existing building shall be scheduled to suit the need and convenience of the Owner’s operation, and arrangements shall be made with the Owner and the Architect at least eight (8) working days in advance of the start of such work.

PART 2 - PRODUCTS

Not Used
PART 3 - EXECUTION

3.01 REMODELING

A. Construction activities of all areas to be constructed in existing facilities shall be completely separated from the rest of the building by dust-proof enclosures erected by Contractor.

B. All surfaces in existing facilities not indicated to be remodeled, or removal of existing items by any Contractor, shall be repaired by the responsible Contractor to match existing adjoining similar surfaces.

3.02 CLEAN-UP

A. All areas within existing facilities, which are not within enclosed areas to be constructed used for access to work areas shall be completely cleaned of all debris and made "broom-clean" at the end of each day's work.

B. Dust, which permeates areas of existing facilities because of improperly constructed dust-proof barriers, shall be the responsibility of the Contractor. The Contractor shall employ the services of a professional cleaning company to clean any area outside of the designated construction dust barriers that are contaminated by Contractor’s operations. Completely clean all such areas to the satisfaction of the Owner at no additional cost.

END OF SECTION 01100
SECTION 01121- HAZARDOUS MATERIAL PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 - Specification sections, apply to work of this section.

1.02 SUMMARY:
   A. Section Includes:
      1. General administrative requirements and procedures for Hazardous Communication Program.
   B. Related Sections:
      1. Summary of Work: Section 01010.

1.03 WORK BY OWNER:
   A. Asbestos:
      1. The Owner has completed an Environmental Compliance Document to identify asbestos containing materials and other immediate Health and Safety items. Do not begin work until Form Exhibit A (copy following the Supplementary General Conditions) has been executed. Where asbestos materials or other hazardous conditions are known to exist in locations affected by this project, remediation measures will be taken by the Owner under separate contract. The Contractor shall coordinate his sequence and schedule with that of the environmental remediation work.
      2. In the event that the Contractor encounters any material on the site which is reasonably believed hazardous, which has not been rendered harmless, the Contractor shall:
         a. Stop work immediately in affected areas.
         b. Report the condition in writing to the Department of Facilities Management Project Administrator.
         c. Report the condition in writing to the Architect.
         d. Resume work only under the provisions of this section.

1.04 SUBMITTALS:
   A. Material Safety Data Sheets (MSDS):
      1. Copies of all material safety data sheets for all applicable products, including but not limited to; paint, adhesives, mastics, solvents, and finishes, etc., shall be retained on site by the Contractor for all applicable products used during the construction and/or remodeling work. Furnish copies of all MSDS’s to the Owner and Architect and include in the Project Record Document submittal.

1.05 QUALITY ASSURANCE:
   A. Asbestos containing materials may exist within the general project area where such materials are not expected to be disturbed during the work. The Contractor shall review the Environmental Health and Safety Environmental Compliance Document at the project site and become familiar with known asbestos and hazardous containing materials in the work areas.
1.06 PROJECT/SITE CONDITIONS:

A. Hazard Communication Requirements:
1. All Contractors are responsible for compliance with mandatory federal rules and regulations concerning Hazard Communication, including, but not limited to those regulations contained in 29 CFR 1910.1200 Hazard Communication, 1910.146 Confined Space, 1910.147 Lock-out Tag-out, 1910.1101 Asbestos, and 1926.62 Lead. Contractor and all subcontractors working at sites under the control of the Owner shall make available to the Architect, upon request, copies of the Hazard Communication Program used by their firm. In addition to this requirement, all regulations related to Multi-employer workplaces shall be adhered to. These regulations are found in 29 CFR 1910.1200, (e) (2) (I) through (e) (4) specifically:

(e) (2) Multi-employer workplaces. Employers who produce, use, or store hazardous chemicals at workplace in such a way that employees of other employer(s) may be exposed (for example, employees of a construction contractor working on site) shall additionally ensure that the hazard communication programs developed and implemented under paragraph (e) include the following:

(e) (2) (i) The methods the employer will use to provide the other employer(s) with a copy of the material safety data sheet, or to make it available at a central location in the workplace, for each hazardous chemical the other employer(s)’ employees may be exposed to while working;

(e) (2) (ii) The methods the employer will use to inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace’s normal operating conditions and in foreseeable emergencies; and,

(e) (2) (iii) The methods the employer will use to inform the other employer(s) of the labeling system used in the workplace

(e) (3) The employer may rely on an existing hazard communication program to comply with these requirements, provided that it meets the criteria established in this paragraph (e).

(e) (4) The employer shall make the written hazard communication program available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director, in accordance with requirements of 29 CFR 1910.20 (e).

2. The referenced regulations were excerpted from 29 CFR 1910.1200. This excerpt shall not be relied upon for compliance with mandatory federal, state and local regulations. The Contractor shall comply with all such regulations and shall be solely liable for insuring that all requirements under applicable regulations are met.

PART 2 - PRODUCTS  (Not applicable)

PART 3 - EXECUTION

3.01 EXAMINATION:

A. Asbestos and Hazardous Materials Discovery:
1. The Contractor is cautioned to be alert to the possibility that his work may uncover asbestos-containing or hazardous materials. If suspected materials are found, the Contractor shall notify the Owner and stop all work in the area
immediately. If the suspected materials prove to contain asbestos or hazardous materials, the Owner will arrange to have the materials abated in a timely manner.

3.02 HAZARDOUS MATERIALS/EQUIPMENT REMOVAL:

A. Definition:
   1. Removal of hazardous materials/equipment is extremely dangerous. Hazardous materials/equipment is defined to include, but not limited to the following:
      a. Fume hoods
      b. Hood exhaust duct work
      c. Exhaust fans
      d. Laboratory casework and equipment
      e. PCB ballast's
      f. Mercury and Sodium Vapor Lights
      g. Adjacent material that could come in contact with workers or public.

B. Protection:
   1. Hazardous materials/equipment removal shall include the protection of personnel, material, environment and safe legal disposal of the equipment; and further includes the following:
      a. Notification of Project Administrator and appropriate Environmental Health and Safety Unit
      b. Proper protective clothing for personnel involved in the removal.
      c. Appropriate emergency and first aid facilities.
      d. Removal procedures shall be accomplished during minimal occupancy of the remainder of the building on the weekends or at night.

C. Disposal:
   1. All equipment related to the use, storage or processing of hazardous materials/equipment shall be removed and properly disposed of under the direct, full-time supervision of a qualified Laboratory Specialist fully conversant with the chemistry and properties of the material/equipment involved. Certification is required. Contractors are responsible for the removal of all hazardous materials/equipment and chemicals from the work site as well as proper disposal of all hazardous waste generated by their project.

   2. Hazardous waste disposal must include prior notification to the Department of Environmental Health and Safety in order to verify that the appropriate procedures and documentation are used. Copies of all paper work for shipping and disposing of these materials (hazardous waste manifests, land disposal restrictions, etc.) will be provided by the Contractor to the Department of Environmental Health & Safety (303) 492-6025. Where appropriate, the Main Campus EPF ID COD007431505 will be used for these shipments.

   3. Hazardous chemicals, waste, and other pollutants may not be discharged to the sanitary or storm sewer systems at anytime. Releases to the environment must be reported to CUPD/EH&S immediately.

END OF SECTION 01121
SECTION 01270- UNIT PRICES

PART 1 - GENERAL

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

1.2 SUMMARY
   A. Section includes administrative and procedural requirements for unit prices.

1.3 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.

1.4 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. 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

3.1 SCHEDULE OF UNIT PRICES
   A. Unit Price 1: New water closets
      1. Description: Purchase and install (1) new water closet to match existing water closet, in
         lieu of re-installation of existing water closet.
         a. Unit of Measurement: Per each.
B. Unit Price 2: New flush valves
   1. Description: Purchase and install (1) new flush valve, in lieu of re-installation of existing flush valve.
      a. Unit of Measurement: Per each.

C. Unit Price 3: New wall carriers for water closets
   1. Description: Purchase and install (1) new wall carrier for water closets, in lieu of re-use of existing wall carrier.
      2. Unit of Measurement: Per each.

D. Unit Price 4: Firestopping of penetrations through existing concrete decks.
   1. Description: Purchase and install firestopping of penetrations in existing chases, through existing concrete decks, at any additional pipe penetration beyond the sizes and quantities of pipe penetrations indicated on drawings and in Section 07841 “Through-penetration Firestop Systems”.
      a. Unit of Measurement: Per penetration for the following nominal pipe sizes.
         1) Unit Price 1A: 1” diameter
         2) Unit Price 1B: 2” diameter
         3) Unit Price 1C: 3” diameter
         4) Unit Price 1D: 4” diameter

END OF SECTION 01270
SECTION 01300- SUBMITTALS, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Submit shop drawings, product data and samples as required by various sections of the specifications.

1.02 QUALITY ASSURANCE

A. Shop Drawings:

1. Drawings shall be presented in a clear and thorough manner.
2. Details shall be identified by reference to sheet, detail, schedule, or room numbers shown on drawings.

B. Product Data:

1. Preparation:
   a. Clearly mark each copy to identify pertinent products or models.
   b. Show performance characteristics and capabilities.
   c. Show dimensions and clearances required.
   d. Show wiring or piping diagrams and controls.

2. Manufacturer's standard schematic drawings and diagrams.
   a. Modify drawings and diagrams to delete information that is not applicable to the work.
   b. Supplement Standard information to provide information specifically applicable to the work.

C. Samples:

1. Office samples shall be of sufficient size and quantity to clearly illustrate:
   a. Functional characteristics of the product with integrally related parts and attachment devices.
   b. Full range of color, texture and pattern

E. Responsibilities of the Contractor:

1. Contractor's Review

   a. General: Review shop drawings, product data, samples and project record drawings for specification performance prior to submission. Make submittals for only specified or approved products. Ensure that the information relevant to the Project is clearly identified (highlighted, underlined, circled, etc.).

   b. Determine and Verify:
      (1). Field measurements
      (2). Field construction criteria
      (3). Catalog numbers and similar data
      (4). Conformance with specifications

   c. Coordinate each submittal with requirements of the work and of the Contract Documents.
d. Notify the Architect in writing, at the time of submission, of any deviations in the submittals for requirements of the Contract Documents.
e. Begin no fabrication or work that requires submittals until return of submittals with Architect’s acceptance.
d. Contractor’s responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Architect’s review of submittals.
e. Contractor shall stamp, sign or initial, and date each submittal to show compliance with the Contract Documents prior to submittal to the Architect.
f. Submittals that appear to be made without review by the Contractor will be returned, unreviewed by the Architect, for resubmittal.

1.03 SUBMITTALS

A. General:
1. Make submittals promptly in accordance with approved schedule and in such sequence as to cause no delay in the work.
2. Make all submittals directly to the Architect, with a copy to the Owner.
3. Make all written and drawn submittals electronically, in PDF files.
4. Do not combine or assemble products from different specification sections on one submittal. “Assembled” submittals will be returned without review. Submittals must be fully reviewed by the Contractor prior to forwarding the Architect for review. Ensure that the submittal pertains to an approved product, as specified, and that the relevant information is clearly identified (highlighted, underlined, circled, etc.).
   a. The following may be assembled into individual submittals:
      (1) HVAC components
      (2) Electrical Power components and devices
      (3) Lighting fixtures

C. Number of Submittals Required:
1. Samples: Submit the number stated in each specification section.

D. Submittal Identification:
1. Identify submittals with sequential numbers.
2. Resubmittals should bear the original Submittal Number, appended with sequential letters for each resubmittal (i.e., 1, 1A, 1B; 2, 2A, 2B, etc.).

E. Submittals shall contain:
1. Date of the submission and dates of any previous submissions.
2. Project title and number.
4. Names of:
   a. Contractor and Subcontractor(s), if applicable.
   b. Supplier
   c. Manufacturer
5. Identification of product with the specification section number.
6. Field dimensions, clearly identified as such.
7. Relation to adjacent or critical features of the work or materials.
8. Applicable standards, such as ASTM or Federal specification numbers.
10. Identification of revisions on resubmittals.
11. Space for review stamps.

F. Submittal Transmittal

1. Provide separate transmittals for each Submittal Number and identify the transmittal with the appropriate number or number/letter, Submittal Title and Specification Section of the submittal. Do not combine different Submittal Numbers on one transmittal.

D. Resubmission Requirements:

1. Make any corrections or changes in the submittals required by the Architect and resubmit until accepted.

2. Shop drawings and product data:
   a. Revise initial drawings or data and resubmit as specified for initial submittal.
   b. Indicate any changes that have been made, other than those requested by the Architect.

3. Samples: Submit new samples as required for initial submittal.

E. Distribution:

1. Distribute reproductions of approved shop drawings and copies of product data to affected subcontractors and retain one copy for use at the job-site.
2. Distribute approved samples as directed.

F. Architect's Duties:

1. Review submittals with reasonable promptness and in accordance with schedule.
2. Review of separate item does not constitute review of an assembly in which item functions.
3. Affix stamp and initials or signature, and indicate requirements for resubmittal or acceptance of submittal.
4. Return submittals to the Contractor for distribution or for resubmission.

G. Schedule of Values and pay applications:

1. Submit typed schedule on State Form SC7.2; Contractor's standard form or media-driven printout will be considered on request.
2. Format: Table of Contents of this Project Manual.
3. Include in each line item a directly proportional amount of Contractor's overhead and profit.

H. Schedule of Submittals: The Contractor shall submit the submittals required by the specifications. The Contractor shall develop a submittal schedule that confirms the submittals and the time frame for review by the Architect.

I. Construction Schedule:

1. Submit Construction Schedules in accordance with Section 01320.
L. Daily Reports
   1. The contractor shall submit daily reports, due by 5 p.m. the following day. The report should include weather, equipment, manpower count, subcontractors on site, short description of work for that day, inspections, visitors, items that may affect progress or quality of project.

M. Request for Information (RFI):
   1. The Contractor will be responsible for submitting RFIs on AIA form G716 or similar. The RFI should identify in writing any unclear, inconsistent, or conflicting item in the documents that could not be answered by thorough review by the Contractor or subcontractors. The RFI should include a description of the item and a proposed solution. The RFI should indicate schedule or cost impact, if any. Contractor shall be required to submit cost or schedule impact within seven days of receipt of the RFI response. Each RFI shall be numbered in sequence.

N. Weekly Logs:
   1. The Contractor shall provide an updated RFI, change request, and submittal logs at weekly construction meetings. Contractor shall provide a 2-week detailed construction schedule at the weekly construction meeting.

PART 2 - MATERIALS
   Not used.

PART 3 - EXECUTION
   Not used.

END OF SECTION 01300
SECTION 01320- CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

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

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

C. Startup construction schedule.
   1. Contractor's construction schedule.
   2. Construction schedule updating reports.
   3. Daily construction reports.
   4. Material location reports.
   5. Site condition reports.
   6. Special reports.

D. Related Requirements:
   1. Section 01300 "Submittal Procedures" for submitting schedules and reports.
   2. Section 01400 "Quality Requirements" for submitting a schedule of tests and inspections.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
   1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
   2. Predecessor Activity: An activity that precedes another activity in the network.
   3. Successor Activity: An activity that follows another activity in the network.

1.3 INFORMATIONAL SUBMITTALS

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

B. Construction schedule (bar chart).
   1. Submit construction schedule with Bid.
      a. Delineate the work for each bathroom, in sequence with the others including, but not limited, to the following:
         i. Submittal period and procurement.
         ii. All required inspections
         iii. Delivery of all closeout documents.

   2. Approval of cost-loaded construction schedule will not constitute approval of schedule of values for cost-loaded activities.
C. Construction Schedule Updating Reports: Submit draft for discussion at monthly project schedule and pay application review meeting. Submit final report with monthly Application for Payment.

D. Daily Construction Reports: Submit at weekly intervals.

E. Material Location Reports: Submit at monthly intervals.

F. Site Condition Reports: Submit at time of discovery of differing conditions.

G. Special Reports: Submit at time of unusual event.

1.4 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. Coordinate required inspections with construction schedule and identify them.
   2. Secure time commitments for performing critical elements of the Work from entities involved.
   3. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for commencement of the Work to date of Substantial Completion.
   1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date is not permitted. Contract completion date may only be modified by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
   1. Activity Duration: Define activities so no activity is longer than 21 calendar days, unless specifically allowed by Architect/Engineer.
   2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 calendar days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
   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, including inspections.
3. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 01010 "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 01010 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
5. Work Restrictions: Show the effect of the following items, as applicable, on the schedule:
   a. Coordination with existing construction.
   b. Limitations of continued occupancies.
   c. Uninterruptible services.
   d. Partial occupancy before Substantial Completion.
   e. Use of premises restrictions.
   f. Environmental control.

D. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
1. Submittals.
2. Fabrication.
3. Sample testing.
4. Deliveries.
5. Installation.
6. Tests and inspections.
7. Startup and placement into final use and operation.

E. 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:
1. Completion of electrical installation.
2. Substantial Completion.

F. 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.

G. 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.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (BAR CHART OR GANTT CHART)

A. Bar-Chart or Gantt-Chart Schedule: Submit startup, horizontal, bar-chart-type or a comprehensive, fully developed, horizontal, Gantt-chart-type construction schedule within
30 calendar days of date established for commencement of the Work. Base schedule on
the startup construction schedule and additional information received since the start of
Project.

B. Preparation: Indicate each significant construction activity separately. Identify first
workday of each week with a continuous vertical line. Use the same breakdown of
construction activities as indicated in the Schedule of Values.

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

C. Contract Modifications: For each proposed contract modification and concurrent with its
submission, prepare a time-impact analysis using a network fragment to demonstrate the
effect of the proposed change on the overall project schedule.

D. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list
indicating straight "early start-total float." Identify critical activities. Prepare tabulated
reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Main events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.
10. Dollar value of activity (coordinated with the schedule of values).

E. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated
reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
5. Changes in the critical path.
6. Changes in total float or slack time.

F. Summary Reports: With each schedule update, at a minimum provide the following hard
copy cost and resource reports:

1. Cost report showing activity dollar value, dollar value of work in place to-date and
dollar value for current period.
2. Cost report showing activity dollar value, dollar value of work in place to-date, and
dollar value for current period summarizing to schedule of values.
3. Resource report showing man-day allocations by specific trade on each activity.
5. Cash flow report showing monthly projections of expenditures.
6. Narrative schedule report documenting:
   a. Description of the actual work accomplished during the reporting period.
b. Description of any problem areas.
c. Description of current and anticipated delays with recommended corrective actions to mitigate such delays.
d. A list of proposed modifications, additions, deletions, and changes in logic to the approved construction schedule.

2.3 REPORTS

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

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

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

2.4 SPECIAL REPORTS

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

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

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

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

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

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

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

END OF SECTION 01320
SECTION 01400- QUALITY CONTROL

PART 1 - GENERAL

1.01 SUPPLEMENTAL TESTING

If required, the following testing shall be performed at the expense of the contractor installing the material being tested:

A. Material Substitution: Any tests of basic material or fabrication equipment offered as a substitute for specified item on which a test may be required in order to prove its compliance with the specifications.

B. Mechanical/Electrical: Tests on mechanical and electrical systems required to insure their proper installation and operation.

C. Any test that fails shall be paid for by the installing contractor subject to the following conditions:
   1. Quantity and nature of tests will be determined by the Consultant.
   2. All test shall be done in the presence of the Owner or his representative.
   3. Proof of noncompliance will make the installing contractor liable for any corrective action which the Owner feels is prudent including complete removal and replacement of defective material.

D. Nothing contained herein is intended to imply that the installing contractor does not have the right to have tests performed on any material at any time for his own information and job control so long as the Consultant or Owner does not assume responsibility for costs or for giving them consideration when appraising quality of materials.

E. The Consultant shall determine the type and number of tests to be performed on the project.

1.02 TEST REPORTS

A. Reports of all tests made by testing laboratories shall be distributed by the testing laboratory as follows:
   1. 1 copy - Contractor
   2. 1 copy - Applicable supplier or subcontractor
   3. 1 copy - Owner
   4. 1 copy - Consultant
   5. Other copies - as directed

1.03 QUALITY CONTROL SYSTEM

A. General: The contractor shall establish a quality control system to perform sufficient inspection and tests of all items of work, including that of all subcontractors, to ensure conformance to the Contract Documents for materials, workmanship, construction, finish, functional performance and identification. This control shall be established for all
construction except where the Contract Documents provide for specific compliance tests by testing laboratories or Consultants employed by the Owner.

The quality control system is the means by which the Contractor assures that construction complies with the requirements of the Contract Documents. Controls shall be adequate to cover all construction operations and should be keyed to the proposed construction schedule.

B. The Contractor shall designate a quality control representative on staff to review the work to insure compliance with the contract documents by weekly jobsite visits for observation. The designated employee shall not be involved in the performance of the work. The quality control representative shall review the work and make necessary corrections to bring the work into compliance prior to scheduling the Architect for the final punchlist review.

C. Records: The Contractor shall maintain correct records on an appropriate form for all inspections and tests performed, instruction received from the Owner and actions taken as a result of those instructions. These records shall include evidence that the required inspections or tests have been performed (including type and number of inspections or tests, nature of defects, causes for rejection, etc.) proposed or directed remedial action, and corrective action taken. The Contractor shall document inspections and tests as required by each Section of the Specifications.

1.04 INDEPENDENT TESTING AGENCY SERVICES

A. The Owner will employ and pay for the services of an independent Testing Agency to perform the Inspections, special inspections, tests and other services when required by sections of the specification. Services shall be performed in accordance with requirements of governing authorities and with specified standards.

1. Contractor shall cooperate with Testing Agency personnel and shall furnish tools, sample of materials, design mixes, equipment and assistance as requested.

2. Contractor shall provide and maintain, for the sole use of the Testing Agency, adequate facilities for the safe storage and proper curing of concrete testing cylinders on the project site for the first 24 hours after casting as required by ASTM C 31, Method of Making and Curing Concrete Test Specimens in the field.

3. Contractor shall notify Testing Agency sufficiently in advance of operations to allow for completion of initial tests and proper assignment of inspection personnel.

4. Contractor shall notify the testing agency sufficiently in advance of cancellation of required testing operations. The Contractor shall assume responsibility for costs incurred due to the failure to provide such notice.

END OF SECTION 01400
SECTION 01500- TEMPORARY FACILITIES

PART 1- GENERAL

1.01 RELATED DOCUMENTS

A. General.
   1. Drawings and general provisions of Contract, including General and Supplementary
      Conditions and other Division 1 Specification sections, apply to work of this section.

B. Refer to “Floor Protection Plan” on sheet A0.0 for additional requirements.

1.02 DESCRIPTION OF REQUIREMENTS

A. This section of the General Requirements outlines the basic requirements for temporary
   services, utilities, and facilities which will indirectly enable adequate construction
   progress and processes, and will accommodate other necessary activities at the project
   site except as otherwise indicated, the costs of providing and using temporary services
   are included in the Contract Sum.

1.03 QUALITY ASSURANCE

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

1.04 SITE CONDITIONS

A. Provide Temporary facilities and services at the time first needed at the site and
   maintain, expand, and modify the facilities as needed throughout the construction period
   and do not remove until no longer needed.

PART 2 - EXECUTION

2.01 GENERAL

A. Use qualified tradesmen for the installation of temporary facilities. Locate facilities where
   they will serve the total project construction work adequately and result in minimum
   interference with performance of the work. Relocate, modify, and extend facilities as
   required during the course of the work to properly accommodate the entire work of the
   project.

2.02 TEMPORARY FACILITIES

A. Temporary Water: Connect to existing water source as designated by the Owner for
   construction operations.

B. Temporary Telephone: Provide, maintain and pay for telephone service to field office at
   time of project mobilization. If a mobile phone is designated as the field office phone
   then it shall be a local number.
C. **Sanitary Facilities:** Comply with governing regulations, including safety and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Toilet rooms in existing buildings or in new construction may not be used without written approval of the Owner except for those identified on the “Floor Protection Plan”.

D. **Temporary Heat and Ventilation:** Provide such OSHA approved heat and fuel, heating units, equipment as necessary to provide the required environmental conditions and to protect the work from damage due to cold. Maintain equipment in a clean, safe condition.

E. **Fire Extinguisher:**
   1. Except as otherwise indicated or required, comply with the applicable recommendations of NFPA No. 10 “Portable Fire Extinguisher” for each area of each construction activity whenever combustible materials, flammable liquids, and similar exposures to possible fires are present.
   2. Locate extinguisher where most convenient and effective for the intended purposes. Store combustible materials in recognized fire-safe locations and containers.

F. **Protection**
   1. Refer to “Floor Protection Plan” for detailed requirements for floors, walls, etc. throughout the work area.
   2. Barricades, Warning Signs, and lights: Comply with recognized standards and code requirements for the erection of substantial and structurally adequate barricades wherever needed to prevent accidents and losses. Paint with appropriate colors, graphics and warning signs to inform personnel at the site and the general public where exposure exists of the hazard being protected. Provide lighting where appropriate and needed for the recognition of the facility, including flashing red lights where appropriate.

   2. **Temporary Enclosure:** Where shown and as described on the “Floor Protection Plan”, provide temporary enclosure of materials, equipment, work in progress, and completed portions of work, so as to afford protection for both the existing building, the work and employees.

H. **Miscellaneous Facilities:**
   1. Provide ladders, ramps, and temporary stairs for access to all levels of the construction for general access by all trades. Individual contractors and subcontractors shall furnish their own stepladders, scaffolds, staging, work platforms, and other facilities for use of their workmen and as necessary for safety of all personnel.

I. **Field Office:**
   1. The Contractor shall provide and maintain a suitable temporary field office for his own use. Offices and all other temporary structures shall be removed from the site upon completion of the work.
   2. Temporary structures or storage used for storage and offices for contractors shall be located on the site in an orderly manner as determined by the Owner.
2.03 OPERATIONS AND TERMINATIONS

A. Supervision: Enforce strict discipline in the use of temporary facilities at the project site. Limit availability of facilities to essential and intended uses, so as to minimize waste and possibility of abuses and the resulting unsanitary and hazardous or dangerous conditions.

B. Maintenance: Operate and maintain temporary facilities in good operating condition through the time of use and until removal is authorized. Protect from damage by freezing temperatures and similar elements at the site.

C. Termination and removal: At the time the need has ended for each temporary facility, or when it has been replaced by authorized use of a permanent facility, or at the time of Substantial completion, promptly remove the facility unless requested by the Consultant to be retained for a longer period of time. Complete or restore permanent work which may have been delayed or otherwise affected by the temporary facility. Replace work which cannot be satisfactorily restored. Except as otherwise indicated, the materials and equipment of temporary facilities remain the property of the contractors.

END OF SECTION 01500
SECTION 01600- MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Products.
   2. Transportation and Handling.
   4. Manufacturer's Instructions.
   5. Product Options.
   6. Products List.
   7. Substitutions.

B. Related Sections:
   1. Section 01400 - Quality Control.
   2. Section 01730 - Operation and Maintenance Data.

1.02 QUALITY ASSURANCE

A. Conform to applicable specifications and standards.

B. Comply with size, make, type and quality specified, or as specifically approved in writing by the Consultant.

C. Manufactured and Fabricated Products:
   1. Two or more items of the same kind shall be identical, by the same manufacturer.
   2. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.

1.03 TRANSPORTATION AND HANDLING

A. Arrange deliveries of products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.

B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

1.04 STORAGE AND PROTECTION

A. Store products in accordance with manufacturer’ instruction, with seals and labels intact and legible.

B. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under required conditions.
1.05 MANUFACTURER’S INSTRUCTIONS

A. When Contract Documents require that installation of work shall comply with manufacturer’s printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including one copy to the Consultant and one copy to the Contractor.

B. Perform work in accord with manufacturer’s instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.06 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards.

B. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not specifically named.

C. Consultant will review requests for substitutions with reasonable promptness, and notify, by Addendum, of the decision to accept or reject the requested substitution.

1.07 PRODUCT LIST

A. Within 15 days after signing of agreement, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

1.08 SUBSTITUTIONS

A. Substitution Requests: Requests for substitution will only be considered prior to bidding. If, at the time of bidding, a specified product, material, system, or piece of equipment is not available, or a method of construction is not achievable, it shall be the responsibility of bidders to notify the Architect in the form of a Request for Substitution. No consideration during construction will be made for additional compensation for any requested substitutions not previously approved.

