

**UNIVERSITY OF OREGON**

Chiles Hall 3rd Floor  
Business Technology Center Improvements Project  
Summer 2012

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**PROJECT NAME**

University of Oregon Chiles Hall 3rd Floor Business Technology Center Improvements Project

**DATE OF ISSUE**

06.6.2012

**PROJECT OWNER**

University of Oregon

**ARCHITECT'S PROJECT NUMBER**

1210

**PROJECT ADDRESS**

Chiles Hall, University of Oregon, Eugene, OR 97403

**DESIGN TEAM**

Architect

PIVOT Architecture, 72 West Broadway, Suite 200, Eugene, OR 97401  
Phone: (541) 342-7291 Fax: (541) 342-1535  
Principal in Charge: Curt N. Wilson, AIA - cwilson@pivotarchitecture.com

Mechanical Engineer

Systems West Engineers, 411 High Street, Eugene, OR 97401  
Phone: (541) 342-7210 Fax: (541) 342-7220  
Principal in Charge: Steve Hoffman, PE - shoffman@systemswestengineers.com

Electrical Engineer

Systems West Engineers, 411 High Street, Eugene, OR 97401  
Phone: (541) 342-7210 Fax: (541) 342-7220  
Principal in Charge: Jeff Graper, PE - jgraper@systemswestengineers.com

**PROJECT DESCRIPTION**

Summary Project Description: The Project consists of the interior improvements to the existing Business Technology Center on the 3rd Floor of Chiles Hall.

1. The demolition work includes removal of existing fixed walls, existing demountable partition units, existing ceilings, existing doors and frames, existing floor, existing duct work, and other demolition.
2. The new work includes new walls, doors, door and window frames, ceilings, floor, casework, operable partition and support beam, furniture, duct work and associated HVAC improvements, fire sprinklers, emergency power, power and data, lighting, and other misc electrical work.

**ARCHITECT'S SEAL AND SIGNATURE**



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## OREGON UNIVERSITY SYSTEM

### NOTICE OF RETAINER CONTRACT OPPORTUNITY

The Oregon University System (OUS) is accepting sealed bids for a public improvement project at 1295 Franklin (Facilities Services) Building 130 Capital Construction offices, Eugene, OR 97403 until 2:00 **PM**, Pacific Time, June 26, 2012 for the Chiles Hall 3<sup>rd</sup> Floor Business Technology Center Project located on the campus of University of Oregon, in Eugene, Oregon. The project consists of the interior modifications to the 3<sup>rd</sup> Floor of Chiles Hall, including demolition work, and the construction of new interior spaces, systems, and finishes.

**A mandatory pre-bid conference and examination of the site and conditions** will be conducted at 3:00 PM at June 14 2014. Bidders shall meet with OUS' Representative at the Project Site for that purpose. Attendance will be documented through a sign-in sheet prepared by the OUS representative. Prime bidders who arrive more than 5 minutes after start of time of the meeting (as stated in the solicitation and by the OUS representative's watch) or after the discussion portion of the meeting (whichever comes first) shall not be permitted to sign in and will not be permitted to submit a bid on the project.

Bids will be received on June 26, 2012 at 2:00 PM, at 1295 Franklin (Facilities Services) Building 130 Capital Construction offices, Eugene, OR 97403 by the OUS representative or designee. The bids will not be read aloud.

Bids will be received on a lump-sum basis for all of the work. Bid packets may be obtained on the OUS Procurement Gateway website (<https://secure.ous.edu/bapp/bopps/index/>).

All bidders must comply with requirements of the prevailing wage law in ORS 279C.800 through ORS 279C.870. All bidders must be registered with the Construction Contractor's Board at the time of bid submission. No bid will be considered unless fully completed in the manner provided in the "Instructions to Bidders" upon the Bid Form provided. OUS encourages bids from Minority, Women, and Emerging Small Businesses.

OREGON STATE BOARD OF HIGHER EDUCATION

#### PUBLICATIONS AND DATES:

**June 6, 2012**





**OREGON UNIVERSITY SYSTEM**  
**RETAINER CONTRACTS EXCEEDING \$100,000**  
**INSTRUCTIONS TO BIDDERS**

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## INSTRUCTIONS TO BIDDERS

Oregon Administrative Rules Chapter 580, Divisions 61 and 63 govern this OUS procurement process.

### **Article 1. Scope of Work**

The work contemplated under this contract with the Oregon State Board of Higher Education, hereinafter referred to as the Owner, includes all labor, materials, transportation, equipment and services necessary for, and reasonably incidental to, the completion of all construction work in connection with the project described in the Project Manual which includes, but is not necessarily limited to, the Advertisement for Bids, Instructions to Bidders, Supplemental Instructions to Bidders, Bid Form, Public Improvement Agreement Form, Performance Bond, Payment Bond, OUS General Conditions, Supplemental General Conditions, Plans and Specifications.

### **Article 2. Examination of Site and Conditions**

Before making a bid, the bidder shall examine the site of the work and ascertain all the physical conditions in relation thereto. The bidder shall also make a careful examination of the Project Manual including the plans, specifications, and other contract documents, and shall be fully informed as to the quality and quantity of materials and the sources of supply of the materials. Failure to take these precautions will not release the successful bidder from entering into the contract nor excuse the bidder from performing the work in strict accordance with the terms of the contract.

The Owner will not be responsible for any loss or for any unanticipated costs which may be suffered by the successful bidder as a result of such bidder's failure to be fully informed in advance with regard to all conditions pertaining to the work and the character of the work required. No statement made by an officer, agent, or employee of the Owner in relation to the physical conditions pertaining to the site of the work will be binding on the Owner, unless covered by the Project Manual or an Addendum.

### **Article 3. Interpretation of Project Manual and Approval of Materials Equal to Those Provided in the Specifications**

If any bidder contemplating submitting a bid for the

proposed contract is in doubt as to the true meaning of any part of the plans, specifications or forms of contract documents, or detects discrepancies or omissions, such bidder may submit to the Architect (read "Engineer" throughout as appropriate) a written request for an interpretation thereof at least 10 calendar days prior to the date set for the bid closing.

When a prospective bidder seeks approval of a particular manufacturer's material, process or item of equal value, utility or merit other than that designated by the Architect in the Project Manual, the bidder may submit to the Architect a written request for approval of such substitute at least 10 calendar days prior to the date set for the bid closing. The prospective bidder submitting the request will be responsible for its prompt delivery.

Requests of approval for a substitution from that specified shall be accompanied by samples, records of performance, certified copies of tests by impartial and recognized laboratories, and such other information as the Architect may request.

To establish a basis of quality, certain processes, types of machinery and equipment or kinds of materials may be specified in the Project Manual either by description of process or by designating a manufacturer by name and referring to a brand or product designation or by specifying a kind of material. Whenever a process is designated or a manufacturer's name, brand or item designation is given, or whenever a process or material covered by patent is designated or described, it shall be understood that the words "or approved equal" follow such name, designation or description, whether in fact they do so or not.

Any interpretation of the Project Manual or approval of manufacturer's material will be made only by an Addendum duly issued. A copy of each Addendum will be mailed or delivered to each bidder receiving a Project Manual and becomes a part thereof. The Owner will not be responsible for any other explanation or interpretation of the Project Manual nor for any other approval of a particular manufacturer's process or item.

When the Architect approves a substitution by Addendum, it is with the understanding that the Contractor guarantees the substituted article or material to be equal or better than the one specified.

#### **Article 4. Execution of the Bid Form**

Each bid shall be made in accordance with the sample Bid Form accompanying these instructions; In the case of a sole individual, the bid form need only be executed as principal by the sole individual. In the case of a partnership, the bid form must be executed by at least one of the partners. In the case of a corporation, the bid form must be executed by stating the official name of the corporation under which is placed the signature of an officer authorized to sign on behalf of the corporation followed by such person's official capacity, such as president, etc. This signature shall be attested by the secretary or assistant secretary of the corporation. The corporation seal should then be affixed to the bid form.; numbers pertaining to base bids shall be stated both in writing and in figures; the bidder's address shall be typed or printed.

The Bid Form relates to bids on a specific Project Manual. Only the amounts and information asked for on the Bid Form furnished will be considered as the bid. Each bidder shall bid upon the work exactly as specified and provided in the Bid Form. The bidder shall include in the bid a sum to cover the cost of all items contemplated by the Contract. The bidder shall bid upon all alternates that may be indicated on the Bid Form. When bidding on an alternate for which there is no charge, the bidder shall write the words "No Charge" in the space provided on the Bid Form. If one or more alternates is shown on the Bid Form, the bidder shall indicate whether each is "add" or "deduct."

The Bid Form included in the Project Manual is a sample. One additional copy of the Bid Form may be furnished with the Project Manual. One additional copy of the Bid Bond form may also be provided with the Project Manual. Only one copy needs to be submitted with the bid.

#### **Article 5. Prohibition of Alterations to Bid**

Bids which are incomplete, or contain ambiguities or conditions not provided for in the Bid Form, may be rejected.

#### **Article 6. Submission of Bid**

Each bid shall be sealed in an envelope, properly addressed to the appropriate project Owner within the Oregon University System, showing on the outside of the envelope the name of the bidder and the name of the project. Bids

will be received at the time and place stated in the Advertisement for Bids.

#### **Article 7. Bid Closing and Opening of Bids**

All bids must be received by the Owner at the place and time set for the bid closing. Any bids received after the scheduled closing time for receipt of bids will be rejected and returned to the bidder unopened.

At the time of opening and reading of bids, each bid received will be publicly opened and read aloud, irrespective of any irregularities or informalities in such bids.

#### **Article 8. Acceptance or Rejection of Bids by Owner**

Unless all bids are rejected, the Owner will award a contract based on the lowest responsive bid from a responsible bidder. If that bidder does not execute the contract, it will be awarded to the next lowest responsible bidder or bidders in succession.

The Owner reserves the right to reject all bids and to waive minor informalities. The procedures for contract awards shall be in compliance with the provisions of Oregon Administrative Rules adopted by the Owner.

The Owner reserves the right to hold the bid and bid security of the three lowest bidders for a period of 30 calendar days from and after the time of bid opening pending award of the contract.

In determining the lowest bidder, the Owner reserves the right to take into consideration any or all authorized base bids as well as alternates or combinations indicated in the Bid Form.

If such bid has not been accepted within 30 calendar days after the opening of the bids, each of the three lowest bidders may withdraw the bid submitted.

#### **Article 9. Withdrawal of Bid**

At any time prior to the time and place set for the bid closing, a bidder may withdraw the bid. This will not preclude the submission of another bid by such bidder prior to the time set for the bid closing.

After the time set for the bid closing, no bidder will be permitted to withdraw its bid within the time frames specified in Article 8 for award and execution, except as provided for in that Article.

**Article 10. Execution of Contract, Agreement,  
Performance Bond and Payment Bond**

The Owner will provide the successful bidder with contract forms within 10 calendar days after the award of the Contract. The bidder is required to execute the contract forms as provided, including a performance bond and a payment bond from a surety company licensed to do surety business in the State of Oregon, within 20 calendar days after the award of the contract. The contract forms shall be delivered to the Owner in the number called for and to the location as noted in the Notice of Award.

**Article 11. Recyclable Products**

Contractors will use recyclable products to the maximum extent economically feasible in the performance of the Contract.

**OREGON UNIVERSITY SYSTEM**  
**STANDARD PUBLIC IMPROVEMENT CONTRACT**  
**BID FORM**

OUS CAMPUS: University of Oregon  
PROJECT: Chiles Hall 3<sup>rd</sup> Floor Business Technology Center Improvements Project  
BID CLOSING: June 26, 2012 at 2:00 pm

FROM: \_\_\_\_\_  
*Name of Contractor*

TO: Oregon State Board of Higher Education  
*(campus or office name and address)*  
\_\_\_\_\_  
\_\_\_\_\_

1. The Undersigned (*check one of the following and insert information requested*):

\_\_\_ a. An individual doing business under an assumed name registered under the laws of the State of \_\_\_\_\_; or

\_\_\_ b. A partnership registered under the laws of the State of \_\_\_\_\_; or

\_\_\_ c. A corporation organized under the laws of the State of \_\_\_\_\_; or

\_\_\_ d. A limited liability corporation organized under the laws of the State of \_\_\_\_\_;

hereby proposes to furnish all material and labor and perform all work hereinafter indicated for the above project in strict accordance with the Contract Documents for the Basic Bid as follows:

\_\_\_\_\_ Dollars (\$\_\_\_\_\_)

and the Undersigned agrees to be bound by the following documents:

- Advertisement for Bids
- Supplemental Instructions to Bidders
- Public Improvement Agreement Form
- OUS General Conditions
- Prevailing Wage Rates
- Instructions to Bidders
- Bid Bond
- Performance Bond and Payment Bond
- Supplemental General Conditions
- Payroll and Certified Statement Form

- Plans and Specifications
- Drawings and Details

- ADDENDA numbered \_\_\_\_ through \_\_\_\_, inclusive (*fill in blanks*)

2. The Undersigned proposes to add to or deduct from the Base Bid indicated above the items of work relating to the following Alternate(s) as designated in the Specifications:

ALTERNATE #1: *Additive: Provide all furniture described on Sheet A151 - Furniture Plan and Specification Section 11 001 - Misc Furniture.* ADD or DEDUCT: \$\_\_\_\_\_

3. No Unit Price requirements

4. The work shall be completed within the time stipulated and specified in Division 1, Section 01 1000 - Summary, of the Specifications.

5. Accompanying herewith is Bid Security which is equal to ten (10) percent of the total amount of the Basic Bid.

6. The Undersigned agrees, if awarded the Contract, to execute and deliver to the Oregon State Board of Higher Education, within twenty (20) calendar days after receiving the Contract forms, an Agreement Form, and a satisfactory Performance Bond and Payment Bond each in an amount equal to one hundred (100) percent of the Contract sum, using forms provided by the Owner. The surety requested to issue the Performance Bond and Payment Bond will be:

\_\_\_\_\_  
(*name of surety company - not insurance agency*)

The Undersigned hereby authorizes said surety company to disclose any information to the Owner concerning the Undersigned's ability to supply a Performance Bond and Payment Bond each in the amount of the Contract.

7. The Undersigned further agrees that the Bid Security accompanying the Bid is left in escrow with the Board; that the amount thereof is the measure of liquidated damages which the Owner will sustain by the failure of the Undersigned to execute and deliver the above-named Agreement Form, Performance Bond and Payment Bond, and that if the Undersigned defaults in either executing the Agreement Form or providing the Performance Bond and Payment Bond within twenty (20) calendar days after receiving the Contract forms, then the Bid Security may become the property of the Owner at the Owner's option; but if the Bid is not accepted within thirty (30) calendar days of the time set for the opening of the Bids, or if the Undersigned executes and timely delivers said Agreement Form, Performance Bond and Payment Bond, the Bid Security shall be returned.

8. The Undersigned certifies that: (1) This Bid has been arrived at independently and is being submitted without collusion with and without any agreement, understanding, or planned common course of action with any other vendor of materials, supplies, equipment or services described in the invitation to bid designed to limit independent bidding or competition; and (2) The contents of

the Bid have not been communicated by the Undersigned or its employees or agents to any person not an employee or agent of the Undersigned or its surety on any Bond furnished with the Bid and will not be communicated to such person prior to the official opening of the Bid.

9. The undersigned **HAS, HAS NOT** (*circle applicable status*) paid unemployment or income taxes in Oregon within the past 12 months and **HAS, HAS NOT** (*circle applicable status*) a business address in Oregon.

10. The Undersigned agrees, if awarded a contract, to comply with the provisions of ORS 279C.800 through 279C.870 pertaining to the payment of the prevailing rates of wage.

11. Contractor's CCB registration number is \_\_\_\_\_. As a condition to submitting a bid, a Contractor must be registered with the Oregon Construction Contractors Board in accordance with ORS 701.035 to 701.055, and disclose the registration number. Failure to register and disclose the number will make the bid unresponsive and it will be rejected, unless contrary to federal law.

12. The successful Bidder hereby certifies that all subcontractors who will perform construction work as described in ORS 701.005(2) were registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.055 at the time the subcontractor(s) made a bid to work under the contract.

13. The successful Bidder hereby certifies that, in compliance with the Worker's Compensation Law of the State of Oregon, its Worker's Compensation Insurance provider is \_\_\_\_\_, Policy No. \_\_\_\_\_, and that Contractor shall submit Certificates of Insurance as required.

14. Contractor's Project Manager for this project is: \_\_\_\_\_,  
Office Phone: \_\_\_\_\_ Cell Phone: \_\_\_\_\_.

15. The Undersigned certifies that it has not discriminated against minority, women, or emerging small businesses in obtaining any subcontracts for this project.

By signature below, Contractor agrees to be bound by this Bid.

NAME OF FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_

FEDERAL TAX ID \_\_\_\_\_

TELEPHONE NO \_\_\_\_\_

FAX NO \_\_\_\_\_

SIGNATURE 1) \_\_\_\_\_

Sole Individual

or 2) \_\_\_\_\_

Partner

or 3) \_\_\_\_\_

Authorized Officer of Corporation

(SEAL)

\_\_\_\_\_  
Attested: Secretary of Corporation

*Payment information will be reported to the IRS under the name and taxpayer ID # provided above. Information not matching IRS records could subject Contractor to 31 percent backup withholding.*

**\*\*\*\*\* END OF BID \*\*\*\*\***



**OUS RETAINER CONTRACT SUPPLEMENT  
PURSUANT TO OUS RETAINER CONTRACT FOR CONSTRUCTION  
RELATED SERVICES**

Supplement No.:  
Project Name:

This Retainer Contract Supplement (the "Supplement") is entered into between:  
the "Contractor":

Federal Tax ID No.:

and the "Owner":           The State of Oregon acting by and through the State  
Board of Higher Education on behalf of:  
University of Oregon  
Capital Construction  
1295 Franklin Blvd  
Eugene, OR 97403

(collectively the "Parties") pursuant to that certain Retainer Contract between the Parties dated July 1, 2010 (the "Retainer Contract"). For good and valuable consideration, the Parties agree as follows:

- 1. DESCRIPTION OF THE PROJECT.** The project to which this Supplement pertains is described as follows: \_\_\_\_\_ (the "Project").
- 2. WORK TO BE PERFORMED.** The Contractor will perform the following Work on the Project: \_\_\_\_\_ (the "Work"). The Contractor will perform the Work according to the terms and conditions of this Supplement and the Retainer Contract, including its attachments, which are incorporated into this Supplement by reference.
- 3. SCHEDULE.** The Contractor will perform the Work according to the following schedule:  
use next
- 4. COMPENSATION.** The Owner will compensate the Contractor for Work in the firm, fixed-price amount of \$\_\_\_\_\_ in accordance with the requirements of the OUS General Conditions.

The cost of the Work under this Supplement, even if this Supplement is later amended to include additional Work, must not exceed the greater of \$1,000,000 or the maximum allowable under OAR 580-063-0030.

**5. TERM.** This Supplement is effective on the date it has been signed by every Party hereto and all required approvals have been obtained (the "Effective Date"). No Work will be performed or payment made prior to the Effective Date. The Contractor will perform its

obligations according to this Supplement, unless terminated or suspended. Termination or suspension does not extinguish or prejudice Owner's right to enforce this Supplement with respect to any breach of Contractor's performance that has not been cured.

**6. PERFORMANCE AND PAYMENT BONDS.** The performance and payment bond requirements for this Project are as follows:

Prior to execution of a Retainer Contract Supplement Notice to Proceed, Contractor must provide to the contracts officer of the Owner institution at which the Work will take place, a performance bond in a sum equal to the fixed price stated in paragraph 4(a) above, or the maximum not-to-exceed price stated in paragraph 4(b) above, as applicable, and a separate payment bond in the same amount.

This Project has a Contract price of \$100,000 or less and Owner has determined that performance and payment bonds will not be required for this Project.

**7. MINIMUM WAGE RATES.** If the amount of the maximum compensation for all Owner-contracted Work is more than \$50,000, Contractor and all subcontractors shall comply with the provisions of ORS 279C.800 through 279C.870, relative to Prevailing Wage Rates and the required public works bond, as outlined in Sections C.1, C.2 and G.2.3 of the OUS General Conditions. The Bureau of Labor and Industries (BOLI) wage rates and requirements set forth in the following BOLI booklet (and any listed amendments to that booklet), which are incorporated herein by reference, apply to the Work authorized under this Supplement:

PREVAILING WAGE RATES for Public Works Contracts in Oregon, \_\_\_\_\_, which can be downloaded at the following web address:

**[[http://www.boli.state.or.us/BOLI/WHD/PWR/pwr\\_book.shtml](http://www.boli.state.or.us/BOLI/WHD/PWR/pwr_book.shtml)]**

The Work will take place in \_\_\_\_\_ County, Oregon.

**8. TAX COMPLIANCE CERTIFICATION.** Contractor hereby affirms, under penalty of perjury, as provided in ORS 305.385(6), that to the best of Contractor's knowledge Contractor is not in violation of any of the tax laws described in ORS 305.380(4). For purposes of this certification, "tax laws" means a state tax imposed by ORS 401.792 to 401.816 and ORS chapters 118, 314, 316, 317, 318, 320, 321 and 323; the elderly rental assistance program under ORS 310.630 to 310.706; and local taxes administered by the Department of Revenue under ORS 305.620.

**9. INSURANCE REQUIREMENTS.** Contractor shall comply with and obtain the insurance coverage amounts stated in the OUS General Conditions. If a different insurance type or level of coverage is required, it is identified in Supplemental General Conditions.

**10. KEY PERSONS.**

The Contractor's personnel identified below shall be considered Key Persons and shall not be replaced during the Project without the written permission of Owner, which shall not be

unreasonably withheld. If the Contractor intends to substitute personnel, a request must be given to Owner at least 30 days prior to the intended time of substitution. When replacements have been approved by Owner, the Contractor shall provide a transition period of at least 10 working days during which the original and replacement personnel shall be working on the Project concurrently. Once a replacement for any of these staff members is authorized, further replacement shall not occur without the written permission of Owner. The Contractor's Project Staff shall consist of the following personnel:

**11. OTHER TERMS.** Except as specifically modified by this Supplement, all terms of the Retainer Contract remain unchanged and apply to the Work.

**12. EXECUTION AND COUNTERPARTS.** This Supplement may be executed in several counterparts, each of which shall be an original, all of which shall constitute but one and the same instrument.

**Contractor hereby confirms and certifies that the representations, warranties and certifications contained in the Retainer Contract remain true and correct as of the Effective Date of this Supplement.**

IN WITNESS HEREOF, the Parties have duly executed this Supplement as of the dates indicated below.

Contractor

The State of Oregon acting by and through  
the State Board of Higher Education on  
behalf of University of Oregon, Owner

Print Name:

\_\_\_\_\_

Print Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_



# OREGON UNIVERSITY SYSTEM

## GENERAL CONDITIONS FOR PUBLIC IMPROVEMENT CONTRACTS

February 1, 2011

INSTRUCTIONS: The attached **Oregon University System General Conditions for Public Improvement Contracts ("OUS General Conditions")** apply to all designated public improvement contracts. Changes to the OUS General Conditions (including any additions, deletions or substitutions) should only be made by attaching Supplemental General Conditions. The text of these OUS General Conditions should not otherwise be altered. These OUS General Conditions have been reviewed as to form by the Oregon Department of Justice. The legal sufficiency and approval requirements of ORS 291.047 remain applicable to individual OUS procurements, unless an exemption has been granted pursuant to that statute and Department of Justice administrative rules at OAR Chapter 137, Division 45.

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**OREGON UNIVERSITY SYSTEM  
GENERAL CONDITIONS FOR PUBLIC IMPROVEMENT CONTRACTS  
("OUS General Conditions")**

**SECTION A  
GENERAL PROVISIONS**

**A.1 DEFINITION OF TERMS**

In the Contract Documents the following terms shall be as defined below:

**ARCHITECT/ENGINEER**, means the Person appointed by the Owner to make drawings and specifications and, to provide contract administration of the Work contemplated by the Contract to the extent provided herein or by supplemental instruction of Owner (under which Owner may delegate responsibilities of the Owner's Authorized Representative to the Architect/Engineer), in accordance with ORS Chapter 671 (Architects) or ORS Chapter 672 (Engineers) and administrative rules adopted thereunder.

**CHANGE ORDER**, means a written order issued by the Owner's Authorized Representative to the Contractor requiring a change in the Work within the general scope of the Contract Documents, issued under the changes provisions of Section D, including Owner's written change directives as well as changes reflected in a writing executed by the parties to this Contract and, if applicable, establishing a Contract Price or Contract Time adjustment for the changed Work.

**CLAIM**, means a demand by Contractor pursuant to Section D.3 for review of the denial of Contractor's initial request for an adjustment of Contract terms, payment of money, extension of Contract Time or other relief, submitted in accordance with the requirements and within the time limits established for review of Claims in these OUS General Conditions.

**CONSTRUCTION CHANGE DIRECTIVE**, means a written order by the Owner's Authorized Representative to the Contractor requiring a change in the Work within the general scope of the Contract Documents, issued under the changes provisions of Section D.

**CONTRACT**, means the written agreement between the Owner and the Contractor comprised of the Contract Documents which describe the Work to be done and the obligations between the parties.

**CONTRACT DOCUMENTS**, means the Solicitation Document and addenda thereto, Instructions to Offerors, Supplemental Instructions to Offerors, the OUS Public Improvement Agreement Form, OUS General Conditions, Supplemental General Conditions, if any, the accepted Offer, Plans, Specifications, amendments, Change Orders and Construction Change Directives .

**CONTRACT PERIOD**, as set forth in the Contract Documents, means the total period of time beginning with the issuance of the Notice to Proceed and concluding upon Final Completion.

**CONTRACT PRICE**, means the total of the awarded Offer amount, as increased or decreased by the price of approved alternates and Change Orders.

**CONTRACT TIME**, means any incremental period of time allowed under the Contract to complete any portion of the Work as reflected in the project schedule.

**CONTRACTOR**, means the Person awarded the Contract for the Work contemplated.

**DAYS**, are calendar days, including weekdays, weekends and holidays, unless otherwise specified.

**DIRECT COSTS**, means, unless otherwise provided in the Contract Documents, the cost of materials, including sales tax, cost of delivery; cost of labor, including social security, old age and unemployment insurance, and fringe benefits required by agreement or custom; worker's compensation insurance; project specific insurance (including, without limitation, Builder's Risk Insurance and Builder's Risk Installation Floater); bond premiums, rental cost of equipment, and machinery required for execution of the work; and the additional costs of field personnel directly attributable to the Work.

**FINAL COMPLETION**, means the final completion of all requirements under the Contract, including Contract Closeout as described in Section K but excluding Warranty Work as described in Section I.2, and the final payment and release of all retainage, if any, released.

**FORCE MAJEURE**, means an act, event or occurrence caused by fire, riot, war, acts of God, nature, sovereign, or public enemy, strikes, freight embargoes or any other act, event or occurrence that is beyond the control of the party to this Contract who is asserting Force Majeure.

**MWESB REPORT**, means an accurate report by the Contractor to the Owner identifying all Minority, Women and Emerging Small Business (MWESB) enterprises, as those terms are defined in ORS 200.005, receiving contracts throughout the course of the Work. An initial MWESB report is required (see Section E.2.9) and MWESB Reports are required annually (see Section E.2.9) and as a condition of final payment (see Section K.1). The initial report shall include the total number of contracts and subcontracts awarded to MWESB enterprises and the dollar value of their respective contracts and subcontracts. The annual reports shall include the total number of contracts and subcontracts awarded to MWESB enterprises, the dollar value of each, and the expenditure toward each contract and subcontract during the previous twelve (12) months. The final report shall include the total number of contracts and subcontracts awarded to MWESB enterprises and the dollar value of their respective contracts and subcontracts including all Change Orders incorporated during the course of the project. The reports shall only include enterprises certified with the State of Oregon as MWESB enterprises and shall include individual identification of each enterprise as a Minority business enterprise, a Women business enterprise, and/or an Emerging Small Business Enterprise, as applicable.

**NOTICE TO PROCEED**, means the official written notice from the Owner stating that the Contractor is to proceed with the Work defined in the Contract Documents. Notwithstanding the Notice to Proceed, Contractor shall not be authorized to proceed with the Work until all initial Contract requirements, including the Contract, performance bond and payment bond, and certificates of insurance, have been fully executed and submitted to Owner in a suitable form.

**OFFER**, means a bid in connection with Instructions to Bidders and a proposal in connection with a Request for Proposals.

**OFFEROR**, means a bidder in connection with Instructions to Bidders and a proposer in connection with a Request for Proposals.

**OVERHEAD**, means those items which may be included in the Contractor's markup (general and administrative expense and profit) and that shall not be charged as Direct Cost of the Work, including without limitation such Overhead expenses as wages or salary of personnel above the level of foreman (i.e., superintendents and project managers), expenses of Contractor's offices at the job site (e.g. job trailer) including expenses of personnel staffing the job site

office, and Commercial General Liability Insurance and Automobile Liability Insurance.

**OWNER**, means the State of Oregon acting by and through the Oregon State Board of Higher Education, in its own right or on behalf of one of its institutions as identified in the Solicitation Document, also known as the Oregon University System (OUS).

**OWNER'S AUTHORIZED REPRESENTATIVE**, means those individuals identified in writing by the Owner to act on behalf of the Owner for this project. Owner may elect, by written notice to Contractor, to delegate certain duties of the Owner's Authorized Representative to more than one party, including without limitation, to an Architect/Engineer. However, nothing in these OUS General Conditions is intended to abrogate the separate design professional responsibilities of Architects under ORS Chapter 671 or of Engineers under ORS Chapter 672.

**PERSON**, means an entity doing business as a sole proprietorship, a partnership, a joint venture, a corporation, a limited liability company or partnership, or any other entity possessing the legal capacity to contract.

**PLANS**, means the drawings which show the location, type, dimensions, and details of the Work to be done under the Contract.

**PUNCHLIST**, means the list of Work yet to be completed or deficiencies which need to be corrected in order to achieve Final Completion of the Contract.

**RECORD DOCUMENT**, means the as-built Plans, Specifications, testing and inspection records, product data, samples, manufacturer and distributor/supplier warranties evidencing transfer to Owner, operational and maintenance manuals, shop drawings, Change Orders, Construction Change Directives, MWESB Reports, correspondence, certificate(s) of occupancy, and other documents listed in Subsection B.9.1 of these OUS General Conditions, recording all Services performed.

**SOLICITATION DOCUMENT**, means Instructions to Bidders or Offerors or a Request for Proposal or a Request for Quotes.

**SPECIFICATION**, means any description of the physical or functional characteristics of the Work, or of the nature of a supply, service or construction item. Specifications may include a description of any requirement for inspecting, testing or preparing a supply, service or construction item for delivery and the quantities or qualities of materials to be furnished under the Contract. Specifications generally will state the results or products to be obtained and may, on occasion, describe the method and manner of doing the work to be performed. Specifications may be incorporated by reference and/or may be attached to the Contract.

**SUBCONTRACTOR**, means a Person having a direct contract with the Contractor, or another Subcontractor, to perform one or more items of the Work.

**SUBSTANTIAL COMPLETION**, means the date when the Owner accepts in writing the construction, alteration or repair of the improvement to real property or any designated portion thereof as having reached that state of completion when it may be used or occupied for its intended purpose. Substantial Completion of facilities with operating systems occurs only after thirty (30) continuous Days of successful, trouble-free operation of the operating systems as provided in Section K.4.2.

**SUBSTITUTIONS**, means items that in function, performance, reliability, quality, and general configuration are the same or better than the product(s) specified. Approval of any substitute item shall be solely determined by the Owner's Authorized Representative. The decision of the Owner's Authorized Representative is final.

**SUPPLEMENTAL GENERAL CONDITIONS**, means those conditions that remove from, add to, or modify these OUS General Conditions. Supplemental General Conditions may be included in the Solicitation Document or may be a separate attachment to the Contract.

**WORK**, means the furnishing of all materials, equipment, labor, transportation, services and incidentals necessary to successfully complete any individual item or the entire Contract and the carrying out of duties and obligations imposed by the Contract Documents.

## A.2 SCOPE OF WORK

The Work contemplated under this Contract includes all labor, materials, transportation, equipment and services for, and incidental to, the completion of all construction work in connection with the project described in the Contract Documents. The Contractor shall perform all Work necessary so that the project can be legally occupied and fully used for the intended use as set forth in the Contract Documents.

## A.3 INTERPRETATION OF CONTRACT DOCUMENTS

A.3.1 Unless otherwise specifically defined in the Contract Documents, words which have well-known technical meanings or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. Contract Documents are intended to be complementary. Whatever is called for in one, is interpreted to be called for in all. However, in the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following descending order of precedence:

- (a) Contract amendments, Change Orders and Construction Change Directives, with those of later date having precedence over those of an earlier date;
- (b) The Supplemental General Conditions;
- (c) The OUS Public Improvement Agreement Form;
- (d) The OUS General Conditions;
- (e) Division One (General Requirements) of the Specifications;
- (f) Detailed Schedules of finishes, equipment and other items included in the Specifications;
- (g) Plans and Specifications (other than Division One and the Detailed Schedules to the Specifications);
- (h) Large-scale drawings on Plans;
- (i) Small-scale drawings on Plans;
- (j) Dimension numbers written on Plans which shall prevail and take precedence over dimensions scaled from Plans;
- (k) The Solicitation Document, including Instructions to Offerors and Supplemental Instructions to Offerors, and any addenda thereto;
- (l) The accepted Offer.

A.3.2 In the case of an inconsistency between Plans and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Owner or Owner's Authorized Representative's interpretation in writing.

A.3.3 If the Contractor finds discrepancies in, or omissions from the Contract Documents, or if the Contractor is in doubt as to their meaning, the Contractor shall at once notify the Owner or Owner's Authorized Representative. Matters concerning and interpretation of requirements of, the Contract Documents will



be decided by the Owner's Authorized Representative, who may delegate that duty in some instances to the Architect/Engineer. Responses to Contractor's requests for interpretation of Contract Documents will be made in writing by Owner's Authorized Representative (or the Architect/Engineer) within any time limits agreed upon or otherwise with reasonable promptness. Interpretations and decisions of the Owner's Authorized Representative (or Architect/Engineer) will be consistent with the intent of and reasonably inferable from the Contract Documents. Contractor shall not proceed without direction in writing from the Owner's Authorized Representative (or Architect/Engineer).

- A.3.4 References to standard specifications, manuals, codes of any technical society, organization or association, to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, laws or regulations in effect in the jurisdiction where the project is occurring on the first published date of the Solicitation Document, except as may be otherwise specifically stated.

#### **A.4 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE**

- A.4.1 It is understood that the Contractor, before submitting an Offer, has made a careful examination of the Contract Documents; has become fully informed as to the quality and quantity of materials and the character of the Work required; and has made a careful examination of the location and conditions of the Work and the sources of supply for materials. The Owner will in no case be responsible for any loss or for any unanticipated costs that may be suffered by the Contractor as a result of the Contractor's failure to acquire full information in advance in regard to all conditions pertaining to the Work. No oral agreement or conversation with any officer, agent, or personnel of the Owner, or with the Architect/Engineer either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.
- A.4.2 Should the Plans or Specifications fail to particularly describe the materials, kind of goods, or details of construction of any aspect of the Work, Contractor shall have the duty to make inquiry of the Owner and Architect/Engineer as to what is required prior to performance of the Work. Absent Specifications to the contrary, the materials or processes that would normally be used to produce first quality finished Work shall be considered a part of the Contract requirements.
- A.4.3 Any design errors or omissions noted by the Contractor shall be reported promptly to the Owner's Authorized Representative, including without limitation, any nonconformity with applicable laws, statutes, ordinances, building codes, rules and regulations.
- A.4.4 If the Contractor believes that additional cost or Contract Time is involved because of clarifications or instructions issued by the Owner's Authorized Representative (or Architect/Engineer) in response to the Contractor's notices or requests for information, the Contractor must submit a written request to the Owner's Authorized Representative, setting forth the nature and specific extent of the request, including all time and cost impacts against the Contract as soon as possible, but no later than thirty (30) Days after receipt by Contractor of the clarifications or instructions issued. If the Owner's Authorized Representative denies Contractor's request for additional compensation, additional Contract Time, or other relief that Contractor believes results from the clarifications or instructions, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process. If the Contractor fails to perform the obligations of Sections A.4.1 to A.4.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations.

#### **A.5 INDEPENDENT CONTRACTOR STATUS**

The service or services to be performed under this Contract are those of an independent contractor as defined in ORS 670.600. Contractor represents and warrants that it is not an officer, employee or agent of the Owner as those terms are used in ORS 30.265.

#### **A.6 RETIREMENT SYSTEM STATUS AND TAXES**

Contractor represents and warrants that it is not a contributing member of the Public Employees' Retirement System and will be responsible for any federal or state taxes applicable to payment received under this Contract. Contractor will not be eligible for any benefits from these Contract payments of federal Social Security, employment insurance, workers' compensation or the Public Employees' Retirement System, except as a self-employed individual. Unless the Contractor is subject to backup withholding, Owner will not withhold from such payments any amount(s) to cover Contractor's federal or state tax obligations.

#### **A.7 GOVERNMENT EMPLOYMENT STATUS**

- A.7.1 If this payment is to be charged against federal funds, Contractor represents and warrants that it is not currently employed by the Federal Government. This does not preclude the Contractor from holding another contract with the Federal Government.
- A.7.2 Contractor represents and warrants that Contractor is not an employee of the State of Oregon for purposes of performing Work under this Contract

### **SECTION B ADMINISTRATION OF THE CONTRACT**

#### **B.1 OWNER'S ADMINISTRATION OF THE CONTRACT**

- B.1.1 The Owner's Authorized Representative will provide administration of the Contract as described in the Contract Documents (1) during construction (2) until final payment is due and (3) during the one-year period for correction of Work. The Owner's Authorized Representative will act on behalf of the Owner to the extent provided in the Contract Documents, unless modified in writing in accordance with other provisions of the Contract. In performing these tasks, the Owner's Authorized Representative may rely on the Architect/Engineer or other consultants to perform some or all of these tasks.
- B.1.2 The Owner's Authorized Representative will visit the site at intervals appropriate to the stage of the Contractor's operations (1) to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed, (2) to endeavor to guard the Owner against defects and deficiencies in the Work, and (3) to determine in general if Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. The Owner's Authorized Representative will not make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Owner's Authorized Representative will neither have control over or charge of, nor be responsible for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work.
- B.1.3 Except as otherwise provided in the Contract Documents or when direct communications have been specifically authorized, the Owner and Contractor shall endeavor to communicate with each other through the Owner's Authorized Representative or designee about matters arising out of or relating to the Contract. Communications by and with the Architect/Engineer's consultants shall be through the Architect/Engineer. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by

and with separate contractors shall be through the Owner's Authorized Representative.

- B.1.4 Based upon the Architect/Engineer's evaluations of the Contractor's Application for Payment, or unless otherwise stipulated by the Owner's Authorized Representative, the Architect/Engineer will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

**B.2 CONTRACTOR'S MEANS AND METHODS;  
MITIGATION OF IMPACTS**

- B.2.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures.
- B.2.2 The Contractor is responsible to protect and maintain the Work during the course of construction and to mitigate any adverse impacts to the project, including those caused by authorized changes, which may affect cost, schedule, or quality.
- B.2.3 The Contractor is responsible for the actions of all its personnel, laborers, suppliers, and Subcontractors on the project. The Contractor shall enforce strict discipline and good order among Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of persons who are unfit or unskilled for the tasks assigned to them.

**B.3 MATERIALS AND WORKMANSHIP**

- B.3.1 The intent of the Contract Documents is to provide for the construction and completion in every detail of the Work described. All Work shall be performed in a professional manner and unless the means or methods of performing a task are specified elsewhere in the Contract Documents, Contractor shall employ methods that are generally accepted and used by the industry, in accordance with industry standards.
- B.3.2 The Contractor is responsible to perform the Work as required by the Contract Documents. Defective Work shall be corrected at the Contractor's expense.
- B.3.3 Work done and materials furnished shall be subject to inspection and/or observation and testing by the Owner's Authorized Representative to determine if they conform to the Contract Documents. Inspection of the Work by the Owner's Authorized Representative does not relieve the Contractor of responsibility for the Work in accordance with the Contract Documents.
- B.3.4 Contractor shall furnish adequate facilities, as required, for the Owner's Authorized Representative to have safe access to the Work including without limitation walkways, railings, ladders, tunnels, and platforms. Producers, suppliers, and fabricators shall also provide proper facilities and access to their facilities.
- B.3.5 The Contractor shall furnish Samples of materials for testing by the Owner's Authorized Representative and include the cost of the Samples in the Contract Price.

**B.4 PERMITS**

Contractor shall obtain and pay for all necessary permits and licenses, except for those specifically excluded in the Supplemental

General Conditions, for the construction of the Work, for temporary obstructions, enclosures, opening of streets for pipes, walls, utilities, environmental Work, etc., as required for the project. Contractor shall be responsible for all violations of the law, in connection with the construction or caused by obstructing streets, sidewalks or otherwise. Contractor shall give all requisite notices to public authorities. The Contractor shall pay all royalties and license fees. The Contractor shall defend all suits or claims for infringement of any patent or other proprietary rights and save harmless and blameless from loss, on account thereof, the State of Oregon, and its departments, divisions, members and employees.

**B.5 COMPLIANCE WITH GOVERNMENT  
REGULATIONS**

- B.5.1 Contractor shall comply with all federal, state and local laws, codes, regulations and ordinances applicable to the Work and the Contract. Failure to comply with such requirements shall constitute a breach of Contract and shall be grounds for Contract termination. Without limiting the generality of the foregoing, Contractor expressly agrees to comply with the following, as applicable:
- (i) Title VI and VII of Civil Rights Act of 1964, as amended; (ii) Section 503 and 504 of the Rehabilitation Act of 1973, as amended; (iii) the Health Insurance Portability and Accountability Act of 1996; (iv) the Americans with Disabilities Act of 1990, as amended; (v) ORS Chapter 659A; as amended; (vi) all regulations and administrative rules established pursuant to the foregoing laws; and (vii) all other applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations.
- B.5.2 Contractor shall comply with all applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations, and
- (a) Contractor shall not discriminate against Disadvantaged, Minority, Women or Emerging Small Business enterprises, as those terms are defined in ORS 200.005, or a business enterprise that is owned or controlled by or that employs a disabled veteran, as that term is defined in ORS 408.225, in the awarding of subcontracts.
  - (b) Contractor shall maintain, in current and valid form, all licenses and certificates required by law, regulation, or this Contract when performing the Work.
- B.5.3 Unless contrary to federal law, Contractor shall certify that it shall not accept a bid from Subcontractors to perform Work as described in ORS 701.005 under this Contract unless such Subcontractors are registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.055 at the time they submit their bids to the Contractor.
- B.5.4 Unless contrary to federal law, Contractor shall certify that each landscape contractor, as defined in ORS 671.520(2), performing Work under this Contract holds a valid landscape contractor's license issued pursuant to ORS 671.560.
- B.5.5 The following notice is applicable to Contractors who perform excavation Work. ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center at (503)232-1987.
- B.5.6 Failure to comply with any or all of the requirements of B.5.1 through B.5.5 shall be a breach of Contract and constitute grounds for Contract termination. Damages or costs resulting from such noncompliance shall be the responsibility of Contractor.

**B.6 SUPERINTENDENCE**

Contractor shall keep on the site, during the progress of the Work, a competent superintendent and any necessary assistants who shall be satisfactory to the Owner and who shall represent the Contractor on the site. Directions given to the superintendent by the Owner's Authorized Representative shall be confirmed in writing to the Contractor.

#### **B.7 INSPECTION**

- B.7.1 Owner's Authorized Representative shall have access to the Work at all times.
- B.7.2 Inspection of the Work will be made by the Owner's Authorized Representative at its discretion. The Owner's Authorized Representative will have authority to reject Work that does not conform to the Contract Documents. Any Work found to be not in conformance with the Contract Documents, in the discretion of the Owner's Authorized Representative, shall be removed and replaced at the Contractor's expense.
- B.7.3 Contractor shall make or obtain at the appropriate time all tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work. The Contractor shall give the Owner's Authorized Representative timely notice of when and where tests and inspections are to be made so that the Owner's Authorized Representative may be present for such procedures. Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Owner's Authorized Representative.
- B.7.4 As required by the Contract Documents, Work done or material used without inspection or testing by the Owner's Authorized Representative may be ordered removed at the Contractor's expense.
- B.7.5 If directed to do so any time before the Work is accepted, the Contractor shall uncover portions of the completed Work for inspection. After inspection, the Contractor shall restore such portions of Work to the standard required by the Contract. If the Work uncovered is unacceptable or was done without sufficient notice to the Owner's Authorized Representative, the uncovering and restoration shall be done at the Contractor's expense. If the Work uncovered is acceptable and was done with sufficient notice to the Owner's Authorized Representative, the uncovering and restoration will be paid for as a Change Order.
- B.7.6 If any testing or inspection reveals failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Owner's Authorized Representative's and Architect/Engineer's services and expenses, shall be at the Contractor's expense.
- B.7.7 When the United States government participates in the cost of the Work, or the Owner has an agreement with other public or private organizations, or if any portion of the Work is being performed for a third party or in close proximity to third party facilities, representatives of these organizations have the right to inspect the Work affecting their interests or property. Their right to inspect shall not make them a party to the Contract and shall not interfere with the rights of the parties of the Contract. Instructions or orders of such parties shall be transmitted to the Contractor, through the Owner's Authorized Representative.

#### **B.8 SEVERABILITY**

If any provision of this Contract is declared by a court to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected and the rights and obligations of the parties shall be construed and enforced as if the Contract did not contain the particular provision held to be invalid.

#### **B.9 ACCESS TO RECORDS**

- B.9.1 Contractor shall keep, at all times on the Work site, one record copy of the complete Contract Documents, including the Plans, Specifications, Change Orders, Construction Change Directives and addenda, in good order and marked currently to record field changes and selections made during construction, and one record copy of Shop Drawings, Product Data, Samples and similar submittals, and shall at all times give the Owner's Authorized Representative access thereto.
- B.9.2 Contractor shall retain and the Owner and its duly authorized representatives shall have access, for a period not less than ten (10) years, to all Record Documents, financial and accounting records, and other books, documents, papers and records of Contractor which are pertinent to the Contract, including records pertaining to Overhead and indirect costs, for the purpose of making audit, examination, excerpts and transcripts. If for any reason, any part of the Contract is involved in litigation, Contractor shall retain all such records until all litigation is resolved. The Owner and/or its agents shall continue to be provided full access to the records during litigation.

#### **B.10 WAIVER**

Failure of the Owner to enforce any provision of this Contract shall not constitute a waiver or relinquishment by the Owner of the right to such performance in the future nor of the right to enforce any other provision of this Contract.

#### **B.11 SUBCONTRACTS AND ASSIGNMENT**

- B.11.1 Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound by the terms and conditions of these OUS General Conditions, and to assume toward the Contractor all of the obligations and responsibilities which the Contractor assumes toward the Owner thereunder, unless (1) the same are clearly inapplicable to the subcontract at issue because of legal requirements or industry practices, or (2) specific exceptions are requested by Contractor and approved in writing by Owner. Where appropriate, Contractor shall require each Subcontractor to enter into similar agreements with sub-subcontractors at any level.
- B.11.2 At Owner's request, Contractor shall submit to Owner prior to their execution either Contractor's form of subcontract, or the subcontract to be executed with any particular Subcontractor. If Owner disapproves such form, Contractor shall not execute the form until the matters disapproved are resolved to Owner's satisfaction. Owner's review, comment upon or approval of any such form shall not relieve Contractor of its obligations under this Agreement or be deemed a waiver of such obligations of Contractor.
- B.11.3 Contractor shall not assign, sell, or transfer its rights, or delegate its responsibilities under this Contract, in whole or in part, without the prior written approval of the Owner. No such written approval shall relieve Contractor of any obligations of this Contract, and any transferee shall be considered the agent of the Contractor and bound to perform in accordance with the Contract Documents. Contractor shall remain liable as between the original parties to the Contract as if no assignment had occurred.

## **B.12 SUCCESSORS IN INTEREST**

The provisions of this Contract shall be binding upon and shall accrue to the benefit of the parties to the Contract and their respective permitted successors and assigns.