B. Timing: Architect will consider requests for substitution if received up to 5 calendar days prior to the established Bid Date. Requests received after that time will not be considered, at the discretion of Architect.

C. Documentation: Submit request for consideration on the supplier’s/bidder’s own form.

1. Show compliance with requirements for substitutions and the following, as applicable:
   2. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   3. Statement indicating why the proposed substitution is equivalent to that specified, or why specified material or product cannot be provided.
   4. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
5. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include, but are not limited to, attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.

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

7. Samples, where applicable or requested.

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

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

10. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.

11. Bidder's or supplier's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.

12. Architect's Action: If the proposed substitution is found to be acceptable, the Architect will notify all bidders in the form of an Addendum. No other notifications will be made.

1.09 COMPARABLE PRODUCTS

A. General: Architect may consider Contractor's request for use of comparable products when the specified conditions are satisfied. If the specified conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements. The Architect shall be the sole judge of comparability, and whose judgment shall be final.

B. Timing: Architect may consider requests for use of comparable products if received within 30 days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of the Architect.

C. Conditions: Architect may consider requests for use of comparable products when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Proposed comparable material or product offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.

2. Proposed comparable material or product offers does not require extensive revisions to the Contract Documents.

3. Proposed comparable material or product offers is consistent with the Contract Documents and will produce indicated results.

4. Request for use of a comparable material or product is fully documented and properly submitted.
5. Proposed comparable material or product will not adversely affect Contractor's Construction Schedule.
6. Proposed comparable material or product has received necessary approvals of authorities having jurisdiction.
7. Proposed comparable material or product is compatible with other portions of the Work.
8. Proposed comparable material or product has been coordinated with other portions of the Work.
9. Proposed comparable material or product provides specified warranty.
10. If proposed comparable material or product involves more than one contractor, proposed comparable material or product 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.

D. Documentation: Show compliance with requirements for proposed comparable materials and products and the following, as applicable:

1. Statement indicating why specified material or material or product cannot be provided.
2. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
3. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
4. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
5. Samples, where applicable or requested.
6. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
7. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
8. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
9. 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 lack of availability or delays in delivery.
10. Cost information, including a proposal of change, if any, in the Contract Sum.
11. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
12. 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.

E. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 calendar days of receipt of a request for use of a comparable product. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 calendar days of receipt of request, or 7 calendar days of receipt of additional information or documentation, whichever is later.
F. Form of Acceptance: Change Order.

G. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

1.10 SYSTEMS DEMONSTRATION

A. Prior to final inspection, demonstrate operation of each system to Consultant and Owner.

B. Instruct Owner's personnel in operation, adjustment, and maintenance of equipment and systems, using the operation and maintenance data as the basis of instruction.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01600
SECTION 01700- CONTRACT CLOSE-OUT

PART 1 - GENERAL

1.01 SUBSTANTIAL COMPLETION AND FINAL INSPECTION

A. The Contractor shall comply with procedures stated in the General Conditions of the Contract for Notice of Completion, Final Inspection, Notice of Substantial Completion and Notice of Acceptance.

B. Should the Architect/Engineer or the Principle Representative determine that the work is not substantially complete, or the punch list items exceed 25, he will immediately notify the Contractor, in writing, stating reasons. After Contractor completes work, he shall resubmit certification and request for final inspection. The Contractor will be responsible for all costs beyond two Architect/Engineer walk-throughs.

C. Owner may occupy designated portions of the Project under provisions stated in the General Conditions of the Contract.

1.02 CLOSE-OUT FORMS

The Architect/Engineer will complete the Notice of Approval of Beneficial Occupancy, Closing-out Checklist and Contract Close-out forms and forward them to the Contractor. Comply with procedures stated in General Conditions of the Contract.

1.03 FINAL SETTLEMENT AND PAYMENT

A. Contractor shall comply with procedures stated in the General Conditions of the Contract before final settlement and payment are made.

B. The Contractor shall also submit the following prior to the final application for payment:
   1. Contractor’s Affidavit of Payment of Debit and Claims: AIA G706.
   2. Contractor’s Affidavit of Release of Liens (claims): AIA G706A, with:
      a. Consent of Surety to final payment: AIA G707
      b. Contractor’s release of waivers of claims.
      c. Separate release of waivers of claims for subcontractors, suppliers and others with claim rights, against property of owner, together with list of those parties.

1.04 GUARANTEE INSPECTION

A. The Contractor shall comply with procedures stated in the General Conditions of the Contract for Guarantee Inspections after completion of the work.

1.05 WARRANTIES AND SPECIAL GUARANTEES
The Contractor shall comply with procedures and criteria outlined in the General Conditions of the Contract for all warranties and special guarantees of the work.

1.06 OPERATING AND MAINTENANCE DATA

A. Refer to Section 01730 - Operating and Maintenance.

B. Mechanical - By Mechanical Contractor: See Division 15.

C. Electrical - By Electrical Contractor: See Division 16.

1.07 DEMONSTRATIONS

A. Refer to Section 01730 - Operating and Maintenance

B. Mechanical - By Mechanical Contractor: See Division 15

C. Electrical - By Electrical Contractor: See Division 16.

1.08 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, and maintenance materials in quantities specified in each Section, in addition to that used for construction of work. Coordinate with Owner, deliver to Project site and obtain receipt prior to final payment.

B. At the completion of the project, all loose keys for hose bibs; adjustment keys and wrenches for door closers and panic hardware; and keys for electric switches, electrical panels, etc., shall be accounted for by the Contractor and turned over to the Owner.

END OF SECTION 01700
SECTION 01710- CLEANING

PART 1 - GENERAL

1.01 CLEANING

A. Clean-up During Construction: Each contractor shall keep the building and premises free from all surplus material, waste material, dirt and rubbish caused by his employees or work, and at the completion of his work he shall remove all such surplus material, waste material, dirt and rubbish, as well as his tools, equipment and scaffolding, and shall leave his work clean and spotless, unless more exact requirements are specified. In case of dispute, the owner may remove all such items and charge the cost of such removal to the contractor.

Each sub-contractor shall perform his clean-up daily and shall transport his rubbish to an on-site location designated by the Contractor who will arrange for its removal.

B. Cleaners: With the exception of clean-up of the site and cleaning specifically assigned to Contractors under various sections of the specifications, all final clean-up of exterior and interior of the building shall be done by professional cleaners.

C. Final Clean-up:

1. Exterior: In addition to items specified below, any new surfaces on exterior, concrete, metal, etc., shall be carefully and thoroughly cleaned.

2. Glass: Both sides of all glass in work areas shall be carefully and thoroughly cleaned by professional window cleaners and left absolutely clean and free from paint, grease, dirt, etc.

3. Hardware: Clean and polish all hardware and leave clean and free from paint, grease, dirt, etc.

4. Plumbing: Clean and polish all plumbing fixtures, fittings, and exposed plated piping. Leave clean and free from paint, grease, dirt, etc. Remove all labels.

5. Electrical: Clean and polish all electric fixtures, including glassware, switch plates, etc. and leave clean and free from paint, grease, dirt, etc.

6. Equipment: Carefully and thoroughly clean all items of equipment, mechanical, electrical, cabinets, ductwork, etc.

7. Floors: Thoroughly clean all floors. Vacuum and clean carpeting. Shampooing of pre-existing carpet is required once project is complete. Contractor is responsible for this.

a. Contractors are responsible for cleaning (stripping floors if necessary) then applying the required two coats of sealer and three coats of finish before releasing the building for occupancy. Facilities Management will provide a contact person for help concerning campus standards free of charge. Or Custodial floor care services may be sub-contracted out through Facilities Management's work order system.

b. Facilities Management Approved Sealers and Finishes for Vinyl Tile.

D. Flooring:

1. CU requires floor care products to be from the same product line. (Different brands may interact disastrously).

2. All of these products may be ordered through Construction Stores, but these products not stocked at Stores, please place orders at least two weeks in advance.
Strippers:  
- Johnswax Freedom
- Butchers:  Time Buster
- Airkeim:  Air Strip

Sealers:  
- Over & Under Technique
- Iron Stone
- Laser, Gemini

Finishes:  
- Show Place MainStay Above
- Laser, Gemini

3. Campus safety standards require at least TWO (2) coats of Sealer be applied to a cleaned floor, and at least THREE (3) coats of Finish must be applied on top of the sealer.

4. Floor Cleaning Procedures:
   a. Sweep floor clean of debris
   b. Cord off area if necessary
   c. Put up Caution signs
   d. Mix Stripper or Cleaning solution according to label
   e. Apply solution to floor
   f. Start setting up equipment
   g. Place RED abrasive pad on buffer (buffer less than 300 rpms)
   h. Begin stripping or cleaning floor working with buffer moving it side to side across the floor.
   i. Use HEPA filtered water vacuum to begin to suck up slurry*
   j. Apply additional coats of water and re-vacuum up floor
   k. Mop floor with clean water, change rinse water often
   l. Mop floor a second time
   m. Mop floor to dry completely
   n. Clean up equipment
   p. Wash red pad with clean water.

5. Sealing Procedures:
   a. Using a new mop head or clean wax mop and clean bucket, apply first coat of approved sealer to floor
   b. Allow floor to dry completely (at least 20 minutes)
   c. Apply second coat of sealer
   d. Allow floor to dry

6. Finishing (Waxing) Procedures:
   a. Using a clean wax mop and bucket apply first coat of approved finish (wax)
   b. Allow floor to dry completely (at least 20 minutes)
   c. Apply second coat of finish (wax)
   d. Allow floor to dry completely (at least 20 minutes)
   e. Apply third coat of finish (wax)
   f. Allow floor to dry completely (at least 30 minutes)
   g. Wash mop and bucket with clean water
   h. If floor is dry - remove caution signs and open area up
7. Burnishing Procedures:
The next working day
    a. Sweep floor clean of debris
    b. Spot mop floor to remove spots and dirt
    c. Set up High Speed Burnisher to make for a safe environment
    d. Start Burnishing. Walk forward in a straight line
    e. At end of row, turn around and start forward again
    f. Repeat steps 5 & 6 until finished
    g. Clean up equipment and pad.

E. Completion: The entire work inside and out, and the entire premises shall be in first-class, clean condition upon completion before being accepted by the Owner.

END OF SECTION 01710
SECTION 01720- PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. This section describes the definitions, recording and maintenance requirements and the submittal requirements for record documents.

1.02 DEFINITIONS

A. The Project Record Documents are intended to indicate all changes and deviations from the original contract documents and permanently record the “as-built” condition of material, equipment and structure. The project record documents shall include the contract drawings, project manual, addenda, change orders, modifications and clarifications, field directives, approved shop drawings, approved product data, manufacturer’s certificates and project test results.

1.03 SUBMITTALS

A. Submit the project record documents in conformance with Section 01700 and prior to the final applications for payment. The final application for payment will not be approved prior to the submittal of record documents.

1.04 QUALITY ASSURANCE

A. The project record documents shall be updated at a minimum on a weekly basis and shall be readily available for inspection by the owner and consultants. Maintain a separate set of complete documents for exclusive use of record documents and protect the documents from damage in a clean, dry location. Note: Progress applications for payment will not be approved if record documents are not current.

B. The record documents shall contain a clear, legible record of all detail and dimensional changes and locate all concealed work including, but not limited to:
   1. Interior and Exterior Utilities
   2. Valves
   3. Dampers
   4. Controls
   5. Junction Boxes
   6. Clean-outs
   7. Access Doors

C. The project manual (specifications) shall indicate all manufacturers’ products complete with catalogue number and trade name of products installed. All changes and corrections to the project manual shall be clearly indicated.

END OF SECTION 01720
SECTION 01730- OPERATING AND MAINTENANCE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Compile product data and related information appropriate for the University of Colorado's maintenance and operation of products furnished.

B. Prepare operating and maintenance data as specified in this section and as referenced in other pertinent sections of specifications.

C. Instruct the University of Colorado, Facilities Management personnel in the maintenance of PRODUCTS and in the operation of equipment and systems.

1.02 QUALITY ASSURANCE

A. Preparation of data shall be done by personnel:
   1. Trained and experienced in maintenance and operation of the described products.
   2. Completely familiar with requirements of this section.
   3. Skilled as a technical writer to the extent required to communicate essential data.
   4. Skilled as a draftsman competent to prepare required drawings.

1.03 SUBMITTALS

A. Prepare data in the form of an instructional manual for use by the University of Colorado, Facilities Management personnel. Quantities are listed in Part 1.07.

B. Format:
   1. Submit electronically in Portable Document Format (PDF) format as one document, OCR (Optical Character Recognition) searchable, bookmarked according to the Construction Specifications Institute (CSI) standards.
   2. Title shall be "OPERATING AND MAINTENANCE INSTRUCTIONS", and shall include:
      a. Name of project and date of completion (month and year).
      b. Project number.
      c. Identify of general subject matter covered in the manual (e.g., Architectural, Mechanical, Electrical and/or Civil).

1.04 CONTENT OF MANUAL

A. An electronically-written table of contents shall be provided for each volume, arranged according to CSI standards.
   Include the following:
   1. Name of responsible installing principal contractor, address, and telephone number.
   2. A list of each product being included, indexed to the content of the volume.
   3. List with each product, the name, address, and telephone number of:
      a. Maintenance contractor, as appropriate.
      b. Identity of the area of responsibility of each.
4. Identify each product by product name and other identifying symbols.

B. Product Data:
   1. Local source of supply for parts and replacement.
   2. Include only those sheets that are pertinent to the specific product, with the following information.
      a. Clearly identify the specific product or part installed.
      b. Clearly identify the data applicable to the installation.
      c. Delete references to inapplicable information.

C. Drawings:
   1. Supplement product data with drawings as necessary to clearly illustrate:
      a. Relations of component parts of equipment and systems.
      b. Control and flow diagrams.
   2. Coordinate drawings with information in project record drawings to ensure correct illustration of completed installation.
   3. Do not use project record drawings as maintenance drawings.

D. Provide written text, as required, to supplement product data for the particular installation:
   1. Organize in a consistent format under separate headings for different procedures.
   2. Provide a logical sequence of instructions for each procedure.

E. Provide a copy of each warranty, bond, and service contract issued. Provide information sheets for the University of Colorado, Facilities Management's personnel and give:
   1. Proper procedures in the event of failure.
   2. Instances that might affect the validity of warranties or bonds.

1.05 MANUALS FOR ARCHITECTURAL MATERIAL AND FINISHES

A. Submit copies (per schedule shown in paragraph 1.07) of complete manual in final form.

B. Content for architectural products include applied materials and finishes.
   1. Manufacturer's data, giving full information on products.
      a. Catalog number, size, and composition.
      b. Color and texture designations.
      c. Information required for reordering special manufactured products.
   2. Instructions for care and maintenance:
      a. Manufacturer's recommendation for types of cleaning agents and methods.
      b. Cautions against cleaning agents and methods that are detrimental to the product.
      c. Recommended schedule for cleaning and maintenance.

C. Content for moisture-protection and weather-exposed products:
   1. Provide manufacturer's data, giving fully information on products.
      a. Applicable standards
      b. Chemical composition
      c. Details of installation
2. Provide instructions for inspection, maintenance, and repair.

1.06 MANUAL FOR NON-ARCHITECTURAL EQUIPMENT AND SYSTEMS

A. Submit copies (per schedule) of complete manual in final form.

B. Content for each unit of equipment and system, as appropriate shall contain:
   1. Description of unit and component parts (Consultant-approved submittals).
      a. Function, normal operating characteristics, and limiting conditions.
      b. Performance curves, engineering data, and tests.
      c. Complete nomenclature and Commercial number of all replaceable parts.
   2. Operating Procedures:
      a. Start-up, break-in, routine, and normal operating instructions.
      b. Regulation, control, stopping, shutdown, and emergency instructions.
      c. Summer and winter operating instructions.
      d. Special operating instructions.

C. Content for each electric and electronic system, as appropriate, shall contain:
   1. Description of system and component parts:
      a. Function, normal operating characteristics, and limiting conditions.
      b. Performance curves, engineering data, and tests.
      c. Complete nomenclature and Commercial number of replaceable parts.
   2. Operating Procedures:
      a. Routing and normal operating instructions.
      b. Sequences required.
      c. Special operating instructions.
   3. Maintenance Procedures:
      a. Routing operations.
      c. Disassembly, repair, and reassembly.
d. Adjustment and checking.
e. Manufacturer's printed operating and maintenance instructions.
f. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.

D. Prepare and include additional data when the need for such data becomes apparent during instruction of the University of Colorado, Facilities Management's personnel.

1.07 OPERATION & MAINTENANCE MANUAL

A. Operations and Maintenance Manuals – all disciplines – submit electronically in Portable Document Format (PDF) format as one document, OCR (Optical Character Recognition) searchable, bookmarked according to the Construction Specifications Institute (CSI) standards.

1.08 SUBMITTAL SCHEDULE

A. Submit one electronic copy to the Consultants and one to the University of draft of proposed formats and outlines of contents upon completion of the submittal process. The Consultants and the University staff will review the draft and will submit comments through the consultants.

B. Submit electronic copies of complete manual(s) in final form 15 days prior to final inspection or acceptance. Comments will be submitted after final inspection.

C. Submit specified number of CDs or DVDs of approved data in final form prior to acceptance.

1.09 INSTRUCTION OF UNIVERSITY OF COLORADO, FACILITIES MANAGEMENT PERSONNEL

A. Fully instruct the University of Colorado, Facilities Management personnel's designated operating and maintenance personnel in the operation, adjustment, and maintenance of all products, equipment, and systems as required elsewhere in the specification.

B. Operating and Maintenance manual may be required as the basis of instruction.

PART 2 - MATERIAL

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION
SECTION 01740- COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Prepare commissioning process based on the Commissioning Checklists found in the UCB Standards website:

http://fm.colorado.edu/construction/standards/

B. Coordinate the requirements of Project Closeout and Operating and maintenance sections that are part of Division 1.

C. Schedule the required commissioning activities with the University of Colorado Facilities Department and their consultants at least 72 hours prior to conducting Commissioning activities.

PART 2 - MATERIALS

Not Used.

PART 3 - EXECUTION

Not Used

END OF SECTION 01740
SECTION 03542 - HYDRAULIC-CEMENT-BASED UNDERLAYMENT AND FLOOR TOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY
A. This Section includes:
   2. Portland cement floor topping for use at room perimeters and at floor drains to form sloping surfaces.

1.3 SUBMITTALS
A. Product Data: For each type of product indicated.
B. Manufacturer Certificates: Signed by manufacturers of both underlayment and floor covering system certifying that products are compatible.
C. Qualification Data: For Installer.

1.4 QUALITY ASSURANCE
A. Installer Qualifications: Installer who is approved by manufacturer for application of underlayment products required for this Project.
B. Product Compatibility: Manufacturers of both underlayment and floor covering system certify in writing that products are compatible.
C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.5 DELIVERY, STORAGE, AND HANDLING
A. Store materials to comply with manufacturer’s written instructions to prevent deterioration from moisture or other detrimental effects.

1.6 PROJECT CONDITIONS
A. Environmental Limitations: Comply with manufacturer’s written instructions for substrate temperature, ambient temperature and humidity, ventilation, and other conditions affecting underlayment performance.
1. Place hydraulic-cement-based underlayment and floor topping only when ambient temperature and temperature of substrates are between 50 and 80 deg F (10 and 27 deg C).

1.7 COORDINATION

A. Coordinate application of underlayment with requirements of floor covering products, including adhesives, specified in Division 9 Sections, to ensure compatibility of products.

PART 2 - PRODUCTS

2.1 HYDRAULIC-CEMENT-BASED UNDERLAYMENTS

A. Underlayment: Hydraulic-cement-based, polymer-modified, self-leveling product that can be applied in minimum uniform thicknesses of 1/2 inch (13 mm) and that can be feathered at edges to match adjacent floor elevations.

B. Products: Subject to compliance with requirements, provide the following, from one manufacturer:

1. Self leveling Portland cement underlayment:
   a. Ardex K 15, Ardex Engineered Cements.
   b. Approved Substitute
      1) Primers:
         a) Ardex P 51 primer, Ardex Engineered Cements.
         b) Approved Substitute

C. Water: Potable and at a temperature of not more than 70 deg F (21 deg C).

2.2 PORTLAND CEMENT FLOOR TOPPING:

Portland cement-based repair mortar modified with powdered polymers for good bond strength and flexibility.

A. Products: Subject to compliance with requirements, provide the following from the same manufacturer as the hydraulic-cement-based underlayment.

1. Ardex AM 100, Ardex Engineered Cements.
2. Approved Substitute

B. Water: Potable and at a temperature of not more than 70 deg F (21 deg C).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for conditions affecting performance.

1. Proceed with application only after unsatisfactory conditions have been corrected.
3.2 PREPARATION

A. General: Prepare and clean substrate according to manufacturer's written instructions.
   1. Treat nonmoving substrate cracks according to manufacturer's written instructions to
      prevent cracks from telegraphing (reflecting) through underlayment.
   2. Fill substrate voids to prevent underlayment from leaking.

B. Concrete Substrates:
   1. Saw cut perimeter of area to receive topping to a depth of ½-inch.
   2. Mechanically abrade base slabs to produce a heavily scarified surface profile to a depth
      of ½-inch.
      installation only after substrates do not exceed a maximum moisture-vapor-emission rate
      of 3 lb of water/1000 sq. ft. (1.36 kg of water/100 sq. m) in 24 hours.

C. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment
   according to manufacturer's written instructions.

3.3 UNDERLAYMENT APPLICATION

A. General: Mix and apply underlayment components according to manufacturer's written
   instructions.
   1. Close areas to traffic during underlayment application and for time period after application
      recommended in writing by manufacturer.
   2. Coordinate application of components to provide optimum underlayment-to-substrate and
      intercoat adhesion.

B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.

C. Apply underlayment to produce uniform, level surface.
   1. Provide 36-inch diameter block-out in underlayment to allow sloping recess at floor drain.

D. Cure underlayment according to manufacturer's written instructions. Prevent contamination
   during application and curing processes.

3.4 FLOOR TOPPING APPLICATION

A. Place concrete floor topping on hydraulic cement underlayment continuously in a single, sloping
   layer, tamping and consolidating to achieve tight contact with bonding surface. Do not permit
   cold joints or seams to develop within pour strip.
   1. Slope surfaces uniformly at room perimeters from a featheredge to a height of ¼-inch, for
      a continuous width of 12-inches, over underlayment.
   2. Slope surfaces uniformly at floor drains from a featheredge to a height of ½-inch +/-
      above abraded existing concrete floor (top edge flush with underlayment).

B. Finishing:
   1. Hard Trowel Finish: Apply trowel finish and consolidate concrete floor topping until
      surface is smooth and uniform in texture.
C. Do not install floor coverings over underlayment or floor topping until after time period recommended in writing by manufacturer.

D. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.

3.5 PROTECTION

A. Protect underlayment from concentrated and rolling loads for remainder of construction period.

END OF SECTION 03542
SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY
A. This Section includes the following:
   1. Steel framing and supports for countertops.
B. Related Sections include the following:
   1. Division 6 Section "Interior Architectural Woodwork".

1.3 SUBMITTALS
A. Shop Drawings: Show fabrication and installation details for metal fabrications.
   1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

1.4 QUALITY ASSURANCE
A. Welding: Qualify procedures and personnel according to the following:
   1. AWS D1.1, "Structural Welding Code--Steel."

1.5 PROJECT CONDITIONS
A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication and indicate measurements on Shop Drawings.
   1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate wall and other contiguous construction to ensure that actual dimensions correspond to established dimensions.
   2. Provide allowance for trimming and fitting at site.
PART 2 - PRODUCTS

2.1 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.2 FERROUS METALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
B. Steel Tubing: ASTM A 500, cold-formed steel tubing.

2.3 FASTENERS

2.4 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.
   1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
   2. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

2.5 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
C. Form exposed work true to line and level with accurate angles and surfaces and straight edges.
D. Weld corners and seams continuously to comply with the following:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove welding flux immediately.
   4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
E. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

F. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

2.6 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

2.7 STEEL AND IRON FINISHES

A. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:

1. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."


PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations.

C. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide, lag bolts, wood screws, and other connectors.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

3.3 INSTALLING PREFABRICATED BUILDING COLUMNS

A. Install prefabricated building columns to comply with AISC's "Specification for Structural Steel Buildings Allowable Stress Design and Plastic Design with Commentary" and with requirements applicable to listing and labeling for fire-resistance rating indicated.
3.4 ADJUSTING AND CLEANING

A. Touchup Painting: Clean and touchup paint of bolted connections, and abraded areas of shop paint.

END OF SECTION 05500
SECTION 06105 - MISCELLANEOUS CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Wood blocking and nailers.

1.3 DEFINITIONS

A. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.

B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
   1. WWPA: Western Wood Products Association.

1.4 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
   1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.

PART 2 - PRODUCTS

2.1 FIRE-RETARDANT-TREATED MATERIALS

A. General: Comply with performance requirements in AWPA C20 (lumber)
   1. Use treatment that does not promote corrosion of metal fasteners.
   2. Use Interior Type A, with fire-retardant chemicals to achieve a flame-spread rating of not more than 25 when tested in accordance with UL Test 723 or ASTM E84.
   3. Provide UL label on each piece of fire-retardant treated lumber or plywood.
B. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.

C. Application: Treat all miscellaneous carpentry, unless otherwise indicated.
   1. Concealed blocking and nailers.

2.2 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
   1. Concealed blocking and nailers.

B. For items of dimension lumber size, provide lumber with 15 percent maximum moisture content of any species.

C. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.3 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

B. Nails, Brads, and Staples: ASTM F 1667.


D. Wood Screws: ASME B18.6.1.

E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

F. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate blocking and similar supports to comply with requirements for attaching other construction.

B. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
   1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches (406 mm) o.c.
C. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.

D. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

3.2 WOOD BLOCKING INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

END OF SECTION 06105
SECTION 06402 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the installation of the following, to be furnished by the University:

1. Solid-surfacing-fabrications and components:
   a. Wall panels.
   b. Shower pans.
   c. Vanities with integral lavatory bowls, and vanity vertical support cladding.
   d. Soffit and ceiling panels.
   e. Door thresholds.

B. Related Sections include the following:

1. Division 5 Section “Metal Fabrications” for steel countertop sub-support.
2. Division 6 Section “Miscellaneous Carpentry” for wood blocking required for installing woodwork and concealed within other construction before woodwork installation.
3. Division 9 Section “Non-Load-Bearing Steel Framing” for countertop support.

1.3 DEFINITIONS

A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

1.4 SUBMITTALS

A. Qualification Data: For installer.

B. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

1.5 QUALITY ASSURANCE

A. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for installation, and other requirements.
1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not install woodwork until wet work is complete, and HVAC system is maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

B. Field Measurements: Where woodwork is indicated to fit to other construction, provide dimensions of other construction by field measurements to the fabricators for use in its Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
   1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.
   2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.7 COORDINATION

A. Coordinate sizes and locations of framing, blocking, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.

B. Wood Products: Comply with the following:
   1. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.

C. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with ISSFA-2 (This information is for coordination and reference, only. All solid surface fabrications will be furnished by Owner for installation by the Contractor).
   1. Colors:
      a. SS-1 (1/4”): F1-8010 “Bone”
         1) Wall Panels
         2) Thermo-formed portions of Shower pans.
      b. SS-1A (1/2”): F1-8010 “Bone”
         1) Thermo-formed portions of Shower pans.
      c. SS-2 (1/2”): K3-8500 “Nougat”
         1) Vanities tops, front skirt and legs.
         2) Shower pan curbs.
      d. SS-3 (1/4”): F1-8016 “White”.

1) Soffit and ceiling panels.

e. SS-6 (1/2"): F1-9037 "High Desert"
   1) Thresholds.

f. Solid-surfacing lavatory bowls:
   1) “Winter White”.

D. MISCELLANEOUS MATERIALS

E. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.

F. Adhesives, General: Do not use adhesives that contain urea formaldehyde.

G. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Wood Glues: 30 g/L.
2. Contact Adhesive: 250 g/L.

2.2 SOLID-SURFACING-MATERIAL.

A. Grade: Custom.

B. The following, pertaining to the fabrication of solid surfacing-material components, is provided as “information-only” to the installer.

1. Solid-Surfacing-Material Thickness:
   a. 1/2 inch (13 mm):
      1) Vanity tops, skirts and legs.
      2) Thresholds.
   b. 1/4 inch (6 mm):
      1) Wall panels.
      2) Soffit and ceiling panels

2. Fabricate tops in one piece. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
   a. Fabricate tops with shop-applied edges of materials and configuration indicated.

3. Install integral lavatory bowls in countertops in shop.
4. Fabricate seams and joints to be solid and inconspicuous.
5. Exposed Corners: Ease with 1/16" radius.
6. Drill holes in countertops for plumbing fittings and soap dispensers in shop.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.
3.2 INSTALLATION

A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.

B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.

C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).

D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation.

F. Countertops: Anchor securely by screwing to wall or light-gage metal framing.
   1. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
   2. Install countertops with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
   3. Secure backsplashes to tops and walls with adhesive.
   4. Calk space between backsplash ledge and wall, and between wall panels and ceramic tile, with sealant specified in Division 7 Section "Joint Sealants."

G. Solid-surface countertop support covers and wall panels:
   a. Field measure and scribe to adjacent construction.
   b. Secure with adhesive.

H. Thresholds:
   a. Secure with adhesive.

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 06402
SECTION 07841 - THROUGH-PENETRATION FIRESTOP SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes:

1. Through-penetration firestopping in fire-rated barriers including both empty openings and openings containing cables, pipes, ducts, conduits and other penetrating items.
2. Construction-gap firestopping at connections of the same or different materials in fire-rated construction using fire-resistant sealants.
3. Construction-gap firestopping occurring within fire-rated walls using fire-resistant sealants.
4. Construction-gap firestopping occurring at the top of fire-rated walls.

B. Related Sections include the following:

1. Division 21 Sections specifying fire-suppression piping penetrations.
2. Divisions 22 Sections specifying piping penetrations.
3. Divisions 23 Sections specifying duct penetrations.
4. Division 16 Sections specifying cable and conduit penetrations.

1.3 PERFORMANCE REQUIREMENTS

A. General: For penetrations through the following fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.

1. Fire-resistance-rated walls including fire walls, fire partitions, fire barriers and smoke barriers.

B. Rated Systems: Provide through-penetration firestop systems with the following ratings determined per ASTM E 814:

1. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
2. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:

   a. Penetrations located outside wall cavities.
   b. Penetrations located outside fire-resistance-rated shaft enclosures.
c. Where firestop systems protect penetrations located in construction containing doors required to have a temperature-rise rating.
d. Where firestop systems protect penetrating items larger than a 4-inch diameter nominal pipe or 16 sq. in. in overall cross-sectional area.

C. For through-penetration firestop systems exposed to view, moisture, and physical damage, provide products that, after curing, do not deteriorate when exposed to these conditions both during and after construction.

1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
2. For floor penetrations with annular spaces exceeding 4 inches (100 mm) in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved, either by installing floor plates or by other means.
3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

D. For through-penetration firestop systems exposed to view, provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Qualification Data: For Installer.

C. Product Certificates: For through-penetration firestop system products, signed by product manufacturer. Submit manufacturer’s certification that materials supplied are in accordance with the specifications and requirements of the authorities having jurisdiction.

D. Product Test Reports: Submit product test reports from, and based on tests performed by, a qualified testing and inspecting agency that is acceptable to ICBO and the University of Colorado Boulder Department of Environmental Health and Safety showing evidence of compliance of firestopping with requirements based on comprehensive testing of current products.

E. Through-Penetration Firestop System Schedule: Indicate locations of each through-penetration firestop system, along with the following information:

1. General:
   a. Project Name.
   b. Construction Type.
   c. Occupancy.
   d. Firestop Applicator.

2. Types of penetrating items.

3. Types of constructions penetrated, including fire-resistance ratings and, where applicable, thicknesses of construction penetrated.
   a. Gypsum Board Walls
   b. CMU and Concrete Walls
   c. Concrete Floors
   d. Floor/Ceiling Assemblies
4. Through-penetration firestop systems for each location identified by firestop design
designation of qualified testing and inspecting agency.

   a. Fire Resistive Rating Requirements:
      1) Hourly fire rating.
      2) "F" Rating.
      3) "T" Rating.
      4) Qualified testing agency Design No.
      5) Penetrating item.
      6) Penetrating material and size.
      7) Minimum annular space.
      8) Maximum annular space.
      9) Design drawing reference.
     10) Shop drawing detail or sheet number.

1.2 QUALITY ASSURANCE

B. Fire-Test Response Characteristics:

1. Provide firestopping that complies with the following requirements and those specified
under the "System Performance Requirements" article:

   a. Perform firestopping tests by a qualified testing and inspecting agency. A qualified
      testing and inspecting agency is UL, Warnock Hersey, or another agency
      performing testing and follow-up inspection services for firestop systems that is
      acceptable to the University of Colorado Boulder Department of Environmental
      Health and Safety.

   a. Through-penetration firestop systems must be identical to those tested per ASTM
      E814 under conditions where positive furnace pressure differential of a least 0.01"
      of water is maintained at a distance of 0.78" below the fill materials surrounding the
      penetrating items in the test assembly. Provide rated systems complying with the
      following requirements:

      1) Furnish products bearing classification marking of qualified testing and
         inspecting agency.
      2) Furnish firestop systems corresponding to those indicated by reference to
         system designations listed by UL in their "Fire Resistance Directory" or by
         Warnock Hersey.

   b. Fire-resistive joint sealant systems must be identical to those tested for fire-
      response characteristics per ASTM E119 under conditions where the positive
      furnace pressure differential is at least 0.01 inch of water, as measured 0.78 inch
      from the face exposed to furnace fire. Provide systems complying with the
      following requirements:

      1) Fire-Resistance Ratings of Joint Sealants: As indicated by reference to
         design designations listed by UL in their "Fire Resistance Directory."
      3) Furnish joint sealants, including backing materials bearing classification
         marking of qualified testing and inspection agency.
C. Standards:
   1. Conform to applicable standards, including, but not limited to:
      b. ASTM E814 Test Method of Fire Tests of Through-Penetration Firestops

D. Installer Qualifications:
   1. A firm experienced in installing through-penetration firestop systems similar in material,
      design, and extent to that indicated for this Project, whose work has resulted in
      construction with a record of successful performance of not less than three
      years. Qualifications include having the necessary experience, staff, and training to
      install manufacturer's products per specified requirements. Manufacturer's willingness to
      sell its through-penetration firestop system products to Contractor or to Installer engaged
      by Contractor does not in itself confer qualification on buyer.
   2. Installation Responsibility: Assign installation of through-penetration firestop systems
      and fire-resistant joint systems in Project to a single qualified installer.

E. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration
   and construction condition indicated, through one source from a single manufacturer.

F. Preconstruction Laboratory Tests:
   1. Submit substrate materials representative of actual joint surfaces to be sealed to
      manufacturer of firestopping products for laboratory testing of firestop materials for
      adhesion to primed and unprimed substrate joints and for compatibility with secondary
      seals, if required, as indicated below:
      a. Use test methods standard with manufacturer to determine if priming and other
         specific substrate preparation techniques are required to obtain rapid, optimum
         adhesion of firestopping to substrate joints under environmental conditions that will
         exist during actual installation.
      b. Testing will not be required when firestopping manufacturer is able to submit
         preparation data required above which is based on previous testing of current
         firestopping products for adhesion to, and compatibility with, substrates matching
         those submitted

G. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply
   with the following requirements and those specified in Part 1 "Performance Requirements"
   Article:
   1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified
      testing and inspecting agency is UL or another agency performing testing and follow-up
      inspection services for firestop systems acceptable to authorities having jurisdiction.
   2. Through-penetration firestop systems are identical to those tested per testing standard
      referenced in "Part 1 Performance Requirements" Article. Provide rated systems
      complying with the following requirements:
      a. Through-penetration firestop system products bear classification marking of
         qualified testing and inspecting agency.
      b. Through-penetration firestop systems correspond to those indicated by reference
         to through-penetration firestop system designations listed by the following:

         1) UL in its "Fire Resistance Directory."
H. Detectable Asbestos:
   1. Provide firestopping products containing no detectable asbestos as determined by the
      method specified in 40 CFR Part 763, Subpart F, Appendix A, Section 1, "Polarized Light
      Microscopy."

I. Preinstallation Conference: Conduct conference at Project site to comply with requirements in
   Division 1 Section "Project Management and Coordination."

J. Information on Drawings: Drawings indicate fire-resistance of existing walls. Submit
   documentation indicating that proposed products will maintain the existing fire-resistance.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver through-penetration firestop system products to Project site in original, unopened
   containers or packages with intact and legible manufacturers' labels identifying product and
   manufacturer, date of manufacture, lot number, shelf life if applicable, qualified testing and
   inspecting agency's classification marking applicable to Project, curing time, and mixing
   instructions for multicomponent materials.

B. Store and handle materials for through-penetration firestop systems to prevent their
   deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or
   substrate temperatures are outside limits permitted by through-penetration firestop system
   manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.

B. Ventilate through-penetration firestop systems per manufacturer's written instructions by natural
   means or, where this is inadequate, forced-air circulation.

1.7 COORDINATION

A. Coordinate construction of openings and penetrating items to ensure that through-penetration
   firestop systems are installed according to specified requirements.

B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate
   through-penetration firestop systems.

C. Notify Owner's inspecting agency at least seven days in advance of through-penetration firestop
   system installations; confirm dates and times on days preceding each series of installations.

D. Do not cover up through-penetration firestop system installations that will become concealed
   behind other construction until each installation has been examined by Owner's inspecting
   agency and building inspector, if required by authorities having jurisdiction.

1.8 WARRANTY:

A. Submit two copies of written, 2-year warranty agreeing to repair or replace firestopping which
   fails to perform as airtight and watertight joints; or fails in joint adhesion, cohesion, abrasion
   resistance, weather resistance, extrusion resistance, migration resistance, stain resistance, or
general durability; or appears to deteriorate in any other manner not clearly specified by submitted manufacturer's data as an inherent quality of the material for the exposure indicated.

B. Provide warranty signed by the Installer and Contractor.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide through-penetration firestop systems indicated for each application in the Through-Penetration Firestop System Schedule at the end of Part 3 that are produced by one of the following manufacturers:

1. 3M Fire Protection (products referenced in schedule as a standard of quality)
2. Bio-Fireshield Inc.
3. General Electric Company
4. Tremco, Inc.
5. Hilti Inc.
6. Approved Substitute

B. Compatibility: Provide through-penetration firestop systems that are compatible with one another; with the substrates forming openings; and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.

C. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with Part 1 “Performance Requirements” Article. Use only components specified by through-penetration firestop system manufacturer and approved by qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:

1. Permanent forming/damming/backing materials, including the following:
   a. Slag-rock-wool-fiber insulation.
   b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
      1) Fire-rated form board.
      2) Fillers for sealants.

2. Temporary forming materials.
5. Steel sleeves.

2.2 FILL MATERIALS

A. General: Provide through-penetration firestop systems containing the types of fill materials indicated in the Through-Penetration Firestop System Schedule at the end of Part 3 by
referencing the types of materials described in this Article. Fill materials are those referred to in directories of referenced testing and inspecting agencies as "fill," "void," or "cavity" materials.

B. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.

C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.

D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.

E. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.

F. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.

G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.

H. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives.

I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

J. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces, and nonsag formulation for openings in vertical and other surfaces requiring a nonslumping, gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.

2. Grade for Horizontal Surfaces: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces.


2.3 MIXING

A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of work.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with firestop system manufacturer's written instructions and with the following requirements:

1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.
2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form-release agents from concrete.

B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop system's seal with substrates.

3.3 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

A. General: Install through-penetration firestop systems to comply with Part 1 "Performance Requirements" Article and with firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.

B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.

C. Install fill materials for firestop systems by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

A. Identify through-penetration firestop systems with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches (150 mm) of edge of the firestop systems so that labels will be visible to anyone seeking to remove penetrating items or firestop systems. Use mechanical fasteners for metal labels. For plastic labels, use self-adhering type with adhesives capable of permanently bonding labels to surfaces on which labels are placed and, in combination with label material, will result in partial destruction of label if removal is attempted. Include the following information on labels:

1. The words "Warning - Through-Penetration Firestop System - Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor’s name, address, and phone number.
3. Through-penetration firestop system designation of applicable testing and inspecting agency.
4. Date of installation.
5. Through-penetration firestop system manufacturer’s name.
6. Installer’s name.

3.5 FIELD QUALITY CONTROL

A. Inspecting Agency: Owner will engage a qualified, independent inspecting agency to inspect through-penetration firestops. Independent inspecting agency shall comply with ASTM E 2174 requirements including those related to qualifications, conducting inspections, and preparing test reports.

B. Where deficiencies are found, repair or replace through-penetration firestop systems so they comply with requirements.

C. Proceed with enclosing through-penetration firestop systems with other construction only after inspection reports are issued and firestop installations comply with requirements.

3.6 CLEANING AND PROTECTING

A. Clean off excess fill materials adjacent to openings as Work progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop system manufacturers and that do not damage materials in which openings occur.

B. Provide final protection and maintain conditions during and after installation that ensure that through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce systems complying with specified requirements.
3.7 THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE

A. Minimum Ratings:
1. Floors: 3 hours.
2. Shaft Enclosures: 2 hours.

B. Systems

1. Firestop Systems with No Penetrating Items, subject to requirements, provide the following product or equal by listed manufacturer:
   a. 3M Fire Barrier IC 15WB Sealant

2. Firestop Systems for Metallic Pipes, Conduit, Tubing or Miscellaneous Mechanical Penetrations, subject to requirements, provide the following product or equal by listed manufacturer:
   a. 3M Fire Barrier CP 25WB+ Caulk

END OF SECTION 07841
SECTION 07920 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes sealants for the following applications, including those specified by reference to this Section:

B. This Section includes sealants for the following applications:

1. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
   a. Tile control and expansion joints.
   b. Joints between plumbing fixtures and adjoining walls, floors, and counters.
   c. Other joints as indicated.

C. Related Sections include the following:

1. Division 6 Section “Interior Architectural Woodwork” for sealing joints between solid-surfacing material and adjacent materials.
2. Division 7 Section "Through-Penetration Firestop Systems" for fire-resistant building joint-sealant systems.
3. Division 9 Section "Ceramic Tile" for sealants at tile installation.

1.3 QUALITY ASSURANCE

A. Applicator Qualifications:

1. Application shall be performed by a Joint Sealant Subcontractor with five years experience. Submit documentation to the Architect and Owner.

B. Manufacturer Technical Assistance:

1. Materials shall be supplied by manufacturer who will provide qualified technical assistance at the project site.

C. Performance Requirements:

1. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.
D. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

1.4 WARRANTY:
A. Submit 2 copies of written 2-year warranty agreeing to repair or replace joint sealers which fail to perform as airtight and watertight joints; or fail in joint adhesion, cohesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, stain resistance, or general durability; or appear to deteriorate in any other manner not clearly specified by submitted manufacturer’s data as an inherent quality of the material for the exposure indicated.

B. Provide warranty signed by the Installer and Contractor.

1.5 SUBMITTALS
A. Product Data: For each joint-sealant product indicated.

B. Sealant Schedule: List joint condition and identify adjacent materials, type of sealant proposed, manufacturer, manufacturer’s product name/number and if color selection by Architect is required. Organize schedule in columns with joint condition shown vertically in the left-hand column, and applicable information in columns to the right. No review of submittal will be made until this information is presented in this form.

C. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

D. Product Certificates: Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.

E. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.

F. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

G. Compatibility and Adhesion Test Reports: From sealant manufacturer indicating the following:
   1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
   2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

H. Product Test Reports: From a qualified testing agency indicating sealants comply with requirements, based on comprehensive testing of current product formulations.

I. Low-Emitting Materials: Provide documentation from the manufacturer identifying the VOC and chemical component limits for the materials provided.
1. All sealants shall meet or exceed the VOC limits of South Coast Air Quality Management District Rule #1168 and all sealants used as fillers must meet or exceed the requirements of the Bay Area Quality Management District Regulation 8, Rule 51.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multi-component materials.

B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
2. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F (4.4 deg C).
3. When joint substrates are wet.

B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

PART 2 - PRODUCTS

2.1 PRODUCTS AND MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products indicated for each type in the sealant schedules at the end of Part 3.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

2.3 ELASTOMERIC JOINT SEALANTS
A. Stain-Test-Response Characteristics: Where elastomeric sealants are specified in the Elasto-
meric Joint-Sealant Schedule to be nonstaining to porous substrates, provide products that 
have undergone testing according to ASTM C 1248 and have not stained porous joint sub-
strates indicated for Project.

2.4 LATEX JOINT SEALANTS

A. Latex Sealant Standard: Comply with ASTM C 834 for each product of this description indicat-
ed in the Latex Joint-Sealant Schedule at the end of Part 3.

2.5 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible 
with joint substrates, sealants, primers, and other joint fillers; and are approved for applications 
indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to 
control sealant depth and otherwise contribute to producing optimum sealant performance:

1. Type C: Closed-cell material with a surface skin.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manu-
facturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint sur-
faces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive 
tape where applicable.

2.6 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of 
sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate 
tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants 
and sealant backing materials, free of oily residues or other substances capable of staining or 
harming joint substrates and adjacent nonporous surfaces in any way, and formulated to pro-
mote optimum adhesion of sealants with joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces 
adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with re-
quirements for joint configuration, installation tolerances, and other conditions affecting joint-
sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.
3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer’s written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous joint surfaces include the following:
   a. Concrete.
   b. Masonry.
   c. Unglazed surfaces of ceramic tile.

3. Remove laitance and form-release agents from concrete.

4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
   a. Metal.
   b. Glass.
   c. Glazed surfaces of ceramic tile.

B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer. Apply primer to comply with joint sealant manufacturer’s written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint sealant manufacturer’s written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.

E. Install sealants by proven techniques to comply with the following and at the same time backings are installed:
   1. Place sealants so they directly contact and fully wet joint substrates.
   2. Completely fill recesses provided for each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
   1. Remove excess sealants from surfaces adjacent to joint.
   2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
   3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
   4. Provide flush joint configuration, per Figure 5B in ASTM C 1193, where indicated.
   5. Provide recessed joint configuration, per Figure 5C in ASTM C 1193, of recess depth and at locations indicated.
      a. Use masking tape to protect adjacent surfaces of recessed tooled joints.

3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field-test joint-sealant adhesion prior to complete application
   1. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field adhesion test log.
   2. Inspect tested joints and report on the following:
      a. Whether sealants filled joint cavities and are free from voids.
      b. Whether sealant dimensions and configurations comply with specified requirements.

3.5 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage
or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

3.7 ELASTOMERIC JOINT-SEALANT SCHEDULE

A. Mildew-Resistant Silicone Sealant: Where joint sealants of this type are indicated, provide products formulated with fungicide that are intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and temperature extremes, and that comply with the following:

1. Products: Provide one of the following:
   a. 786 Mildew Resistant; Dow Corning.
   b. Sanitary 1700; GE Silicones.
   c. 898 Silicone Sanitary Sealant; Pecora Corporation.
   d. Tremsil 600 White; Tremco.

2. Type and Grade: S (single component) and NS (nonsag).
   a. Applications: Interior joints around plumbing fixtures.

3.8 LATEX JOINT-SEALANT SCHEDULE

A. Latex Sealant: Where joint sealants of this type are indicated, provide products complying with the following:

1. Products: Provide one of the following:
   a. AC-20; Pecora Corporation.
   b. Sonolac; Sonneborn Building Products Div., ChemRex, Inc.
   c. Tremflex 834; Tremco.

2. Applications: All interior joints except those indicated for mildew resistant sealant and firestopping.

END OF SECTION 07920
SECTION 08311 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY
   A. This Section includes the following:
      1. Access doors and frames for walls and ceilings.
   B. Related Sections include the following:
      1. Division 9 Sections “Non-Load-Bearing Steel Framing” and “Gypsum Board for new ceiling construction and patching existing ceilings; and “Gypsum Board Shaft-Wall Assemblies “ for new wall construction in existing shaft enclosures.

1.3 SUBMITTALS
   A. Product Data: For each type of access door and frame indicated. Include construction details, fire ratings, materials, individual components and profiles, and finishes.
   B. Shop Drawings: Show fabrication and installation details of access doors and frames for each type of substrate. Include plans, elevations, sections, details, and attachments to other work.
   C. Access Door and Frame Schedule: Provide complete access door and frame schedule, including types, locations, sizes, latching or locking provisions, and other data pertinent to installation.
   D. Ceiling Coordination Drawings: Reflected ceiling plans, drawn to scale, on which ceiling-mounted items including access doors and frames, lighting fixtures, diffusers, grilles, speakers, sprinklers, and special trim are shown and coordinated with each other.

1.4 QUALITY ASSURANCE
   A. Source Limitations: Obtain each type of access door(s) and frame(s) through one source from a single manufacturer.
   B. Fire-Rated Access Doors and Frames: Units complying with NFPA 80 that are identical to access door and frame assemblies tested for fire-test-response characteristics per the following test method and that are listed and labeled by UL or Warnock Hersey.
      1. NFPA 80 and tested in accordance with ASTM E152 for vertical access doors and frames.
C. Size Variations: Obtain Architect's acceptance of manufacturer's standard-size units, which may vary slightly from sizes indicated.

1.5 COORDINATION

A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed plumbing, mechanical, or other concealed work, and indicate in the schedule specified in "Submittals" Article.

PART 2 - PRODUCTS

2.1 STEEL MATERIALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Steel Sheet: Uncoated cold-rolled steel sheet substrate complying with ASTM A 1008/A 1008M, Commercial Steel (CS), exposed.

C. Steel Finishes: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Surface Preparation for Steel Sheet: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning," to remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or SSPC-SP 8, "Pickling."

2.2 STAINLESS-STEEL MATERIALS

A. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 304. Remove tool and die marks and stretch lines or blend into finish.

1. Finish: No. 4.

2.3 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Nystrom, Inc. (specified to establish level of quality).
2. Bar Co., Inc.
5. Milcor.
6. The Williams Brothers Corp.
7. Approved substitute

B. Fire Rated Access doors for gypsum board walls.

1. Powder Coated Steel
   a. Flush, Style UT by Nystrom
   b. Material: Steel.
c. Rating: 90-minutes  
d. Frame: 16 gage frame, with 1-inch- (25-mm-) wide, surface-mounted trim.  
e. Door: 14 gage panel, set flush with exposed face flange of frame.  
g. Latch: Prepped for Mortise lock.  
h. Sizes:  
   1) 12-inches x 12-inches.  
      a) Locations: Corridor-sides of chases (AD-1).  
   2) 24-inches x 30-inches.  
      a) Locations: Corridor-sides of chases (AD-4).  

C. Fire-Rated Access doors for solid-surface clad walls  
1. Stainless Steel  
   a. Flush, Style UT by Nystrom  
   b. Rating: 90-minutes  
   c. Frame: Minimum 16 gage stainless steel sheet with 1-inch- (25-mm-) wide, surface-mounted trim.  
   d. Door: Minimum 14 gage stainless steel sheet, set flush with exposed face flange of frame.  
   e. Hinges: Spring-loaded, concealed-pin type.  
   f. Latch: Prepped for Mortise lock.  
   g. Sizes:  
      1) 12-inches x 12-inches.  
         a) Locations: At back walls under vanities (AD-5).  

D. Non-Rated Access doors for solid-surface clad ceilings.  
1. Stainless Steel  
   a. Non-Rated, Flush, Style NT-No Hinge by Nystrom  
   b. Frame: Minimum 16 gage stainless steel sheet with 1-inch- (25-mm-) wide, surface-mounted trim.  
   c. Door: Minimum 14 gage stainless steel sheet, set flush with exposed face flange of frame.  
   d. Hinges: None (fastened with cam-locks, only).  
   e. Latch: Prepped for Mortise lock.  
   f. Sizes:  
      1) 16-inches x 16-inches.  
         a) Locations: Shower-area soffits (AD-6).  

E. Non-Rated Access doors for gypsum board walls.  
1. Powder Coated Steel  
   a. Flush, Style UT by Nystrom  
   b. Material: Steel.  
   c. Frame: 16 gage frame, with 1-inch- (25-mm-) wide, surface-mounted trim.  
   d. Door: 14 gage panel, set flush with exposed face flange of frame.  
   e. Hinges: Spring-loaded, concealed-pin type.  
   f. Latch: Prepped for Mortise lock.  
   g. Sizes:  
      1) 18-inches x 24-inches.  
         a) Locations: Utility Closet-sides of chases (AD-3).  

F. Finishes:  
1. Steel: Phosphate dipped with gray powder coating.  
2. Stainless Steel: No. 4.
2.4 FABRICATION

A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.

B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of supports indicated.
   1. Exposed Flanges: Nominal 1 to 1-1/2 inches (25 to 38 mm) wide around perimeter of frame.
   2. Provide mounting holes in frames for attachment of units to metal or wood framing.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer's written instructions for installing access doors and frames.

B. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finish surfaces.

C. For rectilinear access doors, install horizontally.

D. Install all access doors with hinges on the left sides.

3.2 ADJUSTING AND CLEANING

A. Adjust doors and hardware after installation for proper operation.

B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

END OF SECTION 08311
SECTION 08830 - MIRRORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following types of silvered flat glass mirrors.

   1. Annealed monolithic unframed glass mirrors.

1.3 DEFINITIONS

A. Deterioration of Mirrors: Defects developed from normal use that are attributable to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning mirrors contrary to mirror manufacturer's written instructions. Defects include discoloration, black spots, and clouding of the silver film.

1.4 PERFORMANCE REQUIREMENTS

A. Provide mirrors that will not fail under normal usage. Failure includes glass breakage and deterioration attributable to defective manufacture, fabrication, and installation.

1.5 SUBMITTALS

A. Product Data: For the following:

   1. Mirrors. Include description of materials and process used to produce each type of silvered flat glass mirror specified that indicates sources of glass, glass coating components, edge sealer, and quality-control provisions.

   2. Mirror mastic.

B. Shop Drawings: Include mirror elevations, edge details, and attachments to other work.

C. Product Certificates: For each type of mirror and mirror mastic, signed by product manufacturer.

D. Qualification Data: For Installer.

E. Mirror Mastic Compatibility Test Reports: From mirror manufacturer indicating that mirror mastic was tested for compatibility and adhesion with mirror backing paint and substrates on which mirrors are installed.

F. Warranty: Special warranty specified in this Section.
1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed mirror glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in mirror installations with a record of successful in-service performance; and who employs glass installers for this Project who are certified under NGA's Glazier Certification Program as Level 2 (Senior Glaziers) or Level 3 (Master Glaziers).

B. Source Limitations for Mirrors: Obtain mirrors from one source for each type of mirror indicated.

C. Source Limitations for Mirror Glazing Accessories: Obtain mirror glazing accessories from one source for each type of accessory indicated.

D. Glazing Publications: Comply with the following published recommendations:

1. GANA's "Glazing Manual" unless more stringent requirements are indicated. Refer to this publication for definitions of glass and glazing terms not otherwise defined in this Section or in referenced standards.

2. GANA Mirror Division's "Mirrors, Handle with Extreme Care: Tips for the Professional on the Care and Handling of Mirrors."

E. Preconstruction Mirror Mastic Compatibility Test: Submit mirror mastic products to mirror manufacturer for testing to determine compatibility of mastic with mirror backing and substrates on which mirrors are installed.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect mirrors according to mirror manufacturer's written instructions and as needed to prevent damage to mirrors from condensation, temperature changes, direct exposure to sun, or other causes.