## **B.13 OWNER'S RIGHT TO DO WORK**

Owner reserves the right to perform other or additional work at or near the project site with other forces than those of the Contractor. If such work takes place within or next to the project site, Contractor will coordinate work with the other contractors or forces, cooperate with all other contractors or forces, carry out the Work in a way that will minimize interference and delay for all forces involved, place and dispose of materials being used so as not to interfere with the operations of another, and join the Work with the work of the others in an acceptable manner and perform it in proper sequence to that of the others. The Owner's Authorized Representative will resolve any disagreements that may arise between or among Contractor and the other contractors over the method or order of doing all work (including the Work). In case of unavoidable interference, the Owner's Authorized Representative will establish work priority (including the Work) which generally will be in the sequence that the contracts were awarded.

## **B.14 OTHER CONTRACTS**

In all cases and at any time, the Owner has the right to execute other contracts related to or unrelated to the Work of this Contract. The Contractor of this Contract will fully cooperate with any and all other contractors without additional cost to the Owner in the manner described in section B.13.

## **B.15 GOVERNING LAW**

This Contract shall be governed by and construed in accordance with the laws of the State of Oregon without regard to principles of conflict of laws.

## **B.16 LITIGATION**

Any Claim between Owner and Contractor that arises from or relates to this Contract and that is not resolved through the Claims Review Process in Section D.3 shall be brought and conducted solely and exclusively within the Circuit Court of Marion County for the State of Oregon; provided, however, if a Claim must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon. In no event shall this section be construed as a waiver by the State of Oregon on any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court. CONTRACTOR BY EXECUTION OF THIS CONTRACT HEREBY CONSENTS TO THE IN PERSONAM JURISDICTION OF THE COURTS REFERENCED IN THIS SECTION B.16.

## **B.17 ALLOWANCES**

B.17.1 The Contractor shall include in the Contract Price all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct.

B.17.2 Unless otherwise provided in the Contract Documents:

- (a) when finally reconciled, allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

- (b) Contractor's costs for unloading and handling at the site, labor, installation costs. Overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Price but not in the allowances;

- (c) whenever costs are more than or less than allowances, the Contract Price shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (i) the difference between actual costs and the allowances under Section B.17.2(a) and (2) changes in Contractor's costs under Section B.17.2(b).

- (d) Unless Owner requests otherwise, Contractor shall provide to Owner a proposed fixed price for any allowance work prior to its performance.

## **B.18 SUBMITTALS, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

B.18.1 The Contractor shall prepare and keep current, for the Architect's/Engineer's approval (or for the approval of Owner's Authorized Representative if approval authority has not been delegated to the Architect/Engineer), a schedule and list of submittals which is coordinated with the Contractor's construction schedule and allows the Architect/Engineer reasonable time to review submittals. Owner reserves the right to finally approve the schedule and list of submittals. Submittals include, without limitation, Shop Drawings, Product Data, and Samples which are described below:

- (a) Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor (including any sub-subcontractor), manufacturer, supplier or distributor to illustrate some portion of the Work.

- (b) Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

- (c) Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

B.18.2 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required by the Contract Documents the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review of submittals by the Architect/Engineer is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, or for approval of safety precautions or, unless otherwise specifically stated by the Architect/Engineer, of any construction means, methods, techniques, sequences or procedures, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect/Engineer's review of the Contractor's submittals shall not relieve the Contractor of its obligations under the Contract Documents. The Architect/Engineer's approval of a specific item shall not indicate approval of an assembly of which the item is a component. Informational submittals upon which the Architect/Engineer is not expected to take responsive action may be so identified in the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Architect/Engineer without action.

- B.18.3 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect/Engineer Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect/Engineer without action.
- B.18.4 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.
- B.18.5 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect/Engineer.
- B.18.6 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect/Engineer's review or approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect/Engineer in writing of such deviation at the time of submittal and (i) the Architect/Engineer has given written approval to the specific deviation as a minor change in the Work, or (ii) a Change Order or Construction Change Directive has been executed by Owner authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect/Engineer's review or approval thereof.
- B.18.7 In the event that Owner elects not to have the obligations and duties described under this Section B.18 performed by the Architect/Engineer, or in the event no Architect/Engineer is employed by Owner on the project, all obligations and duties assigned to the Architect/Engineer hereunder shall be performed by the Owner's Authorized Representative.

#### **B.19 SUBSTITUTIONS**

The Contractor may make Substitutions only with the consent of the Owner, after evaluation by the Owner's Authorized Representative and only in accordance with a Change Order or Construction Change Directive. Substitutions shall be subject to the requirements of the bid documents. By making requests for Substitutions, the Contractor: represents that the Contractor has personally investigated the proposed substitute product; represents that the Contractor will provide the same warranty for the Substitution that the Contractor would for the product originally specified unless approved otherwise; certifies that the cost data presented is complete and includes all related costs under this Contract including redesign costs, and waives all claims for additional costs related to the Substitution which subsequently become apparent; and will coordinate the installation of the accepted Substitution, making such changes as may be required for the Work to be completed in all respects.

#### **B.20 USE OF PLANS AND SPECIFICATIONS**

Plans, Specifications and related Contract Documents furnished to Contractor by Owner or Owner's Architect/Engineer shall be used solely for the performance of the Work under this Contract. Contractor and its Subcontractors and suppliers are authorized to use and reproduce applicable portions of such documents appropriate to the execution of the Work, but shall not claim any ownership or other

interest in them beyond the scope of this Contract, and no such interest shall attach. Unless otherwise indicated, all common law, statutory and other reserved rights, in addition to copyrights, are retained by Owner.

#### **B.21 FUNDS AVAILABLE AND AUTHORIZED**

Owner reasonably believes at the time of entering into this Contract that sufficient funds are available and authorized for expenditure to finance the cost of this Contract within the Owner's appropriation or limitation. Contractor understands and agrees that, to the extent that sufficient funds are not available and authorized for expenditure to finance the cost of this Contract, Owner's payment of amounts under this Contract attributable to Services performed after the last day of the current biennium is contingent on Owner receiving from the Oregon Legislative Assembly appropriations, limitations or other expenditure authority sufficient to allow Owner, in the exercise of its reasonable administrative discretion, to continue to make payments under this Contract.

#### **B.22 NO THIRD PARTY BENEFICIARIES**

Owner and Contractor are the only parties to this Contract and are the only parties entitled to enforce its terms. Nothing in this Contract gives, is intended to give, or shall be construed to give or provide any benefit or right, whether directly, indirectly, or otherwise, to third persons unless such third persons are individually identified by name herein and expressly described as intended beneficiaries of the terms of this Contract.

### **SECTION C WAGES AND LABOR**

#### **C.1 MINIMUM WAGE RATES ON PUBLIC WORKS**

Contractor shall comply fully with the provisions of ORS 279C.800 through 279C.870. Documents establishing those conditions, as determined by the Commissioner of the Bureau of Labor and Industries (BOLI), are included as attachments to or are incorporated by reference in the Contract Documents. Contractor shall pay workers at not less than the specified minimum hourly rate of wage, and shall include that requirement in all subcontracts.

#### **C.2 PAYROLL CERTIFICATION AND FEE REQUIREMENTS**

C.2.1 In accordance with ORS 279C.845, the Contractor and every Subcontractor shall submit written certified statements to the Owner's Authorized Representative, on the form prescribed by the Commissioner of the Bureau of Labor and Industries, certifying the hourly rate of wage paid each worker which the Contractor or the Subcontractor has employed on the project and further certifying that no worker employed on the project has been paid less than the prevailing rate of wage or less than the minimum hourly rate of wage specified in the Contract, which certificate and statement shall be verified by the oath of the Contractor or the Subcontractor that the Contractor or Subcontractor has read the certified statement, that the Contractor or Subcontractor knows the contents of the certified statement, and, that to the Contractor's or Subcontractor's best knowledge and belief, the certified statement is true. The certified statements shall set out accurately and completely the payroll records for the prior week, including the name and address of each worker, the worker's correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid. Certified statements for each week during which the Contractor or Subcontractor has employed a worker on the project shall be submitted once a month, by the fifth business day of the following month. The Contractor and Subcontractors shall preserve the certified

statements for a period of ten (10) years from the date of completion of the Contract.

- C.2.2 Pursuant to ORS 279C.845(7), the Owner shall retain 25 percent of any amount earned by the Contractor on this public works project until the Contractor has filed the certified statements required by section C.2.1. The Owner shall pay to the Contractor the amount retained under this subsection within 14 days after the Contractor files the required certified statements, regardless of whether a Subcontractor has failed to file certified statements.
- C.2.3 Pursuant to ORS 279C.845(8), the Contractor shall retain 25 percent of any amount earned by a first-tier Subcontractor on this public works project until the first-tier Subcontractor has filed with the Owner the certified statements required by C.2.1. Before paying any amount retained under this subsection, the Contractor shall verify that the first-tier Subcontractor has filed the certified statement. Within 14 days after the first-tier Subcontractor files the required certified statement the Contractor shall pay the first-tier Subcontractor any amount retained under this subsection.
- C.2.4 In accordance with statutory requirements and administrative rules promulgated by the Commissioner of the Bureau of Labor and Industries, the fee required by ORS 279C.825(1) will be paid by Owner to the Commissioner.

### **C.3 PROMPT PAYMENT AND CONTRACT CONDITIONS**

- C.3.1 As a condition to Owner's performance hereunder, the Contractor shall:
- C.3.1.1 Make payment promptly, as due, to all persons supplying to Contractor labor or materials for the prosecution of the Work provided for in this Contract.
- C.3.1.2 Pay all contributions or amounts due the State Industrial Accident Fund from such Contractor or Subcontractor incurred in the performance of the Contract.
- C.3.1.3 Not permit any lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished. Contractor will not assign any claims that Contractor has against Owner, or assign any sums due by Owner, to Subcontractors, suppliers, or manufacturers, and will not make any agreement or act in any way to give Subcontractors a claim or standing to make a claim against the Owner.
- C.3.1.4 Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.
- C.3.2 As a condition to Owner's performance hereunder, if Contractor fails, neglects or refuses to make prompt payment of any claim for labor or services furnished to the Contractor of a Subcontractor by any person in connection with the project as such claim becomes due, the proper officer(s) representing the Owner may pay the claim and charge the amount of the payment against funds due or to become due Contractor under this Contract. Payment of claims in this manner shall not relieve the Contractor or the Contractor's surety from obligation with respect to any unpaid claims.
- C.3.3 Contractor shall include in each subcontract for property or services entered into by the Contractor and a first-tier subcontractor, including a material supplier, for the purpose of performing a construction contract, a payment clause that obligates the Contractor to pay the first-tier Subcontractor for satisfactory performance under its subcontract within ten (10)

Days out of such amounts as are paid to the Contractor by the public contracting agency under such contract.

- C.3.4 All employers, including Contractor, that employ subject workers who work under this contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its Subcontractors complies with these requirements.

### **C.4 PAYMENT FOR MEDICAL CARE**

As a condition to Owner's performance hereunder, Contractor shall promptly, as due, make payment to any person, partnership, association or corporation furnishing medical, surgical, and hospital care or other needed care and attention, incident to sickness or injury, to the employees of such Contractor, all sums of which the Contractor agrees to pay for such services and all moneys and sums which the Contractor has collected or deducted from the wages of personnel pursuant to any law, contract or agreement for the purpose of providing or paying for such services.

### **C.5 HOURS OF LABOR**

As a condition to Owner's performance hereunder, no person shall be employed to perform Work under this Contract for more than ten (10) hours in any one day or forty (40) hours in any one week, except in cases of necessity, emergency or where public policy absolutely requires it. In such instances, Contractor shall pay the employee at least time and a half pay:

- (a) For all overtime in excess of eight (8) hours a day or forty (40) hours in any one week when the work week is five consecutive Days, Monday through Friday; or
- (b) For all overtime in excess of ten (10) hours a day or forty (40) hours in any one week when the work week is four consecutive Days, Monday through Friday; and
- (c) For all Work performed on Saturday and on any legal holiday specified in ORS 279C.540.

This section C.5 will not apply to Contractor's Work under this Contract if Contractor is currently a party to a collective bargaining agreement with any labor organization.

This Section C.5 shall not excuse Contractor from completion of the Work within the time required under this Contract.

## **SECTION D CHANGES IN THE WORK**

### **D.1 CHANGES IN WORK**

- D.1.1 The terms of this Contract shall not be waived, altered, modified, supplemented or amended in any manner whatsoever, without prior written approval of the Owner's Authorized Representative, and then only in a manner consistent with the Change Order provisions of this Section D.1 and after any necessary approvals required by public contracting laws have been obtained. Otherwise, a formal contract amendment is required, which shall not be effective until its execution by the parties to this Contract and all approvals required by public contracting laws have been obtained.
- D.1.2 It is mutually agreed that changes in Plans, quantities, or details of construction are inherent in the nature of construction and may be necessary or desirable during the course of construction. Within the general scope of this Contract, the Owner's Authorized Representative may at any time, without notice to the sureties and without impairing the Contract, require changes consistent with this Section D.1. All Change Order Work shall

be executed under the conditions of the Contract Documents. Such changes may include, but are not limited to:

- (a) Modification of specifications and design.
- (b) Increases or decreases in quantities.
- (c) Increases or decreases to the amount of Work.
- (d) Addition or elimination of any Work item.
- (e) Change in the duration of the project.
- (f) Acceleration or delay in performance of Work.
- (g) Deductive changes.

Deductive changes are those that reduce the scope of the Work, and shall be made by mutual agreement whenever feasible. In cases of suspension or partial termination under Section J, Owner reserves the right to unilaterally impose a deductive change and to self perform such Work, for which the provisions of B.13 (Owner's Right to Do Work) shall then apply. Adjustments in compensation shall be made under the provisions of D.1.3, in which costs for deductive changes shall be based upon a Direct Costs adjustment together with the related percentage markup specified for profit, Overhead and other indirect costs, unless otherwise agreed to by Owner.

D.1.3 The Owner and Contractor agree that Change Order Work shall be administered and compensated according to the following:

- (a) Unit pricing may be utilized at the Owner's option when unit prices or solicitation alternates were provided that established the cost for additional Work, and a binding obligation exists under the Contract on the parties covering the terms and conditions of the additional Work.
- (b) If the Owner elects not to utilize unit pricing, or in the event that unit pricing is not available or appropriate, fixed pricing may be used for Change Order Work. In fixed pricing the basis of payments or total price shall be agreed upon in writing between the parties to the Contract, and shall be established before the Work is done whenever feasible. The mark-ups set forth in D.1.3(c) shall be utilized by the parties as a guide in establishing fixed pricing, and will not be exceeded by Owner without adequate justification. Cost and price data relating to Change Orders shall be supplied by Contractor to Owner upon request, but Owner shall be under no obligation to make such requests.
- (c) In the event that unit pricing and fixed pricing are not utilized, then Change Order Work shall be performed on a cost reimbursement basis for Direct Costs. Such Work shall be compensated on the basis of the actual, reasonable and allowable cost of labor, equipment, and material furnished on the Work performed. In addition, the following markups shall be added to the Contractor's or Subcontractor's Direct Costs as full compensation for profit, Overhead and other indirect costs for Work directly performed with the Contractor's or Subcontractor's own forces:

On Labor.....	15%
On Equipment.....	10%
On Materials.....	10%

When Change Order Work under D.1.3(c) is invoiced by an authorized Subcontractor at any level, each ascending tier Subcontractor or Contractor will be allowed a supplemental mark-up on each piece of subcontract Work covered by such Change Order as follows:

\$0.00 - \$5,000.00	10%, and then
Over \$5,000.00	5%

Payments made to the Contractor shall be complete compensation for Overhead, profit, and all costs that were

incurred by the Contractor or by other forces furnished by the Contractor, including Subcontractors, for Change Order Work. Owner may establish a maximum cost for Change Order Work under this Section D.1.3(c), which shall not be exceeded for reimbursement without additional written authorization from Owner. Contractor shall not be required to complete such Change Order Work without additional authorization.

D.1.4 Any necessary adjustment of Contract Time that may be required as a result of a Change Order must be agreed upon by the parties before the start of the Change Order Work unless Owner's Authorized Representative authorizes Contractor to start the Work before agreement on Contract Time adjustment. Contractor shall submit any request for additional compensation (and additional Contract Time if Contractor was authorized to start Work before an adjustment of Contract Time was approved) as soon as possible but no later than thirty (30) Days after receipt of the Change Order. If Contractor's request for additional compensation or adjustment of Contract Time is not made within the thirty (30) Day time limit, Contractor's requests pertaining to that Change Order are barred. The thirty (30) Day time limit for making requests shall not be extended for any reason, including without limitation Contractor's claimed inability to determine the amount of additional compensation or adjustment of Contract Time, unless an extension is granted in writing by Owner. If the Owner's Authorized Representative denies Contractor's request for additional compensation or adjustment of Contract Time, Contractor may proceed to file a Claim under Section D.3, Claims Review Process. No other reimbursement, compensation, or payment will be made, except as provided in Section D.1.5 for impact claims.

D.1.5 If any Change Order Work under Section D.1.3 causes an increase or decrease in the Contractor's cost of, or the Contract Time required for the performance of any other part of the Work under this Contract, the Contractor must submit a written request to the Owner's Authorized Representative, setting forth the nature and specific extent of the request, including all time and cost impacts against the Contract as soon as possible, but no later than thirty (30) Days after receipt of the Change Order by Contractor.

The thirty (30) Day time limit applies to claims of Subcontractors, suppliers, or manufacturers who may be affected by the Change Order and who request additional compensation or an extension of Contract Time to perform; Contractor has responsibility for contacting its Subcontractors, suppliers, or manufacturers within the thirty (30) Day time limit, and including their requests with Contractor's requests. If the request involves Work to be completed by Subcontractors, or materials to be furnished by suppliers or manufacturers, such requests shall be submitted to the Contractor in writing with full analysis and justification for the compensation and additional Contract Time requested. The Contractor will analyze and evaluate the merits of the requests submitted by Subcontractors, suppliers, and manufacturers to Contractor prior to including those requests and Contractor's analysis and evaluation of those requests with Contractor's requests for additional compensation or Contract Time that Contractor submits to the Owner's Authorized Representative. Failure of Subcontractors, suppliers, manufacturers or others to submit their requests to Contractor for inclusion with Contractor's requests submitted to Owner's Authorized Representative within the time period and by the means described in this section shall constitute a waiver of these Subcontractor claims. The Owner's Authorized Representative and the Owner will not consider direct requests or claims from Subcontractors, suppliers, manufacturers or others not a party to this Contract. The consideration of such requests and claims under this section does not give any person, not a party to the Contract the right to bring a claim against the State of Oregon, whether in this claims process, in litigation, or in any dispute resolution process.

If the Owner's Authorized Representative denies the Contractor's request for additional compensation or an extension of Contract Time, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process.

D.1.6 No request or Claim by the Contractor for additional costs or an adjustment of Contract Time shall be allowed if made after receipt of final payment application under this Contract. Final payment application must be made by Contractor within the time required under Section E.6.4.

D.1.7 It is understood that changes in the Work are inherent in construction of this type. The number of changes, the scope of those changes, and the effect they have on the progress of the original Work cannot be defined at this time. The Contractor is notified that numerous changes may be required and that there will be no compensation made to the Contractor directly related to the number of changes. Each change will be evaluated for extension of Contract Time and increase or decrease in compensation based on its own merit.

## **D.2 DELAYS**

D.2.1 Delays in construction include "Avoidable Delays", which are defined in Section D.2.1.1, and "Unavoidable Delays", which are defined in Section D.2.1.2. The effect of Avoidable Delays is described in Section D.2.2 and the effect of Unavoidable Delays is described in Section D.2.3.

D.2.1.1 Avoidable Delays include any delays other than Unavoidable Delays, and include delays that otherwise would be considered Unavoidable Delays but that:

- (a) Could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its Subcontractors.
- (b) Affect only a portion of the Work and do not necessarily prevent or delay the prosecution of neither other parts of the Work nor the completion of the whole Work within the Contract Time.
- (c) Do not impact activities on the accepted critical path schedule.
- (d) Are associated with the reasonable interference of other contractors employed by the Owner that do not necessarily prevent the completion of the whole Work within the Contract Time.

D.2.1.2 Unavoidable Delays include delays other than Avoidable Delays that are:

- (a) Caused by any actions of the Owner, Owner's Authorized Representative, or any other employee or agent of the Owner, or by separate contractor employed by the Owner.
- (b) Caused by any site conditions which differ materially from what was represented in the Contract Documents or from conditions that would normally be expected to exist and be inherent to the construction activities defined in the Contract Documents. The Contractor shall notify the Owner's Authorized Representative immediately of differing site conditions before the area has been disturbed. The Owner's Authorized Representative will investigate the area and make a determination as to whether or not the conditions differ materially from either the conditions stated in the Contract Documents or those which could reasonably be expected in execution of this particular Contract. If Contractor and the Owner's Authorized Representative agree that a differing site condition exists, any additional compensation or additional Contract Time will be determined based on the process set forth in Section

D.1.5 for Change Order Work. If the Owner's Authorized Representative disagrees that a differing site condition exists and denies Contractor's request for additional compensation or Contract Time, Contractor may proceed to file a Claim under Section D.3, Claims Review Process.

- (c) Caused by Force Majeure acts, events or occurrences that could not have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its Subcontractors.
- (d) Caused by adverse weather conditions. Any adverse weather conditions must be substantiated by documentary evidence that weather conditions were abnormal for the specific time period claimed, could not have been anticipated by the Contractor, and adversely impacted the project in a manner that could not be avoided by rescheduling the Work or by implementing measures to protect against the weather so that the Work could proceed. A rain, windstorm, high water, or other natural phenomenon for the specific locality of the Work, which might reasonably have been anticipated from the previous 10-year historical records of the general locality of the Work, shall not be construed as abnormal. The parties agree that rainfall greater than the following levels cannot be reasonably anticipated:

- (i) Daily rainfall equal to, or greater than, 0.50 inch during a month when the monthly rainfall exceeds the normal monthly average by twenty-five percent (25 %) or more.
- (ii) daily rainfall equal to, or greater than, 0.75 inch at any time.

The Office of the Environmental Data Service of the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce nearest the project site shall be considered the official agency of record for weather information.

D.2.2 Contractor shall not be entitled to additional compensation or additional Contract Time for Avoidable Delays.

D.2.3 In the event of Unavoidable Delays, based on principles of equitable adjustment, Contractor may be entitled to the following:

- (a) Contractor may be entitled to additional compensation or additional Contract Time, or both, for Unavoidable Delays described in Section D.2.1.2 (a) and (b).
- (b) Contractor may be entitled to additional Contract Time for Unavoidable Delays described in Section D.2.1.2(c) and (d).

In the event of any requests for additional compensation or additional Contract Time, or both, as applicable, arising under this Section D.2.3 for Unavoidable Delays, other than requests for additional compensation or additional Contract Time for differing site conditions for which a review process is established under Section D.2.1.2 (b), Contractor shall submit a written notification of the delay to the Owner's Authorized Representative within two (2) Days of the occurrence of the cause of the delay. This written notification shall state the cause of the potential delay, the project components impacted by the delay, and the anticipated additional Contract Time extension or the additional compensation, or both, as applicable, resulting from the delay. Within seven (7) Days after the cause of the delay has been mitigated, or in no case more than thirty (30) Days after the initial written notification, the Contractor shall submit to the Owner's Authorized Representative, a complete and detailed request for additional compensation or additional Contract Time, or both, as applicable, resulting from the delay.



If the Owner's Authorized Representative denies Contractor's request for additional compensation or adjustment of Contract Time, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process.

If Contractor does not timely submit the notices required under this Section D.2, then unless otherwise prohibited by law, Contractor's Claim shall be barred.

### **D.3 CLAIMS REVIEW PROCESS**

- D.3.1 All Contractor Claims shall be referred to the Owner's Authorized Representative for review. Contractor's Claims, including Claims for additional compensation or additional Contract Time, shall be submitted in writing by Contractor to the Owner's Authorized Representative within five (5) Days after a denial of Contractor's initial request for an adjustment of Contract terms, payment of money, extension of Contract Time or other relief, provided that such initial request has been submitted in accordance with the requirements and within the time limits established in these OUS General Conditions. Within thirty (30) Days after the initial Claim, Contractor shall submit to the Owner's Authorized Representative a complete and detailed description of the Claim (the "Detailed Notice") that includes all information required by Section D.3.2. Unless the Claim is made in accordance with these time requirements, it shall be waived.
- D.3.2 The Detailed Notice of the Claim shall be submitted in writing by Contractor and shall include a detailed, factual statement of the basis of the Claim, pertinent dates, Contract provisions which support or allow the Claim, reference to or copies of any documents which support the Claim, the dollar value of the Claim, and the Contract Time extension requested for the Claim. If the Claim involves Work to be completed by Subcontractors, the Contractor will analyze and evaluate the merits of the Subcontractor claim prior to forwarding it and that analysis and evaluation to the Owner's Authorized Representative. The Owner's Authorized Representative and the Owner will not consider direct claims from Subcontractors, suppliers, manufacturers, or others not a party to this Contract. Contractor agrees that it will make no agreement, covenant, or assignment, nor will it commit any other act that will permit or assist any Subcontractor, supplier, manufacturer, or other to directly or indirectly make a claim against Owner.
- D.3.3 The Owner's Authorized Representative will review all Claims and take one or more of the following preliminary actions within ten (10) Days of receipt of the Detailed Notice of a Claim: (1) request additional supporting information from the Contractor; (2) inform the Contractor and Owner in writing of the time required for adequate review and response; (3) reject the Claim in whole or in part and identify the reasons for rejection; (4) based on principles of equitable adjustment, recommend approval of all or part of the Claim; or (5) propose an alternate resolution.
- D.3.4 The Owner's Authorized Representative's decision shall be final and binding on the Contractor unless appealed by written notice to the Owner within fifteen (15) Days of receipt of the decision. The Contractor must present written documentation supporting the Claim within fifteen (15) Days of the notice of appeal. After receiving the appeal documentation, the Owner shall review the materials and render a decision within thirty (30) Days after receiving the appeal documents.
- D.3.5 The decision of the Owner shall be final and binding unless the Contractor delivers to the Owner its request for mediation, which shall be a non-binding process, within fifteen (15) Days of the date of the Owner's decision. The mediation process will be considered to have commenced as of the date the Contractor delivers the request. Both parties acknowledge and agree that participation in mediation is a prerequisite to commencement of litigation of any disputes relating to the Contract. Both parties further agree to exercise their best efforts in good faith to resolve all disputes within sixty (60) Days of the commencement of the mediation through the mediation process set forth herein.
- In the event that a lawsuit must be filed within this sixty (60) Day period in order to preserve a cause of action, the parties agree that notwithstanding the filing, they shall proceed diligently with the mediation to its conclusion prior to actively prosecuting the lawsuit, and shall seek from the Court in which the lawsuit is pending such stays or extensions, including the filing of an answer, as may be necessary to facilitate the mediation process. Further, in the event settlements are reached on any issues through mediation, the parties agree to promptly submit the appropriate motions and orders documenting the settlement to the Court for its signature and filing.
- D.3.6 Should the parties arrive at an impasse regarding any Claims or disputed Claims, it is agreed that the parties shall participate in mediation as specified in Section D.3.5. The mediation process will be considered to have been commenced as of the date one party delivers to the other its request in writing to mediate. The mediator shall be an individual mutually acceptable to both parties, but in the absence of agreement each party shall select a temporary mediator and the temporary mediators shall jointly select the permanent mediator. Each party shall pay its own costs for the time and effort involved in mediation. The cost of the mediator shall be split equally between the two parties. Both parties agree to exercise their best effort in good faith to resolve all disputes in mediation. Participation in mediation is a mandatory requirement of both the Owner and the Contractor. The schedule, time and place for mediation will be mutually acceptable, or, failing mutual agreement, shall be as established by the mediator. The parties agree to comply with Owner's administrative rules governing the confidentiality of mediation, if any, and shall execute all necessary documents to give effect to such confidentiality rules. In any event, the parties shall not subpoena the mediator or otherwise require the mediator to produce recordings, notes or work product, or to testify in any future proceedings as to information disclosed or representations made in the course of mediation, except to the extent disclosure is required by law.
- D.3.7 Owner may at any time and at its discretion issue a Construction Change Directive adding to, modifying or reducing the scope of Work. Contractor and Owner shall negotiate the need for any adjustment to compensation or additional Contract Time related to the change, subject to the procedures for submitting requests or Claims for additional compensation or additional Contract Time established in this Section D. Unless otherwise directed by Owner's Authorized Representative, Contractor shall proceed with the Work while any request or Claim for additional compensation or additional Contract Time resulting from Work under a Change Order or Construction Change Directive is pending. Regardless of the review period or the final decision of the Owner's Authorized Representative, the Contractor shall continue to diligently pursue the Work as identified in the Contract Documents. In no case is the Contractor justified or allowed to cease Work without a written stop work order from the Owner or Owner's Authorized Representative.

## **SECTION E PAYMENTS**

### **E.1 SCHEDULE OF VALUES**

The Contractor shall submit, at least ten (10) Days prior to submission of its first application for progress payment, a schedule of values ("Schedule of Values") for the contracted Work. This schedule will provide a breakdown of values for the contracted Work and will be the basis for progress payments. The breakdown will demonstrate reasonable, identifiable, and measurable components of the Work.

Unless objected to by the Owner's Authorized Representative, this schedule shall be used as the basis for reviewing Contractor's applications for payment. If objected to by Owner's Authorized Representative, Contractor shall revise the schedule of values and resubmit the same for approval of Owner's Authorized Representative.

## **E.2 APPLICATIONS FOR PAYMENT**

E.2.1 Owner shall make progress payments on the Contract monthly as Work progresses. Payments shall be based upon estimates of Work completed and the Schedule of Values. All payments shall be approved by the Owner's Authorized Representative. A progress payment shall not be considered acceptance or approval of any Work or waiver of any defects therein. Owner shall pay to Contractor interest for over due claims at the rate of two-thirds of one percent per month on the progress payment, not including retainage, due the Contractor. Over due claims will be those that have not been paid within forty five (45) days from the latest of:

- (a) The date of the receipt of the accurate invoice;
- (b) The date of the initial billing statement if no invoice is received;
- (c) The date all goods have been received; or
- (d) The date the claim is made certain by agreement of the parties or by operation of law.

Notwithstanding the foregoing, in instances when an application for payment is filled out incorrectly, or when there is any defect or impropriety in any submitted application or when there is a good faith dispute, Owner shall so notify the Contractor within fifteen (15) Days stating the reason or reasons the application for payment is defective or improper or the reasons for the dispute. A defective or improper application for payment, if corrected by the Contractor within seven (7) Days of being notified by the Owner, shall not cause a payment to be made later than specified in this section unless interest is also paid. Payment of interest will be postponed when payment on the principal is delayed because of disagreement between the Owner and the Contractor.

Owner reserves the right, instead of requiring the Contractor to correct or resubmit a defective or improper application for payment, to reject the defective or improper portion of the application for payment and pay the remainder of the application for payment that is correct and proper.

Owner, upon written notice to the Contractor, may elect to make payments to the Contractor only by means of Electronic Funds Transfers (EFT) through Automated Clearing House (ACH) payments. If Owner makes this election, the Contractor will be required to arrange for receipt of the EFT/ACH payments.

E.2.2 Contractor shall submit to the Owner's Authorized Representative an application for each payment and, if required, receipts or other vouchers showing payments for materials and labor including payments to Subcontractors. Contractor shall include in its application for payment a schedule of the percentages of the various parts of the Work completed, based on the Schedule of Values which shall aggregate to the payment application total, and shall include, on the face of each copy thereof, a certificate in substantially the following form:

"I, the undersigned, hereby certify that the above bill is true and correct, and the payment therefore, has not been received.

Signed: \_\_\_\_\_

E.2.3 Generally, applications for payment will be accepted only for materials that have been installed. Under special conditions,

applications for payment for stored materials will be accepted at Owner's sole discretion. Such a payment, if made, will be subject to the following conditions:

- (a) The request for stored material shall be submitted at least thirty (30) Days in advance of the application for payment on which it appears. Applications for payment shall be entertained for major equipment, components or expenditures only.
- (b) The Contractor shall submit applications for payment showing the quantity and cost of the material stored.
- (c) The material shall be stored in a bonded warehouse and Owner's Authorized Representative shall be granted the right to access the material for the purpose of removal or inspection at any time during the Contract Period.
- (d) The Contractor shall name the Owner as co-insured on the insurance policy covering the full value of the property while in the care and custody of the Contractor until it is installed. A certificate noting this coverage shall be issued to the Owner.
- (e) Payments shall be made for materials only. The submitted amount of the application for payment shall be reduced by the cost of transportation and for the cost of an inspector to check the delivery at out of town storage sites. The cost of said inspection shall be borne solely by the Contractor.
- (f) Within sixty (60) Days of the application for payment, the Contractor shall submit evidence of payment covering the material stored.
- (g) Payment for stored materials shall in no way indicate acceptance of the materials or waive any rights under this Contract for the rejection of the Work or materials not in conformance with the Contract Documents.
- (h) All required documentation must be submitted with the respective application for payment.

E.2.4 The Owner reserves the right to withhold all or part of a payment, or may nullify in whole or part any payment previously made, to such extent as may be necessary in the Owner's opinion to protect the Owner from loss because of:

- (a) Work that is defective and not remedied, or that has been demonstrated or identified as failing to conform with the Contract Documents,
- (b) third party claims filed or evidence reasonably indicating that such claims will likely be filed unless security acceptable to the Owner is provided by the Contractor;
- (c) failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment (in which case Owner may issue checks made payable jointly to Contractor and such unpaid persons under this provision, or directly to Subcontractors and suppliers at any level under Section C.3.2.1);
- (d) reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;
- (e) damage to the Owner or another contractor;
- (f) reasonable evidence that the Work will not be completed within the Contract Time required by the Contract, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- (g) failure to carry out the Work in accordance with the Contract Documents; or

- (h) assessment of liquidated damages, when withholding is made for offset purposes.

E.2.5 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- (a) Take that portion of the Contract Price properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Price allocated to that portion of the Work in the Schedule of Values, less retainage as provided in Section E.5. Pending final determination of cost to the Owner of changes in the Work, no amounts for changes in the Work can be included in applications for payment until the Contract Price has been adjusted by Change Order;
- (b) Add that portion of the Contract Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner pursuant to Section E.2.3, suitably stored off the site at a location agreed upon in writing), less retainage as provided in Section E.5;
- (c) Subtract the aggregate of previous payments made by the Owner; and
- (d) Subtract any amounts for which the Owner's Authorized Representative has withheld or nullified payment as provided in the Contract Documents.

E.2.6 Contractor's applications for payment may not include requests for payment for portions of the Work for which the Contractor does not intend to pay to a Subcontractor or material supplier.

E.2.7 The Contractor warrants to Owner that title to all Work covered by an application for payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an application for payment all Work for which payments are received from the Owner shall be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

E.2.8 If Contractor disputes any determination by Owner's Authorized Representative with regard to any application for payment, Contractor nevertheless shall continue to prosecute expeditiously the Work. No payment made hereunder shall be or be construed to be final acceptance or approval of that portion of the Work to which such partial payment relates or shall relieve Contractor of any of its obligations hereunder.

E.2.9 Contractor shall submit its initial MWESB Report within ten (10) Days of Contractor's execution of the Contract, or if there will be a Guaranteed Maximum Price (GMP) Amendment, then within ten (10) Days of Contractor's execution of the GMP Amendment. Contractor shall submit annual MWESB Reports on June 30 of each year the Contract is active. Contracts (or GMP Amendments) first executed by Contractor within ninety (90) Days before June 30 of the year of execution by Contractor may at the discretion of Owner be exempt from submitting the annual MWESB Report otherwise due on that June 30. The final MWESB Report shall be filed with the application for final payment. Timely receipt of MWESB Reports by Owner's Authorized Representative shall be a condition of any progress payments or final payment otherwise due.

### **E.3 PAYROLL CERTIFICATION REQUIREMENT**

Payroll certification is required before payments are made on the Contract. Refer to Section C.2 for this information.

### **E.4 DUAL PAYMENT SOURCES**

Contractor shall not be compensated for Work performed under this Contract from any state agency other than the agency that is a party to this Contract.

### **E.5 RETAINAGE**

E.5.1 Retainage shall be withheld and released in accordance with OAR 580-063-0045.

E.5.1.1 Owner may reserve as retainage from any progress payment an amount not to exceed five percent of the payment. As Work progresses, Owner may reduce the amount of retainage on or may eliminate retainage on any remaining monthly Contract payments after 50 percent of the Work under the Contract is completed if, in the Owner's opinion, such Work is progressing satisfactorily. Elimination or reduction of retainage shall be allowed only upon written application by the Contractor, which application shall include written approval of Contractor's surety; except that when the Work is 97-1/2 percent completed the Owner may, at its discretion and without application by the Contractor, reduce the retained amount to 100 percent of the value of the Work remaining to be done. Upon receipt of written application by the Contractor, Owner shall respond in writing within a reasonable time.

E.5.1.2 Contractor may request in writing:

- (a) to be paid amounts which would otherwise have been retained from progress payments where Contractor has deposited acceptable bonds and securities of equal value with Owner or in a custodial account or other mutually-agreed account satisfactory to Owner, with an approved bank or trust company to be held in lieu of the cash retainage for the benefit of Owner;
- (b) for construction projects over \$1,000,000, that retainage be deposited in an interest bearing account, established through the State Treasurer for state agencies, in a bank, savings bank, trust company or savings association for the benefit of Owner, with earnings from such account accruing to the Contractor; or
- (c) that the Owner allow Contractor to deposit a surety bond for the benefit of Owner, in a form acceptable to Owner, in lieu of all or a portion of funds retained, or to be retained. Such bond and any proceeds therefrom shall be made subject to all claims in the manner and priority as set forth for retainage.

When the Owner has accepted the Contractor's election of option (a) or (b), Owner may recover from Contractor any additional costs incurred through such election by reducing Contractor's final payment. Where the Owner has agreed to Contractor's request for option (c), Contractor shall accept like bonds from Subcontractors and suppliers on the project from which Contractor has required retainages.

E. 5.1.3 The retainage held by Owner shall be included in and paid to the Contractor as part of the final payment of the Contract Price. The Owner shall pay to Contractor interest at the rate of two-thirds of one percent per month on the final payment due Contractor, interest to commence forty five (45) Days after the Work under the Contract has been completed and accepted and to run until the date when final payment is tendered to Contractor. The Contractor shall notify Owner in writing when the Contractor considers the Work complete and Owner shall, within fifteen (15) Days after receiving the written notice, either accept the Work or notify the Contractor of Work yet to be performed on the Contract. If Owner does not within the time allowed notify the Contractor of Work yet to be performed to

fulfill contractual obligations, the interest provided by this subsection shall commence to run forty five (45) Days after the end of the 15-Day period.

- E.5.1.4 Owner will reduce the amount of the retainage if the Contractor notifies the controller of the Owner that the Contractor has deposited in an escrow account with a bank or trust company, in a manner authorized by the Owner's Authorized Representative, bonds and securities of equal value of a kind approved by the Owner's Authorized Representative.
- E.5.1.5 Contractor agrees that if Contractor elects to reserve a retainage from any progress payment due to any Subcontractor or supplier, such retainage shall not exceed five percent of the payment, and such retainage withheld from Subcontractors and suppliers shall be subject to the same terms and conditions stated in Subsection E.5 as apply to Owner's retainage from any progress payment due to Contractor.
- E.5.2 As provided in subsections C.2.2 and C.2.3, additional retainage in the amount of 25% of amounts earned shall be withheld and released in accordance with ORS 279C.845(7) when the Contractor fails to file certified statements as required by section C.2.1.

## **E.6 FINAL PAYMENT**

- E.6.1 Upon completion of all the Work under this Contract, the Contractor shall notify the Owner's Authorized Representative, in writing, that Contractor has completed Contractor's part of the Contract and shall request final payment. Upon receipt of such notice the Owner's Authorized Representative will inspect the Work, and if acceptable, submit to the Owner a recommendation as to acceptance of the completed Work and the final estimate of the amount due the Contractor. If the Work is not acceptable, Owner will notify Contractor within fifteen (15) Days of Contractor's request for final payment. Upon approval of this final estimate by the Owner and compliance by the Contractor with provisions in Section K, AFFIDAVIT/RELEASE OF LIENS AND CLAIMS, and other provisions as may be applicable, the Owner shall pay to the Contractor all monies due under the provisions of these Contract Documents.
- E.6.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Owner's Authorized Representative (1) a notarized affidavit/release of liens and claims in a form satisfactory to Owner that states that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least thirty (30) Days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.
- E.6.3 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that

payee except those previously made in writing and identified by that payee as unsettled at the time of final application for payment.

- E.6.4 Contractor agrees to submit its final payment application within ninety (90) Days after Substantial Completion, unless written extension is granted by Owner. Contractor shall not delay final payment application for any reason, including without limitation nonpayment of Subcontractors, suppliers, manufacturers or others not a party to this Contract, or lack of resolution of a dispute with Owner or any other person of matters arising out of or relating to the Contract. If Contractor fails to submit its final payment application within ninety (90) Days after Substantial Completion, and Contractor has not obtained written extension by Owner, all requests or Claims for additional costs or an extension of Contract Time shall be waived.

## **SECTION F JOB SITE CONDITIONS**

### **F.1 USE OF PREMISES**

Contractor shall confine equipment, storage of materials and operation of Work to the limits indicated by Contract Documents, law, ordinances, permits or directions of the Owner's Authorized Representative. Contractor shall follow the Owner's Authorized Representative's instructions regarding use of premises, if any.

### **F.2 PROTECTION OF WORKERS, PROPERTY AND THE PUBLIC**

- F.2.1 Contractor shall maintain continuous and adequate protection of all of the Work from damage and shall protect the Owner's Authorized Representative, workers and property from injury or loss arising in connection with this Contract. Contractor shall remedy acceptably to the Owner any damage, injury, or loss, except such as may be directly due to errors in the Contract Documents or caused by authorized representatives or personnel of the Owner. Contractor shall adequately protect adjacent property as provided by law and the Contract Documents.
- F.2.2 Contractor shall take all necessary precautions for the safety of all personnel on the job site and shall comply with the Contract Documents and 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. Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for protection of workers and the public against any hazards created by construction. Contractor shall designate a responsible employee or associate on the Work site, whose duty shall be the prevention of accidents. The name and position of the person designated shall be reported to the Owner's Authorized Representative. The Owner's Authorized Representative has no responsibility for Work site safety. Work site safety is the responsibility of the Contractor.
- F.2.3 Contractor shall not enter upon private property without first obtaining permission from the property owner or its duly authorized representative. Contractor shall be responsible for the preservation of all public and private property along and adjacent to the Work contemplated under the Contract and shall use every precaution necessary to prevent damage thereto. In the event the Contractor damages any property, the Contractor shall at once notify the property owner and make, or arrange to make, full restitution. Contractor shall, immediately and in writing, report to the Owner's Authorized Representative, all pertinent facts relating to such property damage and the ultimate disposition of the claim for damage.
- F.2.4 Contractor is responsible for protection of adjacent work areas including impacts brought about by activities, equipment, labor, utilities, and materials on the site.

F.2.5 Contractor shall at all times direct its activities in such a manner as to minimize adverse effects on the environment. Handling of all materials will be conducted so no release will occur that may pollute or become hazardous.

F.2.6 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 Owner's Authorized Representative, shall act reasonably to prevent threatened loss or injury, and shall so act, without appeal, if instructed by the Owner's Authorized Representative. Any compensation claimed by the Contractor on account of emergency work shall be determined in accordance with section D.

### **F.3 CUTTING AND PATCHING**

F.3.1 Contractor shall be responsible for coordinating all cutting, fitting, or patching of the Work to make its several parts come together properly and fit to receive or be received by work of other contractors or Subcontractors shown upon, or reasonably implied by, the Contract Documents.

F.3.2 Contractor shall be responsible for restoring all cut, fitted, or patched surfaces to an original condition; provided, however, that if a different condition is specified in the Contract Documents, then Contractor shall be responsible for restoring such surfaces to the condition specified in the Contract Documents.

### **F.4 CLEANING UP**

From time to time as may be ordered by the Owner and, in any event, immediately after completion of the Work, the Contractor shall, at its own expense, clean up and remove all refuse and unused materials of any kind resulting from the Work. If Contractor fails to do so within twenty-four hours after notification by the Owner the work may be done by others and the cost charged to the Contractor and deducted from payment due the Contractor.

### **F.5 ENVIRONMENTAL CONTAMINATION**

F.5.1. Contractor will be held responsible for and shall indemnify, defend (with counsel of Owner's choice), and hold harmless Owner from and against any costs, expenses, damages, claims, and causes of action, (including attorney fees), or any of them, resulting from all spills, releases, discharges, leaks and disposal of environmental pollution, including storage, transportation, and handling during the performance of the Contract which occur as a result of, or are contributed by, the negligence or actions of Contractor or its personnel, agents, or Subcontractors or any failure to perform in accordance with the Contract Documents (except to the extent otherwise void under ORS 30.140). Nothing in this section F.5.1 shall limit Contractor's responsibility for obtaining insurance coverages required under Section G.3 of this Contract, and Contractor shall take no action that would void or impair such coverages.

F.5.1.1 Contractor agrees to promptly dispose of such spills, releases, discharge or leaks to the satisfaction of Owner and proper regulatory agencies in a manner that complies with applicable federal, state, and local laws and regulations. Cleanup shall be at no cost to the Owner and be performed by properly qualified personnel.

F.5.1.2 Contractor shall obtain the Owner's written consent prior to bringing onto the Work site any (i) environmental pollutants or (ii) hazardous substances or materials, as the same or reasonably similar terms are used in any applicable federal, state, or local statutes, rules or ordinances. Notwithstanding

such written consent from the Owner, the Contractor, at all times, shall:

- (a) properly handle, use and dispose of all environmental pollutants and hazardous substances or materials brought onto the Work site, in accordance with all applicable federal, state, or local statutes, rules, or ordinances;
- (b) be responsible for any and all spills, releases, discharges, or leaks of (or from) environmental pollutants or hazardous substances or materials which Contractor has brought onto the Work site; and
- (c) promptly clean up, without cost to the Owner, such spills, releases, discharges, or leaks to the Owner's satisfaction and in compliance with all applicable federal, state, or local statutes, rules or ordinances.

F.5.2 Contractor shall report all reportable quantity releases to applicable federal, state, and local regulatory and emergency response agencies. Reportable quantities are found in 40 CFR Part 302, Table 302.4 for hazardous substances and in OAR 340-142-0050 for all products addressed therein. Upon discovery, regardless of quantity, Contractor must telephonically report all releases to the Owner. A written follow-up report shall be submitted to Owner within 48 hours of the telephonic report. Such written report shall contain, as a minimum:

- (a) Description of items released (identity, quantity, manifest no., and all other documentation required by law.)
- (b) Whether amount of items released is EPA/DEQ reportable, and, if so, when it was reported.
- (c) Exact time and location of release, including a description of the area involved.
- (d) Containment procedures initiated.
- (e) Summary of communications about the release Contractor has had with members of the press or State officials other than Owner.
- (f) Description of cleanup procedures employed or to be employed at the site, including disposal location of spill residue.
- (g) Personnel injuries, if any, resulting from, or aggravated by, the release.

### **F.6 ENVIRONMENTAL CLEAN-UP**

F.6.1 Unless disposition of environmental pollution is specifically a part of this Contract, or was caused by the Contractor (reference F.5 Environmental Contamination), Contractor shall immediately notify Owner of any hazardous substance(s) which Contractor discovers or encounters during performance of the Work required by this Contract. "Hazardous substance(s)" means any hazardous, toxic and radioactive materials and those substances defined as "hazardous substances," "hazardous materials," "hazardous wastes," "toxic substances," or other similar designations in any federal, state, or local law, regulation, or ordinance, including without limitation asbestos, polychlorinated biphenyl (PCB), or petroleum, and any substances, materials or wastes regulated in 40 CFR, Part 261 and defined as hazardous in 40 CFR S 261.3. In addition to notifying Owner of any hazardous substance(s) discovered or encountered, Contractor shall immediately cease working in any particular area of the project where a hazardous substance(s) has been discovered or encountered if continued work in such area would present a risk or danger to the health or well being of Contractor's or any Subcontractor's work force.

F.6.2 Upon being notified by Contractor of the presence of hazardous substance(s) on the project site, Owner shall arrange for the proper disposition of such hazardous substance(s).