B. Comply with mirror manufacturer's written instructions for shipping, storing, and handling mirrors as needed to prevent deterioration of silvering, damage to edges, and abrasion of glass surfaces and applied coatings. Store indoors, protected from moisture including condensation.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not install mirrors until ambient temperature and humidity conditions are maintained at levels indicated for final occupancy.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form, made out to Owner and signed by mirror manufacturer agreeing to replace mirrors that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below:

1. Warranty Period: Five years from date of Substantial Completion.
PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide mirrors by one of the following:

1. Unframed Mirrors:
   a. Gardner Glass Products.
   b. Guardian Industries Corp.
   c. Independent Mirror Industries, Inc.
   d. Lenoir Mirror Company.
   e. Approved substitute

2.2 SILVERED FLAT GLASS MIRROR MATERIALS

A. Clear Glass Mirrors: ASTM C 1503, Mirror Select Quality.

1. Clear float glass (ASTM C1036, Type 1, Class 1, Quality q2), with silver coating, copper protective coating and 2 mil thick paint coating; comply with CS27

2. Nominal Thickness: 6.0 mm.

2.3 MISCELLANEOUS MATERIALS

A. Setting Blocks: Elastomeric material with a Type A Shore durometer hardness of 85, plus or minus 5.

B. Mirror Mastic: An adhesive setting compound, produced specifically for setting mirrors and certified by both mirror manufacturer and mastic manufacturer as compatible with glass coating and substrates on which mirrors will be installed.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Gunther Mirror Mastics.
   b. Palmer Products Corporation.
   c. Approved substitute

2.4 FABRICATION

A. Mirror Sizes: To suit Project conditions, cut mirrors to final sizes and shapes.

B. Mirror Edge Treatment: Flat polished edge.

1. Seal edges of mirrors after edge treatment to prevent chemical or atmospheric penetration of glass coating.

2. Require mirror manufacturer to perform edge treatment and sealing in factory immediately after cutting to final sizes.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, over which mirrors are to be mounted, with Installer present, for compliance with installation tolerances, substrate preparation, and other conditions affecting performance.

1. Verify compatibility with and suitability of substrates, including compatibility of mirror mastic with existing finishes or primers.
2. Proceed with mirror installation only after unsatisfactory conditions have been corrected and surfaces are dry.

3.2 PREPARATION

A. Comply with mastic manufacturer's written installation instructions for preparation of substrates, including coating surfaces with mastic manufacturer's special bond coating where applicable.

3.3 INSTALLATION

A. General: Install mirrors to comply with mirror manufacturer's written instructions and with referenced GANA publications. Mount mirrors accurately in place in a manner that avoids distorting reflected images.

B. Provide a minimum air space of 1/8 inch (3 mm) between back of mirrors and mounting surface for air circulation between back of mirrors and face of mounting surface.

C. For unframed mirrors, install mirrors with mastic.
   1. Install mastic as follows:
      a. Apply barrier coat to mirror backing where approved in writing by manufacturers of mirrors and backing material.
      b. Apply mastic to comply with mastic manufacturer's written instructions for coverage and to allow air circulation between back of mirrors and face of mounting surface.
      c. After mastic is applied, align mirrors and press into place while maintaining a minimum air space of 1/8 inch (3 mm) between back of mirrors and mounting surface.

3.4 CLEANING AND PROTECTION

A. Protect mirrors from breakage and contaminating substances resulting from construction operations.

B. Do not permit edges of mirrors to be exposed to standing water.

C. Maintain environmental conditions that will prevent mirrors from being exposed to moisture from condensation or other sources for continuous periods of time.

END OF SECTION 08830
SECTION 09111 - NON-LOAD-BEARING STEEL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY
   A. This Section includes non-load-bearing steel framing members for the following applications:
      1. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).
   B. Related Sections include the following:
      1. Division 7 Section "Fire-Resistive Joint Systems" for head-of-wall joint systems installed with non-load-bearing steel framing.
      2. Division 9 Section "Gypsum Board Shaft-Wall Assemblies" for non-load-bearing metal shaft-wall framing, gypsum panels, and other components of shaft-wall assemblies.

1.3 SUBMITTALS
   A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE Industry Standard: Comply with applicable requirements of ASTM C840, "Application and Finishing of Gypsum Board" by the Gypsum Association, except where more detailed or more stringent requirements are indicated, including the recommendations of the manufacturer.
   B. Comply with applicable requirements of Mountain States Bureau of Lath, Plaster and Drywall, Inc.
   C. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

PART 2 - PRODUCTS

A. Manufacturers:
   1. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
      a. Clark Western Building Systems
      b. Dietrich Industries, Inc.
      c. USG Interiors, Inc.
d. Approved substitute.

2.2 NON-LOAD-BEARING STEEL FRAMING, GENERAL

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
   1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.

2.3 SUSPENSION SYSTEM COMPONENTS

A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

B. Hanger Attachments to Concrete:
   1. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.

C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch (4.12-mm) diameter.

D. Suspension Members:

2.4 STEEL FRAMING FOR FRAMED ASSEMBLIES

A. Steel Studs and Runners: ASTM C 645.
   1. Minimum Base-Metal Thicknesses:
      a. 20 ga., typical
   2. Depth: As indicated on Drawings.

B. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

2.5 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.
1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.

1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

C. Install bracing at terminations in assemblies.

D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.3 INSTALLING SUSPENSION SYSTEMS

A. Install suspension system components in sizes as specified and indicated on Drawings, spaced at 24" o.c. maximum, but not less than those required by referenced installation standards for assembly types and other assembly components indicated.

B. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

   a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

   a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
3. **Wire Hangers**: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.

4. **Do not connect or suspend steel framing from ducts, pipes, or conduit.**

C. **Installation Tolerances**: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

### 3.4 INSTALLING FRAMED ASSEMBLIES

A. Install studs so flanges within framing system point in same direction.

B. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. **Stud spacing**: 16” o.c., maximum.

C. **Installation Tolerance**: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION 09111
SECTION 09250 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Tile backing panels.

B. Related Sections include the following:
   1. Division 9 Section "Non-Load-Bearing Steel Framing" for non-structural framing and suspension systems that support gypsum board.
   2. Division 9 Section "Gypsum Shaft-Wall Assemblies" for metal shaft-wall framing, gypsum shaft liners, and other components of shaft-wall assemblies.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

A. Industry Standard: Comply with applicable requirements of ASTM C840, "Application and Finishing of Gypsum Board" by the Gypsum Association, except where more detailed or more stringent requirements are indicated, including the recommendations of the manufacturer.

B. Comply with applicable requirements of Mountain States Bureau of Lath, Plaster and Drywall, Inc.

C. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
1.5 STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

B. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PANELS, GENERAL

A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 TILE BACKING PANELS

A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.

2.3 TILE BACKING PANELS

A. Glass-mat, Water-resistant Backing Board.

1. Product: Subject to compliance with requirements, provide "DensShield Fireguard Tile Backer " by G-P Gypsum or approved substitute..

   a. Core: 5/8- inch (15.9 mm), Type X.

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.


2. Shapes:

   a. Cornerbead.
2.5 JOINT TREATMENT MATERIALS
   A. General: Comply with ASTM C 475/C 475M.
   B. Joint Tape and Joint Compound:
      1. Tile Backing Panels: As recommended by panel manufacturer.

2.6 AUXILIARY MATERIALS
   A. General: Provide auxiliary materials that comply with referenced installation standards and
      manufacturer's written recommendations.
   B. Laminating Adhesive: Adhesive recommended for directly cement panels to continuous
      substrate.
      1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to
   C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
      1. Use screws complying with ASTM C 954 for fastening panels to steel members from
         0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
   D. Skim coating for existing concrete deck-ceilings:
      1. Subject to compliance with requirements, provide “Sto Flexyl, Sto Primer”, with equivalent
         of Level 5 drywall finish.

PART 3 - EXECUTION

3.1 EXAMINATION
   A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames
      and framing, for compliance with requirements and other conditions affecting performance.
   B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold
      damaged.
   C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL
   A. Comply with ASTM C 840.
   B. Install soffit and ceiling panels across framing to minimize the number of abutting end joints and
      to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of
      adjacent panels not less than one framing member.
   C. Install panels with face side out. Butt panels together for a light contact at edges and ends with
      not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
   
   1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
   2. Fit gypsum panels around ducts, pipes, and conduits.
   3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch (6.4- to 9.5-mm-) wide joints to install sealant.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Interior gypsum board:
   
   1. As tile and solid surface backer where shown on drawings:

B. Single-Layer Application:
   
   1. On partitions/walls, apply glass-mat gypsum sheathing board panels horizontally (perpendicular to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
      
      a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
   
   2. Fastening Methods: Apply panels to supports with steel drill screws.

C. Multilayer Application:
   
   1. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
   
   2. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.4 APPLYING TILE BACKING PANELS

A. Glass-Mat, Water-Resistant Backing Panel: Comply with manufacturer's written installation instructions and install at showers and at soffits.

B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.
3.5 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners.

3.6 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints and damaged surface areas.

C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

D. Glass-Mat, Water-Resistant Backing Panels: Finish according to manufacturer's written instructions as tile backer.

3.7 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09250
SECTION 09265 - GYPSUM BOARD SHAFT-WALL ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Chase enclosures.

B. Related Sections include the following:
   1. Division 7 Section, "Through-Penetration Firestop Systems" for sealing perimeter of shaft-wall assemblies and openings for access panels.
   2. Division 8 Section "Access Doors and Frames" for coordination with openings
   3. Division 9 Section “Gypsum Board” for applying and finishing panels in gypsum board shaft-wall assemblies.

1.3 DEFINITIONS

A. Gypsum Board Construction Terminology: Refer to ASTM C 11 for definitions of terms for gypsum board construction not defined in this Section or in other referenced standards.

1.4 PERFORMANCE REQUIREMENTS

A. Structural Performance:
   1. Provide gypsum board shaft-wall assemblies capable of withstanding the full air-pressure loads indicated for maximum heights of partitions without failing and while maintaining an airtight and smoke-tight seal. Evidence of failure includes deflections exceeding limits indicated, bending stresses causing studs to break or to distort, and end-reaction shear causing track (runners) to bend or to shear and studs to become crippled.
   2. Air-pressure loads and deflection limits are specified in "Gypsum Board Shaft Wall" Article in Part 2.

1.5 SUBMITTALS

A. Product Data: For each gypsum board shaft-wall assembly indicated.

B. Fire-Test-Response Reports: From a qualified independent testing and inspecting agency substantiating each gypsum board shaft-wall assembly's required fire-resistance rating.
1. Include data substantiating that elevator entrances and other items that penetrate each gypsum board shaft-wall assembly do not negate fire-resistance rating.

C. Research/Evaluation Reports: Evidence of compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction that substantiate required fire-resistance rating for each gypsum board shaft-wall assembly.

D. Acoustical-Test-Response Reports: From a qualified independent testing agency substantiating required STC rating for each gypsum board shaft-wall assembly.

1.6 QUALITY ASSURANCE

A. Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.


B. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Management and Coordination." Review methods and procedures for installing work related to gypsum board shaft-wall assemblies including, but not limited to, the following:

1. Fasteners proposed for anchoring steel framing to building structure.
2. Doors and other items penetrating shaft-wall assemblies.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages, containers, and bundles bearing brand name and identification of manufacturer or supplier.

B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat on leveled supports off the ground to prevent sagging.

1.8 PROJECT CONDITIONS

A. Comply with requirements for environmental conditions, room temperatures, and ventilation specified in Division 9 Section "Gypsum Board."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements, provide products by one of the following:

1. Metal Support Materials:
   a. Clark Western Building Systems
   b. Dietrich Industries, Inc.
   c. USG Interiors, Inc.
d. Approved substitute

2. Gypsum Board Materials:
   a. Georgia-Pacific Corp.
   c. United States Gypsum Co.
   d. Approved substitute

2.2 ASSEMBLY MATERIALS

A. General: Provide materials and components complying with requirements of fire-resistance-rated assemblies indicated.

   1. Provide panels in maximum lengths available to eliminate or minimize end-to-end butt joints.
   2. Provide auxiliary materials complying with gypsum board shaft-wall assembly manufacturer's written recommendations.

B. Steel Framing: ASTM C 645.


C. Gypsum Liner Panels: Manufacturer's proprietary liner panels in 1-inch (25.4-mm) thickness and with moisture-resistant paper faces.

D. Gypsum Wallboard: ASTM C 36, core type as required by fire-resistance-rated assembly indicated.

   1. Edges: Tapered.

E. Accessories: Cornerbead, edge trim, and control joints of material and shapes specified in Division 9 Section "Gypsum Board" that comply with gypsum board shaft-wall assembly manufacturer's written recommendations for application indicated.

F. Gypsum Wallboard Joint-Treatment Materials: ASTM C 475 and as specified in Division 9 Section "Gypsum Board."

G. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

   1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.

H. Track (Runner) Fasteners: Power-driven fasteners of size and material required to withstand loading conditions imposed on shaft-wall assemblies without exceeding allowable design stress of track, fasteners, or structural substrates in which anchors are embedded.

   1. Powder-Actuated Fasteners: Provide powder-actuated fasteners with capability to sustain, without failure, a load equal to 10 times that imposed by shaft-wall assemblies, as determined by testing conducted by a qualified independent testing agency according to ASTM E 1190.
   2. Postinstalled Expansion Anchors: Where indicated, provide expansion anchors with capability to sustain, without failure, a load equal to 5 times that imposed by shaft-wall assemblies, as determined by testing conducted by a qualified independent testing agency according to ASTM E 488.
2.3 GYPSUM BOARD SHAFT WALL

A. Sustained Air-Pressure Loads: 5 lbf/sq. ft. (0.24 kPa)

B. Deflection Limit: L/360.

C. Studs: Manufacturer's standard profile for repetitive members and corner and end members and for fire-resistance-rated assembly indicated.
   1. Depth: 2-1/2 inches (63.5 mm)
   2. Minimum Base Metal Thickness: Manufacturer's standard thicknesses that comply with structural performance requirements for stud depth indicated, but not less than 20 ga. at walls that support tile finish.

D. Track (Runner): Manufacturer's standard J-profile track with long-leg length as standard with manufacturer, but at least 2 inches (51 mm), in depth matching studs.
   1. Minimum Base Metal Thickness: Manufacturer's standard thicknesses that comply with structural performance requirements for stud depth indicated, but not less than 20 ga. at walls that support tile finish.

E. Room-Side Finish: Tile backer.

F. Shaft-Side Finish: As indicated by fire-resistance-rated assembly design designation.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates to which gypsum board shaft-wall assemblies attach or abut, with Installer present. Examine for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install gypsum board shaft-wall assemblies to comply with requirements of fire-resistance-rated assemblies indicated, manufacturer's written installation instructions, and the following:
   1. ASTM C 754 for installing steel framing.
   2. Division 9 Section "Gypsum Board Assemblies" for applying and finishing panels.

B. Do not bridge building expansion joints with shaft-wall assemblies; frame both sides of joints with furring and other support.

C. Install supplementary framing in gypsum board shaft-wall assemblies around openings and as required for blocking, bracing, and support of gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings, and similar items that cannot be supported directly by shaft-wall assembly framing.
D. At penetrations in shaft wall, maintain fire-resistance rating of shaft-wall assembly by installing supplementary steel framing around perimeter of penetration.

E. Isolate gypsum finish panels from building structure to prevent cracking of finish panels while maintaining continuity of fire-rated construction.

F. Seal first layer of gypsum board finish to adjacent plaster construction with fire caulk as specified in Division 7 Section “Through-Penetration Firestop Systems”.

G. Tape joints between shaft-wall and adjacent plaster construction, and skim-coat finish gypsum board layer of shaft-wall, to blend with existing plaster wall.

END OF SECTION 09265
SECTION 09310 - CERAMIC TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Ceramic mosaic tile.
2. Glazed wall tile.
3. Liquid waterproofing.
4. Thinset mortar.
5. Accessory materials.

B. Related Sections include the following:

1. Division 3 Section "Concrete Floor Topping".
2. Division 3 Section “Hydraulic-Cement-Based Underlayment”.
3. Division 6 Section: “Interior Architectural Woodwork” for solid-surface thresholds at doors.
4. Division 9 Section "Gypsum Board Assemblies" for cementitious backer units and glass-mat, water-resistant backer board.

1.3 DEFINITIONS

A. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.

B. Facial Dimension: Actual tile size (minor facial dimension as measured per ASTM C 499).

1.4 PERFORMANCE REQUIREMENTS

A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:

1. Level Surfaces: Minimum 0.6.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Certification Requirements:
1. Certify that products furnished for this project are asbestos free.
2. Certify that products meet or exceed specification requirements.

C. Samples for Initial Selection: For each type of tile and grout indicated. Include Samples of accessories involving color selection.

D. Samples for Verification:
   1. Full-size units of each type and composition of tile and for each color and finish required.
   2. Assembled samples with grouted joints for each type and composition of tile and for each color and finish required, at least 12 inches (300 mm) square and mounted on rigid panel. Use grout of type and in color or colors approved for completed work.
   3. Full-size units of each type of trim and accessory.

E. B. Certificates:
   1. Master Grade Certificate:
      a. Conform to ANSI A137.1.
      b. State grade, kind of tile, identification marks for tile packages, and name and location of project.
      c. Issued and signed by manufacturer when tile is shipped.
   2. Manufacturers of mortars, adhesives, and grouts to certify that materials are suitable to Standards Institute.

F. Qualification Data: For Installer.

G. Material Test Reports: For each tile-setting and -grouting product.

H. Maintenance:
   1. Submit instructions for proper maintenance and cleaning.

1.6 QUALITY ASSURANCE

A. Source Limitations for Tile: Obtain all tile of same type and color or finish from one source or producer.
   1. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.

B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

C. Installer Qualifications:
   1. Not less than 3 years experience in ceramic tile installations similar in size, scope, and installation procedures required for this project.
   2. Submit list to Architect of five contracts recently completed with names of Architects and General Contractors involved.

D. Furnish tile conforming with Standard Grade requirements of ANSI A137.1 with manufacturer's label attached to each carton of tile certifying that it is "Standard Grade" per ANSI A137.1.
E. Except where otherwise specified, conform to Tile Council of America "Handbook for Ceramic Tile Installation" and ANSI A108, A118 and A136 as applicable.

A. When using setting and grouting materials manufactured under TCA license, include identification together with ingredients on each container.

F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.

B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store liquid latexes emulsion adhesives in unopened containers and protected from freezing.

D. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

1.9 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Tile and Trim Units:
   a. Field Tiles (walls and floors): Furnish quantity of full-size units equal to 5 percent of amount installed, for each type, composition, color, pattern, and size indicated.
   b. Accent Tiles (walls and floors): Furnish quantity of full-size units equal to 5 percent of amount installed, for each type, composition, color, pattern, and size indicated.
   c. Bullnose and coved base wall tiles: Furnish quantity of full-size units equal to 2 percent of amount installed, for each type, composition, color, pattern, and size indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturer specified.
2.2 PRODUCTS, GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, “Specifications for Ceramic Tile,” for types, compositions, and other characteristics indicated.
   1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
   2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 “Definitions” Article.


C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
   1. As indicated under paragraph 2.3, Tile Products.

D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.
   1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

2.3 TILE PRODUCTS

Manufacturer: Daltile; Div. of Dal-Tile International Inc.

A. Unglazed Ceramic Mosaic Floor Tile: Factory-mounted flat tile as follows:
   2. Surface: Smooth, without abrasive admixture.
   3. Module Size: 2 by 2 inches (50.8 by 50.8 mm).
   4. Face: Plain, with cushion edges.
      a. FT-1: Daltile Keystones ColorBody Porcelain Tile.
         1) Field Tiles
            a) Color: No. D202 “Uptown Taupe Speckle”

B. Glazed Wall Tile (WT): Flat tile as follows:
   1. Module Size: 3 by 6 inches (76 by 152 mm)
   2. Thickness: 5/16 inch (8 mm).
   3. Face: Plain with cushion edges.
      a. Field Tile
         1) WT-1: Matte Ceramic Tile
            a) Color: Daltile X735 “Almond Matte”
b. Accent Tiles:
   1) WT-2: Daltile Semi-Gloss
      a) Module Size: 3 by 6 inches (76 by 152 mm)
      b) Color: No. K111 “Black”.
   2) WT-3: Daltile Semi-Gloss
      a) Module Size: 6 by 6 inches (152 by 152 mm)
      b) Color: No. Q093 “Fire Brick”.

C. Glazed Wall Tile Trim Units: Matching characteristics of adjoining flat tile and coordinated with sizes and coursing of adjoining flat tile where applicable. Provide shapes as follows, selected from manufacturer's standard shapes (basis-of-design products indicated):

1. External Corners: Surface bullnose, module size 6 by 6 inches (76 by 152 mm), field cut either vertically or horizontally to 3 inches in height by 6 inches in width.
      1) Color: Daltile X735 “Almond Matte”

2. Base: Coved, module size 4-1/4 by 6 inches (108 by 152 mm).
   a. Daltile No. A-3461
      1) Color: Daltile X735 “Almond Matte”

3. Cove Corner Base, module size 4-1/4 by 4-1/4 inches (152 by 152 mm).
   a. Daltile No. SCR-L-3401
      1) Color: Daltile X735 “Almond Matte”

4. Cove Corner Base, module size 6 by 6 inches (108 by 108 mm), field cut to 4-1/4 inches in height.
   a. Daltile No. SCR-L-3601.
      1) Color: Daltile X735 “Almond Matte”

2.4 LIQUID WATERPROOFING FOR THIN-SET TILE INSTALLATIONS

A. General: Manufacturer’s standard product that complies with ANSI A118.10 and A118.12


1. Products:
   a. Laticrete 9235 Waterproofing Membrane

2.5 THIN-SET MORTAR

A. General: Manufacturer’s standard product that complies with ANSI A118.4 and A118.11

B. Latex-Modified Thin Set Mortar.
1. Products:
   a. Laticrete 254 Platinum approved substitute by Bostik or Southern Grouts & Mortars, Inc.

2.6 GROUTING MATERIALS

A. Manufacturers:
   2. Bostik.
   3. C-Cure.
   4. DAP, Inc.
   5. LATICRETE International Inc.
   6. MAPEI Corporation.
   8. Southern Grouts & Mortars, Inc.
   9. Summitville Tiles, Inc.

B. Two-part Epoxy Tile Grout: ANSI A108.6 and ANSI A118.3, color as selected by Architect from manufacturer’s full range.
   1. Sanded grout mixture for joints in floor tile.

C. Polymer-Modified Tile Grout: ANSI A118.7, color as selected by Architect from manufacturer’s full range.
   1. Polymer Type: Either ethylene vinyl acetate, in dry, redispersible form, prepackaged with other dry ingredients, or acrylic resin or styrene-butadiene rubber in liquid-latex form for addition to prepackaged dry-grout mix.
      a. Unsanded grout mixture for joints in wall tile.

2.7 ELASTOMERIC SEALANTS

A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements in Division 7 Section "Joint Sealants."
   1. Use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

C. One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and extreme temperatures.
   1. Products:
      a. Dow Corning Corporation; Dow Corning 786.
      b. GE Silicones; Sanitary 1700.
2.8 MISCELLANEOUS MATERIALS

A. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

B. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints that does not change color or appearance of grout.

1. Products:
   b. Bostik; CeramaSeal Grout Sealer.
   c. C-Cure; Penetrating Sealer 978.
   d. MAPEI Corporation; KER 004, Keraseal Penetrating Sealer for Unglazed Grout and Tile.
   e. Southern Grouts & Mortars, Inc.; Silicone Grout Sealer.

2.9 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

B. Add materials, water, and additives in accurate proportions.

C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.

2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.

3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.

B. Provide concrete substrates for tile floors installed with adhesives that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.

1. Verify acceptability of substrate, prior to proceeding with tile installation.

C. Field-Applied Temporary Protective Coating: Where indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.3 INSTALLATION, GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.


C. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints vertical joints of wall tile, coved base and bullnose tiles.

F. Lay out tile according to work points indicated on the drawings. Do not proceed if location of work point is unclear and advise Architect.

1. Do not cut coved base tiles horizontally to shorten height.

G. Patterns: Install tile on floors and walls with accent tiles in the patterns shown on the drawings.

H. Provide uniform joint widths, unless otherwise indicated.

1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.

I. Grout tile to comply with requirements of the following tile installation standards:

1. For ceramic tile grouts, comply with ANSI A108.10.
3.4 FLOOR TILE INSTALLATION

A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule, including those referencing TCA installation methods and ANSI A106-A and B Series of tile installation standards.

1. For installations indicated below, follow procedures in ANSI A108 Series tile installation standards for providing 95 percent mortar coverage.
   a. Tile floors in wet areas.

B. Apply waterproof membrane on entire floor surface to receive tile. Extend membrane vertically on walls a minimum of 6".

C. Joint Widths: Install tile on floors with the following joint widths:

1. Ceramic Mosaic Tile: 1/8 inch (1.6 mm).

D. Grout Sealer: Apply grout sealer to grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

3.5 WALL TILE INSTALLATION

A. Install types of tile designated for wall installations to comply with requirements in the Wall Tile Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.

B. Joint Widths: Install tile on walls with the following joint width:

1. Glazed Wall Tile: 1/16 inch (1.6 mm).

C. Pattern: as shown on drawings.

D. Grout Sealer: Apply grout sealer to grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

3.6 CLEANING AND PROTECTING

A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove grout residue from tile as soon as possible.
2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent it from clogging drains.
B. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.

C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

3.7 FLOOR TILE INSTALLATION SCHEDULE

A. Tile Installation for FT1: Interior floor installation on concrete.
   1. Tile Type: Unglazed ceramic mosaic
   3. Mortar: Latex-Modified Thin Set Mortar

3.8 TILE INSTALLATION SCHEDULE

A. Wall Tile Installation for FT1: Interior floor installation over self-leveling underlayment and cementitious floor topping.
   1. Tile Type: Ceramic Mosaic
   2. Waterproofing: Liquid waterproofing membrane with reinforcing fabric
   5. Grout Sealer: Silicone grout sealer

B. Wall Tile Installation for WT1 – WT3: Interior wall installation over cementitious backer units and glass-mat, water-resistant backer board.
   1. Tile Type: Glazed wall.
   2. Setting Material: Latex-Modified Thin Set Mortar
   4. Grout Sealer: Silicone grout sealer

END OF SECTION 09310
SECTION 09912 - INTERIOR PAINTING AND COATING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes surface preparation and the application of paint and coating systems on the following interior substrates:

   1. Painted surfaces
      a. Gypsum board (new and existing)
      b. Skim-coated existing concrete ceilings.
      c. Hollow metal door frames.
      d. Steel sprinkler piping.
      e. Galvanized steel access doors.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

   1. Include Material Safety Data Sheets and technical product data sheets in O&M Manuals for all products used.

B. Samples for Initial Selection: For each type of paint topcoat and powder coating product indicated.

C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.

   1. Submit paint Samples on rigid backing, 12 inches (200 mm) square.
   2. Step coats on paint Samples to show each coat required for system.
   3. Label each coat of each paint Sample.
   4. Label each paint Sample for location and application area.

D. Product List: For each product indicated, include the following:

   1. Cross-reference to paint system and locations of application areas.
   2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 QUALITY ASSURANCE

A. General: Conform to Painting and Decorating Contractors of America "Architectural Specification Manual".
B. MPI Standards:

1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
   1. Maintain containers in clean condition, free of foreign materials and residue.
   2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 65 and 95 deg F (10 and 35 deg C).
B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
   1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. (3.8 L) of each paint material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:
   1. Paint
      a. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

A. Quality
   1. Materials submitted for approval may be asked to match CU’s standard off white color sample for testing. Testing shall include, but is not limited to, accurate color match, hiding capabilities, touch-up capabilities, sheen match and other performance characteristics.
2. Provide the best quality Contractor grade or better of the various types of coatings as regularly manufactured by acceptable paint material manufacturers.

3. Materials not displaying the manufacturer’s identification as a standard, best-grade product will not be acceptable.

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. Chemical Components of Field-Applied Interior Paints:

1. Waterborne or latex acrylic coatings shall be used.

2. Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:
   a. Flat Paints and Coatings: VOC content of not more than 50 g/L.
   b. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
   c. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).

2. VOLUME SOLID CONTENTS:
   a. When applied at a rate of 400SF per gallon-obtaining a MIL thickness when dry of a minimum of 1.3 MILS, the minimum acceptable Volume Solid Content must be A (see list below) minimum and angular specular sheen should be B (see list below).

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Eggshell</td>
<td>36%</td>
<td>16-32 @ 60º</td>
</tr>
<tr>
<td>For Semi-Gloss finish</td>
<td>34%</td>
<td>30-60 @ 60º</td>
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</tbody>
</table>

D. Colors: As selected by Architect from manufacturer's full range.

2.3 PRIMERS/SEALERS

A. Interior Latex Primer/Sealer: MPI #50.

1. VOC Content: E Range of E3.

2. Environmental Performance Rating: EPR 2.

2.4 METAL PRIMERS

A. Rust-Inhibitive Primer (Water Based): MPI #107.

1. VOC Content: E Range E3.

2. Environmental Performance Rating EPR 2.
2.5 LATEX PAINTS

A. Institutional Low-Odor/VOC Latex (Eggshell): MPI #145 (Gloss Level 3).
   1. VOC Content: E Range of E3.
   2. Environmental Performance Rating: EPR 4.5.

B. High-Performance Architectural Latex (Semigloss): MPI #141 (Gloss Level 5).
   1. VOC Content: E Range of E3.
   2. Environmental Performance Rating: EPR 6.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
   1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

A. Painting
   1. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
   2. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
      a. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
      b. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
   3. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
      a. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
4. **Steel Substrates:** Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
   a. **Doorframes:** Sand all surfaces of the doorframes so that they are smooth and even.

5. **Skim-coated Substrates:** Do not begin paint application until finishing compound is dry and sanded smooth.

### 3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.

B. New surfaces shall have 1 primer coat and 2 finish coats.

1. **Doorframes:** Prime all surfaces.

C. Existing surfaces shall have minimum 2 finish coats.

1. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. All ceilings must be painted with a paint that meets CU's sheen standards for the 16-32 measurement at 60°, and volume solid's ratings.

E. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

F. **Patch Painting** will not be acceptable, total affected area shall be painted.

1. Terminate painting only at corners or joints.

G. **Painting Mechanical and Electrical Work:** Paint items exposed in occupied spaces including, but not limited to, the following:

1. **Mechanical Work:**
   a. Uninsulated metal piping.
   b. Pipe hangers and supports.
   c. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.

### 3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

A. Steel Substrates:

1. High-Performance Architectural Acrylic System:
   a. Prime Coat: Sherwin Williams DTM Acrylic Primer/Finish
      1) Omit prime coat on existing factory primed surfaces.
   b. Intermediate Coat: Sherwin Williams DTM Acrylic Primer/Finish
   c. Topcoat: Sherwin Williams DTM Acrylic Primer/Finish

B. Skim-coated Concrete Substrates:

1. Institutional Low-Odor/VOC Latex System (Eggshell):

C. Gypsum Board Wall Substrates:

1. Institutional Low-Odor/VOC Latex System (Semigloss):

END OF SECTION 09912
SECTION 10155 - TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes Solid Color Reinforced Composite units as follows:
   1. Toilet Enclosures: Overhead braced.
   2. Shower Enclosures: Overhead braced.

B. Related Sections include the following:
   1. Division 6 Section "Miscellaneous Carpentry" for blocking.
   2. Division 10 "Toilet and Bath Accessories" for toilet tissue dispensers and similar accessories.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
   1. Show locations of cutouts for compartment-mounted toilet accessories.
   2. Show locations of reinforcements for compartment-mounted grab bars.

C. Samples for Verification: Of each type of color and finish required for units, prepared on 6-inch-(150-mm-) square samples of same thickness and material indicated for Work.

1.4 QUALITY ASSURANCE


B. Installer Qualifications: Three years experience in installation of toilet compartments.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication and indicate measurements on Shop Drawings.
1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating toilet compartments without field measurements. Coordinate wall, floor, ceilings, and other contiguous construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 TOILET AND SHOWER ENCLOSURES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Bobrick Washroom Equipment, Inc.

B. Product: Bobrick Sierra Series, No. 1092.

1. Panel, stile and door material: Solid Color Reinforced Composite
   a. Provide No. 1092G (gap-free interlocking) at Overhead braced, complete toilet enclosures, and at shower enclosures.
   b. Provide No. 1092 (standard) at door-only applications.

2. Stiles: 3/4-inch- (19-mm-) thick
3. Panels: 1/2-inch- (13-mm-)
4. Door: 3/4-inch- (19-mm-) thick
5. Pilaster Shoes: Stainless steel, ASTM A 666, Type 304, not less than 0.0312 inch (0.8 mm) specified thickness and 3 inches (75 mm) high, finished to match hardware.
6. Brackets (Fittings) and Hinges, No. 1092.67, 304 stainless steel.
   a. Full-height brackets and U-channels.
   b. Hinges: Full height.

7. Color: No. SC02 "Desert Beige".

2.2 ACCESSORIES

A. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories.


B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with anti-grip profile and in manufacturer's standard finish.

C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match hardware, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications.

2.3 FABRICATION

A. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, fasteners, and anchors at pilasters to suit floor conditions. Make provisions for
setting and securing continuous head rail at top of each pilaster. Provide shoes at pilasters to conceal supports and leveling mechanism.

B. Panel/pilaster intersections: Where compartment panels intersect with pilasters, align outside faces of panels with outside edges of pilaster (i.e., do not center panels on faces of pilasters).

C. Doors: Unless otherwise indicated, provide 24-inch- (610-mm-) wide in-swinging doors.
   1. Hinges: Manufacturer's standard full-height, self-closing type that can be adjusted to hold doors open at any angle up to 90 degrees.
   2. Latch and Keeper: Manufacturer's standard surface-mounted latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be accessible to people with disabilities.
   3. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
   4. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with accessibility requirements of authorities having jurisdiction. Provide units on both sides of doors at compartments indicated to be accessible to people with disabilities.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
   1. Continuous Brackets and U-channels: Secure panels to walls and to pilasters with continuous brackets and U-channels from tops to bottoms of panels.

B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Secure continuous head rail to each pilaster with not less than two fasteners. Hang doors to align tops of doors with tops of panels and adjust so tops of doors are parallel with overhead brace when doors are in closed position.

3.2 ADJUSTING

A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION 10155
SECTION 10801 - TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Public-use washroom/shower room accessories.

a. Owner-Furnished/Contractor-Installed Materials (OFCI):
   1) Toilet Tissue Dispenser.
   2) Paper Towel Dispenser.
   3) Liquid-soap dispenser.
   4) Hand-sanitizer dispenser.
   5) Sanitary Napkin disposal.
   6) Shower Curtain Rods.

b. Contractor-Furnished/Contractor-Installed Materials (CFCI):
   1) Shower Curtain Rod Hangers.

B. Related Sections include the following:

1. Division 8 Section "Mirrors" for frameless mirrors and wood framed mirrors.
2. Division 22 Section "Plumbing Fixtures" for underlavatory guards.

1.3 QUALITY ASSURANCE

A. Source Limitations: For products listed together in the same articles in Part 2, provide products of same manufacturer unless otherwise approved by Architect.

1.4 SUBMITTALS:

a. A. Submit manufacturer’s catalog data in conformance with requirements of Section 01300.

1.5 QUALITY ASSURANCE:

A. Conform to requirements of ANSI A117.1 and UFAS for making facilities and accessories accessible to and usable by the physically handicapped.

B. Conform to requirements of ASTM F446 for grab bars and accessories for test methods, anchorage and functional performance.
C. Provide products of the same manufacturer for each type of accessory unit and for units exposed in the same areas, unless otherwise acceptable to the Architect.

D. Stamped names and labels on exposed faces of units will not be permitted, except where otherwise indicated. Provide locks where indicated, with the same keying for each type of accessory unit in the project wherever possible. Furnish two keys for each lock to Facilities Management Environmental Services office.

1.7 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.

PART 2 - PRODUCTS

2.1 ACCESSORIES

A. Furnished by Owner/Installed by Contractor:
   1. Toilet Tissue (Jumbo-Roll) Dispenser: Georgia-Pacific No. 59209.
   2. Paper Towel Controlled Roll Dispenser: OptiServ No. 76500 Silhouette.
   3. Liquid-Soap Dispenser: Waxie No. 5150-06-BCE00YL
   4. Hand sanitizer dispenser: Purell No. 5120-06
   5. Shower curtain rods: manufactured by Texas Specialty Metals, Inc.
      a. Contractor is to field cut rod to exact length.
   6. Sanitary Napkin Disposal
      a. Install in 50% of bathrooms; Owner to determine specific locations.

B. Furnished by Contractor/Installed by Contractor:
   1. Shower Curtain Rod Hanger Assembly, as detailed.
      a. Fabricate hanger assembly with the following:
         1) Stainless steel loop hanger: Grainger No. 1RVN7.
         2) ¼” diameter stainless steel threaded rod.
         3) Stainless steel nuts and acorn nuts.
         4) Stainless steel washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

B. Coordinate the location of ceiling/soffit framing to anchor the shower curtain rod hanger assembly at mid-span.
3.2 ADJUSTING AND CLEANING

A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.

B. Remove temporary labels and protective coatings.

C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 10801
SECTION 16010 - ELECTRICAL GENERAL PROVISIONS

PART 1 GENERAL

1.01 PROVISIONS

A. Drawings, general provisions of theContract between the Construction Manager/General Contractor and the University of Colorado, any General and Supplementary Conditions to the Contract, provisions of applicable Subcontractor Agreements, and other Division 1 Specification sections apply to work of this section.

1.02 DESCRIPTION

A. A remodel project of existing restrooms and dorm rooms in an occupied dormitory building.

B. Furnish and install all materials and equipment and provide all labor required and necessary to complete the work shown on drawings and/or listed below and all other work and miscellaneous items, not specifically mentioned, but reasonably inferred for a complete testing of the system. It is the intent of Drawings and Specifications that all systems be complete and ready for operation.

1.03 WORK INCLUDED

A. Minor demolition with new interior lights, a new Simplex horn/strobe, wiring devices using existing circuitry.

B. Certain labor, materials and/or equipment may be furnished under other sections, or by Owner. When such is the case, extent, source and description of these items shall be indicated on drawings or described herein. Unless otherwise noted, all labor, materials, and/or equipment for complete installation of electrical work shall be provided under this Division.

1.04 DEFINITIONS

A. Instructions such as "Provide the outlets" shall mean the same as though the words "This contractor shall" proceeded each such instruction. "Provide" shall mean "Furnish and Install." Where the words "Accepted or Acceptable" are used, such "Accepted" or "Acceptable" action by the Engineer denotes that the work or equipment item is in conformance with the design concept of the project and, in general, complies with information in the Contract Documents.

1.05 STANDARDS FOR MATERIALS

A. All materials shall conform with the current applicable industry standards and the University of Colorado Standards. Workmanship and neat appearance shall be as important as electrical and mechanical operation. Defective or damaged materials shall be replaced or repaired prior to final acceptance in a manner meeting approval of Engineer and at no additional cost to Owner.

B. The latest editions of the following standards are minimum requirements.

1. Underwriters' Laboratories, Inc. (UL)
2. National Electrical Manufacturer's Association (NEMA)
3. American National Standards Institute (ANSI)
4. Insulated Cable Engineer's Association (ICEA)
5. Institute of Electrical and Electronic Engineers (IEEE)

1.06 SUBSTITUTION OF EQUIPMENT AND MATERIALS

A. No substitutions of equipment without written approval from the Engineer in the form of an addenda, submittals shall be received by the Engineer a minimum of 7 calendar days prior to the bid date.

1.07 CODE COMPLIANCE

A. All work and materials shall comply with latest rules, codes and regulations, including but not limited to the following: CU Standards, OSHA, National Fire Codes of National Fire Protection Association (NFPA), 2011 National Electrical Code and all other applicable State and local laws and regulations.

B. Code compliance is mandatory. The Drawings and Specifications shall not permit work that does not conform to these codes.

C. No work shall be concealed until after inspection and approval by proper authorities and design engineer. If work is concealed without inspection and approval, Contractor shall be responsible for all work required to expose and restore the concealed in addition to all required modifications.

1.08 DRAWINGS

A. Drawings indicate general arrangement of circuits and outlets, locations of switches, panelboards and other work. Drawings and specifications are complementary each to the other, and what is called for by one shall be binding as if called for by both. Data presented on drawings is as accurate as planning can determine, but accuracy is not guaranteed and field verification of all dimensions, locations, levels, etc. to suit field conditions is directed. Review all drawings and adjust all work to conform to all conditions shown therein. Discrepancies between different drawings or between drawings and specifications or regulations and codes governing installation shall be brought to the attention of the Engineer.

PART 2 - PRODUCTS

2.01 EQUIPMENT AND MATERIALS

A. All equipment and materials installed shall be new and UL approved unless otherwise specified.

B. All major equipment components shall have manufacturer's name, address, model number and serial number permanently attached in a conspicuous location.

PART 3 - EXECUTION

3.01 CONDITIONS AT SITE

A. Visit to site is required of all bidders prior to submission of bid. All will be held to have familiarized themselves with all discernible conditions, and no extra payment will be allowed for work required because of these conditions, whether specifically mentioned or not.

B. Lines of other services that are damaged as a result of this work shall promptly be repaired at no expense to Owner to complete satisfaction of Engineer.
3.02 LICENSE, FEES, AND PERMITS

A. Arrange for required inspections for all license, permit and inspections. Furnish a certificate of final inspections and approval from local authority having jurisdiction over electrical installation.

3.03 WORKMANSHIP AND CONTRACTOR'S QUALIFICATIONS

A. Only quality workmanship will be accepted. Haphazard or poor installation practice will be cause for rejection of work. A journeyman to apprentice ratio of 1:1 must be maintained.

B. Provide foreman in charge of this work at all times.

C. Contractor must have been in business under the same name for a minimum of 5 years and have a manned office, full time. Also provide a current and complete financial statement for review.

D. Where specifications call for an installation to be made in accordance with Manufacturer's recommendations, a copy of such recommendations shall at all times be kept in job superintendent's office and shall be available to Engineer's and/or Owner's representative.

E. Contractors bidding this project must complete AIA Document A305-1986 "Contractor's Qualification Statement" and submit it with their proposal for information purposes.

F. In addition, the contractor must provide a statement(s) indicating they meet the following minimum requirements:

1. List a minimum of two projects completed in the last five years which were similar in size (or larger), complexity and type. For each project list:
   a) Name and location of project.
   b) Name, address and phone number of Client/Owner and owner's representative.
   c) Contract type (prime or subcontract) and contract value or subcontract value).
   d) Year in which work was performed.

2. If required, list two projects on which the Contractor acted as the prime contractor (may be the same projects listed in Item (a), if applicable.

3. The firm or its operating officers (above the level of Project Manager) shall have been involved in Electrical Contracting for at least five years.

4. List project values (or subcontract values, if applicable) which total at least $500,000 of electrical work in the last five years completed by the firm or its operating officers.

G. The bidder shall give evidence of being able to be bonded to 150% of their base bid amount. A letter shall be provided by the bonding agency assuring capability of bonding this level and associated rates.

3.04 SUBMITTALS

A. Submit shop drawings and product data in accordance with provisions of Division 1.

B. Prior to submission, shop drawings, material lists and catalog cuts or manufacturer's printed data shall be thoroughly checked for compliance with contract requirements, compatibility with equipment being furnished by the Contractor or Owner, accuracy of dimensions, coordination
with work of other trades, and conformance with sound and safe practice as to erection of installation. Each submittal shall bear Contractor's signed statement evidencing such checking.

C. Clearly mark each shop drawing as follows for purposes of identification:

   Equipment Identification Used on Contract Drawings
   Date
   Name of Project
   Branch of Work
   Architect/Engineer’s Name
   Contractor’s Name

D. Clearly mark printed material, catalog cuts, pamphlets or specification sheets, and shop drawings with the same designation shown on the contract document schedules. Identify specific item proposed, showing catalog number, recess openings, dimensions, capacities, electrical characteristics, etc. Submittals which are incomplete will be returned to the Contractor without review.

E. Contractor agrees that submittals processed by the Architect/Engineer are not change orders; that the purpose of submittals is to demonstrate to the Architect/Engineer that the Contractor understands the design concept; and that the Contractor demonstrates this understanding by indicating which equipment and material he intends to furnish and install and by detailing the fabrication and installation methods he intends to use.

F. Contractor shall be responsible for dimensions (which he shall confirm and correlate at the job site), fabrication processes and techniques of construction, and coordination of his work with that of other trades. The Contractor shall check and verify all measurements and review shop drawings before submitting them. If any deviations from the specified requirements for any item of material or equipment exist, such deviation shall be expressly stated in writing and incorporated with the submittal.

G. Maintain one copy of shop drawings at the project field office until completion of the project, and make this copy available, upon request, to representatives of the Architect/Engineer and Owner.

H. No equipment or materials shall be installed or stored at the jobsite until submittals for such equipment or materials have been given review action permitting their use.

I. Shop drawings and manufacturer's published data shall be submitted for:

   Lighting fixtures (catalog cuts)
   Wiring devices (switches & receptacles)

3.05 TESTS

A. The right is reserved to inspect and test any portion of the equipment and/or materials during the progress of its erection. This contractor shall test all wiring and connections (whether new or existing) for continuity and grounds before connecting any equipment.

B. The Contractor shall test the entire system in the presence of the Engineer when the work is completed to ensure that all portions are free from shorts or grounds. All equipment necessary to conduct these tests shall be furnished at the Contractor's expense.

3.06 DELIVERY AND STORAGE OF MATERIALS

A. Make provisions for delivery and safe storage of all materials. Deliver materials to job at such
stages of the work as will expedite work as a whole. Carefully mark and store all materials. Carefully check materials furnished for installation, and furnish a receipt acknowledging acceptance of delivery and condition of materials received. Thereafter assume full responsibility for safekeeping of same until final installation has been approved and accepted.

3.07 CUTTING AND PATCHING

A. Carefully lay out all work and coordinate location with architect and other trades. Where cutting, channeling, chasing or drilling of floors, walls, partitions, ceilings or other surfaces is necessary for proper installation, support or anchorage of raceways, outlets or other electrical equipment, this work shall be the responsibility of this Contractor. Any damage to building, piping, equipment or any defaced finish, plaster, woodwork or metalwork shall be repaired by this contractor at no additional cost to Owner. Do no cutting, channeling, chasing or drilling of unfinished masonry, tile, etc. or cutting, drilling, welding of structural members of building, etc. without first obtaining permission from Engineer. If permission is granted, perform work in a manner approved by Engineer. All penetrations through fire resistive construction must be sealed with an approved fire resistive sealant.

3.08 CLEAN-UP

A. Remove all materials, scrap, etc. relative to electrical installation, and leave premises in a clean, orderly condition. Any costs to Owner for cleanup of site will be charged to Contractor. At completion, all equipment, lighting fixtures, etc. shall be thoroughly cleaned and all residue removed from the inside and outside surfaces. Defaced finish shall be refinished.

3.09 GUARANTEE

A. Provide in accordance with the General Conditions and Division 1. Leave entire electrical system installed under this Division in proper working order. Replace, without additional charge, any work materials or equipment provided under this Division which develops defects within one year from date of final acceptance. Guarantee all materials and equipment against defects in composition, design or workmanship.

END OF SECTION
SECTION 16110 - RACEWAYS

PART 1 - GENERAL

1.01 RELATED WORK IN OTHER SECTIONS

A. Section 16010 General Provisions; Section 16450 Grounding.

1.02 RELATED DOCUMENTS

A. Drawings, general provisions of the Contract between the Construction Manager/General Contractor and the University of Colorado, any General and Supplementary conditions to the Contract, provisions of applicable Subcontractor Agreements, and other Division 1 Specification sections apply to work of this section.

PART 2 - PRODUCTS

2.01 CONDUITS

A. Rigid Steel Conduit: Rigid, threaded, thick-wall, zinc-coated on the outside and either zinc-coated or coated on the inside. ANSI C80.1.

B. Electrical Metallic Tubing (EMT): Mild steel, zinc-coated on the outside and either zinc-coated or coated with an approved corrosion-resistant coating on the inside. The use of 2" or larger EMT by UCB permission only.

C. Flexible Conduit: Commercial Greenfield, galvanized steel, with a separate grounding bond wire installed in the conduit in addition to other wires. MC and AC cable and extra flexible conduit are not acceptable.

D. Conduit Size: Minimum conduit size is 3/4" for all circuits. All conduit for branch circuit receptacles, motor feeders and panelboard feeders shall be as required by the NEC for RH, RHH, and RHW insulation regardless of the type of insulation actually used.

E. Provide a grounding conductor with all circuits.

2.02 CONDUIT FITTINGS

A. Rigid Steel Conduit, IMC, and EMT Fittings: Iron or steel only.

B. Flexible Conduit Fittings (Commercial Greenfield): Steel only, with insulated throats, and shall be:

1. Squeeze or clamp type with bearing surface contoured to wrap around the conduit and clamped by one or more screws.

C. Connectors and Couplings: Compression type threadless fittings for rigid steel conduit or IMC not permitted. EMT couplings and connectors shall be steel only, "Concrete-tight" or "Rain-tight" (gland and ring compression type) or steel set screw type. Connectors to have insulated throats.

D. Bushings: Insulated type, designed to prevent abrasion of wires without impairing the continuity of the conduit grounding system, for rigid steel conduit, IMC, and EMT conduit larger than 1-1/4" size. Provide grounding type bushings on all feeder conduits.
PART 3 - EXECUTION

3.01 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

A. Size all conduits to meet the requirements of National Electrical Code, all power or feeder conduits shall meet the requirements for RHH and RHW insulation regardless of the type of wire actually used. Minimum flexible conduit size shall be 1/2”. Three-eighths inch flexible conduit is permitted if furnished as part of a manufactured equipment connection.

B. The maximum length of flexible conduit for connections to lighting equipment is 6'-0". Flexible conduit may also be used where installing new devices in existing walls and the wall or structure has to be “fished”. MC and AC cables are not acceptable.

C. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping. Coordinate the proposed conduit routing with the Architect prior to installation.

D. Maintain minimum 6 inch clearance between conduit and piping. Maintain 12 inch clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.

E. Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Support conduit from building structure using galvanized straps, clevis hangers, or bolted split stamped galvanized hangers. Do not support conduits from ceiling suspension wires.

F. Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.

G. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used or temporary conduit support during construction, before conductors are pulled. Multi-use suspension systems for plumbing and other piping along with electrical conduits shall not be permitted unless the hangers were designed for all the piping and conduit loads and will support a minimum of 200 lbs.

3.02 CONDUIT INSTALLATION

A. Cut conduit square using a saw or pipecutter; de-burr cut ends.

B. Bring conduit to the shoulder of fittings and couplings and fasten securely.

C. Use conduit hubs or sealing locknuts for fastening conduit to cast boxes, and for fastening conduit to sheet metal boxes in damp or wet locations.

D. For all metallic conduits, provide insulated bushing or throat bushings for 1-1/4” diameter and larger. Provide grounding lug bushings where conduits enter switchboards.

E. Install no more than the equivalent of three 90-degree bends between boxes.

F. Use conduit bodies to make sharp changes in direction, as around beams.

G. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2 inch size.

H. Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at conduit low point.

I. Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.

J. Provide No. 12 AWG insulated conductor or suitable pull string in empty conduit, except sleeves and nipples.
K. Where conduit penetrates fire-rated walls and floors, provide mechanical fire-stop fittings with UL listed fire rating equal to wall or floor rating or seal opening around conduit with UL listed foamed silicone elastomer compound. Coordinate with Division 0 requirements.

L. Where conduit penetrates waterproofed floors or exterior walls subject to entry of moisture, provide pipe sleeves two sizes larger than conduit, suitably flashed or sealed where appropriate. Seal annular space around conduit with UL listed foamed silicone elastomer compound. For conduit penetrations through exterior foundation walls below grade, all conduit shall be sloped away from the building to prevent entry of moisture. Pipe sleeve shall be large enough to allow up to 3" of vertical movement about the conduit without damage in the event that the foundation rises.

M. Plastic or fiber expansion anchors are prohibited.

3.03 CONDUIT INSTALLATION SCHEDULE

A. Concealed Dry Interior Locations: Rigid steel conduit or electrical metallic tubing. Do not use EMT in concrete slabs or walls.

B. Exposed Dry Interior Locations: Rigid steel conduit from floor level to +4'-0" above finished floor where exposed to travel areas (corridors, receiving, etc.) or where likely to be damaged. Electrical metallic tubing above +4'-0" from finished floor. All surface raceways shall be in wiremold and the routing shall be reviewed with the architect prior to installation.

C. Flexible metal conduit shall be utilized for the following:
   1. Transformer final connections.
   2. Mechanical equipment final connections.
   3. Lighting equipment final connections.
   4. Installation of devices in existing walls or ceilings to remain where rigid conduit cannot be installed.

END OF SECTION
SECTION 16120 - CONDUCTORS

PART 1 - GENERAL

1.01 RELATED WORK IN OTHER SECTIONS

A. Section 16010 General Provisions; Section 16450 Grounding.

1.02 RELATED DOCUMENTS

A. Drawings, general provisions of the Contract between the Construction Manager/General Contractor and the University of Colorado, any General and Supplementary Conditions to the Contract, provisions of applicable Subcontractor Agreements, and other Division 1 Specification sections apply to work of this section.

PART 2 - PRODUCTS

2.01 CONDUCTORS AND CABLES (600 VOLTS)

A. Type: Conform to the applicable UL and ICEA Standards for the use intended. Copper conductors with 600-volt insulation unless otherwise specified or noted on the drawings. All #12 conductors shall be solid with stranded conductors for No. 10 and larger.

B. Aluminum Conductors Prohibited: Aluminum conductors will not be permitted.

C. Insulation: Type THWN/THHN insulation minimum unless otherwise specified or noted on the drawings. Type THW minimum or type XHHW filled cross-linked polyethylene 90-degree C thermosetting insulation for conductors larger than No. 6 and elsewhere as required by NEC. 90-degree C minimum insulation within fixture wireways of fluorescent fixtures.

D. Size: No. 12 minimum unless otherwise specified or noted on the drawings. Not less than NEC requirements for the system to be installed. If the equipment to be installed requires larger conductor and equipment sizes than indicated on the drawings, the owner shall be notified.

E. Wire Color Coding:

1. Color code wires for building voltage classes as follows:

<table>
<thead>
<tr>
<th>120/208V - 3 Phase</th>
<th>277/480V - 3 Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Black</td>
<td>A - Brown</td>
</tr>
<tr>
<td>B - Red</td>
<td>B - Orange</td>
</tr>
<tr>
<td>C - Blue</td>
<td>C - Yellow</td>
</tr>
<tr>
<td>Neutral - White</td>
<td>Neutral - Gray</td>
</tr>
<tr>
<td>Ground - Green</td>
<td>Ground - Green</td>
</tr>
</tbody>
</table>

2.02 CONNECTORS AND LUGS

A. For copper conductors No. 10 and smaller: 3M Scotch-Lok, T&B or equal spring wire connectors.

B. For copper conductors larger than No. 10: Split bolt-type pressure connectors, properly taped or insulated.
PART 3 - EXECUTION

3.01 SPLICES (480 VOLTS AND UNDER)
   A. Permitted only at outlets or accessible enclosures. Conductor lengths shall be continuous from termination to termination without splices unless approved by the Architect/Engineer.

3.03 RACEWAYS
   A. Install all conductors in an approved raceway system.
   B. Install a ground conductor in all power & lighting circuits above 50 volts.

3.04 CABLE BENDS
   A. Radius of bends shall be not less than 10 times the outer diameter of the cable.

3.05 CONDUCTOR PULL
   A. Conductors shall not be pulled into conduits until after all plastering or concrete work is completed, and all conduits in which moisture has collected have been swabbed out.

3.06 CONNECTORS AND LUGS
   A. Install with manufacturer's recommended tools and with the type and quantity of deformations recommended by manufacturer.

END OF SECTION
SECTION 16130 - BOXES AND FITTINGS

PART 1 - GENERAL

1.01 RELATED WORK IN OTHER SECTIONS
A. Section 16010 General Provisions; Section 16450 Grounding.

1.02 RELATED DOCUMENTS
A. Drawings, general provisions of the Contract between the Construction Manager/General Contractor and the University of Colorado, any General and Supplementary Conditions to the Contract, provisions of applicable Subcontractor Agreements, and other Division 1 Specification sections apply to work of this section.

PART 2 - PRODUCTS

2.01 OUTLET BOXES
A. Construction: Zinc-coated or cadmium-plated sheet steel boxes of a class to satisfy the condition at each outlet except where unilet or condulet bodies are required. Knockout type with knockouts removed only where necessary to accommodate the conduit entering. Square cornered, straight sided gang boxes, 4-inch octagon concrete rings and 4-inch octagon hung ceiling boxes with bars may be folded type; one-piece deep-drawn for all other boxes.

B. Size: To accommodate the required number and sizes of conduits, wires and splices in accordance with NEC requirements, but not smaller than 4" square. Standard concrete type boxes not to exceed 6 inches deep except where necessary to permit entrance of conduits into sides of boxes without interference with reinforcing bars. Special purpose boxes shall be sized for the device or application indicated.