## **F.7 FORCE MAJEURE**

A party to this Contract shall not be held responsible for delay or default due to Force Majeure acts, events or occurrences unless they could have been avoided by the exercise of reasonable care, prudence, foresight, and diligence by that party. The Owner may terminate this Contract upon written notice after determining that delay or default caused by Force Majeure acts, events or occurrences will reasonably prevent successful performance of the Contract.

## **SECTION G INDEMNITY, BONDING, AND INSURANCE**

### **G.1 RESPONSIBILITY FOR DAMAGES / INDEMNITY**

G.1.1 Contractor shall be responsible for all damage to property, injury to persons, and loss, expense, inconvenience, and delay that may be caused by, or result from, the carrying out of the Work to be done under this Contract, or from any act, omission or neglect of the Contractor, its Subcontractors, personnel, or agents.

G.1.2 To the fullest extent permitted by law, Contractor shall indemnify, defend (with counsel approved by Owner) and hold harmless the Owner, Owner's Authorized Representative, Architect/Engineer, Architect/Engineer's consultants, and their respective officers, directors, agents, employees, partners, members, stockholders and affiliated companies (collectively "Indemnitees") from and against all liabilities, damages, losses, claims, expenses (including reasonable attorney fees), demands and actions of any nature whatsoever which arise out of, result from or are related to, (a) any damage, injury, loss, expense, inconvenience or delay described in this Section G.1.2, (b) any accident or occurrence which happens or is alleged to have happened in or about the project site or any place where the Work is being performed, or in the vicinity of either, at any time prior to the time the Work is fully completed in all respects, (c) any failure of the Contractor to observe or perform any duty or obligation under the Contract Documents which is to be observed or performed by the Contractor, or any breach of any agreement, representation or warranty of the Contractor contained in the Contract Documents or in any subcontract, (d) the negligent acts or omissions of the Contractor, a Subcontractor or anyone directly or indirectly employed by them or any one of them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder (except to the extent otherwise void under ORS 30.140), and (e) any lien filed upon the project or bond claim in connection with the Work. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section G.1.2.

G.1.3 In claims against any person or entity indemnified under this Section G.1.2 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section G.1.2 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

### **G.2 PERFORMANCE AND PAYMENT SECURITY; PUBLIC WORKS BOND**

G.2.1 When the Contract Price is \$100,000 or more (or \$50,000 or more in the case of Contracts for highways, bridges and other transportation projects), the Contractor shall furnish and

maintain in effect at all times during the Contract Period a performance bond in a sum equal to the Contract Price and a separate payment bond also in a sum equal to the Contract Price. The bonds may be required if the Contract Price is less than the above thresholds if required by the Contract Documents.

G.2.2 Bond forms furnished by the Owner and notarized by awarded Contractor's surety company authorized to do business in Oregon are the only acceptable forms of performance and payment security, unless otherwise specified in the Contract Documents.

G.2.3 Before execution of the Contract the Contractor shall file with the Construction Contractors Board, and maintain in full force and effect, the separate public works bond required by Oregon Laws 2005, Chapter 360, and OAR 839-025-0015, unless otherwise exempt under those provisions. The Contractor shall also include in every subcontract a provision requiring the Subcontractor to have a public works bond filed with the Construction Contractors Board before starting Work, unless otherwise exempt, and shall verify that the Subcontractor has filed a public works bond before permitting the Subcontractor to start Work.

### **G.3 INSURANCE**

G.3.1 Primary Coverage: Insurance carried by Contractor under this Contract shall be the primary coverage, and the Owner's insurance is excess and solely for damages or losses for which the Owner is responsible. The coverages indicated are minimums unless otherwise specified in the Contract Documents.

G.3.2 Workers' Compensation: All employers, including Contractor, that employ subject workers who work under this contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. This shall include Employer's Liability Insurance with coverage limits of not less than \$100,000 for each accident. Contractors who perform the Work without the assistance or labor of any employee need not obtain such coverage if the Contractor certifies so in writing. Contractor shall ensure that each of its Subcontractors complies with these requirements. The Contractor shall require proof of such Workers' Compensation by receiving and keeping on file a certificate of insurance from each Subcontractor or anyone else directly employed by either the Contractor or its Subcontractors.

G.3.3 Builder's Risk Insurance:

G.3.3.1 Builder's Risk: During the term of this Contract, for new construction the Contractor shall obtain and keep in effect Builder's Risk insurance on an all risk form, including earthquake and flood, for an amount equal to the full amount of the Contract. Any deductible shall not exceed \$50,000 for each loss, except the earthquake and flood deductible shall not exceed 2 percent of each loss or \$50,000, whichever is more. The policy will include as loss payees the Owner, the Contractor and its Subcontractors as their interests may appear.

G.3.3.2 Builder's Risk Installation Floater: For other than new construction the Contractor shall obtain and keep in effect during the term of this Contract, a Builder's Risk Installation Floater for coverage of the Contractor's labor, materials and equipment to be used for completion of the Work performed under this Contract. The minimum amount of coverage to be carried shall be equal to the full amount of the Contract. This insurance shall include as loss payees the State of Oregon, the Owner, the Contractor and its Subcontractors as their interests may appear.

G.3.3.3 Such insurance shall be maintained until Owner has occupied the facility.

G.3.3.4 A loss insured under the Builder's Risk insurance shall be adjusted by the Owner and made payable to the Owner for the insureds, as their interests may appear. 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 Owner shall have power to adjust and settle a loss with insurers.

G.3.4 Liability Insurance:

G.3.4.1 Commercial General Liability: Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Commercial General Liability Insurance covering bodily injury and property damage in a form and with coverages that are satisfactory to the State. This insurance shall include personal injury liability, products and completed operations, and contractual liability coverage for the indemnity provided under this Contract (to the extent contractual liability coverage for the indemnity is available in the marketplace), and shall be issued on an occurrence basis. Contractor shall provide proof of insurance of not less than the following amounts:

Bodily Injury/Death:

Amounts not less than the amounts listed in the following schedule:

Per occurrence limit for any single claimant :

From commencement of the Contract term to  
 June 30, 2011: \$1,600,000  
 July 1, 2011 to June 30, 2012: \$1,700,000  
 July 1, 2012 to June 30, 2013: \$1,800,000  
 July 1, 2013 to June 30, 2014: \$1,900,000  
 July 1, 2014 to June 30, 2015: \$2,000,000  
 July 1, 2015 and thereafter the adjusted limitation as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 3 (Senate Bill 311).

Per occurrence limit for any number of claimants:

From commencement of the Contract term to  
 June 30, 2011: \$3,200,000  
 July 1, 2011 to June 30, 2012: \$3,400,000  
 July 1, 2012 to June 30, 2013: \$3,600,000  
 July 1, 2013 to June 30, 2014: \$3,800,000  
 July 1, 2014 to June 30, 2015: \$4,000,000  
 July 1, 2015 and thereafter the adjusted limitation as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 3 (Senate Bill 311).

Property Damage:

Amounts not less than the amounts listed in the following schedule:

Per occurrence limit for any single claimant:

From commencement of the Contract term to June 30, 2011: \$100,100.  
 Effective as of July 1 of each year the adjusted limitation will be as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 5 (Senate Bill 311).

Per occurrence limit for any number of claimants:

From commencement of the Contract term to June 30, 2011: \$500,600.  
 Effective as of July 1 of each year the adjusted limitation will be as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 5 (Senate Bill 311).

G.3.4.2 Automobile Liability: Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Automobile Liability Insurance covering owned, non-owned and/or hired vehicles, as applicable. The coverage may be written in combination with the Commercial General Liability Insurance. Contractor shall provide proof of insurance of not less than the following amounts:

Bodily Injury/Death:

Amounts not less than the amounts listed in the following schedule:

Per occurrence limit for any single claimant:

From commencement of the Contract term to  
 June 30, 2011: \$1,600,000.  
 July 1, 2011 to June 30, 2012: \$1,700,000.  
 July 1, 2012 to June 30, 2013: \$1,800,000.  
 July 1, 2013 to June 30, 2014: \$1,900,000.  
 July 1, 2014 to June 30, 2015: \$2,000,000.  
 July 1, 2015 and thereafter the adjusted limitation as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 3 (Senate Bill 311).

Per occurrence limit for any number of claimants:

From commencement of the Contract term to  
 June 30, 2011: \$3,200,000.  
 July 1, 2011 to June 30, 2012: \$3,400,000.  
 July 1, 2012 to June 30, 2013: \$3,600,000.  
 July 1, 2013 to June 30, 2014: \$3,800,000.  
 July 1, 2014 to June 30, 2015: \$4,000,000.  
 July 1, 2015 and thereafter the adjusted limitation as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 3 (Senate Bill 311).

Property Damage:

Amounts not less than the amounts listed in the following schedule:

Per occurrence limit for any single claimant:

From commencement of the Contract term to June 30, 2011: \$100,100.  
 Effective as of July 1 of each year the adjusted limitation will be as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 5 (Senate Bill 311).

Per occurrence limit for any number of claimants:

From commencement of the Contract term to June 30, 2011: \$500,600.  
 Effective as of July 1 of each year the adjusted limitation will be as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 5 (Senate Bill 311).

G.3.4.3 "Tail" Coverage: If any of the required liability insurance is arranged on a "claims made" basis, "tail" coverage will be required at the completion of this Contract for a duration of 24 months or the maximum time period available in the marketplace if less than 24 months. Contractor will be responsible for furnishing certification of "tail" coverage as described or continuous "claims made" liability coverage for 24 months following Final Completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of this Contract. This will be a condition of the final acceptance of Work or services and related warranty (if any).

G.3.5 Additional Insured: The liability insurance coverage, except Professional Liability if included, required for performance of

this Contract shall include the State of Oregon, its departments, divisions, officers, and employees, as Additional Insureds but only with respect to the Contractor's activities to be performed under this Contract.

If Contractor cannot obtain an insurer to name the State of Oregon, its departments, divisions, officers and employees as Additional Insureds, Contractor shall obtain at Contractor's expense, and keep in effect during the term of this Contract, Owners and Contractors Protective Liability Insurance, naming the State of Oregon, its departments, divisions, officers and employees as Named Insureds with not less than a \$1,500,000.00 limit per occurrence. This policy must be kept in effect for 12 months following Final Completion. As evidence of coverage, Contractor shall furnish the actual policy to Owner prior to execution of the Contract.

- G.3.6 Notice of Cancellation or Change: There shall be no cancellation, material change, potential exhaustion of aggregate limits or intent not to renew insurance coverages without thirty (30) Days' written notice from the Contractor or its insurer(s) to the Owner. Any failure to comply with the reporting provisions of this insurance, except for the potential exhaustion of aggregate limits, shall not affect the coverages provided to the State of Oregon, its Owner and their divisions, officers, and employees.
- G.3.7 Certificate(s) of Insurance: As evidence of the insurance coverage required by this Contract, the Contractor shall furnish certificate(s) of insurance to the Owner prior to execution of the Contract. The certificate(s) will specify all of the parties who are Additional Insureds or Loss Payees. Insurance coverage required under this Contract shall be obtained from insurance companies or entities acceptable to the Owner that are allowed to provide such insurance under Oregon law. Eligible insurers include admitted insurers that have been issued a certificate of authority from the Oregon Department of Consumer and Business Services authorizing them to do an insurance business in the state of Oregon, and certain non-admitted surplus lines insurers that satisfy the requirements of applicable Oregon law and are approved by the Owner. The certificates will also specify that there shall be no cancellation, material change, potential exhaustion of aggregate limits or intent not to renew insurance coverages without thirty (30) Days' written notice from the insurer(s) to the Owner. To the extent Certificates of Insurance contain words to the effect that Contractor shall "endeavor to send notice of cancellation" or similar language, Contractor shall require its insurer to send such notice by making sure that the words "endeavor to" or similar words are removed from the Certificate. The Contractor shall be financially responsible for all deductibles, self-insured retentions and/or self-insurance included hereunder. Any deductible, self-insured retention and/or self-insurance in excess of \$50,000 shall be approved by the Owner in writing prior to execution of the Contract and is subject to Owner's approval.
- G.3.8 Retainer Contract Program: For the OUS Retainer Contract Program the term "Contract" as used in this Section G in the phrases "keep in effect during the term of this Contract" and "prior to execution of the Contract" shall mean each Retainer Contract Supplement issued under the Retainer Contract.

## **SECTION H SCHEDULE OF WORK**

### **H.1 CONTRACT PERIOD**

H.1.1 Time is of the essence on this Contract. The Contractor shall at all times carry on the Work diligently, without delay and punctually fulfill all requirements herein. Contractor shall

commence Work on the site within fifteen (15) Days of Notice to Proceed, unless directed otherwise.

H.1.2 Unless specifically extended by Change Order, all Work shall be complete by the date contained in the Contract Documents. The Owner shall have the right to accelerate the completion date of the Work, which may require the use of overtime. Such accelerated Work schedule shall be an acceleration in performance of Work under Section D.1.2 (f) and shall be subject to the Change Order process of Section D.1.

H.1.3 The Owner shall not waive any rights under the Contract by permitting the Contractor to continue or complete in whole or in part the Work after the date described in Section H.1.2 above.

### **H.2 SCHEDULE**

H.2.1 Contractor shall provide, by or before the pre-construction conference, a detailed schedule for review and acceptance by the Owner. The submitted schedule must illustrate Work by significant project components, significant labor trades, and long lead items broken down by building and/or floor where applicable. Each schedule item shall account for no greater than 5 % of the monetary value of the project or 5 % of the available Contract Time. Schedules with activities of less than one Day or valued at less than 1% of the Contract will be considered too detailed and will not be accepted. Schedules lacking adequate detail, or unreasonably detailed, will be rejected. Included within the schedule are the following: Notice to Proceed, Substantial Completion, and Final Completion. Schedules will be updated monthly and submitted with the monthly payment application. Acceptance of the Schedule by the Owner does not constitute agreement by the Owner as to the Contractor's sequencing, means, methods, or durations. Any positive difference between the Contractor's scheduled completion and the Contract completion date is float owned by the Owner. Owner reserves the right to negotiate the float if it is deemed to be in Owner's best interest to do so. In no case shall the Contractor make a claim for delays if the Work is completed within the Contract Time but after Contractor's scheduled completion.

### **H.3 PARTIAL OCCUPANCY OR USE**

H.3.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage, provided such occupancy or use is consented to by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have reasonably accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, insurance or self-insurance, maintenance, heat, utilities, and damage to the Work, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents with respect to such portion of the Work. Approval by the Contractor to partial occupancy or use shall not be unreasonably withheld. Immediately prior to such partial occupancy or use, the Owner and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work. Partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

## **SECTION I CORRECTION OF WORK**

### **I.1 CORRECTION OF WORK BEFORE FINAL PAYMENT**

The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents,



that the Work will be free from defects, and that the Work will conform to the requirements of the Contract Documents. Work failing to conform to these requirements shall be deemed defective. Contractor shall promptly remove from the premises and replace all defective materials and equipment as determined by the Owner's Authorized Representative, whether incorporated in the Work or not. Removal and replacement shall be without loss or expense to the Owner, and Contractor shall bear the cost of repairing all Work destroyed or damaged by such removal or replacement. Contractor shall be allowed a period of no longer than thirty (30) Days after Substantial Completion for completion of defective (punch list) work. At the end of the thirty-day period, or earlier if requested by the Contractor, Owner shall arrange for inspection of the Work by the Architect/Engineer. Should the work not be complete, and all corrections made, the costs for all subsequent reinspections shall be borne by the Contractor. If Contractor fails to complete the punch list work within the thirty (30) Day period, Owner may perform such work and Contractor shall reimburse Owner all costs of the same within ten (10) Days after demand without affecting Contractor's obligations.

## **I.2 WARRANTY WORK**

I.2.1 Neither the final certificate of payment nor any provision of the Contract Documents shall relieve the Contractor from responsibility for defective Work and, unless a longer period is specified, Contractor shall correct all defects that appear in the Work within a period of one year from the date of issuance of the written notice of Substantial Completion by the Owner except for latent defects which will be remedied by the Contractor at any time they become apparent. The Owner shall give Contractor notice of defects with reasonable promptness. Contractor shall perform such warranty work within a reasonable time after Owner's demand. If Contractor fails to complete the warranty work within such period as Owner determines reasonable, or at any time in the event of warranty work consisting of emergency repairs, Owner may perform such work and Contractor shall reimburse Owner all costs of the same within ten (10) Days after demand, without affecting Contractor's obligations. The Contractor shall perform the warranty Work by correcting defects within twenty-four (24) hours of notification by Owner, unless otherwise specified in the Contract Documents. Should the Contractor fail to respond within the specified response time, the Owner may, at its option, complete the necessary repairs using another contractor or its own forces. If Owner completes the repairs using Owner's own forces, Contractor shall pay Owner at the rate of one and one-half (1½) times the standard hourly rate of Owner's forces, plus related overhead and any direct non-salary costs. If Owner completes the repairs using another contractor, Contractor shall pay Owner the amount of Owner's direct costs billed by the other contractor for the work, plus the direct salary costs and related overhead and direct non-salary expenses of Owner's forces who are required to monitor that contractor's work. Work performed by Owner using Owner's own forces or those of another contractor shall not affect the Contractor's contractual duties under these provisions, including warranty provisions.

I.2.2 This provision does not negate guarantees or warranties for periods longer than one year including without limitation such guarantees or warranties required by other sections of the Contract Documents for specific installations, materials, processes, equipment or fixtures.

I.2.3 In addition to Contractor's warranty, manufacturer's warranties shall pass to the Owner and shall not take effect until affected Work has been accepted in writing by the Owner's Authorized Representative.

I.2.4 The one-year period for correction of Work shall be extended with respect to portions of Work performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work, and shall be extended by corrective Work performed by the Contractor

pursuant to this Section, as to the Work corrected. The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

I.2.5 Nothing contained in this Section I.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the period for correction of Work as described in this Section I.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

I.2.6 If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Price will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## **SECTION J**

### ***SUSPENSION AND/OR TERMINATION OF THE WORK***

#### **J.1 OWNER'S RIGHT TO SUSPEND THE WORK**

J.1.1 The Owner and/or the Owner's Authorized Representative has the authority to suspend portions or all of the Work due to the following causes:

- (a) Failure of the Contractor to correct unsafe conditions;
- (b) Failure of the Contractor to carry out any provision of the Contract;
- (c) Failure of the Contractor to carry out orders;
- (d) Conditions, in the opinion of the Owner's Authorized Representative, which are unsuitable for performing the Work;
- (e) Time required to investigate differing site conditions;
- (f) Any reason considered to be in the public interest.

J.1.2 The Owner shall notify Contractor and the Contractor's Surety in writing of the effective date and time of the suspension, and Owner shall notify Contractor and Contractor's surety in writing to resume Work.

#### **J.2 CONTRACTOR'S RESPONSIBILITIES**

J.2.1 During the period of the suspension, Contractor is responsible to continue maintenance at the project just as if the Work were in progress. This includes, but is not limited to, protection of completed Work, maintenance of access, protection of stored materials, temporary facilities, and clean-up.

J.2.2 When the Work is recommenced after the suspension, the Contractor shall replace or renew any Work damaged during the suspension, remove any materials or facilities used as part of temporary maintenance, and complete the project in every respect as though its prosecution had been continuous and without suspension.

#### **J.3 COMPENSATION FOR SUSPENSION**

J.3.1 Depending on the reason for suspension of the Work, the Contractor or the Owner may be due compensation by the other party. If the suspension was required due to acts or omissions of Contractor, the Owner may assess the Contractor actual costs of the suspension in terms of administration, remedial work by the Owner's forces or another contractor to correct the problem associated with the suspension, rent of temporary facilities, and other actual costs related to the suspension. If the suspension was caused by acts or omissions of the Owner, the Contractor shall be due compensation which shall be defined using Section D, Changes in Work. If the suspension was required through no fault of the Contractor or the Owner, neither party owes the other for the impact.

#### **J.4 OWNER'S RIGHT TO TERMINATE CONTRACT**

J.4.1 The Owner may, without prejudice to any other right or remedy, and after giving Contractor seven (7) Days' written notice and an opportunity to cure, terminate the Contract in whole or in part under the following conditions:

- (a) If Contractor should voluntarily or involuntarily, seek protection under the United States Bankruptcy Code and Contractor as debtor-in-possession or the Trustee for the estate fails to assume the Contract within a reasonable time;
- (b) If Contractor should make a general assignment for the benefit of Contractor's creditors;
- (c) If a receiver should be appointed on account of Contractor's insolvency;
- (d) If Contractor should repeatedly refuse or fail to supply an adequate number of skilled workers or proper materials to carry on the Work as required by the Contract Documents, or otherwise fail to perform the Work in a timely manner;
- (e) If Contractor should repeatedly fail to make prompt payment to Subcontractors or for material or labor, or should disregard laws, ordinances or the instructions of the Owner or its Authorized Representative; or
- (f) If Contractor is otherwise in material breach of any part of the Contract.

J.4.2 At any time that any of the above occurs, Owner may exercise all rights and remedies available to Owner at law or in equity, and, in addition, Owner may take possession of the premises and of all materials and appliances and finish the Work by whatever method it may deem expedient. In such case, the Contractor shall not be entitled to receive further payment until the Work is completed. If the Owner's cost of finishing the Work exceeds the unpaid balance of the Contract Price, Contractor shall pay the difference to the Owner.

#### **J.5 TERMINATION FOR CONVENIENCE**

J.5.1 Owner may terminate the Contract in whole or in part whenever Owner determines that termination of the Contract is in the best interest of the public.

J.5.2 The Owner will provide the Contractor with seven (7) Days prior written notice of a termination for public convenience. After such notice, the Contractor shall provide the Owner with immediate and peaceful possession of the premises and materials located on and off the premises for which the Contractor received progress payment under Section E. Compensation for Work terminated by the Owner under this provision will be according to Section E. In no circumstance shall Contractor be entitled to lost profits for Work not performed due to termination.

#### **J.6 ACTION UPON TERMINATION**

J.6.1 Upon receiving a notice of termination, and except as directed otherwise by the Owner, Contractor shall immediately cease placing further subcontracts or orders for materials, services, or facilities. In addition, Contractor shall terminate all subcontracts or orders to the extent they relate to the Work terminated and, with the prior written approval of the Owner, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts and orders.

J.6.2 As directed by the Owner, Contractor shall, upon termination, transfer title and deliver to the Owner all Record Documents, information, and other property that, if the Contract had been completed, would have been required to be furnished to the Owner.

### **SECTION K CONTRACT CLOSE OUT**

#### **K.1 RECORD DOCUMENTS**

As a condition of final payment (refer also to section E.6), Contractor shall comply with the following: Contractor shall provide Record Documents for the entire project to Owner's Authorized Representative. Record Documents shall depict the project as constructed and shall reflect each and every change, modification, and deletion made during the construction. Record Documents are part of the Work and shall be provided prior to the Owner's issuance of final payment. Record Documents include all modifications to the Contract Documents unless otherwise directed, and accurate MWESB Reports.

#### **K.2 OPERATION AND MAINTENANCE MANUALS**

As part of the Work, Contractor shall submit two completed operation and maintenance manuals ("O & M Manuals") for review by the Owner's Authorized Representative prior to submission of any pay request for more than 75% of the Work. No payments beyond 75% will be made by the Owner until the O & M Manuals have been received. The O & M Manuals shall contain a complete set of all submittals, all product data as required by the specifications, training information, phone list of consultants, manufacturers, installer and suppliers, manufacturer's printed data, record and shop drawings, schematic diagrams of systems, appropriate equipment indices, warranties and bonds. The Owner's Authorized Representative shall review and return one O & M Manual for any modifications or additions required. Prior to submission of its final pay request, Contractor shall deliver three (3) complete and approved sets of O & M Manuals to the Owner's Authorized Representative.

#### **K.3 AFFIDAVIT/RELEASE OF LIENS AND CLAIMS**

As a condition of final payment, the Contractor shall submit to the Owner's Authorized Representative a notarized affidavit/release of liens and claims form in a form satisfactory to Owner, which states that all Subcontractors and suppliers have been paid in full, all disputes with property owners have been resolved, all obligations on the project have been satisfied, all monetary claims and indebtedness have been paid, and that, to the best of the Contractor's knowledge, there are no claims of any kind outstanding against the project. The Contractor shall indemnify, defend (with counsel of Owner's choice) and hold harmless the Owner from all claims for labor and materials finished under this Contract. The Contractor shall furnish complete and valid releases or waivers, satisfactory to the Owner, of all liens arising out of or filed in connection with the Work.