C. Fixture Studs: 3/8-inch malleable-iron fixture stud in outlet boxes for ceiling lighting fixtures and interior bracket lighting fixtures, other than lamp receptacles and drop cords.

D. Exposed: Screw-joint type, with gasketed weatherproof covers in locations exposed to the weather.

E. Tile Boxes: Rectangular in shape with square corners and straight sides for receptacles and switches mounted in furniture cabinets or in glazed tile, concrete block, marble, brick, stone or wood walls. Install with tile rings.

F. Wall-Mounted Switch, Receptacle and Signal Boxes: Unless otherwise noted or specified, not less than 4 inches square by 1-1/2 inches deep for two devices and multi gang boxes for more than two devices. Boxes for switches and receptacles on unfinished walls may be screw-joint type with covers to fit the devices.

G. Light Fixture Boxes: 4-inch diameter by 1-1/2 inch deep minimum for ceiling and interior bracket fixtures with concealed conduits. Plaster covers for bracket fixtures to have 3-inch diameter openings. Screw-joint boxes with canopy seat for ceiling and interior bracket fixtures with exposed conduits.

PART 3 - EXECUTION

3.01 OUTLET BOXES
A. Installation: Unless otherwise specified or shown on the drawings, outlet boxes shall be flush
mounted and the front edges of the boxes or plaster covers shall be flush with the finished wall or ceiling line, or if installed in walls and ceilings of incombustible construction, not more than 1/4-inch back of same. Provide a 3/4" plaster ring for 5/8" gypboard per UC B standards, this will insure the front edge of the box is flush with the finished wall as required. Mount boxes with the long axis of devices vertical. Boxes in plastered walls and ceilings shall be provided with plaster covers. Box extensions and/or covers will not be permitted. Install in a rigid and satisfactory manner with suitable metal bar hangers, box cleats, adjustable box hangers, etc. Use wood screws on wood, expansion shields on masonry and machine screws on steel work.

B. Mounting Heights: The mounting height of a wall-mounted outlet box shall be construed to mean the height from the finished floor to the horizontal center line of the cover plate. On exposed tile, block, or brick construction, mount outlet boxes at the nearest bed joint to the mounting height indicated. Verify with Architect.

C. Wall-Mounted Switch, Receptacle and Signal Outlets: On columns, pilasters, etc., mount so the centers of the columns are clear for future installation of partitions. Install outlet boxes near doors or windows close to the trim. Install outlet boxes near the doors on the lock sides as shown on architectural drawings, unless other locations are approved by the Architect.

D. Box extensions shall be prohibited on new construction and one per existing box will be allowed on remodel work only. Install a new 6 x 6 box to cover the existing box if one extension is not sufficient to flush out the existing box. The relocated device can then be mounted in a close nipped standard box.

E. Boxes mounted on metal partitions shall have back side supports.

3.02 FIXTURE CONNECTIONS

A. Recessed or surface light fixtures in lay-in or accessible ceilings shall be connected with minimum 3/8-inch flexible metallic conduit, 4 to 6 feet long, with grounding provisions.

3.03 IDENTIFICATION

A. Identify all junction and pull boxes as follows:

1. Fire Alarm - red
2. Emergency - yellow
3. Telephone - green
4. Television - violet
5. Computer & data - blue
6. 277/480V - orange

END OF SECTION
SECTION 16140 - WIRING DEVICES AND PLATES

PART 1 - GENERAL

1.01 RELATED WORK IN OTHER SECTIONS

A. Section 16010 General Provisions; Section 16450 Grounding.

1.02 RELATED DOCUMENTS

A. Drawings, general provisions of the Contract between the Construction Manager/General Contractor and the University of Colorado, any General and Supplementary Conditions to the Contract, provisions of applicable Subcontractor Agreements, and other Division 1 Specification sections apply to work of this section.

PART 2 - PRODUCTS

2.01 SNAP SWITCHES

A. Unless otherwise specified, each switch (Quiet, Quick Make & Break) shall be of the A.C specification grade type for mounting in a single-gang spacing, fully rated 20 amperes minimum at 120/277 volts, conforming to minimum requirements of the latest revision of the Federal Spec. #W-S-896E, standard Quiet Switches and further requirements herein specified. Switches shall be spec grade, heavy duty, single-pole, 3-way or 4-way, of the maintained, momentary, or lock type as indicated on the drawings with grounding screw. Switches shall operate in any position and shall be fully enclosed cup type with entire body molded phenolic, urea or melamine. Fibre, paper or similar insulating material shall not be used for body or cover, ivory color handles unless otherwise indicated on the drawings. Silver or silver alloy contacts. A.C. 120/277 volt general use snap switches shall be capable of withstanding tests as outlined in NEMA Publication, and shall be as follows unless otherwise noted:

Hubbell #1221-I, 1223-I or 1224-I.

2.02 RECEPTACLES

A. General: Configuration and requirements for all connector or outlet receptacles shall be in accordance with NEMA Publications. Fire-resistant, non-absorptive, hot-welded, phenolic composition or equal bodies and basses with metal plaster ears (integral with the supporting member) and 20 amp minimum. Single or duplex as shown or noted on drawings. Ivory color unless otherwise noted on the drawings. Double grip contacts for each prong. Receptacles shall comply with Federal Spec. #W-C-596E.

B. Grounding Type: All receptacles shall be grounding type with a green colored hexagonal equipment ground screw of adequate size to accommodate an insulated grounding jumper the same size as the phase conductor. Grounding terminals of all receptacles shall be internally connected to the receptacle mounting yoke.

C. Unless otherwise noted, receptacles shall be as follows:

Hubbell #5362-I or 5362-GF for ground fault.

D. Special: Receptacles for special applications shall be as indicated on the drawings.
2.03 DEVICE PLATES

A. General: Provide device plates for each switch, receptacle, signal and telephone outlet, and special purpose outlet. Do no use sectional gang plates. Provide multi-gang outlet plates for multi-gang boxes. Plates shall be brushed aluminum, of spec. grade, as manufactured by Hubbell, Leviton, Arrow-Hart, Daniel Woodhead or Eagle. Each coverplate for all receptacles and switches shall be provided with an adhesive Brady label on the outside of the coverplate with the panel and circuit identified.

B. Exposed: Plates for exposed jointed fittings shall match the fittings with edges of plates flush with edges of fittings. Heavy cadmium plated steel with gasket. Plates for cast type boxes at locations subject to wet or rain conditions shall be of the cast, vapor-tight type. Provide hinged lift covers for devices.

PART 3 - EXECUTION

A. Install wall switches 48 inches above floor to the center of the device, OFF position down.

B. Install wall dimmers 48 inches above floor to the center of the device; derate ganged dimmers as instructed by manufacturer; do not use common neutral.

C. Install convenience receptacles vertically at 18 inches above floor to the center of the device, or horizontally at 6 inches above counters, or backsplash, with grounding pole to right.

D. Install specific-use receptacles at heights shown on Contract Drawings.

E. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface-mounted outlets.

F. Install devices and wall plates flush and level.

G. Install with alignment tolerance of one-sixteenth inch and all edges in continuous contact with wall surfaces.

END OF SECTION
SECTION 16510 - LIGHTING FIXTURES

PART 1 - GENERAL

1.01 RELATED WORK IN OTHER SECTIONS
   A. Section 16010 General Provisions; Section 16450 Grounding.

1.02 RELATED DOCUMENTS
   A. Drawings, general provisions of the Contract between the Construction Manager/General Contractor and the University of Colorado, any General and Supplementary Conditions to the Contract, provisions of applicable Subcontractor Agreements, and other Division 1 Specification sections apply to work of this section.

1.03 SUBMITTALS
   A. Submit for approval complete shop drawings, catalog cuts, special installation instructions, photometric data and descriptive literature. When fixtures are proposed for substitution and prior approval has not been issued in the form of an addenda they will not be reviewed.

PART 2 - PRODUCTS

2.01 GENERAL
   A. Furnish all lighting fixtures throughout of the type indicated on the drawings, complete with lamps, sockets, wiring, fitters, hangers, plaster rings, canopies, etc., as required.

2.02 LAMPS
   A. Fluorescent: 3500 degree Kelvin, energy saving, green end cap lamps, T8 as noted in the fixture schedule.
   B. Incandescent: Not allowed
   C. Manufacturers: General Electric, Sylvania or Philips.

2.03 BALLASTS
   A. Fluorescent Ballasts - Electronic;
      1. Provide rapid start electronic ballasts with series circuiting for all four foot rapid start T-8 lamps with voltage as indicated on the plans and fixture schedule. The ballast shall deliver normal lamp life and must be interchangeable with electromagnetic ballasts. The light output shall not vary in response to an input voltage variance of less than 10% rated voltage. Drive output shall be greater than 25 KHz with lamp flicker less than 2%.
      2. The ballast Total Harmonic Distortion shall be less than 20% with the third harmonic (180 Hz) distortion less than 8%.
      3. The ballast shall have a power factor of 0.98 or higher and shall have a ballast efficiency of 90% or higher.
      4. The ballast shall be UL listed Class P and with a sound rating better than A.
      5. The manufacturer shall provide a full three year warranty beginning at time of substantial completion. The manufacturer shall replace any and all failed ballasts within 48 hours of notification. The manufacturer shall provide the labor for warranty replacements.
6. The ballasts shall be by Advance, Magna-Tek or Sylvania. All other manufacturers shall request prior approval and supply test data from an independent testing laboratory to substantiate compliance with specifications.

2.04 FLUORESCENT FIXTURES

A. All fixtures, ballasts and supports shall be quiet in operation. Louvers, shields, reflectors and all sections of the channel structure shall be securely held in position. Fixtures shall not be mounted in such a way that ballast hum will be amplified or transmitted into work areas.

2.05 FINISH

A. Bonderized or equal treatment on all steel parts prior to applying finish. Metal parts shall be aluminum, brass, copper, bronze or steel, with baked white enamel finish unless otherwise noted on the drawings.

2.06 FLUORESCENT LAMPHOLDERS

A. Designed so lamps will be held firmly in place, electrically and mechanically permitting easy insertion or removal of lamps. Provide corrosion resistant, silver-plated lamp pin contacts.

2.07 CEILING TRIM

A. Furnish proper ceiling frames for the ceiling materials in which recessed fixtures are to be installed. Verify that the ceiling type to be installed is as noted on the fixture schedule prior to ordering the fixtures.

2.08 HOUSING

A. Not less than 20 gauge steel with baked white enamel finish applied over corrosion-resistant primer unless otherwise specifically approved.

PART 3 - EXECUTION

3.01 SUPPORTS

A. Support ceiling fixtures by anchorage to the ceiling only where the ceiling is concrete or masonry units. For ceilings of other construction, anchor ceiling fixtures to metal or wood supports provided for that purpose, of suitable strength and stability, adequately attached to and supported by joists, trusses or other structural members, unless other methods of support are specifically approved by the Architect. Where lay-in construction is used, fixtures shall be of the lay-in type. Coordinate supports for lay-in fixtures with ceiling contractor.

3.02 CEILING TRIM AN MEANS OF SUPPORT

A. The ceiling trim and means of support of recessed fixtures shall be coordinated with the type of ceiling to be installed to insure proper installation.

3.03 CLEAN-UP

A. At final inspection the fixtures and lighting equipment shall be in first class operating order, in perfect condition as to finish, free from defects, completely lamped, clean and free from dust, plaster or paint spots, and complete with the required glassware, reflectors, side panels, louvers, or other components necessary to complete the fixtures.

END OF SECTION
SECTION 16720 - FIRE DETECTION AND ALARM SYSTEMS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Installing new Simplex ADA strobes and connecting them to the existing Simplex FACP. This also includes all associated conduits, fittings, hardware, and wiring as required for a complete installation; and final connection to auxiliary building equipment associated with the automatic shutdowns. The Contractor shall provide all materials as required for a complete project.

1.02 RELATED WORK

A. Section 16010: Electrical General Provisions.
B. Section 16110: Raceways.
C. Section 16120: Conductors

1.03 RELATED DOCUMENTS

A. Drawings, general provisions of the Contract between the Construction Manager/General Contractor and the University of Colorado, any General and Supplementary Conditions to the Contract, provisions of applicable Subcontractor Agreements, and other Division 1 Specification sections apply to work of this section.

1.04 SYSTEM DESCRIPTION

A. Existing Fire alarm System: Simplex, NFPA 72, Supervised styles B-IDC, 4-SLC, any IAC wiring, non-coded, 24V system. All equipment supplied must be Simplex, and listed for the purpose for which it is used, and installed in accordance with any instructions included in its listing. All equipment must be new.

B. The systems provided under this section shall be complete and operable in all respects. When placed in operation, the system shall repeatedly and successfully perform all functions and capabilities called for in these specifications.

1.05 REGULATORY REQUIREMENTS

A. The installation is subject to approval, inspection, and testing of the Housing Dept. Fire Alarm Shop.

B. Equipment must be UL-listed and compatible with integrated fire alarm system.

1.06 REFERENCE STANDARDS

A. Equipment design, materials, manufacture, examination, testing, inspection, stamping, certification and documentation shall confirm to applicable portions of the following adopted or tentative specification, standard, codes and addenda as applicable. The effective date of specifications, standards, codes and addenda shall be that of execution of the contract.

3. Institute of Electrical and Electronics Engineers (IEEE).
5. ANSI 17.1.
6. Underwriters Laboratories (UL).
7. Factory Mutual (FM).

1.07 SUBMITTALS

A. Shop drawings must be submitted 30 days after award of contract and shall include the following:
   1. Complete list of equipment to be furnished, including catalog cuts and physical sizes. Include audio/visual voltage drop calculations and battery calculations for the new equipment on the existing system.
   2. Include installer qualifications including similar projects, years of Simplex experience, system types and references with current telephone numbers.

B. Deviations: No substitutions are acceptable unless approved in writing by the Engineer.

1.08 QUALIFICATIONS

A. Manufacturer Qualifications: Simplex only and compatible with existing.

B. Upon completion of the contract, the manufacturer/manufacturer’s representative must be able to execute a full-service contract for the maintenance and upkeep of the system in accordance with the current recommended practices from the National Fire Protection Association and the equipment manufacturer. The Contractor must have 24-hour service capability in the event of a system malfunction and be capable to providing emergency service with 12 hours of receiving notification.

C. Installer Qualifications: Minimum of 5 years experience installing new Simplex fire alarm systems of equal or larger size. Installers qualifications shall be furnished at the owner’s request.

PART 2 - EQUIPMENT

2.01 GENERAL REQUIREMENTS

A. The manufacturer’s equipment must be UL listed as a portion of NFPA #72.

B. Strobe: Simplex #4903-9219 with red backbox by Simplex #4905-9923. ADA compliant.

C. Zone Addressable Module (zam): Simplex #2190-9163.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS

A. Install the new devices as shown on the drawings and program as follows: If a manual pull station within the building goes into alarm all strobes and horn/strobes shall be energized. In addition the fire/smoke dampers shall close automatically and open upon reset based on a signal from the FACP.

B. All work shall be coordinated with the Dept. of Housing Fire Alarm Shop including a 100% operational test at completion of the project.
C. All material employed in the installation shall meet or exceed the requirements, or better, of the appropriate specifications and applicable codes and standards.

D. Materials used in the work shall be new and shall be of kind, composition, and physical properties best adapted to their several purposes in accordance with best engineering practices and accepted manufacturing industry practices.

E. "Pigtail" connections between circuit wires and detector terminals to permit complete electrical supervision are not acceptable. Devices shall be connected to the circuit line wires on a terminal strip in a junction box.

F. Match existing color code for new wiring.

G. CONDUCTORS
   1. #14 THHN Solid copper, minimum for all hard wired circuits.
   2. Wiring for new addressable devices shall be per manufacturer's recommendations.

3.02 SYSTEM TESTING AND VERIFICATION

A. Check Out, Start Up, and Adjustment:
   1. After installation is complete, the Contractor's personnel with assistance from the manufacturer's representative shall completely test the system and document the results and provide any required corrections. Any defects shall be corrected at once and the test re-conducted at no additional cost to the Owner. The Contractor must provide all necessary equipment to conduct this "pre-test" and the required final test.
   2. After completion of the installation, the Contractor shall adjust all sensors and other equipment provided under this contract and place them in complete operating condition subject to the approval of the Owner.
   3. Schedule through the service desk a 100% test with Housings fire alarm shop, the electrical contractor and a Simplex factory technician shall be present.

3.03 REQUIREMENTS DURING SYSTEM INTERRUPTIONS

A. Prior to initiating work, repair, or replacement procedures on any portion of the fire alarm and detection systems which will cause the system to not be fully functional, the following announcements and notifications are to be made:
   1. Building owner, manager and proctor: notify 10 working days prior to work.
   2. UCB Fire Systems Group of FacMan: Notify 10 working days prior to work.
   3. UCB Service Desk: Notify 24 hours prior to work and 1 hour prior to actual start of work.
   4. Boulder Fire Dept: Notify 24 hours prior to work and 1 hour prior to actual start of work.
   5. Provide a posted announcement: Post temporary signs at each entrance to the building and inside each elevator cab. Signs shall be posted one hour prior to occupant entry on the day during which the work will be performed. Minimum size shall be 8.5" x 11" with black block letters on a pink or light red background. Remove all posted announcements when work is complete. Sign shall state: Warning! Changes and renovations to the fire alarm system in Baker Hall will be made today (day of the week, month, day, year). During the renovations, portions of the fire alarm system will be out of service. If a fire occurs, exit the building immediately and dial 911 from a safe location. Do not use the elevators during the fire alarm. This sign will be removed when the changes and
6. Building occupants: Immediately prior to initiating work, announce to all building occupants that the fire alarm system work is in progress. All personnel entering the building after these announcements are to be similarly advised of work in progress. When the fire alarm system work is no longer in progress and the systems are again back in service, an announcement to all building occupants is to be made that the fire alarm system work is no longer in progress and the systems have been restored to normal operation.

B. Planned Interruptions

Interruptions of the fire alarm system shall be limited to 1 hour. The fire alarm system may not remain interrupted at night unless fire watchers are present. The following procedures shall be adhered to:

1. The contractor shall upgrade the fire alarm system one area at a time and schedule one interruption to allow enough time to connect all the new devices to the existing system and complete a preliminary test operation.

3.04 WARRANTY

A. For a period of one year from the date of final acceptance, the system shall be under warranty with a technician authorized by the manufacturer. During the period replacement components and labor shall be readily available during normal business hours.

B. Any component failures shall be remedied to the satisfaction of the Owner at Contractor's expense.

END OF SECTION
SECTION 210500 - COMMON WORK RESULTS FOR FIRE SUPPRESSION

PART 1  GENERAL

1.01  SECTION INCLUDES

A.  Pipe, fittings, valves, and connections for sprinkler systems.

1.02  RELATED REQUIREMENTS

A.  Section 211300 - Fire-Suppression Sprinkler Systems: Sprinkler systems design.

1.03  REFERENCE STANDARDS

A.  ASME (BPV IX) - Boiler and Pressure Vessel Code, Section IX - Welding and Brazing Qualifications; The American Society of Mechanical Engineers; 2010.
B.  ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300; The American Society of Mechanical Engineers; 2011.

1.04  REFERENCES

A.  The installation, certification and documentation shall conform to applicable portions of the following codes, standards and regulations:
   1.  IBC, International Building Code
   2.  IFC, International Fire Code
   3.  UL (Underwriters Laboratories) Fire Resistance Directory
   5.  Other NFPA Standards as applicable.
   6.  Colorado Dept. of Public Safety, Division of Fire Safety 8CCR 1507-11
   7.  Colorado Revised Statutes Section 24-33.5-1202 through 1208 (Senate Bill 90-4).

1.05  SUBMITTALS

A.  GENERAL REQUIREMENTS
   1.  The General Contractor reserves the right to charge the Fire Protection Contractor for multiple reviews by the AHJ or engineer if more than two (2) submittals (either for shop drawings or as-built drawings) are made by the Fire Protection Contractor.
   2.  Partial submittals shall not be acceptable.
   3.  Equipment submittals shall contain annotated descriptive data to show the specific model, type and size of each item the Contractor proposes to furnish. Catalog cut sheets shall be submitted in a suitable folder or binder and indexed referencing the applicable specification sections. Unclear or partial reproductions of manufacturer's original catalog cuts or descriptive data shall not be accepted. Each item supplied shall be clearly identified on each sheet. Where the submittal material describes items, in addition to the items being submitted, the additional items shall be crossed out and the submittal item shall be identified. Submit proof of compatibility for equipment components required to be approved as a system.
   4.  The Contractor shall be responsible for acquiring any general arrangement drawings depicting the building layouts, overall site plan and the detailed building drawings, as necessary to develop complete submittals. Reference drawings may be obtained from the owner if available; Contractor to verify such availability prior to bidding.
   5.  Submittals processed by the Engineer shall not be considered Change Orders. The purpose of submittals shall demonstrate to the Engineer that the Contractor understands the design concept, and that such understanding is demonstrated by indicating and detailing the fabrication and installation methods intended to be used.
6. Review by the Engineer shall not relieve the Contractor from full compliance with requirements of the contract documents, codes and standards.

B. SHOP DRAWINGS
1. Refer to Division-1 for general submittal requirements.
2. Submit detailed shop drawings including a riser diagram, hydraulic calculations, equipment data sheet submittals and employee certification in accordance with NFPA #13. Shop drawings shall be first reviewed by the Engineer for conformance with contract documents and, subsequently reviewed and accepted by the AHJ.
3. Submit anchoring details and calculations.
4. Unless otherwise approved by the AHJ, drawings shall be minimum size of 24"x 36", with a minimum scale of 1/8"=1' 0". Shop drawings, hydraulic calculations and equipment data sheets shall be submitted for review within a maximum of thirty (30) working days after award of contract. Written approval of the Engineer and the AHJ shall be obtained prior to starting the installation.
5. Include details and sections as required to clearly define and clarify the design.
6. Drawings shall be in strict compliance with NFPA #13 and drawn on computer to a commercial or architectural/engineering drawing standard and the University CAD standards unless waived in writing by the AHJ. Computer drawings shall be full scale and be plotted to a noted scale. For additional details see UCB CAD Standards.
7. An up-dated set of shop drawings approved by the AHJ that incorporates all field changes shall be maintained at the job site, in good condition from the start of construction until all inspections are completed.
8. The drawings shall show the location and ratings of all fire rated floors and walls. Each pipe penetration of these rated assemblies shall be detailed on the drawings showing pipe sleeve and a fire rated penetration seal.
9. The Contractor shall not proceed with purchase, fabrication, or installation of submittal related work until notified in writing. Re-submit as required until so marked by the Engineer. Work which is executed without required prior acceptance by the Engineer/AHJ shall be subject to rejection. Removal and reconstruction of rejected work shall be at the Contractor's expense.
10. Completed State of Colorado Plan Registration Form shall accompany the shop drawing submittal.

C. AS-BUILT DRAWINGS
1. Submit as-built drawings to the Engineer and AHJ for review and approval. After review and approval, submit the final drawings on computer disk to the University, in University standard CAD format. The as-built drawings shall include all of the information required under shop drawings and the following:
   a. The drawings shall show the system as installed, including all deviations from the approved shop drawings.
   b. Dependent upon the extent of field changes required to the original approved shop drawings submitted to the AHJ, the AHJ reserves the right to require a supplemental set of hydraulic calculations, at no additional cost to the Owner to verify the adequacy of the system in the as-built condition.
   c. Submittal of as-built drawings shall follow the job schedule and shall be submitted within thirty (30) days upon completion of the sprinkler work in the respective building.

D. TEST CERTIFICATES
1. Test certificate(s) showing that pneumatic, hydrostatic and final tests were conducted in accordance with the applicable NFPA standards, shall be submitted to the AHJ.

1.06 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum 5 years documented experience.
B. The design of the fire protection system shall be performed by or under the direction and control of a Colorado registered P.E. or a NICET level IV. Said professionals shall be experienced in
fire protection, thoroughly familiar with and experienced in this type of installation. Colorado registered professional engineers or the NICET level IV (or higher) professionals who are "Members" or meet the qualifications for the grade of "Member" in the national organization of the SFPE are preferred.

C. The owner's representative, Engineer, and AHJ reserve the right to request proof of qualifications.

D. No design related work shall be subcontracted or performed by persons other than bona fide employees working solely for the contractor. Any exception shall be pre-approved by the owner, in writing.

E. Persons who work on fire suppression systems and making an appropriation therefore are to be registered as required by Colorado House Bill 10-1241 as soon as the bill is signed into law and thereafter.

F. Installer shall be pre-qualified to work on UCB projects.

G. The entire fire protection system project including design, calculation, installation and testing, excluding prefabrication, shall be bid by a single firm which has the capabilities to perform all of the work required under this standard. No installation work shall be sub-contracted without prior permission in writing form the AHJ.

H. Contractor shall be registered for the design and installation for fire protection systems in the State of Colorado.

I. Contractor shall have a minimum of five (5) years of experience in the design and installation of similar projects of comparable size and value.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store valves in shipping containers, with labeling in place.

B. Provide temporary protective coating on cast iron and steel valves.

C. Provide temporary end caps and closures on piping and fittings. Maintain in place until sprinkler installation.

1.08 DEFINITIONS

A. AHJ: Authority Having Jurisdiction (AHJ). The Fire and Life-Safety Group (FLS) a the department of Facilities Management at University of Colorado, Boulder is the AHJ on the fire protection and life safety concerns.

B. CDH - Colorado Department of Health.

C. Engineer - The Engineer of record who represents the Design or Architect/ Engineer firm. Engineer shall stamp record set of drawings and specifications.

D. Contractor - When used in terms of Fire Protection system installations, "contractor" shall mean the firm responsible for preparation of shop drawings and installation of the fire protection system.

E. FACP - Fire Alarm Control Panel.

F. FM: Factory Mutual

G. F.M.: Department of Facilities Management.

H. Owner - University of Colorado at Boulder.

I. NICET - National Institute for Certification in Engineering Technologies

J. UL: Underwriters Laboratories.

PART 2 PRODUCTS

2.01 FIRE PROTECTION SYSTEMS

A. Sprinkler Systems: Conform work to NFPA 13.

2.02 ABOVE GROUND PIPING
   A. USA manufactured Steel Pipe: ASTM A53 Schedule 40, black with antibacterial formula II (ABF II) coating or approved equal.

2.03 PIPE HANGERS AND SUPPORTS
   A. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.
   B. Hangers for Pipe Sizes 2 inches and Over: Carbon steel, adjustable, clevis.

PART 3 EXECUTION
3.01 PREPARATION
   A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
   B. Remove scale and foreign material, from inside and outside, before assembly.

3.02 SPRINKLER SYSTEM PIPING APPLICATIONS
   A. Standard-Pressure, Wet-Pipe Sprinkler System, 175-psig Maximum Working Pressure:
      1. Threaded-end, black, standard-weight steel pipe; cast- or malleable-iron threaded fittings; and threaded joints.

3.03 INSTALLATION
   A. Install sprinkler system and service main piping, hangers, and supports in accordance with NFPA 13.
   B. Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient.
   C. Install piping to conserve building space, to not interfere with use of space and other work.
   D. Group piping whenever practical at common elevations.
   E. Sleeve pipes passing through partitions, walls, and floors.
   F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
   G. Pipe Hangers and Supports:
      1. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
      2. Place hangers within 12 inches of each horizontal elbow.
      3. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
      5. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
   H. Slope piping and arrange systems to drain at low points. Use eccentric reducers to maintain top of pipe level.
   I. Prepare pipe, fittings, supports, and accessories for finish painting. Refer to Section 099000.
   J. Do not penetrate building structural members unless indicated.
   K. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

3.04 FIELD QUALITY CONTROL
   A. Perform the following field tests and inspections and prepare test reports:
      1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Test and adjust existing controls and safeties impacted by work performed. Replace damaged and malfunctioning controls and equipment.

B. Report test results promptly and in writing to the AHJ.

3.05 CLEANING AND PROTECTION

A. Flush piping systems prior to final connections.

END OF SECTION
SECTION 211300 - FIRE SUPPRESSION SPRINKLERS

PART 1  GENERAL

1.01 SECTION INCLUDES
   A. Wet-pipe sprinkler system and components.
   B. System design, installation, and certification requirements.

1.02 SYSTEM DESCRIPTION
   A. Wet-Pipe Sprinkler System: Automatic sprinklers are attached to piping containing water and
      that is connected to water supply. Water discharges immediately from sprinklers when they are
      opened. Sprinklers open when heat melts fusible link or destroys frangible device. Hose
      connections are included if indicated.

1.03 REFERENCE STANDARDS
   B. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry
      Elements; 2012.
   D. ICC-ES AC308 - Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete
      Elements; 2012.
   E. NFPA 13 - Standard for the Installation of Sprinkler Systems; National Fire Protection
      Association; 2013.
   F. UL (FPED) - Fire Protection Equipment Directory; Underwriters Laboratories Inc.; current
      edition.

1.04 PERFORMANCE REQUIREMENTS
   B. Fire-suppression sprinkler system design shall be approved by authorities having jurisdiction.
   C. Margin of Safety for Available Water Flow and Pressure: 10 percent, including losses through
      water-service piping, valves, and backflow preventers.
   D. Minimum Density for Automatic-Sprinkler Piping Design:
      1. Light-Hazard Occupancy: 0.10 gpm over 1500-sq. ft. area.

1.05 SUBMITTALS
   A. See Division 01 for submittal requirements.
   B. See Section 210500 for additional submittal requirements not outlined below.
   C. Product Data: Provide manufacturers catalogue information for materials and products
      specified under this section. Submit performance ratings, rough-in details, weights, support
      requirements, and piping connections.
   D. Delegated-Design Submittal: For sprinkler systems indicated to comply with performance
      requirements and design criteria, including analysis data signed and sealed by the qualified
      professional engineer responsible for their preparation.
   E. Shop Drawings: For water-based automatic fire sprinkler systems. Include plans, elevations,
      sections, details, and attachments to other work; include required information as outlined in
      NFPA 13 and as required by the Authority Having Jurisdiction (AHJ).
      1. Coordinate fire sprinkler system design with other trades and identify areas where conflicts
         exist; resolve conflicts prior to shop drawing submittal.
      2. Submit preliminary layout of finished ceiling areas indicating only sprinkler locations
         coordinated with ceiling installation.
      3. Submit initial shop drawings through General Contractor for review by Architect prior to
         review by Owner and AHJ; make noted corrections and submit for approval through the
         Owner and the AHJ.
4. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, sprinklers, components and accessories. Indicate system controls.

F. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations.
   1. Submit record drawings (One set of reproducible documents) for review and approval within thirty (30) working days of completion of the fire sprinkler system. After review, submit the final, corrected drawings in print and electronic form on computer disc or CD ROM to the Owner or his designated representative. Record drawings shall include all shop drawing information outlined above as well as the following:
      a. System components as installed, including all deviations from the approved shop drawings as approved by the AHJ.
      b. Dependent upon the amount of field modifications incorporated into the building, the Owner may request supplemental hydraulic calculations to verify the adequacy of the system installation in the “as-built” condition.

G. Manufacturer's Certificate: Certify that system has been tested and meets or exceeds specified requirements and code requirements.

H. Operation and Maintenance Data: Include components of system, servicing requirements, record drawings, inspection data, replacement part numbers and availability, and location and numbers of service department.

1.06 QUALITY ASSURANCE
   A. Maintain one copy of referenced design and installation standard on site.
   B. Conform to UL requirements.
   C. Refer to section 13910 for additional requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. Sprinklers:
      1. Reliable Automatic Sprinkler Co., Inc.
      2. Globe Sprinkler Corporation
      3. Viking Corp.

2.02 SPRINKLER SYSTEM
   A. Sprinkler System: Provide coverage for building areas noted.
   B. Occupancies: Light hazard and ordinary hazard groups 1 and 2.
   C. Water Supply: Determine volume and pressure from water flow test data.
   D. Pipe Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
      3. Concrete Screw Type Anchors: Complying with ICC-ES AC193.
      5. Concrete Adhesive Type Anchors: Complying with ICC-ES AC308.

2.03 SPRINKLERS
   A. Exposed Area Type: Pendant type with guard.
      1. Response Type: Quick.
      2. Coverage Type: Standard.
      3. Finish: Chrome plated.
      4. Fusible Link: Glass bulb type temperature rated for specific area hazard.
   B. Sidewall Type: Exposed horizontal sidewall type with matching screw on escutcheon plate.
      1. Response Type: Quick.
      2. Coverage Type: Standard.
3. Finish: Chrome plated.
4. Escutcheon Plate Finish: Chrome plated.
5. Fusible Link: Glass bulb type temperature rated for specific area hazard.

C. Guards: Finish to match sprinkler finish.

PART 3 EXECUTION

3.01 PREPARATION

A. Flow Test Data: Obtain fire-hydrant flow test data from jurisdictional fire department, or perform fire hydrant flow test where jurisdictional fire department is unable to provide required data. Use results from flow test for system design calculations required in Part 1.
   1. Reduce data by factors outlined by jurisdictional authority prior to performing calculations for system design.

B. Report results promptly and in writing to the Owner.

3.02 INSTALLATION

A. Install in accordance with referenced NFPA design and installation standard.
B. Install equipment in accordance with manufacturer's instructions.
C. Place pipe runs to minimize obstruction to other work.
D. Place piping in concealed spaces above finished ceilings.
E. Apply masking tape or paper cover to ensure concealed sprinklers, cover plates, and sprinkler escutcheons do not receive field paint finish. Remove after painting. Replace painted sprinklers.
F. Install guards on sprinklers where indicated.
G. Require test be witnessed by authority having jurisdiction.

END OF SECTION
SECTION 220100 - BASIC PLUMBING REQUIREMENTS

PART 1 GENERAL

1.01 GENERAL CONDITIONS
   A. The General Conditions of the Contract and Supplementary Conditions of the General Contract apply to work under this Division.

1.02 QUALITY ASSURANCE
   A. The design for this project is based on specific manufacturers and equipment as scheduled on the drawings and listed in these Division 22 Specifications with specific model number identifiers. Acceptable substitute manufacturers of equipment are listed in these specifications. If any acceptable substitute manufacturer's equipment is used, the cost of any change in design or construction required by their use shall be borne by the contractor. Contractor shall document and submit all changes to design plans and schedules as a result of the use of substituted equipment.

   B. If manufacturer's material or equipment is listed in Schedules or on Drawings, they are types to be provided for establishment of size, capacity, grade, and quality. If other acceptable manufacturers are used, cost of any change in construction required by their use shall be borne by Contractor.

   C. Equipment shall conform to State and/or local Energy Conservation Standards.

   D. Execute and test all work per Underwriters, state and local codes, rules, and regulations applicable to trade affected. Included are recommendations of NFPA, OSHA, and ASHRAE. References to standards are latest revision of standard specified.

1.03 INTENT AND INTERPRETATIONS
   A. It is the intent of these Drawings and Specifications to result in a complete plumbing installation in complete accordance with all applicable codes and ordinances.

   B. Drawings are diagrammatic in character and do not necessarily indicate every required pipe, offset, transition, etc. Items not specifically mentioned in the Specification or noted on the Drawings, but which are obviously necessary to make a complete working installation, shall be included.

   C. Drawings and specifications are complementary. Whatever is called for in either is binding as though called for in both. The more stringent requirements shall govern.

   D. Drawings shall not be scaled for rough-in measurements or used as shop drawings. Where drawings are required for these purposes or have to be made from field measurements, take the necessary measurements and prepare the drawings.

   E. Symbols used on the Drawings are defined in the Legend on the Drawings. All symbols indicated on the Legend may not necessarily be required for the project.

   F. “Provide” shall mean “furnish and install.” “Accepted” or “acceptable” denotes the work or equipment item is in conformance with the design concept of the project and, in general, complies with the pertinent information given in the Contract Documents.

   G. Prior to ordering equipment, determine that equipment will adequately pass through building openings and passageways providing unobstructed access to final equipment location. Equipment shall be manufactured and shipped in sections for assembly in final equipment location when inadequate building openings and passageways limit access. Shop drawings and submittals shall indicate sectionalized manufacturing of equipment.

   H. Before any work is installed, determine equipment will properly fit the space, required clearances can be maintained and equipment can be located without interferences between systems, with structural elements, or with the work of other trades.

   I. If conflicts are discovered in Contract Documents as work progresses, submit a set of drawings marked with red pencil showing recommended modifications to the Architect for approval prior to installation.
J. The Drawings indicate the general arrangement of system components. However, rearrangement will not be permitted without specific approval prior to installation.

K. Provide incidental equipment such as tools, scaffolding, consumable items, testing equipment, appliances and the like whether listed or not.

L. Provide labor, fees, licenses, start-up and checkout services.

M. In the event that any discrepancies of any kind exist or required items or details have been omitted, notify the Architect in writing of such discrepancy or omission at least five days prior to bid date. Failure to do so shall be construed as willingness to supply all necessary materials and labor required for the proper completion of this work.

1.04 JOB CONDITIONS

A. Location, size, and type of equipment and material shown as existing are taken from existing drawings and limited field survey. Verify exact conditions in field prior to start of construction.

B. Before submitting bid, examine premises and become familiar with all existing conditions which may affect cost. No allowance will subsequently be made for not following this procedure.

C. Not all piping and offsets, transitions, and multiple connections required to install the new work into the available space are shown on the drawings. Field measure for exact requirements and install accordingly.

D. Confer, cooperate, and coordinate work with other trades. Coordinate ceiling cavity space carefully with all trades. In event of conflict, install mechanical and electrical systems within cavity space in following order of priority.
   1. Plumbing waste and vent piping.
   2. Roof drain piping.
   3. Ductwork.
   4. Electrical conduit and lighting.
   5. Domestic hot cold water and gas piping.
   6. Fire sprinkler piping.

E. Where locations of devices and equipment are not specifically mentioned in the Specifications or indicated on the Drawings, verify locations with Architect or Owner prior to rough-in.

F. Provide carpentry, masonry, concrete and metal work required for work of this Division where not specifically called for under other Sections.

1.05 PERMITS AND FEES

A. Arrange and pay for all inspections, permits, licenses, certificates, and fees required in connection with work.

1.06 SUBMITTALS

A. Conform to requirements of Division 01 and following paragraphs.

B. All electronic submittal data shall be provided in separate Portable Document Format (pdf) folders for each individual Division 22 specification section.

C. All submittal data shall bear a unique submittal number. Submittal number shall consist of three sets of numeric values. Submittal number shall be in the 22XXXX-XXX-XX format with the first set of numbers representing the specification section, the second set of numbers representing the submittal number for that particular specification section, and the final two numbers representing the submittal number for that particular item. Original submittals shall bear 01 as the final set of numbers, and re-submittals shall begin with 02 and follow with each re-submittal.

D. Submittals shall include catalog cut-sheets, manufacturer's data sheets, written descriptions, and specification sheets detailing the associated product, item, and assembly. Reference the Division 22 Sections for additional information and requirements specific to those sections.
   1. Resubmittals shall include information required above, along with reference to original submittal section tab being corrected.
E. Prior to ordering equipment or beginning installation work, assemble, prepare, and furnish submittals required for project. Furnish submittals as required by individual sections of specifications.

F. Contractor shall thoroughly check subcontractors’ or vendors’ submittals and, after approving them, submit them for review. Submittals that do not bear Contractor's review stamp or that do not comply with all of the above requirements will be returned “Not Reviewed.”

G. The purpose of submittals is to ensure Contractor understands design requirements and demonstrates understanding by indicating and detailing intended materials, methods, and installation practices. Submittals are not a method of requesting substitutions or deviation from Specifications. If discrepancies between submittals and Contract Documents are discovered either prior to or after submittals are reviewed, requirements of Contract Documents shall take precedence. Submittals which are submitted, but which are not required by Contract Documents, will be returned Not Reviewed.

H. Review of submittals and action recommended as result of review is courtesy extended to Contractor by Owner's representative. This review is intended to minimize delivery to job site and installation of materials and equipment that do not meet intent of Construction Documents. Submission of material for review does not alter Contractor's obligation to follow intent of Construction Documents, nor Contractor's responsibility to comply therewith.

I. Submittals shall identify specific equipment with numbers or letters identical to those listed or scheduled on the Drawings or Specifications.

J. Each set of submittals submitted or re-submitted shall bear a unique Contractor's submittal number. Submit minimum of seven copies. After review, submittals will be returned together with Submittal Review Sheet which indicates comments on submittals and with specific actions such as: No Exception Taken; Make Corrections Noted, Re-submittal Not Required; Make Corrections Noted, Re-submittal Required; Rejected; Not Reviewed. Continue to re-submit submittals until No Exception Taken or Make Corrections Noted, Re-submittal Not Required action is indicated.

1.07 SUBSTITUTIONS

A. Equipment scheduled on drawings and specifically called for in these specifications was used as the basis of the mechanical systems design; modifications to the systems design to accommodate a substituted piece of equipment shall be the responsibility of the installing Contractor.

B. Coordinate all substituted equipment requirements with other trades prior to ordering equipment.

C. Submittals shall not be used for requesting approval for substitute equipment.

1.08 RECORD DOCUMENTS

A. Keep in custody during entire period of construction, a current set of documents indication changes that have been made to the Contract Documents. Changes to be noted on the documents shall include but shall not be limited to piping installed more than 2'-0" from where shown on Drawings, changes in pipe size, location of valves and cleanouts. Incorporate Addenda, accepted Alternates, Change Orders, and other Document revisions which occurred after the award of the General Contract or the start of construction activities into the Record Documents. Notations and changes shall be done in a neat and legible manner in accordance with Architect's instructions. Changes shall be noted in red, deletions in green, and notes in blue.

B. Upon completion of work, submit the complete set of Record Documents to the Architect. The Contract Documents set the standard for content and methods of presentation for the changes shown.

C. The Contract shall not be considered completed until these Record Documents have been reviewed and accepted by the Architect.
1.09 DELIVERY, STORAGE, HANDLING
   A. Provide delivery and safe storage of materials and equipment. Make provisions for introduction into building of equipment too large to pass through finished openings. Provide for hoisting of equipment.

1.10 PROTECTION OF EQUIPMENT
   A. Protect materials and equipment from physical damage, construction dirt, and the elements from time of shipment to time installation is accepted by Owner.
   B. Protect mechanical work against theft, injury, or damage from all causes.

1.11 GUARANTEE
   A. Guarantee materials, workmanship, and operation of equipment installed for period of one year from date of acceptance of entire Work. Repair or replace any part of work which shows defect during that time.
   B. Be responsible for damage to property of Owner or to work of other contractors during construction and guarantee period.
   C. Warranties specified under individual Division 22 sections which extend beyond one (1) year shall include payment for consequential damages due to faulty materials or workmanship associated with those sections for full duration of extended warranty periods.
   D. Furnish equipment warranties to Owner.

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 EQUIPMENT WIRING AND CONNECTIONS
   A. Voltage characteristics shall be as in Electrical Division of Specifications and on Electrical Drawings.

3.02 TEMPORARY FACILITIES
   A. Light, Heat, Power, Etc.: Provide temporary power supply or other facilities required for Work. Arrange with proper parties to bring facilities from services to required location on premises.

3.03 INSPECTIONS
   A. Do not cover up or enclose work until inspected, tested, and approved. Any work enclosed or covered up before such approval shall be uncovered, tested, and approved.

3.04 ACCESS DOORS
   A. Furnish hinged steel access doors with concealed latch, whether shown or not, in walls and plaster or gypsum board ceilings for access to concealed valves, water hammer arresters, air vents, balancing valves, or other operating devices requiring adjustment or servicing.
   B. Access door shall be size of equipment to be removed or 24” by 24” if used for service only.
   C. Furnish doors to trades performing work in which they are to be installed. Group valves, devices, and other equipment, to permit use of minimum number of access doors.
   D. Doors shall be type compatible with finish in which they are to be installed.

3.05 SUPERVISION
   A. Supervise work to proceed in proper sequence without delay to other contractors. Keep supervisor on premises at all times to ensure intent of Drawings and Specifications is being followed.

3.06 INSTALLATION
   A. Workmanship shall be first quality. Appearance of work shall be of equal importance to its mechanical operation. Lack of quality workmanship shall be reason for rejection of system in part or in whole.
B. Install so all valves and equipment can be easily accessed and serviced by adequate clearance, installation of access doors, unions in piping, or other methods.
C. Complete installation shall function smoothly and noiselessly.
D. Install equipment and materials per manufacturers’ recommendations and local codes or regulations.
E. Flush pipes free of foreign substances before installing valves or making final connections. Notify the Owner 7 days in advance of final flushing so the Owner can verify the cleanliness of the pipe. Clean all piping and equipment.

3.07 LUBRICATION OF EQUIPMENT
A. Lubricate equipment before operation and before turning over to Owner.

3.08 TESTING
A. All tests specified herein and/or called for by authorities having jurisdiction shall be witnessed by Architect or Owner. Reference other Division 22 Sections for additional requirements specific to those sections.
B. Upon completion of the work, deliver certificates of inspection and final approval to Owner.

3.09 COMPLETION
A. Instruct Owner in operation and maintenance of mechanical systems. Minimum participants shall include mechanical contractor.
B. After tests and adjustments have been made and systems pronounced satisfactory for permanent operation, refinish damaged finish and leave everything in proper working order and appearance.
C. On completion of work, remove tools, scaffolding, debris, etc., from grounds and leave premises clean.

3.10 PROJECT CLOSE-OUT
A. Upon written notice from the Contractor certifying the work is complete and ready for inspection, Engineer will prepare punchlist of items determined to be incomplete or otherwise not in compliance with intent of Contract Documents.
B. When required, subsequent visit to review completion of punchlist work will be made after receipt of written statement from Contractor indicating punchlist work is complete. Include copies of intermediate observation reports and final punchlists with individual items initialed by Contractor to attest that individual work items are completed.

3.11 OPERATION AND MAINTENANCE MANUALS, AS-BUILT DRAWINGS
A. Prior to completion of project, submit three (3) sets of maintenance manuals covering operation and maintenance of mechanical equipment with moving or movable parts. Instructions shall be in pamphlet or typewritten form in three ring binders. Instructions for each unit shall be indicated by separate tab.
1. Maintenance manuals submitted in electronic form shall be provided in separate Portable Document Format (pdf) folders for each system or item of equipment installed.
B. Include valve tag list.
C. Include name, address, telephone number of party to be contacted for 24-hour service for each item of equipment.
D. Include starting, stopping, lubrication, preventative maintenance schedule, and adjustment information for each piece of equipment.
E. Include guarantees and warranties of all equipment.
F. Provided three (3) sets of As Built record drawings

END OF SECTION
SECTION 220500 - COMMON WORK RESULTS FOR PLUMBING

PART 1 GENERAL

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

1.02 SUMMARY
   A. This Section includes the following:
      1. Piping materials and installation instructions common to most piping systems.
      2. Dielectric fittings.
      3. Escutcheons.
      4. Plumbing demolition.
      5. Equipment installation requirements common to equipment sections.
      6. Painting and finishing.
      7. Supports and anchorages.

1.03 DEFINITIONS
   A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.
   B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
   C. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in chases.

1.04 DELIVERY, STORAGE, AND HANDLING
   A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

1.05 COORDINATION
   A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for plumbing installations.
   B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.
   C. Coordinate requirements for access panels and doors for plumbing items requiring access that are concealed behind finished surfaces. Access panels and doors are specified in Division 08 Section “Access Doors and Frames.”

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
      1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.02 PIPE, TUBE, AND FITTINGS
   A. Refer to individual Division 22 piping Sections for pipe, tube, and fitting materials and joining methods.
   B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.03 JOINING MATERIALS
   A. Refer to individual Division 22 piping Sections for special joining materials not listed below.
B. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
C. Brazing Filler Metals: AWS A5.8, BAg1, with 15% silver solder unless otherwise indicated.

2.04 DIELECTRIC FITTINGS
A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.
B. Insulating Material: Suitable for system fluid, pressure, and temperature.
C. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.

2.05 ESCUTCHEONS
A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.
B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.
C. One-Piece, Cast-Brass Type: With set screw.
   1. Finish: Polished chrome-plated.
D. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.
   1. Finish: Polished chrome-plated.
E. One-Piece, Stamped-Steel Type: With set screw or spring clips and chrome-plated finish.
F. Split-Plate, Stamped-Steel Type: With concealed hinge, set screw or spring clips, and chrome-plated finish.

2.06 GROUT
A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.
   2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 EXECUTION
3.01 PLUMBING DEMOLITION
A. Refer to Division 01 Section "Cutting and Patching" and Division 02 Section "Selective Structure Demolition" for general demolition requirements and procedures.
B. Disconnect, demolish, and remove plumbing systems, equipment, and components indicated to be removed.
   1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
   2. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
   3. Equipment to Be Removed: Disconnect and cap services and remove equipment.
   4. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
   5. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.
3.02 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements and Division 22 Sections specifying piping systems.
B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.
C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
E. Install piping to permit valve servicing.
F. Install piping at indicated slopes.
G. Install piping free of sags and bends.
H. Install restraints for hubless pipe couplings in drainage system applications to prevent joint separation caused by forces resulting from intermittent flow volumes.
I. Install fittings for changes in direction and branch connections.
J. Install piping to allow application of insulation.
K. Select system components with pressure rating equal to or greater than system operating pressure.
L. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:
   1. New Piping:
      a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.
      b. Chrome-Plated Piping: One-piece, cast-brass type with polished chrome-plated finish.
      c. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.
      d. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece or split-casting, cast-brass type with polished chrome-plated finish.
      e. Bare Piping in Unfinished Service Spaces: One-piece, stamped-steel type with concealed hinge and set screw or spring clips.
M. Sleeves are not required for core-drilled holes.
N. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to Division 07 Section "Penetration Firestopping" for materials.
O. Verify final equipment locations for roughing-in.
P. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.03 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 22 Sections specifying piping systems.
B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using
low-liquidus/solidus solder which does not contain lead or antimony with a shear strength of 10,000 psi and complying with ASTM B 32.


F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

3.04 PIPING CONNECTIONS
A. Make connections according to the following, unless otherwise indicated:
1. Install unions, in piping 2-inches and smaller, adjacent to each valve and at final connection to each piece of equipment.
2. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.05 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS
A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.
B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.
C. Install plumbing equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.
D. Install equipment to allow right of way for piping installed at required slope.

3.06 PAINTING
A. Painting of plumbing systems, equipment, and components is specified in Division 09 Sections "Interior Painting" and "Exterior Painting."
B. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.07 ERECTION OF METAL SUPPORTS AND ANCHORAGES
A. Refer to Division 05 Section "Metal Fabrications" for structural steel.
B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor plumbing materials and equipment.

3.08 ERECTION OF WOOD SUPPORTS AND ANCHORAGES
A. Cut, fit, and place wood grounds, nailers, blocking, and anchorages to support, and anchor plumbing materials and equipment.
B. Select fastener sizes that will not penetrate members if opposite side will be exposed to view or will receive finish materials. Tighten connections between members. Install fasteners without splitting wood members.
C. Attach to substrates as required to support applied loads.

END OF SECTION
SECTION 220719 - PLUMBING PIPING INSULATION

PART 1  GENERAL

1.01  SECTION INCLUDES
   A. Piping insulation.

1.02  RELATED REQUIREMENTS
   A. Section 221005 - Plumbing Piping: Placement of hangers and hanger inserts.
   B. Section 232113 - Hydronic Piping: Placement of hangers and hanger inserts.

1.03  REFERENCE STANDARDS

1.04  SUBMITTALS
   A. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.
   B. Manufacturer's Instructions: Indicate installation procedures that ensure acceptable workmanship and installation standards will be achieved.

1.05  QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.
   B. Applicator Qualifications: Company specializing in performing the type of work specified in this section with minimum 5 years of experience.

1.06  DELIVERY, STORAGE, AND HANDLING
   A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.
   B. Protect stored insulation materials from damage or moisture penetration, discard and replace damaged materials upon discovery.

1.07  FIELD CONDITIONS
   A. Maintain ambient conditions required by manufacturers of each product.
   B. Maintain temperature before, during, and after installation for minimum of 24 hours.

PART 2  PRODUCTS

2.01  REQUIREMENTS FOR ALL PRODUCTS OF THIS SECTION
   A. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84, NFPA 255, or UL 723.

2.02  GLASS FIBER
   A. Manufacturers:
5. Armacell
6. NOMACO

B. Insulation: ASTM C547 and ASTM C795; semi-rigid, noncombustible, end grain adhered to jacket.
   1. 'K' value: ASTM C177, 0.24 at 75 degrees F.
   2. Maximum service temperature: 650 degrees F.
   3. Maximum moisture absorption: 0.2 percent by volume.

C. Vapor Barrier Jacket: White kraft paper with glass fiber yarn, bonded to aluminized film with factory applied, pressure sensitive self-sealing lap; moisture vapor transmission when tested in accordance with ASTM E 96/E 96M of 0.02 perm-inches.

PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify that piping has been tested before applying insulation materials.
   B. Verify that surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION
   A. Install in accordance with manufacturer's instructions.
   B. Install in accordance with NAIMA National Insulation Standards.
   C. Exposed Piping: Locate insulation and cover seams in least visible locations.
   D. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, and expansion joints.
   E. Glass fiber insulated pipes conveying fluids below ambient temperature:
      1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.
      2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.
   F. For hot piping conveying fluids over 140 degrees F, insulate flanges and unions at equipment.
   G. Glass fiber insulated pipes conveying fluids above ambient temperature:
      1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples.
      2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
   H. Inserts and Shields:
      1. Application: Piping 3/4 inches diameter or larger.
      2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
         a. Provide shields only for piping smaller than 1-1/2 inches in diameter between hanger and insulation.
      3. Insert location: Between support shield and piping and under the finish jacket.
      4. Insert configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.
      5. Insert material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.
   I. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, refer to Division 07.

3.03 SCHEDULES
   A. Plumbing Systems:
1. Domestic Hot Water Supply:
   a. Glass Fiber Insulation:
      1) Pipe Size Range: 1/2 to 2 inch.
      2) Thickness: 1 inch.

2. Domestic Hot Water Recirculation:
   a. Glass Fiber Insulation:
      1) Pipe Size Range: All sizes.
      2) Thickness: 1 inch.

3. Domestic Cold Water:
   a. Glass Fiber Insulation:
      1) Pipe Size Range: All sizes.
      2) Thickness: 1 inch.

END OF SECTION
SECTION 221005 - PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Pipe, pipe fittings, valves, and connections for the following piping systems:
   1. Sanitary building drainage and vent.
   2. Domestic water.

1.02 RELATED REQUIREMENTS

A. Division 07 for firestopping.
B. Division 08 for access doors and panels.
C. Section 220719 - Plumbing Piping Insulation.

1.03 REFERENCE STANDARDS

A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers; 2012 (ANSI B16.18).
B. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers; 2001 (R2010).
C. ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings - DWV; The American Society of Mechanical Engineers; 2011.
D. ASME B31.9 - Building Services Piping; The American Society of Mechanical Engineers; 2011 (ANSI/ASME B31.9).
L. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry Elements; 2012.
P. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.; 2010.

1.04 SUBMITTALS

A. See Division 01 for submittal procedures.
B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

1.05 QUALITY ASSURANCE
A. Perform work in accordance with applicable codes.
B. Perform Work in accordance with State of Colorado, codes and standards.
C. Valves: Manufacturer's name and pressure rating marked on valve body.
D. All equipment and materials used in the distribution of domestic potable water shall be approved and tested for such application with documented listings and labelings in accordance with the latest edition of the [International Plumbing Code, Public Law 111-380 and ANSI/NSF-61, Annex G].

1.06 DELIVERY, STORAGE, AND HANDLING
A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
B. Provide temporary protective coating on cast iron and steel valves.
C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 PRODUCTS

2.01 SANITARY BUILDING DRAINAGE AND VENT PIPING, ABOVE GRADE
A. Cast Iron Pipe: CISPI 301, hubless, service weight.
   1. Fittings: Cast iron.
   2. Joints: CISPI 310, standard duty neoprene gaskets and stainless steel clamp-and-shield assemblies for all pipe sizes. Withstand a minimum of 13psig internal pressure.
      a. Manufacturer:
         1) Husky, No-Hub Coupling

2.02 WATER PIPING, ABOVE GRADE
A. Manufacturer:
   1. All State "Aquasafe"
   2. Bridgit
B. Copper Tube: ASTM B88 (ASTM B88M), Type K (A), Drawn (H).
   1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
C. Provide plastic isolators at all clamps.