#### **K.4 COMPLETION NOTICES**

K.4.1 Contractor shall provide Owner notice of both Substantial and Final Completion. The certificate of Substantial Completion shall state the date of Substantial Completion, the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance,

and the time within which the Contractor shall finish all items on the punchlist accompanying the Certificate. Both completion notices must be signed by the Contractor and the Owner to be valid. The Owner shall provide the final signature on the notices. The notices shall take effect on the date they are signed by the Owner.

All warranty and indemnification provisions of this Contract, and all of Contractor's other obligations under this Contract that are not fully performed by the time of Final Completion or termination, shall survive Final Completion or any termination of the Contract.

K.4.2 Substantial Completion of a facility with operating systems (e.g., mechanical, electrical, HVAC) shall be that degree of completion that has provided a minimum of thirty (30) continuous Days of successful, trouble-free operation, which period shall begin after all performance and acceptance testing has been successfully demonstrated to the Owner's Authorized Representative. All equipment contained in the Work, plus all other components necessary to enable the Owner to operate the facility in the manner that was intended, shall be complete on the Substantial Completion date. The Contractor may request that a punch list be prepared by the Owner's Authorized Representative with submission of the request for the Substantial Completion notice.

#### **K.5 TRAINING**

As part of the Work, and prior to submission of the request for final payment, the Contractor shall schedule with the Owner's Authorized Representative training sessions for all equipment and systems as required in the individual specifications sections. Contractor shall schedule training sessions at least two weeks in advance of the date of training to allow Owner personnel adequate notice. The O & M Manual shall be used as a basis for training. Training shall be a formal session held after the equipment and/or system is completely installed and operational in its normal operating environment.

#### **K.6 EXTRA MATERIALS**

As part of the Work, Contractor shall provide spare parts, extra maintenance materials, and other materials or products in the quantities specified in the specifications prior to final payment. Delivery point for extra materials shall be designated by the Owner's Authorized Representative.

#### **K.7 ENVIRONMENTAL CLEAN-UP**

As part of the Final Completion notice, or as a separate written notice submitted with or before the notice of Final Completion, the Contractor shall notify the Owner that all environmental pollution clean-up performed as a part of this Contract has been disposed of in accordance with all applicable rules, regulations, laws, and statutes of all agencies having jurisdiction over such environmental pollution. The notice shall reaffirm the indemnification given under Section F.5.1 above.

#### **K.8 CERTIFICATE OF OCCUPANCY**

The Contractor shall not be granted Final Completion or receive final payment if the Owner has not received an unconditioned certificate of occupancy from the appropriate state and/or local building officials, unless failure to obtain an unconditional certificate of occupancy is due to the fault or neglect of Owner.

#### **K.9 OTHER CONTRACTOR RESPONSIBILITIES**

The Contractor shall be responsible for returning to the Owner all items issued during construction such as keys, security passes, site admittance badges, and all other pertinent items. The Contractor shall be responsible for notifying the appropriate utility companies to transfer utility charges from the Contractor to the Owner. The utility transfer date shall not be before Substantial Completion and may not be until Final Completion, if the Owner does not take beneficial use of the facility and the Contractor's forces continue with the Work.

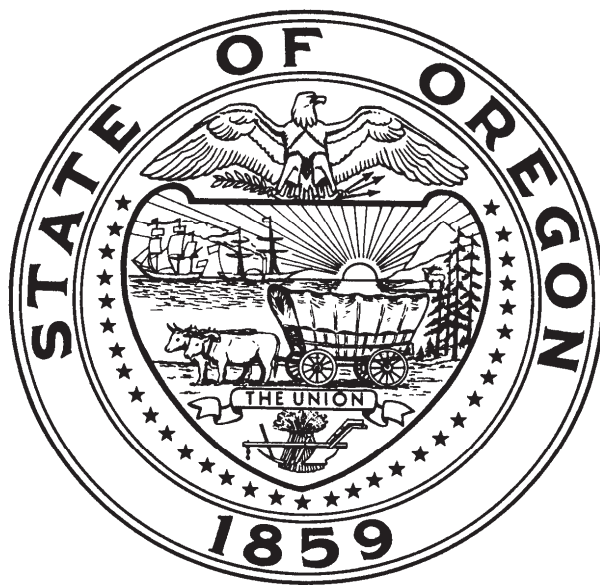
#### **K.10 SURVIVAL**



# PREVAILING WAGE RATES

for

## Public Works Contracts in Oregon



**OREGON BUREAU OF LABOR AND INDUSTRIES**

**Brad Avakian  
Commissioner  
Bureau of Labor and Industries**

**Effective: January 1, 2012 (as amended April 1, 2012)**

[http://egov.oregon.gov/BOLI/WHD/PWR/PWR\\_Jan2012\\_Index.shtml](http://egov.oregon.gov/BOLI/WHD/PWR/PWR_Jan2012_Index.shtml)



**OREGON UNIVERSITY SYSTEM**  
**STANDARD PUBLIC IMPROVEMENT CONTRACT**  
**PERFORMANCE BOND**

Bond No. \_\_\_\_\_  
Solicitation \_\_\_\_\_  
Project Name \_\_\_\_\_

_____ (Surety #1)	Bond Amount No. 1:	\$ _____
_____ (Surety #2)*	Bond Amount No. 2:*	\$ _____
<i>* If using multiple sureties</i>	Total Penal Sum of Bond:	\$ _____

We, \_\_\_\_\_ as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto the State of Oregon, Oregon State Board of Higher Education (OSBHE), the sum of (Total Penal Sum of Bond) \_\_\_\_\_ (Provided, that we the Sureties bind ourselves in such sum “jointly and severally” as well as “severally” only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety), and

WHEREAS, the Principal has entered into a contract with the State of Oregon, the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Performance Bond by reference, whether or not attached to the contract (all hereafter called “Contract”); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal herein shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things undertaken by Contractor to be performed under the Contract, upon the terms set forth therein, and within the time prescribed therein, or as extended as provided in the Contract, with or

without notice to the Sureties, and shall indemnify and save harmless the State of Oregon, OSBHE, and \_\_\_\_\_ (name of institution and any other Owner agency), and members thereof, its officers, employees and agents, against any direct or indirect damages or claim of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Principal or its subcontractors, and shall in all respects perform said contract according to law, then this obligation is to be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond nor shall the State of Oregon, or the above-referenced agency(ies), be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapters 279C and 351, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**PRINCIPAL:** \_\_\_\_\_

By \_\_\_\_\_  
Signature

\_\_\_\_\_  
Official Capacity

Attest: \_\_\_\_\_  
Corporation Secretary

**SURETY:** \_\_\_\_\_  
*[Add signatures for each surety if using multiple bonds]*

**BY ATTORNEY-IN-FACT:**  
*[Power-of-Attorney must accompany each surety bond]*

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Address

\_\_\_\_\_  
City State Zip

\_\_\_\_\_  
Phone Fax



**OREGON UNIVERSITY SYSTEM**

**STANDARD PUBLIC IMPROVEMENT CONTRACT**

**PAYMENT BOND**

Bond No. \_\_\_\_\_  
Solicitation \_\_\_\_\_  
Project Name \_\_\_\_\_

\_\_\_\_\_ (Surety #1)                      Bond Amount No. 1:                      \$ \_\_\_\_\_  
\_\_\_\_\_ (Surety #2)\*                      Bond Amount No. 2:\*                      \$ \_\_\_\_\_  
*\* If using multiple sureties*                      Total Penal Sum of Bond:                      \$ \_\_\_\_\_

We, \_\_\_\_\_, as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto the State of Oregon, Oregon State Board of Higher Education (OSBHE), the sum of (Total Penal Sum of Bond) \_\_\_\_\_ (Provided, that we the Sureties bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety), and

WHEREAS, the Principal has entered into a contract with the State of Oregon, the plans, specifications, terms and conditions of which are contained in above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Payment Bond by reference, whether or not attached to the contract (all hereafter called "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and schedule of contract prices which are set forth in the Contract and any attachments, and all authorized modifications of the Contract which increase the amount of the work, or the cost of the Contract, or constitute authorized extensions of time for performance of the Contract, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things by it undertaken to be performed under said Contract and any duly authorized modifications that are made, upon the terms set forth therein, and within the time prescribed therein, or as extended therein as provided in the Contract, with or without notice to the Sureties, and shall indemnify and save harmless the State of Oregon, OSBHE and \_\_\_\_\_ (name of institution and any other Owner agency), and members thereof, its officers, employees and agents, against any claim for direct or indirect damages of every kind and description that

shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Contractor or its subcontractors, and shall promptly pay all persons supplying labor, materials or both to the Principal or its subcontractors for prosecution of the work provided in the Contract; and shall promptly pay all contributions due the State Industrial Accident Fund and the State Unemployment Compensation Fund from the Principal or its subcontractors in connection with the performance of the Contract; and shall pay over to the Oregon Department of Revenue all sums required to be deducted and retained from the wages of employees of the Principal and its subcontractors pursuant to ORS 316.167, and shall permit no lien nor claim to be filed or prosecuted against the State on account of any labor or materials furnished; and shall do all things required of the Principal by the laws of this State, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond nor shall the State of Oregon, or the above-referenced agency(ies), be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapters 279C and 351, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES:

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**PRINCIPAL:** \_\_\_\_\_

By \_\_\_\_\_  
Signature

\_\_\_\_\_  
Official Capacity

Attest: \_\_\_\_\_  
Corporation Secretary

**SURETY:** \_\_\_\_\_

*[Add signatures for each if using multiple bonds]*

**BY ATTORNEY-IN-FACT:**

*[Power-of-Attorney must accompany each bond]*

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Address

\_\_\_\_\_  
City State Zip

\_\_\_\_\_  
Phone Fax

**SECTION 01 1000**  
**SUMMARY OF WORK**

**PART 1 GENERAL**

**1.01 PROJECT**

- A. Project Name: University of Oregon Chiles Hall 3rd Floor Business Technology Center Improvements Project.
- B. Owner's Name: University of Oregon.
- C. Architect's Name: PIVOT Architecture.
- D. The Project consists of the alteration of the existing Business Technology Center on the 3rd Floor of Chiles Hall.
  - 1. The demolition work includes removal of existing fixed walls, existing demountable partition units, existing ceilings, existing doors and frames, existing floor, existing duct work, and other demolition.
  - 2. The new work includes new walls, doors, door and window frames, ceilings, floor, casework, operable partition and support beam, furniture, duct work and associated HVAC improvements, fire sprinklers, emergency power, power and data, lighting, and other misc electrical work.

**1.02 CONSTRUCTION DURATION**

- A. Anticipated Date of Notice to Proceed: 07.1.2012
- B. Substantial Completion: 09.21.2012
- C. Final Completion: 10.21.2012

**1.03 DESCRIPTION OF ALTERATIONS WORK**

- A. Scope of demolition and removal work is shown on drawings and specified in Section 02 4100.

**1.04 WORK BY OWNER**

- A. Owner Furnished, Owner Installed (OFOI). Items noted OFOI will be furnished and installed by Owner before Substantial Completion. Some items include:
  - 1. The owner will install window coverings at selected windows. The Contractor to remove all existing window coverings, and provide to Owner
- B. Owner Furnished, Contractor Installed (OFCl). Items noted OFCl will be furnished by the Owner for installation by the Contractor prior to Substantial Completion. Some items include:
  - 1. Ceiling Recessed Electric Projection Screens
- C. Work of Other Related Construction Contracts (or Packages) includes:
  - 1. Exterior Envelope Repairs Project.
    - a. The work on the exterior improvements will occur simultaneously during the work on the 3rd Flr Business Technology Center, and will include removal/replacement of a portion of the exterior masonry and yet to be determined elements of the exterior walls surrounding the space. It is possible that removal/replacement work could include the metal stud framing. If this occurs, delay modifications to the existing electrical system within the exterior walls until the metal framing replacement is complete.
    - b. The Contractor for the improvements at the 3rd Floor Business Technology Center is required to coordinate daily with the Exterior Envelope Repairs Project through the UO Facilities Project Manager, and attend weekly coordination meetings with the Contractor for the Exterior Envelope Repairs Project.
  - 2. Roof Replacement Project

**1.05 OWNER OCCUPANCY**

- A. Owner intends to continue to occupy portions of the existing building during the entire construction period, however they do not intend to occupy to the area under construction for this project.

- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.
- D. The Owner will identify their primary contact with the Facilities Department, and the primary on-site representative. The Contractor to coordinate with both on a daily basis to confirm the work activity planned for the day, and the next few days.
- E. Provide a detailed Work Sequence Schedule showing the next 21 days at each weekly construction meeting. The Work Sequence Schedule to be updated the day of the weekly construction meeting and accurately describe the work activities planned for the upcoming 21 days to the Contractor's best knowledge.
  1. Identify the deviations in the planned work activities from one week to the other, and clarify the reasons for the deviations.

#### **1.06 CONTRACTOR'S USE OF PREMISES**

- A. Except as otherwise stipulated herein, Contractors will have limited use of the Premises within the boundaries of the project as shown on the Drawings for the execution of the Work.
- B. The possession, use, or distribution of illicit drugs and alcohol on the Owner's premises is prohibited. Prescription medications brought to the project site shall be in the original container bearing the name of the drug, the name of the physician and the prescribed dosage.
- C. **NO SMOKING POLICY:** Smoking is not allowed on the construction site and as additionally limited by city or county ordinance.
- D. Tools and building materials shall never be left out when an unsecured work area is vacated.
- E. Ladders and scaffolding will be taken down when an unsecured work area is vacated.
- F. Open holes and other tripping hazards shall be fenced or barricaded when an unsecured work area is vacated.
- G. Operations resulting in vapors, emissions or flying objects shall be conducted in such a way as to prevent exposure to any unprotected parties or property.
- H. "Secured Work Area" is defined as an area having a perimeter cyclone fence at least 6 feet in height, with gates which close and lock so that no casual entrance is possible by unauthorized personnel.

#### **1.07 REGULAR BUSINESS HOURS**

- A. Regular Business Hours shall be the hours between 7 AM and 6 PM, Monday through Friday.

#### **1.08 WORK DURING REGULAR BUSINESS HOURS**

- A. Coordinate the use of equipment and procedures that causes noise, dust, and/or noxious odors with the Owner.
- B. The Contractor is prohibited from making excessive noise or vibration to the structure, such as that caused by Jack Hammers, Air Compressors, Electricity Generators, Rivet Guns, Drills, or other similar Devices during Regular Business Hours, except by prior approval of the Owner, and then only for short duration.

#### **1.09 WORK DURING NON-REGULAR BUSINESS HOURS**

- A. When the Contractor plans to work on site during other than Regular Business Hours, the Contractor shall give the Owner at least 48 hours notice, in writing, stating when the work will be done, who will be doing the work, and when the work is expected to be completed each day.

#### **1.10 DUST PROTECTION AND SAFETY BARRIERS**

- A. The Contractor shall erect temporary Dust and Safety Barriers around all of the Construction Operations to keep dust and debris within the localized work area, and to protect the owner, staff, and the public from construction activities. Additional requirements may be required if airborne dust is judged by the Owner to be a problem.
- B. The Contractor shall take precautions to protect existing smoke detectors from damage or deterioration from dust caused by work of this contract.

### **1.11 PROTECTING EXISTING UTILITIES**

- A. Protect existing utilities from damage, and maintain operation of utilities unless approval provided by Owner to shut off.
- B. Contractor to inform Owner if they need assistance locating existing utilities that may be within work area.
- C. If Utility Lines are damaged; remove, repair, or replace Lines as directed. Additional compensation and/or extension of time, if any, caused by removing, repairing, or replacing Lines will be determined in accordance with General Conditions.

### **1.12 ASBESTOS**

- A. By this notice, the Contractor and the Sub-contractors, and their workers, are asked to be aware of the possible presence of Asbestos Bearing Materials and if found, or even suspected, to immediately stop work in the area, and notify the Architect and the UO Facilities Project Manager, Janet Lobue at (541) 346-5259, of the location and condition. A separate independent contract will be issued by the Owner to have the suspected material tested and if needed removed or encapsulated.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 2000**  
**PRICE AND PAYMENT PROCEDURES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Schedule of Values
- B. Procedures for preparation and submittal of applications for progress payments.
- C. Payments for products stored off site.
- D. Documentation of changes in Contract Sum and Contract Time.
- E. Modification procedures.
- F. Correlation of Contractor submittals based on changes.
- G. Procedures for preparation and submittal of application for final payment.

**1.02 RELATED REQUIREMENTS**

- A. Retainer Contract Supplement
- B. General Conditions
- C. Supplemental Conditions
- D. Section 01 2200 - Unit Prices: Monetary values of unit prices, payment and modification procedures relating to unit prices.

**1.03 SCHEDULE OF VALUES**

- A. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.
- C. Forms filled out by hand will not be accepted.
- D. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- E. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization and bonds and insurance.
- F. Content: As a basis for computing Progress Payment values, separately list installed value of each of the following:
  - 1. Each major Work Item.
  - 2. Each subcontracted Work Item. For each major Subcontract, list products and operations of that Subcontract as separate Line items.
  - 3. Any Products to be stored, for which separate payments will be requested.
- G. Include within each line item, a direct proportional amount of Contractor's overhead and profit.
- H. Revise schedule to list approved Change Orders, with each Application For Payment.
- I. Round off Values to nearest Dollar.
- J. Sum of Values listed shall equal total Contract Sum.
- K. Substantiating Data: When requested by Architect, submit justifying Substantiating Data and Line Item Amounts in question.
- L. Submit a preliminary draft to the Architect 3 weeks prior to the submittal for the first Application. The purpose preliminary draft is to confirm the level of detail required by the Design Team. The Contractor is to make adjusted requested by the Architect. The level of detail may include values as separate lines (entities) for each Specification Section. The Architect will not review any Application submitted until changes requested by the Architect to the preliminary draft have been incorporated.

#### **1.04 APPLICATIONS FOR PROGRESS PAYMENTS**

- A. Payment Period: Monthly.
- B. Form: AIA G702 Application and Certificate for Payment and AIA G703 - Continuation Sheet including continuation sheets when required.
- C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.
- D. Forms filled out by hand will not be accepted.
- E. Execute certification by signature of authorized officer.
- F. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.
- G. Round off Values to nearest dollar.
- H. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.
- I. Submit four copies of each Application for Payment.
- J. Include the following with the application:
  - 1. Construction progress schedule, revised and current as specified in Section 01 3000.
- K. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.
- L. Submit Applications for Payment to Architect at times stipulated above.
- M. When Architect finds Application properly completed and correct, Architect will transmit 2 copies of Certificate for Payment to Owner for approval of payment, with one copy to Contractor, and one retained for files

#### **1.05 PAYMENT FOR PRODUCTS STORED OFF THE PROJECT SITE**

- A. When delay or added cost to Owner can be avoided by storing Products off Site, Owner will make payment to Contractor for said Products provided that
- B. Contractor shall:
  - 1. Locate Storage Facilities within 20 miles of the Architect's Office or the Project Site.
  - 2. Make Storage Facilities available for Architect's visual inspection.
  - 3. Segregate and label Stored Products for specified Project.
  - 4. Assume all risk for loss.
  - 5. Assume responsibility for exceeding Product "Shelf-Life".
  - 6. Protect Stored Products and provide applicable Insurance against their damage, discoloration, and theft, listing the Owner and any Mortgagee as Additional Named Insured.
  - 7. Submit itemized Inventory and Schedule of Values for Stored Products together with Certificate of Insurance.
  - 8. Submit payment requests to Owner as part of Contractor's regular Progress Payment Request.
  - 9. Reimburse Owner for damages sustained if Stored Products are not delivered to Jobsite when needed.
  - 10. Submit to Owner, with copy to Architect, a written Waiver of Lien insuring Owner against claims for unpaid Storage Costs.
  - 11. Upon receipt of payment from Owner, prepare and issue to Owner, with a copy for Architect, and any Mortgagee, a Bill of Sale for Stored Products.

#### **1.06 PREVAILING WAGE PAYMENT CERTIFICATION**

- A. Submit Prevailing Wage Payment Certification Forms as required by Section 00 73 43 (00820).

## 1.07 APPLICATION PAYMENT SCHEDULE

- A. Within 15 Days, following Owner's approval of payment of in-order Application for Payment, the Owner will:
  - 1. Until Substantial Completion, pay Ninety-Five Percent (95%) as defined in General Conditions during the previous month, as estimated by Architect.
- B. After execution of Certificate of Substantial Completion, and within 15 days, following Owner's approval of payment of the next in-order Application for Payment, the Owner will pay:
  - 1. Balance due under Contract, excluding a Retainage Amount of at least \$1,000, or double the estimated value of uncompleted and/or unacceptable portions of Work, whichever is the greater amount.
- C. Thirty (30) days after final inspection and acceptance by Owner, and within 15 days following Owner's approval of payment of final in-order Application for Payment, the Owner will pay:
  - 1. Balance due under Contract, provided Work be then fully completed and Contract be then fully performed.

## 1.08 MODIFICATION PROCEDURES

- A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to the Contract Documents.
- B. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.
- C. For other required changes, Architect will issue a Construction Change Directive signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
  - 1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
  - 2. Promptly execute the change.
- D. For changes for which advance pricing is desired, Architect will issue a Proposal Request which includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 7 calendar days.
- E. Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 6000.
- F. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
  - 1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
  - 2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect.
  - 3. For pre-determined unit prices and quantities, the amount will be based on the fixed unit prices.
  - 4. For change ordered by Architect without a quotation from Contractor, the amount will be determined by Architect based on the Contractor's substantiation of costs as specified for Time and Material work.
- G. Substantiation of Costs: Provide full information required for evaluation.
  - 1. provide following data:
    - a. Quantities of products, labor, and equipment.
    - b. Taxes, insurance, and bonds.



- c. Overhead and profit.
- d. Justification for any change in Contract Time.
- e. Credit for deletions from Contract, similarly documented.
- 2. Support each claim for additional costs with additional information:
  - a. Origin and date of claim.
  - b. Dates and times work was performed, and by whom.
  - c. Time records and wage rates paid.
  - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
- 3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- H. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- I. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
- J. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
- K. Promptly enter changes in Project Record Documents.

**1.09 APPLICATION FOR FINAL PAYMENT**

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following have been accomplished:
  - 1. All closeout procedures specified in Section 01 7000.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 2300  
ALTERNATES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Procedures for pricing alternates.
- B. Documentation of changes to Contract Sum and Contract Time.

**1.02 RELATED REQUIREMENTS**

- A. Instructions to Bidders
- B. Supplemental Instructions to Bidders
- C. Bid Form

**1.03 SUBMISSION REQUIREMENTS**

- A. Submit Alternates as requested on Bid Form.
- B. Indicate variation of Bid Price for Alternates described below. The Bid Form requests a "difference" in Bid Price by adding to or deducting from the Base Bid Price.

**1.04 ACCEPTANCE OF ALTERNATES**

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each alternate.
- C. Bids will be evaluated on the Base Bid price plus any or all of the Alternates intended to be exercised by the Owner. The order of the Alternates listed here does not represent the order in which any of these Alternates will be exercised.

**1.05 SCHEDULE OF ALTERNATES**

- A. ALTERNATE #01: Additive: Provide all furniture described on Sheet A151 - Furniture Plan and Specification Section 11 001 - Misc Furniture
  - 1. Under the Base Bid: Provide no furniture.
  - 2. Under Alternate #1:
    - a. Provide and install the specified furniture.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 3000**  
**ADMINISTRATIVE REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Preconstruction meeting.
- B. Progress meetings.
- C. Submittals for review, information, and project closeout.
- D. Number of copies of submittals.
- E. Submittal procedures.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 3216 - Construction Progress Schedule: Form, content, and administration of schedules.
- B. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.
- C. Section 01 7800 - Closeout Submittals: Project record documents.

**1.03 CONSTRUCTION ORGANIZATION & START-UP**

- A. Responsible Parties:
  - 1. Immediately following Contract execution, Owner will and Contractor shall identify who, within their respective organizations, will be responsible for Project Coordination.
- B. The Owner will Schedule and conduct Preconstruction Meeting.
- C. The Contractor shall establish on-site Lines of Authority and Communications including the following:
  - 1. Schedule attendance at Preconstruction Meeting and schedule and conduct Progress Meetings as specified in Section 01 30 00 (01300).
  - 2. Establish procedures for Intra-project Communications including:
    - a. Submittals.
    - b. Reports & Records.
    - c. Recommendations.
    - d. Coordination Drawings.
    - e. Schedules.
    - f. Resolution of Conflicts.
  - 3. Technical Documents Interpretation:
    - 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. Permits & Approvals:
    - a. Verify that Subcontractors have obtained required Permits and Inspections for Work and for Temporary Facilities.
  - 5. Control use of Site:
    - a. Supervise Field Engineering and Project Layout.
    - b. Allocate Field Office Space and Work and Storage Areas for use of each Subcontractor.