2.03 PIPE HANGERS AND SUPPORTS
A. Manufacturers:
   1. B-Line
   2. Ginnell
   3. Michigan
   4. P.H.D.
   5. Tolco
B. Provide hangers and supports that comply with MSS SP-58.
   1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
   2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
3. Trapeze Hangers: Welded steel channel frames attached to structure.
5. Floor Supports: Concrete pier or steel pedestal with floor flange; fixture attachment.

C. Plumbing Piping - Drain, Waste, and Vent:
   1. Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
   2. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
   3. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

D. Plumbing Piping - Water:
   1. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.

E. Hanger & Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
   3. Concrete Screw Type Anchors: Complying with ICC-ES AC193.
   5. Concrete Adhesive Type Anchors: Complying with ICC-ES AC308.

2.04 BALL VALVES
A. Manufacturers:
   1. Apollo

B. Construction, 2 inches and Smaller: MSS SP-110, Class 150, 400 psi CWP, bronze, two piece body, stainless steel ball, full port, teflon seats and stuffing box ring, stainless steel blow-out proof stem, lever handle, threaded ends with union.


D. Valve Schedule:
   1. Pressure rated.
   2. Blowout-proof stem with packing nut.
   3. Full ball port with Teflon seals and seat, as specified.
   4. Solid, bored-hole, stainless steel ball and trim. ASTM B61, B62 or B584 Bronze.
   5. Example Schedule:
      a. Plan Code: B.V.
      b. Service: Balancing
      c. Pressure: 150 SWP/ 600 WOG
      d. Sizes/ Inches: 1/4" through 4"
      e. Make: Apollo 77-200
      f. Actuator: Lever
      g. Port: Full
   6. Three piece ball valve if 2-1/2" or greater.
   7. Provide valves with extended stems where installed within insulated piping systems.
   8. Position all valves to be accessible and operational from access panels.

PART 3 EXECUTION
3.01 EXAMINATION
   A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 PREPARATION
   A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
   B. Remove scale and dirt, on inside and outside, before assembly.
   C. Prepare piping connections to equipment with flanges or unions.
3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.
B. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
C. Install piping to maintain headroom, conserve space, and not interfere with use of space.
D. Group piping whenever practical at common elevations.
E. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Section 220719.
F. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors with Division 08.
G. Install bell and spigot pipe with bell end upstream.
H. Install valves with stems upright or horizontal, not inverted.
I. Install valves with extended length stems to allow for valve operation without damage to surrounding insulated surfaces, stem extension shall equal specified insulation thickness, refer to Section 220719.
J. Install water piping to ASME B31.9.
K. Sleeve pipes passing through partitions, walls and floors.
L. Inserts:
   1. Provide inserts for placement in concrete formwork.
   2. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
   3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
   4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
   5. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut above slab.
M. Pipe Hangers and Supports:
   1. Install in accordance with ASME B31.9.
   2. Support horizontal piping as scheduled.
   3. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
   4. Place hangers within 12 inches of each horizontal elbow.
   5. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
   7. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
   8. Provide copper plated hangers and supports for copper piping.
   10. Support cast iron drainage piping at every joint.
   11. Provide supports rigidly attached to building structure to brace against pipe sway for all piping 4 inch and larger where change in direction of flow exceeds 45 degrees.
   12. Anchor all drainage piping to building structure to prevent axial joint separation.
      a. For drainage piping 4 inches and larger provide restraints as manufactured by Holdrite or equivalent at all changes in direction and at all changes in diameter greater than two pipe sizes.

3.04 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. Prior to starting work, verify system is complete, flushed and clean.
3.05 SCHEDULES

A. Pipe Hanger Spacing:
   1. Cast Iron Drainage Piping:
      a. Pipe Size: 1-1/2 inches to 4 inches:
         1) Maximum hanger spacing: 5 ft.
         2) Hanger rod diameter: 3/8 inches.
   2. Copper Piping:
      a. Pipe Size: 1/2 inches to 1-1/4 inches:
         1) Maximum hanger spacing: 6 ft.
         2) Hanger rod diameter: 3/8 inches.
      b. Pipe Size: 1-1/2 inches and larger:
         1) Maximum hanger spacing: 10 ft.
         2) Hanger rod diameter: 3/8 inches.
      c. Maximum Vertical Support Spacing: 8 ft.

END OF SECTION
SECTION 221006 - PLUMBING PIPING SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Floor drains.
   B. Thermostatic mixing valves.

1.02 RELATED REQUIREMENTS
   A. Section 221005 - Plumbing Piping.
   B. Section 224000 - Plumbing Fixtures.

1.03 REFERENCE STANDARDS
   A. ASME A112.6.3 - Floor and Trench Drains; The American Society of Mechanical Engineers; 2001 (R2007).
   C. Public Law 111-380 - Reduction of Lead in Drinking Water Act.

1.04 SUBMITTALS
   A. See Division 01 for submittal procedures.
   B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.

1.05 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years documented experience.
   B. All equipment and materials used in the distribution of domestic potable water shall be approved and tested for such application with documented listings and labelings in accordance with the latest edition of the [International Plumbing Code, Public Law 111-380 and ANSI/NSF-61, Annex G]

1.06 DELIVERY, STORAGE, AND HANDLING
   A. Accept specialties on site in original factory packaging. Inspect for damage.

PART 2 PRODUCTS

2.01 DRAINS
   A. Manufacturers:
   B. Floor Drain (FD-1):
      1. ASME A112.6.3; lacquered cast iron two piece body with double drainage flange, weep holes, reversible clamping collar, adjustable square nickel bronze strainer, threaded outlet.
         a. Provide with SureSeal Trap Seal Barrier (ASSE 1072).
         b. Provide galvanized tailpiece thru floor and adapter to cast iron p-trap.

2.02 MIXING VALVES
   A. Thermostatic Mixing Valves (TMV-1):
      1. Manufacturers:
         a. Powers: www.powerscontrols.com
         b. Symmons Industries: www.symmons.com
      2. Valve: ASSE 1070, Chrome plated cast brass body, stainless steel or copper alloy bellows, integral temperature adjustment.
      3. Accessories:
         a. Wall mounting bracket.
b. Strainer stop checks on inlets.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install floor drains/floor sinks at low points of surface areas to be drained. Set drainage grates flush with finished floor, unless otherwise indicated.
   1. Install floor-drain/floor sink flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.
   2. Install individual traps for floor drains/floor sinks connected to sanitary building drain, unless otherwise indicated.
   3. Position floor drains for ready access to allow for inspection and maintenance.
   4. Set floor drains below elevation of surrounding finished floor to allow floor drainage; set with grates depressed according to the following radii:
      a. Radius, 30 Inches or Less: Equivalent to 1 percent slope, but not less than 1/4-inch total depression.

C. Install water mixing valves with check stops and shutoff valves on inlets.

END OF SECTION
SECTION 224000 - PLUMBING FIXTURES

PART 1  GENERAL

1.01  SECTION INCLUDES

A. Lavatories.
B. Showers.

1.02  RELATED REQUIREMENTS

A. Section 221005 - Plumbing Piping.
B. Section 221006 - Plumbing Piping Specialties.

1.03  REFERENCE STANDARDS

A. ASME A112.6.1M - Supports for Off-the-Floor Plumbing Fixtures for Public Use; The American Society of Mechanical Engineers; 1997 (Reaffirmed 2002).
B. ASME A112.18.1 - Plumbing Supply Fittings; The American Society of Mechanical Engineers; 2011.
C. ASME A112.19.4M - Porcelain Enameled Formed Steel Plumbing Fixtures; The American Society of Mechanical Engineers; 1994 (R2004).
E. Public Law 111-380 - Reduction of Lead in Drinking Water Act.

1.04  SUBMITTALS

A. See Division 01 for submittal procedures.
B. Review millwork shop drawings, plans and details to confirm size, depth and clearance requirements associated with fixtures to be provided, submit on required fixtures.
C. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.

1.05  QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
B. All equipment and materials used in the distribution of domestic potable water shall be approved and tested for such application with documented listings and labelings in accordance with the latest edition of the [International Plumbing Code, Public Law 111-380 and ANSI/NSF-61, Annex G]

1.06  DELIVERY, STORAGE, AND HANDLING

A. Accept fixtures on site in factory packaging. Inspect for damage.
B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

PART 2  PRODUCTS

2.01  MANUFACTURERS

A. Lavatory Faucets, Manual:
   1. Delta HDF
B. Shower Valves:
   1. Delta
C. Shower Head:
   1. AM Conservation Group (SH-1)

2.02  LAVATORIES

A. Supply Faucet (L-1): ASME A112.18.1; chrome plated combination supply fitting with open grid strainer, water economy aerator with maximum flow of 0.5 gallon per minute (low-flow), single

B. Accessories (L-1):
   1. Manufacturers:
      a. American Standard
      b. Brasscraft
      c. Eljer
      d. Kohler
   2. Chrome plated 12 gage brass P-trap with clean-out plug and arm with escutcheon. Chrome plated slip nuts.
      a. Offset waste with perforated open strainer.
      b. Screwdriver or loose key 1/4 turn stops.
      c. Rigid supplies.

2.03 SHOWERS

A. Trim:
   1. ASME A112.18.1; concealed shower supply with ASSE 1016 pressure balanced mixing valves, lever handle, integral service stops, fixed spray pattern, fixed vandal resistant shower head with maximum 2.0 gpm flow, and escutcheon.

B. Shower Head:
   1. (SH-1) Model Number: SH011. Atomizing, 2.0 gpm, ceiling mounted, chrome plated.


2.04 PROTECTIVE SHIELDING GUARDS

A. Manufactured plastic wraps for covering plumbing fixture hot- and cold- water supplies, traps and drainage tubing.
   1. Tested in compliance with ASTM E-84, Class C with a 25 flame spread index and 450 smoke development index.
   2. Manufacturers:
      a. Plumberex Pro Extreme
      b. Truebro Lav Guard

PART 3 EXECUTION

3.01 PREPARATION

A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.02 INSTALLATION

A. Assemble plumbing fixtures, trim, fittings and other components according to manufacturer's written instructions.

B. Install each fixture with trap, easily removable for servicing and cleaning.
   1. Exception: Omit trap on fixtures with integral traps.

C. Install chrome plated rigid supplies to fixtures with loose key 1/4 turn stops, reducers, and escutcheons. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.

D. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.

E. Provide offset tailpiece drains for each accessible lavatory or counter mounted sink; install p-trap along back wall to maintain required accessible clearances.

F. Install protective shielding guards at all lavatories and sinks designated to comply with ANSI A117.1 accessibility guidelines, where piping is exposed below bowl.

G. Install fixtures and components level and plumb.
H. Install back outlet wall mounted fixtures onto waste fitting seals and attach to supports; install bolt caps.
I. Install faucet flow control fittings with specified flow rates and patterns, if faucets are not available with required rates and patterns include adapters.
J. Install polished chrome plated escutcheons at piping wall and ceiling penetrations in exposed finished locations and within cabinets and millwork. Use deep pattern escutcheons if required to fully conceal protruding fittings.
K. Seal fixtures to wall and floor surfaces with sealant as specified in Division 07, color to match fixture.

3.03 INTERFACE WITH WORK OF OTHER SECTIONS
A. Confirm location and size of fixtures and openings before rough-in and installation.

3.04 CONNECTIONS
A. Piping installation requirements are specified in other Division 22 sections, drawings indicate general arrangement of piping, fittings and specialties.
B. Connect fixtures with water supplies, stops, risers, traps, soil waste and vent piping. Use size fittings required to match fixture.

3.05 FIELD QUALITY CONTROL
A. Verify that installed plumbing fixtures and trim are categories and types specified for locations where installed.
B. Check that plumbing fixtures are complete with trim, faucets, fittings and other specified components.
C. Inspect installed plumbing fixtures and trim for damage; replace damaged fixtures and components.
D. Test installed fixtures after water systems are pressurized for proper operation. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.

3.06 ADJUSTING
A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.
B. Operate and adjust faucets and controls. Replace damaged or malfunctioning fixtures, fittings and controls.
C. Operate and adjust disposers and controls. Replace damaged or malfunctioning equipment.
D. Replace washers and seals of leaking and dripping faucets and valves.

3.07 CLEANING
A. Clean plumbing fixtures, faucets and other fittings with manufacturer’s recommended cleaning methods and materials.
   1. Remove faucet spouts and strainers, remove sediment and debris, reinstall strainers and spouts.
   2. Remove sediment and debris from drain strainers.
B. After cleaning is completed, inspect factory finished fixtures, faucets and fittings, repair damaged finishes.

3.08 PROTECTION
A. Protect installed products from damage due to subsequent construction operations.
B. Do not permit use of fixtures by construction personnel.
C. Repair or replace damaged products.

END OF SECTION
SECTION 230100 - BASIC MECHANICAL REQUIREMENTS

PART 1 GENERAL

1.01 GENERAL CONDITIONS

A. The General Conditions of the Contract and Supplementary Conditions of the General Contract apply to work under this Division.

1.02 QUALITY ASSURANCE

A. The mechanical design for this project is based on specific manufacturers and equipment as scheduled on the drawings and listed in these Division 23 Specifications with specific model number identifiers. Acceptable substitute manufacturers of equipment are listed in these specifications. If any acceptable substitute manufacturer's equipment is used, the cost of any change in design or construction required by their use shall be borne by the contractor. Contractor shall document and submit all changes to design plans and schedules as a result of the use of substituted equipment.

B. If manufacturer's material or equipment is listed in Schedules or on Drawings, they are types to be provided for establishment of size, capacity, grade, and quality. If other acceptable manufacturers are used, cost of any change in construction required by their use shall be borne by Contractor.

C. Equipment shall conform to State and/or local Energy Conservation Standards.

D. Execute and test all work per Underwriters, state and local codes, rules, and regulations applicable to trade affected. Included are recommendations of NFPA, SMACNA, OSHA, and ASHRAE. References to standards are latest revision of standard specified.

E. Comply with rules and regulations of local utility companies. Include cost of valves, valve boxes, meter boxes, meters, accessory equipment required for project.

1.03 INTENT AND INTERPRETATIONS

A. It is the intent of these Drawings and Specifications to result in a complete mechanical installation in complete accordance with all applicable codes and ordinances.

B. Drawings are diagrammatic in character and do not necessarily indicate every required pipe, offset, transition, etc. Items not specifically mentioned in the Specification or noted on the Drawings, but which are obviously necessary to make a complete working installation, shall be included.

C. Drawings and specifications are complementary. Whatever is called for in either is binding as though called for in both. The more stringent requirements shall govern.

D. Drawings shall not be scaled for rough-in measurements or used as shop drawings. Where drawings are required for these purposes or have to be made from field measurements, take the necessary measurements and prepare the drawings.

E. Symbols used on the Drawings are defined in the Legend on the Drawings. All symbols indicated on the Legend may not necessarily be required for the project.

F. “Provide” shall mean “furnish and install.” “Accepted” or “acceptable” denotes the work or equipment item is in conformance with the design concept of the project and, in general, complies with the pertinent information given in the Contract Documents.

G. Prior to ordering equipment, determine that equipment will adequately pass through building openings and passageways providing unobstructed access to final equipment location. Equipment shall be manufactured and shipped in sections for assembly in final equipment location when inadequate building openings and passageways limit access. Shop drawings and submittals shall indicate sectionalized manufacturing of equipment.

H. Before any work is installed, determine equipment will properly fit the space, required clearances can be maintained and equipment can be located without interferences between systems, with structural elements, or with the work of other trades.
I. If conflicts are discovered in Contract Documents as work progresses, submit a set of drawings marked with red pencil showing recommended modifications to the Architect for approval prior to installation.

J. The Drawings indicate the general arrangement of mechanical systems. However, rearrangement will not be permitted without specific approval prior to installation.

K. Provide incidental equipment such as tools, scaffolding, consumable items, testing equipment, appliances and the like whether listed or not. Provide labor, fees, licenses, start-up and checkout services also.

L. In the event that any discrepancies of any kind exist or required items or details have been omitted, notify the Architect in writing of such discrepancy or omission at least five days prior to bid date. Failure to do so shall be construed as willingness to supply all necessary materials and labor required for the proper completion of this work.

1.04 JOB CONDITIONS

A. Location, size, and type of equipment and material shown as existing are taken from existing drawings. Verify exact conditions in field prior to start of construction.

B. Before submitting bid, examine premises and become familiar with all existing conditions which may affect cost. No allowance will subsequently be made for not following this procedure.

C. Owner supplied existing equipment will be installed. Become familiar with existing rough-in requirements prior to installation. Report any difficulties or discrepancies to Architect prior to start of work.

D. Not all piping and ductwork offsets, transitions, and multiple connections required to install the new work into the available space are shown on the drawings. Field measure for exact requirements and install accordingly.

E. Confer, cooperate, and coordinate work with other trades. Coordinate ceiling cavity space carefully with all trades. In event of conflict, install mechanical and electrical systems within cavity space in following order of priority.
   1. Plumbing waste and vent piping.
   2. Ductwork.
   3. Electrical conduit and lighting.
   4. Domestic hot and cold water piping.
   5. Fire sprinkler piping.

F. Where locations of devices and equipment are not specifically mentioned in the Specifications or indicated on the Drawings, verify locations with Architect or Owner prior to rough-in.

G. Submit large scale coordinated composite layouts showing both plan and elevation, piping, ducts, and conduits in areas that appear congested. Check routing of work prior to fabrication. Report conflicts to Architect.

H. Provide carpentry, masonry, concrete and metal work required for work of this Division where not specifically called for under other Sections.

1.05 PERMITS AND FEES

A. Arrange and pay for all inspections, permits, licenses, certificates, and fees required in connection with work.

1.06 SUBMITTALS AND SHOP DRAWINGS

A. All shop drawings and submittal data shall be included in bound covers or three ring binders with divider tabs for each individual Division 23 specification section.

B. Product data submitted shall be unique to individual specification sections. Product data which applies to multiple specification sections shall be submitted under each specification section tab. Re-submittals, or submittals submitted independently of the original submittal package may be submitted individually provided they are securely bound in accordance with the specification
section they represent, new or updated divider tabs are included, and submittals have been pre-punched for inclusion into the project submittal binder.

C. All shop drawings and submittal data shall bear a unique submittal number. Submittal number shall consist of three sets of numeric values. Submittal number shall be in the 23XXXX-XXX-XX format with the first set of numbers representing the specification section, the second set of numbers representing the submittal number for that particular specification section, and the final two numbers representing the submittal number for that particular item. Original submittals shall bear 01 as the final set of numbers, and re-submittals shall begin with 02 and follow with each re-submittal.

D. Submittals not conforming with the formats outlined above will be returned at the contractors expense for re-submittal conforming with the above.

E. Submittals shall include catalog cut-sheets, manufacturer's data sheets, written descriptions, and specification sheets detailing the associated product, item, and assembly. Reference the Division 23 Sections for additional information and requirements specific to those sections.
1. Resubmittals shall include information required above, along with reference to original submittal section tab being corrected.

F. Shop drawings shall include details, installation drawings, assembly drawings, fabrication drawings, diagrams, and other information which show adaptation or installation of Contractor-furnished products or materials for overall project.

G. Prior to ordering equipment or beginning installation work, assemble, prepare, and furnish submittals and shop drawings required for project. Furnish submittals and shop drawings as required by individual sections of specifications.

H. Contractor shall thoroughly check subcontractors’ or vendors' submittals and shop drawings and, after approving them, submit them for review. Submittals and shop drawings that do not bear Contractor's review stamp or that do not comply with all of the above requirements will be returned “Not Reviewed.”

I. The purpose of submittals and shop drawings is to ensure Contractor understands design requirements and demonstrates understanding by indicating and detailing intended materials, methods, and installation practices. Submittals and shop drawings are not a method of requesting substitutions or deviation from Specifications. If discrepancies between submittals, shop drawings, and Contract Documents are discovered either prior to or after submittals and shop drawings are reviewed, requirements of Contract Documents shall take precedence. Submittals and shop drawings which are submitted, but which are not required by Contract Documents, will be returned Not Reviewed.

J. Review of submittals and shop drawings and action recommended as result of review is courtesy extended to Contractor by Owner's representative. This review is intended to minimize delivery to job site and installation of materials and equipment that do not meet intent of Construction Documents. Submission of material for review does not alter Contractor's obligation to follow intent of Construction Documents, nor Contractor's responsibility to comply therewith.

K. Submittals and shop drawings shall identify specific equipment with numbers or letters identical to those listed or scheduled on the Drawings or Specifications.

L. Each set of submittals and shop drawings submitted or re-submitted shall bear a unique Contractor's submittal number. Submit minimum of seven copies. After review, submittals and shop drawings will be returned together with Submittal Review Sheet which indicates comments on submittals and shop drawings and with specific actions such as: No Exception Taken; Make Corrections Noted, Re-submittal Not Required; Make Corrections Noted, Re-submittal Required; Rejected; Not Reviewed. Continue to re-submit submittals and shop drawings until No Exception Taken or Make Corrections Noted, Re-submittal Not Required action is indicated.
1.07 SUBSTITUTIONS
A. Equipment scheduled on drawings and specifically called for in these specifications was used as the basis of the mechanical systems design; modifications to the systems design to accommodate a substituted piece of equipment shall be the responsibility of the installing Contractor.
B. Coordinate all substituted equipment requirements with other trades prior to ordering equipment.

1.08 RECORD DOCUMENTS
A. Keep in custody during entire period of construction, a current set of documents indication changes that have been made to the Contract Documents. Changes to be noted on the documents shall include but shall not be limited to piping or ductwork installed more than 2'-0" from where shown on Drawings, changes in pipe and duct size, location of valves and cleanouts. Incorporate Addenda, accepted Alternates, Change Orders, and other Document revisions which occurred after the award of the General Contract or the start of construction activities into the Record Documents. Notations and changes shall be done in a neat and legible manner in accordance with Architect's instructions. Changes shall be noted in red, deletions in green, and notes in blue.
B. Upon completion of work, submit the complete set of Record Documents to the Architect. The Contract Documents set the standard for content and methods of presentation for the changes shown.
C. The Contract shall not be considered completed until these Record Documents have been reviewed and accepted by the Architect.

1.09 DELIVERY, STORAGE, HANDLING
A. Provide delivery and safe storage of materials and equipment. Make provisions for introduction into building of equipment too large to pass through finished openings. Provide for hoisting of equipment.

1.10 PROTECTION OF EQUIPMENT
A. Protect materials and equipment from physical damage, construction dirt, and the elements from time of shipment to time installation is accepted by Owner.
B. Protect work against theft, injury, or damage from all causes.

1.11 GUARANTEE
A. Guarantee materials, workmanship and operation of equipment installed for period of two years from date of acceptance of entire Work. Repair or replace any part of work which shows defect during that time.
B. Be responsible for damage to property of Owner or to work of other contractors during construction and guarantee period.
C. Furnish equipment warranties to Owner.

PART 2 PRODUCTS
2.01 NOT USED

PART 3 EXECUTION
3.01 INSPECTIONS
A. Do not cover up or enclose work until inspected, tested, and approved. Any work enclosed or covered up before such approval shall be uncovered, tested, and approved.

3.02 SUPERVISION
A. Supervise work to proceed in proper sequence without delay to other contractors. Keep supervisor on premises at all times to ensure intent of Drawings and Specifications is being followed.
3.03 INSTALLATION
   A. Workmanship shall be first quality. Appearance of work shall be of equal importance to its
      mechanical operation. Lack of quality workmanship shall be reason for rejection of system in
      part or in whole.
   B. Install so all valves and equipment can be easily accessed and serviced by adequate clearance,
      installation of access doors, unions in piping, or other methods.
   C. Complete installation shall function smoothly and noiselessly.
   D. Install equipment and materials per manufacturers' recommendations and local codes or
      regulations.

3.04 TESTING
   A. All tests specified herein and/or called for by authorities having jurisdiction shall be witnessed by
      Architect or Owner. Reference other Division 23 Sections for additional requirements specific to
      those sections.
   B. Upon completion of the work, deliver certificates of inspection and final approval to Owner.

3.05 COMPLETION
   A. Instruct Owner in operation and maintenance of mechanical systems. Minimum participants
      shall include mechanical contractor.
   B. After tests and adjustments have been made and systems pronounced satisfactory for
      permanent operation, refinish damaged finish and leave everything in proper working order and
      appearance.
   C. On completion of work, remove tools, scaffolding, debris, etc., from grounds and leave
      premises clean.

3.06 PROJECT CLOSE-OUT
   A. Upon written notice from the Contractor certifying the work is complete and ready for inspection,
      Engineer will prepare punchlist of items determined to be incomplete or otherwise not
      in compliance with intent of Contract Documents.
   B. When required, subsequent visit to review completion of punchlist work will be made after
      receipt of written statement from Contractor indicating punchlist work is complete. Include
      copies of intermediate observation reports and final punchlists with individual items initialed by
      Contractor to attest that individual work items are completed.
   C. Contractor shall pay Engineer's costs at the billing rates in effect at the time the services are
      performed for subsequent punch list visits required due to lack of completion of initial punch list.

3.07 OPERATION AND MAINTENANCE MANUALS
   A. Prior to completion of project, submit three (3) sets of maintenance manuals covering operation
      and maintenance of mechanical equipment with moving or movable parts. Instructions shall be
      in pamphlet or typewritten form in three ring binders. Instructions for each unit shall be
      indicated by separate tab.
   B. Include name, address, telephone number of party to be contacted for 24-hour service for each
      item of equipment.
   C. Include guarantees and warranties of all equipment.

END OF SECTION
SECTION 233300 - AIR DUCT ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Combination fire and smoke dampers.

1.02 REFERENCE STANDARDS
   C. SMACNA (DCS) - HVAC Duct Construction Standards; 2005.

1.03 DELIVERY, STORAGE, AND HANDLING
   A. Protect dampers from damage to operating linkages and blades.

PART 2 PRODUCTS

2.01 COMBINATION FIRE AND SMOKE DAMPERS
   A. Refurbish and reuse existing combination fire and smoke dampers. Mechanical contractor to clean, inspect, test and verify that combination fire and smoke dampers are operational. Mechanical contractor to replace any dampers that are no longer functional with new dampers per this specification.
   B. Fabricate in accordance with NFPA 90A, UL 555, UL 555S, and as indicated.
   C. Provide factory sleeve and collar for each damper.
   D. Multiple Blade Dampers: Fabricate with 16 gage galvanized steel frame and blades, oil-impregnated bronze or stainless steel sleeve bearings and plated steel axles, stainless steel jamb seals, 1/8 x 1/2 inch plated steel concealed linkage, stainless steel closure spring, blade stops, and lock, and 1/2 inch actuator shaft.

PART 3 EXECUTION

3.01 INSTALLATION
   A. Install accessories in accordance with manufacturer’s instructions, NFPA 90A, and follow SMACNA HVAC Duct Construction Standards. Refer to Section 233100 for duct construction and pressure class.
   B. Provide backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated.
   C. Provide fire dampers, combination fire and smoke dampers, and smoke dampers at locations indicated, where ducts and outlets pass through fire rated components, and where required by authorities having jurisdiction. Install with required perimeter mounting angles, sleeves, breakaway duct connections, corrosion resistant springs, bearings, bushings and hinges.
   D. Install smoke dampers and combination smoke and fire dampers in accordance with NFPA 92.
   E. At fans and motorized equipment associated with ducts, provide flexible duct connections immediately adjacent to the equipment.

END OF SECTION
SECTION 233700 - AIR OUTLETS AND INLETS

PART 1  GENERAL
1.01 SECTION INCLUDES
   A. Registers/grilles.

1.02 SUBMITTALS
   A. See Division 01 for submittal procedures.
   B. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

PART 2  PRODUCTS
2.01 MANUFACTURERS

2.02 WALL EXHAUST AND RETURN REGISTERS/GRILLES
   A. Type: Streamlined blades, 3/4 inch minimum depth, 3/4 inch maximum spacing, with spring or other device to set blades, vertical face.
   B. Frame: 1-1/4 inch margin with countersunk screw mounting.
   C. Fabrication: Stainless steel frames, blades, and hardware.
   D. Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face.

PART 3  EXECUTION
3.01 INSTALLATION
   A. Install in accordance with manufacturer's instructions.
   B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement.

END OF SECTION