**1.04 COORDINATING SUBCONTRACTORS' WORK**

- A. Coordinate the Work of all Subcontractors and make certain that, where the Work of one Trade is dependent upon the Work of another Trade, the Work first installed is properly placed, installed, aligned, and finished as specified or required to properly receive subsequent Materials applied or attached thereto.
- B. Direct Subcontractors to correct defects in Substrates they install when Subcontractors of subsequent Materials have a reasonable and justifiable objection to such surfaces.

- C. Do not force Subcontractors to apply or install Products to improperly placed or improperly finished Substrates that would result in an unsatisfactory or unacceptable finished Product.

#### **1.05 COORDINATING WORK WITH WORK OF OWNER OR OTHER CONTRACTS**

- A. Coordinate, and make certain that, where Work of either party is dependent upon the other party, the Work first performed is properly placed, installed, aligned, and finished as required to permit the proper installation of the Work following.
- B. If the Owner's Work in any way interferes with the Contractor's Work, so notify the Owner sufficiently in advance so that the Owner has reasonable time to make necessary adjustments.
- C. If the Contractor's Work in any way interferes with Owner's Work, so notify the Owner as soon as possible. If the Contractor's Work must be modified to accommodate the Owner's Work, except as described elsewhere in this Specification, the Contract Sum and/or the Contract Time will, when necessary be adjusted by a Change Order.

#### **1.06 CLOSE-OUT DUTIES**

- A. Mechanical & Electrical Equipment start-up:
  - 1. Coordinate check-out of Utilities, Operational Systems, and Equipment.
  - 2. Assist in initial start-up and testing.
  - 3. Record starting dates of Systems and Equipment operation.
- B. At completion of Work of each Subcontract, conduct inspection to assure that:
  - 1. Work is acceptable.
  - 2. Specified cleaning has been accomplished, and Temporary Facilities and Debris has been removed from Site.
- C. Substantial Completion:
  - 1. Conduct inspection and prepare list of Work to be completed or corrected.
  - 2. Assist Architect in review of contractor's inspection list and generation of substantial completion punch list.
  - 3. Supervise correction and completion of Work as established in Architect's Observation Reports and substantial completion punch list.
  - 4. Apply for and receive Final Occupancy Permit from Building Department.
  - 5. Complete submittal of Operations and Maintenance Manuals.
  - 6. Complete submittal of Record Drawings.
  - 7. Complete Owner Training.
- D. Final Completion:
  - 1. Assist Architect in checking that all identified deficiencies have been corrected.

### **PART 2 PRODUCTS - NOT USED**

### **PART 3 EXECUTION**

#### **3.01 PRECONSTRUCTION MEETING**

- A. Owner will schedule a meeting after Notice of Award.
- B. Attendance Required:
  - 1. Owner.
  - 2. Architect.
  - 3. Contractor.
  - 4. Contractor's Superintendent.
  - 5. Major Subcontractors .
- C. Agenda: (See sample of expanded agenda at end of this section)
  - 1. Designation of personnel representing the parties to Contractor, Owner and Architect.
- D. Architect will record minutes and distribute copies within five days after meeting to participants, with copies to Owner, participants, and those affected by decisions made.

### **3.02 PROGRESS MEETINGS**

- A. The Contractor will schedule and administer meetings throughout progress of the Work at maximum weekly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Architect, as appropriate to agenda topics for each meeting.
- D. Agenda:
  - 1. Review minutes of previous meetings.
  - 2. Review of Work progress.
  - 3. Field observations, problems, and decisions.
  - 4. Identification of problems that impede, or will impede, planned progress.
  - 5. Review of submittals schedule and status of submittals.
  - 6. Review of off-site fabrication and delivery schedules.
  - 7. Maintenance of progress schedule.
  - 8. Corrective measures to regain projected schedules.
  - 9. Planned progress during succeeding work period.
  - 10. Coordination of projected progress.
  - 11. Coordination of work of this package with ongoing work of other packages at each site.
  - 12. Maintenance of quality and work standards.
  - 13. Effect of proposed changes on progress schedule and coordination.
  - 14. Other business relating to Work.
- E. The Architect will record minutes and distribute copies within seven days after meeting to participants, with copies to Contractor and Owner, other participants, and those affected by decisions made.

### **3.03 PRE-INSTALLATION CONFERENCES**

- A. When required in individual specification sections, the Contractor shall convene a pre-installation meeting prior to commencing work of that section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Architect minimum four days in advance of meeting date.
- D. The Contractor shall be responsible to prepare agenda and preside at meeting:
  - 1. Review conditions of installation, preparation and installation procedures.
  - 2. Review coordination with related work.
- E. The Contractor shall be responsible to record minutes and distribute copies within four days after meeting to participants, with copies to Architect, Owner's Project Manager, participants, and those affected by decisions made.

### **3.04 SUBMITTALS FOR REVIEW**

- A. When the following are specified in individual sections, submit them for review:
  - 1. Product data.
  - 2. Shop drawings.
  - 3. Samples for selection.
  - 4. Samples for verification.
  - 5. Other information required in individual specification sections.
- B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. Samples will be reviewed only for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - CLOSEOUT SUBMITTALS.

### **3.05 SUBMITTALS FOR INFORMATION**

- A. When the following are specified in individual sections, submit them for information:
  - 1. Design data.
  - 2. Certificates.
  - 3. Test reports.
  - 4. Inspection reports.
  - 5. Manufacturer's instructions.
  - 6. Manufacturer's field reports.
  - 7. Other information required in individual specification sections.
  - 8. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator or for Owner.

### **3.06 SUBMITTALS FOR PROJECT CLOSEOUT**

- A. When the following are specified in individual sections, submit them at project closeout:
  - 1. Project record documents.
  - 2. Operation and maintenance data.
  - 3. Warranties.
  - 4. Bonds.
  - 5. Other information required in individual specification sections.
  - 6. Other types as indicated.
- B. Submit for Owner's benefit during and after project completion.

### **3.07 NUMBER OF COPIES OF SUBMITTALS**

- A. Documents for Review:
  - 1. Small Size Sheets, Not Larger Than 8-1/2 x 11 inches: Submit the number of copies which the Contractor requires, plus two copies which will be retained by the Architect and Owner.
    - a. Provide one additional copy of all civil and structural submittals will be retained by the Engineer.
    - b. Provide 2 additional copies of all mechanical and electrical submittals will be retained by the Engineer, and the Owner's Commissioning Agent.
  - 2. Larger Sheets, Not Larger Than 36 x 48 inches: Submit the number of opaque reproductions which Contractor requires, plus two copies which will be retained by Architect and Owner.
    - a. Provide one additional copy of all civil and structural submittals will be retained by the Engineer.
    - b. Provide 2 additional copies of all mechanical and electrical submittals will be retained by the Engineer, and the Owner's Commissioning Agent.
- B. Samples: Submit the number specified in individual specification sections; two of which will be retained by Architect and Owner.
  - 1. After review, produce duplicates.
  - 2. Retained samples will not be returned to Contractor unless specifically so stated.
  - 3. Show full range of color, texture & pattern.

### **3.08 SUBMITTAL PROCEDURES**

- A. Transmit each submittal with a printed transmittal form that clearly describes submittal contents and the quantity of items delivered.
- B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.

- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- E. Deliver submittals to Architect at business address.
- F. Schedule submittals to expedite the Project, and coordinate submission of related items.
- G. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
- H. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- I. Notify Architect in writing, at submission time, of any deviations in Submittals from Contract Document requirements.
- J. Provide space for Contractor and Architect review stamps.
- K. When revised for resubmission, identify all changes made since previous submission.
- L. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- M. Submit Shop Drawings, Product Data, and Samples only for those Items specifically required. The Architect will not be obligated to review Shop Drawings, Product Data, or Samples other than those required by the Contract Documents.
- N. Product Data:
  - 1. Clearly mark each copy to identify pertinent Products.
  - 2. Show performance characteristics and capacities.
  - 3. Show dimensions, field dimensions, and required clearances.
  - 4. Show wiring and piping diagrams, and controls.
  - 5. Show standard schematic drawings and diagrams:
    - a. Modify to delete information not applicable to Work.
    - b. Supplement standard information to provide information specifically applicable to Work.
    - c. Assure that any photo copied material is clearly legible or provide all original material.
- O. Perform no Work or Fabrication requiring Submittal until Architect approves Submittal.

**END OF SECTION**

**SECTION 01 3216**  
**CONSTRUCTION PROGRESS SCHEDULE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Preliminary schedule.
- B. Construction progress schedule, bar chart type.
- C. Three week look ahead schedule

**1.02 RELATED SECTIONS**

- A. Section 01 1000 - Summary: Work sequence.

**1.03 SUBMITTALS**

- A. Within 3 days after date of Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.
  - 1. Provide information sufficient to determine the impact to each office of the building during a week for the duration of the project.
- B. If Owner and/or Architect requests revisions after initial review, submit revised schedule within 10 days.
- C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
- D. Within 10 days after joint review, submit complete schedule.
- E. Submit updated schedule with each Application for Payment.
- F. Submit the number of opaque reproductions that Contractor requires, plus two copies which will be retained by Architect and Owner.
- G. Submit under transmittal letter form specified in Section 01 3000.

**1.04 SCHEDULE FORMAT**

- A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.
- B. Sheet Size: Contractor's choice
- C. Scale and Spacing: To allow for notations and revisions.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 PRELIMINARY SCHEDULE**

- A. Prepare preliminary schedule in the form of a horizontal bar chart.

**3.02 CONTENT**

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction, and impact to each office of the building.
- B. Identify work of separate stages and other logically grouped activities.
- C. Provide sub-schedules to define critical portions of the entire schedule.
- D. Include conferences and meetings in schedule.
- E. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
- F. Provide separate schedule of submittal dates for shop drawings, product data, and samples, and dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.



### **3.03 BAR CHARTS**

- A. Include a separate bar for each major portion of Work or operation.
- B. Identify the first work day of each week.

### **3.04 THREE WEEK LOOK AHEAD SCHEDULE**

- A. Each week during construction, provide companion schedule to master project schedule to look ahead three weeks. Provide increased detail as requested by the Owner or Architect to clearly show the work planned for the upcoming weeks.
- B. Submit at the beginning of each weekly project meeting.
- C. Update as necessary.
- D. Provide a detailed Work Sequence Schedule showing the next 21 days at each weekly construction meeting. The Work Sequence Schedule to be updated the day of the weekly construction meeting and accurately describe the work activities planned for the upcoming 21 days to the Contractor's best knowledge.
  - 1. Identify the deviations in the planned work activities from one week to the other, and clarify the reasons for the deviations.

### **3.05 REVIEW AND EVALUATION OF SCHEDULE**

- A. Participate in joint review and evaluation of schedule with Architect at each submittal.
- B. Evaluate project status to determine work behind schedule and work ahead of schedule.
- C. After review, revise as necessary as result of review, and resubmit within 10 days.

### **3.06 UPDATING SCHEDULE**

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
- C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- D. Indicate changes required to maintain Date of Substantial Completion.

### **3.07 DISTRIBUTION OF SCHEDULE**

- A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Architect, Owner, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

**END OF SECTION**

**SECTION 01 4000**  
**QUALITY REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. References and standards.
- B. Quality assurance submittals.
- C. Mock-ups.
- D. Control of installation.
- E. Tolerances.
- F. Testing and inspection services.
- G. Manufacturers' field services.

**1.02 RELATED REQUIREMENTS**

- A. General Conditions
- B. Supplemental Conditions
- C. Section 01 3000 - Administrative Requirements: Submittal procedures.
- D. Section 01 6000 - Product Requirements: Requirements for material and product quality.

**1.03 REFERENCE STANDARDS**

- A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008.
- B. ASTM C 1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2007.
- C. ASTM C 1093 - Standard Practice for Accreditation of Testing Agencies for Unit Masonry; 2007.
- D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2010.
- E. ASTM E329 - Standard Specification for Agencies Engaged Construction Inspection and/or Testing; 2011.
- F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2009.
- G. OSSC - Oregon Structural Specialty Code, latest edition.

**1.04 SUBMITTALS**

- A. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.
- B. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
  - 1. Include:
    - a. Date issued.
    - b. Project title and number.
    - c. Name of inspector.
    - d. Date and time of sampling or inspection.
    - e. Identification of product and specifications section.
    - f. Location in the Project.
    - g. Type of test/inspection.
    - h. Date of test/inspection.
    - i. Results of test/inspection.
    - j. Conformance with Contract Documents.

- k. When requested by Architect, provide interpretation of results.
  - 2. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.
- C. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
  - 1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
  - 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.
- D. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- E. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
  - 1. Submit report in duplicate within 30 days of observation to Architect for information.
  - 2. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
- F. Erection Drawings: Submit drawings for Architect's benefit as contract administrator or for Owner.
  - 1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
  - 2. Data indicating inappropriate or unacceptable Work may be subject to action by Architect or Owner.

#### **1.05 REFERENCES AND STANDARDS**

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

#### **1.06 TESTING AND INSPECTION AGENCIES**

- A. Owner will employ and pay for services of an independent testing agency to perform specified testing and inspection.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- C. Contractor Employed Agency:
  - 1. Testing agency: Comply with requirements of ASTM E 329, ASTM E 548, ASTM E 543, ASTM C 1021, ASTM C 1077, ASTM C 1093, and ASTM D 3740.
  - 2. Inspection agency: Comply with requirements of ASTM D3740, ASTM E329, and ASTM E548.

3. Laboratory: Authorized to operate in the State in which the Project is located.
4. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.
5. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.

## **PART 2 PRODUCTS - NOT USED**

## **PART 3 EXECUTION**

### **3.01 CONTROL OF INSTALLATION**

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have Work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

### **3.02 MOCK-UPS**

- A. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.
- B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Accepted mock-ups shall be a comparison standard for the remaining Work.
- D. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, remove mock-up and clear area when directed to do so.

### **3.03 TOLERANCES**

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

### **3.04 TESTING AND INSPECTION**

- A. See individual specification sections and the OSSC for testing and inspection required.
- B. Testing Agency Duties:
  1. Test samples of mixes submitted by Contractor.
  2. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
  3. Perform specified sampling and testing of products in accordance with specified standards.
  4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
  5. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or products.
  6. Perform additional tests and inspections required by Architect.
  7. Submit reports of all tests/inspections specified.

- C. Limits on Testing/Inspection Agency Authority:
  - 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
  - 2. Agency may not approve or accept any portion of the Work.
  - 3. Agency may not assume any duties of Contractor.
  - 4. Agency has no authority to stop the Work.
- D. Contractor Responsibilities:
  - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
  - 2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
  - 3. Provide incidental labor and facilities:
    - a. To provide access to Work to be tested/inspected.
    - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
    - c. To facilitate tests/inspections.
    - d. To provide storage and curing of test samples.
  - 4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
  - 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
  - 6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect.
- F. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.
- G. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect. Payment for re testing will be charged to the Contractor by deducting testing charges from the Contract Price.

### **3.05 MANUFACTURERS' FIELD SERVICES**

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Architect 30 days in advance of required observations.
  - 1. Observer subject to approval of Architect.
  - 2. Observer subject to approval of Owner.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

### **3.06 DEFECT ASSESSMENT**

- A. Replace Work or portions of the Work not conforming to specified requirements.
- B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

**END OF SECTION**

**SECTION 01 5000**  
**TEMPORARY FACILITIES AND CONTROLS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Temporary utilities.
- B. Temporary telecommunications services.
- C. Temporary sanitary facilities.
- D. Temporary Controls: Barriers and enclosures.
- E. Waste removal facilities and services.
- F. Project identification sign.
- G. Field offices.

**1.02 TEMPORARY UTILITIES**

- A. Owner will provide the following:
  - 1. Electrical power and metering, consisting of connection to existing facilities.
  - 2. Water supply, consisting of connection to existing facilities.
- B. Existing facilities may be used.
- C. Use trigger-operated nozzles for water hoses, to avoid waste of water.

**1.03 TELECOMMUNICATIONS SERVICES**

- A. Provide, maintain, and pay for telecommunications services to the project superintendent at time of project mobilization.
- B. Provide, maintain, and pay for a dedicated fax services to the site at time of project mobilization.
- C. Allow those connected with the work to use the telephone service.
- D. Telecommunications services shall include:
- E. Provide, maintain, and pay for internet access service and a dedicated telephone line to the site at time of project mobilization. Provide a computer work station with E-mail service to facilitate communications with Owner and Architect.
  - 1. This service may reside at the Contractor's office for this project if the project superintendent can access the computer in the office and can regularly check for e-mail messages.
- F. Provide a digital camera at the site capable of taking pictures of job conditions and sending .jpg images via e-mail to Owner and Architect.
- G. Provide wall mounted directory at the project work site listing Name and Business Phone Number of at least the following:
  - 1. Each Contractor and Sub-contractor
  - 2. Architect
  - 3. Architect's Consulting Engineers
  - 4. Testing Laboratories
  - 5. Physicians
  - 6. Hospitals
  - 7. Ambulance
  - 8. Local Fire Department

**1.04 TEMPORARY SANITARY FACILITIES**

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Use of existing facilities is not permitted.
- C. Maintain daily in clean and sanitary condition.

### **1.05 BARRIERS**

- A. Provide barriers to protect workers on the site and the public against injury.
- B. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- C. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- D. Provide protection for plants designated to remain. Replace damaged plants.
- E. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

### **1.06 VISITOR PERSONAL PROTECTION EQUIPMENT**

- A. Provide six sets of Personal Protection Equipment (PPE) for use by official visitors to the project site during construction. Visitor PPE shall include as a minimum, hard hat and protective eye goggles. Provide high visibility garments when moving vehicles are in use on the construction site. Store in Field Office and reserve for use by visitors to the project site.
- B. Maintain in good condition through the course of the project and replace equipment that does not meet personal safety requirements.

### **1.07 TEMPORARY FIRE PROTECTION**

- A. Provide and maintain necessary facilities and equipment to safeguard Project against Fire Damage.

### **1.08 EXTERIOR ENCLOSURES**

- A. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

### **1.09 VEHICULAR ACCESS AND PARKING**

- A. Coordinate access and haul routes with governing authorities and Owner.
- B. Provide and maintain access to fire hydrants, free of obstructions.
- C. Provide means of removing mud from vehicle wheels before entering streets.
- D. The Owner will not be able to provide any parking at the site for work of this project.
- E. Do not allow vehicle parking on existing sidewalk pavements.
- F. Use designated drop of and delivery areas for short term parking only.
- G. Do not use Owner's Parking Lots for overnight vehicle storage.

### **1.10 MATERIAL STORAGE SPACE**

- A. Maintain within Project Limits in accordance with Architect's and Owner's instructions. Do not block exitways or overload structure.

### **1.11 WASTE REMOVAL**

- A. See Section 01 7419 - Waste Management, for additional requirements.
- B. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- C. Encourage the separation of waste materials and sorting and disposal at a local recycling center.
- D. Provide containers with lids. Remove trash from site periodically.

- E. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
- F. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

**1.12 PROJECT IDENTIFICATION**

- A. A project sign is not required for this project.
- B. Erect on site at location indicated.
- C. No other signs are allowed without Owner permission except those required by law.

**1.13 FIELD OFFICES**

- A. A permanent Field Office is not required for this project. Coordinate with owner for use of space within the building for the field office. Providing a weathertight field office located within the work limits area is acceptable.
- B. Locate offices a minimum distance of 30 feet from existing and new structures.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**



**SECTION 01 6000**  
**PRODUCT REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. General product requirements.
- B. Environmental requirements.
- C. Transportation, handling, storage and protection.
- D. Product option requirements.
- E. Substitution limitations and procedures.
- F. Procedures for Owner-supplied products.
- G. Maintenance materials, including extra materials, spare parts, tools, and software.

**1.02 RELATED REQUIREMENTS**

- A. Instructions to Bidders
- B. Supplemental Instructions to Bidders
- C. Section 01 4000 - Quality Requirements: Product quality monitoring.

**1.03 REFERENCE STANDARDS**

- A. GEI (SCH) - GREENGUARD "Children and Schools" Certified Products; GREENGUARD Environmental Institute; current listings at [www.greenguard.org](http://www.greenguard.org).
- B. GreenSeal GS-36 - Commercial Adhesives; Green Seal, Inc.; 2000.
- C. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; [www.aqmd.gov](http://www.aqmd.gov).

**1.04 SUBMITTALS**

- A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
  - 1. Submit within 15 days after date of Agreement.
  - 2. For products specified only by reference standards, list applicable reference standards.
- B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
  - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.
- E. Indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

**PART 2 PRODUCTS**

**2.01 NEW PRODUCTS**

- A. Provide new products unless specifically required or permitted by the Contract Documents.
- B. Do not use products having any of the following characteristics:
  - 1. Made using or containing CFC's or HCFC's.
- C. Packaging:

1. Where Contractor has the option to provide one of the listed products or equal, preference shall be given to products with minimal packaging and easily recyclable packaging as defined in ASTM D5834.
2. Maximize use of source reduction and recycling procedures outlined in ASTM D5834.

## **2.02 ENVIRONMENTAL REQUIREMENTS**

- A. Where all other criteria are met, Contractor shall give preference to products that:
  1. Are extracted, harvested, and/or manufactured closer to the location of the project.
  2. Have longer documented life span under normal use.
  3. Result in less construction waste.
  4. Are made of vegetable materials that are rapidly renewable.

## **2.03 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

## **2.04 MAINTENANCE MATERIALS**

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver and place in location as directed; obtain receipt prior to final payment.

## **PART 3 EXECUTION**

### **3.01 SUBSTITUTION PROCEDURES**

- A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.
- B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- D. Substitutions
  1. Notify Owner when Contractor is aware of materials, equipment, or products that meet the aesthetic and programmatic intent of Contract Documents, but which are more environmentally responsible than materials, equipment, or products specified or indicated in the Contract Documents.
- E. A request for substitution constitutes a representation that the submitter:
  1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  2. Will provide the same warranty for the substitution as for the specified product.
  3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
  4. Waives claims for additional costs or time extension that may subsequently become apparent.
  5. Will reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.
  6. Each request for substitution approval shall include:
    - a. Identity of Product for which substitution is requested; include Specification page and line number.
    - b. Identity of substitution; include complete Product description, drawings, photographs, performance and test data, and any other information necessary for evaluation.
    - c. Identify compliance with any described LEED product requirements.

- d. Quality comparison of proposed substitution with specified product.
  - e. Changes in other Work required because of substitution.
  - f. Effect on construction progress schedule.
  - g. Cost of proposed substitution compared with specified product.
  - h. Any required license fees or royalties.
  - i. Availability of maintenance service.
  - j. Source of replacement materials.
- F. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- G. Substitution Submittal Procedure:
- 1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
  - 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
  - 3. The Architect will notify Contractor in writing of decision to accept or reject request.
  - 4. Architect will be sole judge of acceptability of any proposed substitution.

### **3.02 SUBSTITUTIONS DURING BIDDING PERIOD**

- A. No request for substitution approval will be considered unless written request in triplicate has been submitted on the PIVOT Architecture Substitution Request Form or the Substitution Request Form bound hereinafter (01 60 23), and has been received by Architect at least 10 Calendar Days prior to Bid opening.
- B. Request submitted without self-addressed and stamped envelope will not be individually acknowledged.
- C. Architect will issue Addenda prior to Bid opening listing all approved substitutions.

### **3.03 SUBSTITUTIONS AFTER CONTRACT AWARD**

- A. See "Substitutions During Bidding Period" for procedural requirements.
- B. In addition to the procedures referenced above, approval will be granted only when:
  - 1. Specified Product cannot be delivered without Project delay, or
  - 2. Specified Product has been discontinued, or
  - 3. Specified Product has been replaced by superior Product, or
  - 4. Specified Product cannot be guaranteed as specified, or
  - 5. Specified Product will not perform properly, or
  - 6. Specified Product will not fit within designated space, or
  - 7. Specified Product does not comply with governing codes, or
  - 8. Substitution will be clearly in Owner's interest.
- C. Architect will issue Change Order authorizing approved substitutions and revising Contract Sum where appropriate.

### **3.04 CONTRACT COMPLIANCE**

- A. Substitution approval does not relieve Contractor from responsibility for proper execution of the Work and for compliance with other Contract requirements.

### **3.05 TRANSPORTATION AND HANDLING**

- A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- B. Transport and handle products in accordance with manufacturer's instructions.
- C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

- E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

### **3.06 STORAGE AND PROTECTION**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- H. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- I. Prevent contact with material that may cause corrosion, discoloration, or staining.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

**SECTION 01 6023  
SUBSTITUTION REQUEST FORM**

**SUBSTITUTION REQUEST**

**1.01 SUBMIT TO:**

A. PIVOT ARCHITECTURE, 72 West Broadway, Eugene OR 97401-3038

**1.02 PROJECT: UNIVERSITY OF OREGON CHILES HALL 3RD FLOOR BUSINESS TECHNOLOGY CENTER IMPROVEMENTS PROJECT**

**1.03 SPECIFIED ITEM:**

- A. NAME: \_\_\_\_\_
- B. SECTION: \_\_\_\_\_
- C. PAGE: \_\_\_\_\_
- D. PARAGRAPH: \_\_\_\_\_
- E. PRODUCT DESCRIPTION: \_\_\_\_\_

**1.04 PROPOSED SUBSTITUTION:**

- A. MANUFACTURER: \_\_\_\_\_
- B. MODEL: \_\_\_\_\_
- C. PRODUCT DESCRIPTION: \_\_\_\_\_
- D. Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identification of applicable data portions.
- E. Attached data also includes description of changes to Contract Documents the proposed substitution requires for proper installation.

**1.05 UNDERSIGNED CERTIFIES FOLLOWING ITEMS, UNLESS MODIFIED BY ATTACHMENTS, ARE CORRECT:**

- A. Proposed substitution does not affect dimensions shown on the drawings.
- B. Undersigned pays for changes to building design, including engineering design, detailing, and construction costs caused by proposed substitution.
- C. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
- D. Maintenance and service parts are available locally or readily obtainable for proposed substitution.

**1.06 UNDERSIGNED FURTHER CERTIFIES FUNCTION, APPEARANCE, AND QUALITY OF PROPOSED SUBSTITUTION ARE EQUIVALENT OR SUPERIOR TO SPECIFIED ITEM.**

**1.07 UNDERSIGNED FURTHER CERTIFIES THAT THE MANUFACTURER OF THE PROPOSED SUBSTITUTION IS AWARE OF THIS SUBSTITUTION REQUEST AND AGREES TO THE STATEMENTS NOTED ABOVE.**

**1.08 UNDERSIGNED AGREES, IF THIS PAGE IS REPRODUCED, TERMS AND CONDITIONS FOR SUBSTITUTIONS FOUND IN BIDDING DOCUMENTS APPLY TO THIS PROPOSED SUBSTITUTION.**

**1.09 SUBMITTED BY:**

- A. NAME: \_\_\_\_\_
- B. SIGNATURE: \_\_\_\_\_
- C. FIRM NAME: \_\_\_\_\_
- D. ADDRESS: \_\_\_\_\_
- E. CITY, STATE ZIP: \_\_\_\_\_

F. DATE SUBMITTED: \_\_\_\_\_

G. PHONE: \_\_\_\_\_

H. FAX: \_\_\_\_\_

**1.10 FOR USE BY ARCHITECT OR ENGINEER**

A. APPROVED: \_\_\_\_\_

B. APPROVED AS NOTED: \_\_\_\_\_

C. NOT APPROVED: \_\_\_\_\_

D. RECEIVED TOO LATE: \_\_\_\_\_

E. REMARKS: \_\_\_\_\_

F. BY: \_\_\_\_\_

G. DATE: \_\_\_\_\_

**END OF SECTION**

**SECTION 01 7000**  
**EXECUTION AND CLOSEOUT REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Examination, preparation, and general installation procedures.
- B. Pre-installation meetings.
- C. Cutting and patching.
- D. Surveying for laying out the work.
- E. Cleaning and protection.
- F. Starting of systems and equipment.
- G. Demonstration and instruction of Owner personnel.
- H. Closeout procedures, except payment procedures.
- I. Substantial completion
- J. Final Completion
- K. Additional fees for delays in completing work

**1.02 RELATED REQUIREMENTS**

- A. Section 01 1000 - Summary:
- B. Section 01 3000 - Administrative Requirements: Submittals procedures.
- C. Section 01 4000 - Quality Requirements: Testing and inspection procedures.
- D. Section 01 5000 - Temporary Facilities and Controls: Temporary exterior enclosures.
- E. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
  - 1. On request, submit documentation verifying accuracy of survey work.
  - 2. Submit a copy of site drawing and certificate signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.
  - 3. Submit a copy of the FEMA Flood Elevation Certificate.
  - 4. Submit surveys and survey logs for the project record.
- C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
  - 1. Structural integrity of any element of Project.
  - 2. Integrity of weather exposed or moisture resistant element.
  - 3. Efficiency, maintenance, or safety of any operational element.
  - 4. Visual qualities of sight exposed elements.
  - 5. Work of Owner or separate Contractor.
  - 6. Include in request:
    - a. Identification of Project.
    - b. Location and description of affected work.
    - c. Necessity for cutting or alteration.
    - d. Description of proposed work and products to be used.
    - e. Alternatives to cutting and patching.
    - f. Effect on work of Owner or separate Contractor.
    - g. Written permission of affected separate Contractor.
    - h. Date and time work will be executed.

#### **1.04 QUALIFICATIONS**

- A. For survey work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

#### **1.05 PROJECT CONDITIONS**

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
- C. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
- D. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

#### **1.06 COORDINATION**

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

### **PART 2 PRODUCTS**

#### **2.01 PATCHING MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.



- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

### **3.03 PREINSTALLATION MEETINGS**

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Architect four days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
  1. Review conditions of examination, preparation and installation procedures.
  2. Review coordination with related work.
- E. Record minutes and distribute copies within four days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

### **3.04 GENERAL INSTALLATION REQUIREMENTS**

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

### **3.05 CUTTING AND PATCHING**

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
  1. Complete the work.
  2. Fit products together to integrate with other work.
  3. Provide openings for penetration of mechanical, electrical, and other services.
  4. Match work that has been cut to adjacent work.
  5. Repair areas adjacent to cuts to required condition.
  6. Repair new work damaged by subsequent work.
  7. Remove samples of installed work for testing when requested.
  8. Remove and replace defective and non-conforming work.
- C. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to

- provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.
- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
  - E. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
  - F. Sawcutting:
    - 1. Employ experienced sawcutting contractor to make all holes, or slab and pavement cutting shown in drawings for architectural, structural, mechanical and electrical work.
    - 2. Do not use water saws in occupied areas, unless otherwise approved.
    - 3. Cut openings square and plumb with sharp edges. Minimize overcutting at corners.
    - 4. Verify location of existing utilities in work area and make proper precautions to protect, disconnect and relocate, or terminate services as directed.
  - G. Cut rigid materials using masonry saw or core drill. Minimize overcut at corners. Pneumatic tools not allowed without prior approval.
  - H. Restore work with new products in accordance with requirements of Contract Documents.
  - I. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
  - J. Patching:
    - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
    - 2. Match color, texture, and appearance.
    - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.
  - K. Maintain adequate Temporary Support necessary to assure structural integrity of affected Work.
  - L. Protect other portions of Project Work against damage and discoloration.
  - M. Protect Work exposed by cutting against damage and discoloration.
  - N. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
  - O. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.
  - P. Patch or replace surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. Repair substrate prior to patching finish. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

### **3.06 PROGRESS CLEANING**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and recycle or dispose off-site; do not burn or bury.

### **3.07 PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations.

- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Prohibit traffic from landscaped areas.
- H. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

### **3.08 ADJUSTING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.
- B. Testing, adjusting, and balancing HVAC systems: See Section 23 0593 and 01 40 00 (01400).

### **3.09 FINAL CLEANING**

- A. Use cleaning materials that are nonhazardous.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- D. Clean and wax new interior concrete floors not scheduled to receive other finishes.
- E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- F. Clean filters of operating equipment.
- G. Clean debris from roofs, gutters, downspouts, and drainage systems.
- H. Clean site; sweep paved areas, rake clean landscaped surfaces.
- I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; recycle or dispose of in legal manner; do not burn or bury.

### **3.10 CLOSEOUT PROCEDURES**

- A. Make submittals that are required by governing or other authorities.
  - 1. Provide copies to Architect and Owner.

### **3.11 SUBSTANTIAL COMPLETION**

- A. Notify Architect when work is considered ready for Substantial Completion.
- B. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's review.
- C. Contractor shall complete all required maintenance work prior to the date of substantial completion.
- D. When Contractor considers Work substantially complete, as defined in General Conditions, Contractor shall submit to the Architect:
  - 1. Written notice that Work, or designated portion thereof, is substantially complete.
  - 2. List of Items to be completed or corrected.
  - 3. Copy of Final Occupancy Permit.

- E. Architect will, as soon as possible thereafter, make an observation visit to the site to determine completion status.
- F. Should Architect determine that Work is not substantially complete:
  - 1. Architect will promptly notify Contractor in writing, giving reasons therefore.
  - 2. Contractor shall remedy Work deficiencies, and send second notice of substantial completion to Architect.
  - 3. Architect will review the corrected work.
- G. When Architect concurs that Work is substantially complete, Architect will:
  - 1. Prepare Certificate of Substantial Completion using AIA Form G704, accompanied with Contractor's list of items to be completed or corrected, as verified and amended by Architect. A copy of this Form is bound in the Appendix Section of this manual.
  - 2. Submit Certificate to Owner and Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.
- H. Owner will occupy portions of the building as specified in Section 01 1000.
- I. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.
- J. Notify Architect when work is considered finally complete.
- K. Complete items of work determined by Architect's final inspection.

### **3.12 FINAL ACCEPTANCE**

- A. When Contractor considers Work complete, Contractor shall submit written certification that:
  - 1. Contract Documents have been reviewed.
  - 2. Contractor has inspected Work for compliance with Contract Documents.
  - 3. Work has been completed in accordance with Contract Documents.
  - 4. Equipment and Systems have been tested in presence of Owner's Representative and are operational.
  - 5. Work is complete and ready for final inspection.
- B. Architect will observe the completed Work to verify completion status as soon as possible after receipt of Contractor's Certification.
- C. Should Architect consider Work incomplete or defective:
  - 1. Architect will promptly notify Contractor in writing, listing incomplete or defective Work.
  - 2. Contractor shall immediately remedy deficiencies, and send second written certification to Architect that Work is complete.
  - 3. Architect will review the corrected Work.
- D. When Architect finds Work acceptable under Contract Documents, Architect will request Contractor to make closeout submittals.

### **3.13 ADDITIONAL FEES FOR DELAYS IN COMPLETING THE WORK**

- A. Architect will make 2 Final visits to the project site, one to determine any Work Deficiencies and issue the Substantial Completion Form, and the second to ascertain that Deficiencies have been corrected.
- B. Should Architect be required to make more than the stated 2 final site visits, due to Contractor's failure to correct specified deficiencies:
  - 1. Owner will compensate Architect for additional services.
  - 2. Owner will deduct Architect's compensation amount from Contractor's final payment as follows:
    - a. Principal's time at \$125.00 per hour.
    - b. Employees' time at \$95.00 per hour.
    - c. Consultant employees and Others at 1.1 times the direct cost incurred.

- d. Charges will be made for necessary travel time, commercial air fare, auto expense computed at 48.5 cents per mile, room and board, and all other expenses incurred in making inspections.

**END OF SECTION**

**SECTION 01 7419**  
**CONSTRUCTION WASTE MANAGEMENT**

**PART 1 GENERAL**

**1.01 WASTE MANAGEMENT REQUIREMENTS**

- A. Owner requires that this project generate the least amount of trash and waste possible.
- B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.
- D. Required Recycling, Salvage, and Reuse: The following may not be disposed of in landfills or by incineration:
  - 1. Aluminum and plastic beverage containers.
  - 2. Corrugated cardboard.
  - 3. Wood pallets.
  - 4. Clean dimensional wood.
  - 5. Metals, including packaging banding, metal studs, sheet metal, structural steel, piping, reinforcing bars, door frames, and other items made of steel, iron, galvanized steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
  - 6. Plastic buckets.
  - 7. Fluorescent lamps (light bulbs).
- E. Contractor shall develop and follow a Waste Management Plan designed to implement these requirements.
- F. The following sources may be useful in developing the Waste Management Plan:
  - 1. Lane County Waste Management (541) 682-4119.
- G. Methods of trash/waste disposal that are not acceptable are:
  - 1. Burning on the project site.
  - 2. Burying on the project site.
  - 3. Dumping or burying on other property, public or private.
  - 4. Other illegal dumping or burying.
  - 5. Use of Owner's trash receptacles.
- H. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

**1.02 DEFINITIONS**

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
- C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.
- D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.
- E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

- H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- I. Return: To give back reusable items or unused products to vendors for credit.
- J. Reuse: To reuse a construction waste material in some manner on the project site.
- K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.
- M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- N. Toxic: Poisonous to humans either immediately or after a long period of exposure.
- O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

### **1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Submit Waste Management Plan within 10 calendar days after receipt of Notice of Award of Bid, or prior to any trash or waste removal, whichever occurs sooner; submit projection of all trash and waste that will require disposal and alternatives to landfilling.
- C. Waste Management Plan: Include the following information:
  - 1. Analysis of the trash and waste projected to be generated during the entire project construction cycle, including types and quantities.
  - 2. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling.

## **PART 2 PRODUCTS**

### **2.01 NOT USED**

## **PART 3 EXECUTION**

### **3.01 WASTE MANAGEMENT PROCEDURES**

- A. See Section 01 1000 for list of items to be salvaged from the existing building for relocation in project or for Owner.
- B. See Section 01 3000 for additional requirements for project meetings, reports, submittal procedures, and project documentation.
- C. See Section 01 5000 for additional requirements related to trash/waste collection and removal facilities and services.
- D. See Section 01 6000 for waste prevention requirements related to delivery, storage, and handling.
- E. See Section 01 7000 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

### **3.02 WASTE MANAGEMENT PLAN IMPLEMENTATION**

- A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.
- B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, and Architect.
- C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

- D. Meetings: Discuss trash/waste management goals and issues at project meetings.
- E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
  - 1. As a minimum, provide:
    - a. Separate area for storage of materials to be reused on-site, such as wood cut-offs for blocking.
    - b. Separate dumpsters for each category of recyclable.
  - 2. Provide containers as required.
  - 3. Provide adequate space for pick-up and delivery and convenience to subcontractors.
  - 4. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.
- F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.
- G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.
- H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.
- I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

**END OF SECTION**



**SECTION 01 7800  
CLOSEOUT SUBMITTALS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

**1.02 RELATED REQUIREMENTS**

- A. General Conditions
- B. Supplemental Conditions
- C. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- D. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.
- E. Individual Product Sections: Specific requirements for operation and maintenance data.
- F. Individual Product Sections: Warranties required for specific products or Work.

**1.03 SUBMITTALS**

- A. Substantial Completion will not commence before the Operations and Maintenance Manuals, Warranties, and the Record Drawings are submitted in accordance with Section 01 70 00 (01700).
- B. Project Record Documents: Submit documents to Architect prior to substantial completion.
- C. Operation and Maintenance Data:
  - 1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
  - 2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
  - 3. Submit 1 copy of completed documents 45 days prior to substantial completion. This copy will be reviewed and returned with Architect comments. Revise content of all document sets as required prior to final submission.
  - 4. Submit 3 copies of revised final documents in final form prior to substantial completion.
- D. Warranties and Bonds:
  - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
  - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
  - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 PROJECT RECORD DOCUMENTS**

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
  - 5. Reviewed shop drawings, product data, and samples.
  - 6. Manufacturer's instruction for assembly, installation, and adjusting.

- B. Maintenance of documents and samples.
  - 1. Store in Contractor's Field Office apart from Documents used for Construction.
  - 2. Provide Files, Shelving and Cabinets necessary to safely and securely store Documents and Samples.
  - 3. Maintain Documents in a clean, dry, legible, and good order.
  - 4. Do not use Record Documents for Construction Purposes.
  - 5. Make Documents available at all time for Architect's inspection
- C. Ensure entries are complete and accurate, enabling future reference by Owner.
- D. Store record documents separate from documents used for construction.
- E. Record information concurrent with construction progress. Use waterproof, felt-tip pens
- F. Color code recorded information, unless otherwise directed or approved.
  - 1. Red: Document Changes.
  - 2. Green: Work deleted.
  - 3. Blue: Dimensional and other notations.
- G. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda and modifications.
- H. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
  - 1. Measured depths of foundations in relation to finish first floor datum.
  - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  - 4. Field changes of dimension and detail.
  - 5. Details not on original Contract drawings.

### **3.02 OPERATION AND MAINTENANCE DATA - GENERAL**

- A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
- E. Unless noted otherwise, provide three complete sets.

### **3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES**

- A. For Each Product, Applied Material, and Finish:
  - 1. Product data, with catalog number, size, composition, and color and texture designations.
  - 2. Information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Additional information as specified in individual product specification sections.

### **3.04 OPERATION AND MAINTENANCE MANUALS**

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.
- B. Prepare data in the form of an instructional manual.
- C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- E. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.
- F. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.
- G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- H. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.
- I. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
  - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.
  - 2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
    - a. Significant design criteria.
    - b. List of equipment.
    - c. Parts list for each component.
    - d. Operating instructions.
    - e. Maintenance instructions for equipment and systems.
    - f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
  - 3. Part 3: Project documents and certificates, including the following:
    - a. Shop drawings and product data.
    - b. Air and water balance reports.
    - c. Certificates.
    - d. Photocopies of warranties and bonds.
- J. Provide a listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.
- K. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect, Consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

### **3.05 WARRANTIES AND BONDS**

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
- B. Verify that documents are in proper form and contain full information.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.

- E. Manual: Bind in commercial quality 8-1/2 by 11 inch three D side ring binders with durable plastic covers.
- F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.
- G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.
- H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

### **3.06 EVIDENCE OF PAYMENTS & RELEASE OF LIENS**

- A. Contractor shall submit the following:
  - 1. Contractor's Affidavit of Payment of Debts and Claims, AIA Document G-706. A copy of this Form is bound in the Appendix Section of this manual.
  - 2. Contractor's Affidavit of Release of Liens, AIA Document G-706A, bound in the Appendix Section of this manual, including the following:
    - a. Consent of Contractor's Surety to Final Payment, AIA Document G-707A, bound in the Appendix Section of this manual.
    - b. Contractor's Release or Waiver of Liens.
    - c. Separate releases or waivers of lien for Subcontractors, Suppliers, and others with lien rights against Owner's Property, together with list of those parties.
  - 3. Duly sign and execute all Submittals, before delivery to Architect.

### **3.07 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ARCHITECT**

- A. Certificate of Insurance for Products & Completed Operations: See Sections 00 72 00 (00700) and 00 73 00 (00800).
- B. Wage Certification: Section 00 73 43 (00820) and 01 20 00 (01200).
- C. Certificate of Domestic Water Disinfection. See Division 33 (15).
- D. Building Official's Certificate of Mechanical & Electrical Inspections.
- E. Building Official's Certificate of Occupancy.

### **3.08 SPARE PART & MAINTENANCE MATERIAL SUBMITTALS TO OWNER**

- A. All spare parts and extra material are to be delivered to the owner prior to the date of substantial completion. Provide written confirmation of delivery, noting quantity and description as well as storage location. Obtain written acceptance from Owner for receipt of stored items.
- B. Specific Requirements: See Specifications Sections.
- C. Products: Identical to those included in Project Work.
- D. Storage Location: Where directed by Owner.
- E. Required Submittals: See Specification Sections.

### **3.09 FINAL ADJUSTMENT OF ACCOUNTS**

- A. Submit final statement of accounting to Architect, including the following:
  - 1. Original Contract Sum.
  - 2. Additions and deductions resulting from:
    - a. Previous Change Orders.
    - b. Adjustments to Cash Allowances
    - c. Other adjustments.
    - d. Deductions for uncompleted Work.
    - e. Deductions for Reinspection Payments.
  - 3. Total Contract Sum, as adjusted.
  - 4. Previous Payments.

5. Sum remaining due.

B. Architect will prepare and issue final Change Order, reflecting approved adjustments to Contract Sum not previously made by Change Orders.

**3.10 FINAL APPLICATION FOR PAYMENT**

A. Follow procedures specified in Section 01 20 00 (01200).

**END OF SECTION**

**SECTION 02 4100  
DEMOLITION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Selective demolition of building elements for alteration purposes.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.
- B. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- C. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; selective demolition and alterations work.
- D. Section 01 7419 - Construction Waste Management and Disposal: Limitations on disposal of removed materials; requirements for recycling.

**1.03 REFERENCE STANDARDS**

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
  - 1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
  - 2. Indicate locations of scaffolding, type of scaffolding system, duration of each scaffolding set up location, and location and construction of barricades and fences.
  - 3. Indicate location of vehicle pick up of removed items for disposal off site.
  - 4. Indicate location of waste and recycling material containers.
  - 5. In conjunction with Demolition Plan, provide schedule of demolition activities, including work performed by Owner-retained Abatement Contractor.
- C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. None anticipated.

**PART 3 EXECUTION**

**3.01 SCOPE**

- A. Remove existing interior elements as shown on the Drawings.

**3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS**

- A. Comply with applicable codes and regulations for demolition operations, environmental requirements, disposal of debris, noise control, and safety of adjacent structures and the public.
  - 1. Obtain required permits.
  - 2. Burning is not permitted.
  - 3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
  - 4. Provide, erect, and maintain temporary barriers and security devices.
  - 5. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.

- 6. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
  - 7. Do not close or obstruct roadways or sidewalks without permit.
  - 8. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
- B. Do not begin removal until receipt of notification to proceed from Owner.
  - C. Protect existing structures and other elements that are not to be removed.
  - D. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
  - E. If hazardous materials are discovered during removal operations, stop work and notify Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

### **3.03 EXISTING UTILITIES**

- A. Protect existing utilities to remain from damage.
- B. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- C. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

### **3.04 SELECTIVE DEMOLITION FOR ALTERATIONS**

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
  - 1. Verify that construction and utility arrangements are as shown.
  - 2. Report discrepancies to Architect before disturbing existing installation.
  - 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Separate areas in which demolition is being conducted from other areas that are still occupied.
  - 1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000 in locations indicated on drawings.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
- D. Remove existing work as indicated and as required to accomplish new work.
  - 1. Remove items indicated and/or implied for removal on drawings.
- E. Protect existing work to remain.
  - 1. Perform cutting to accomplish removals neatly and as specified for cutting new work.
  - 2. Repair adjacent construction and finishes damaged during removal work.
  - 3. Patch as specified for patching new work.

### **3.05 DEBRIS AND WASTE REMOVAL**

- A. Remove from site all materials not to be reused on site; comply with requirements of Section 01 7419 - Waste Management.
- B. Clean remaining structure, equipment, and facilities of all dirt, dust and debris caused by demolition work. Return areas to conditions existing prior to the start of the work.
- C. Leave site in clean condition, ready for subsequent work.
- D. Clean up spillage and wind-blown debris from public and private lands.

**END OF SECTION**

**SECTION 05 1200**  
**STRUCTURAL STEEL FRAMING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Structural steel framing members, support members.

**1.02 RELATED REQUIREMENTS**

- A. Section 09 90 00 - Painting and Coating: Field paint finish.

**1.03 REFERENCE STANDARDS**

- A. AISC M016 - ASD Manual of Steel Construction; American Institute of Steel Construction, Inc.; 2005 with current amendments.
- B. AISC S303 - Code of Standard Practice for Steel Buildings and Bridges; American Institute of Steel Construction, Inc.; 2005. Articles 3.2 and 3.3 and Section 4 and 9 of AISC Code are superceded by the requirements of the General Conditions, Special Conditions, and Contract Documents.
- C. AISC S348 - Specification for Structural Joints Using ASTM A325 or A490 Bolts; 2004.
- D. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2008.
- E. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2010.
- F. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.
- G. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- H. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength; 2010.
- I. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2007.
- J. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010a.
- K. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2006a.
- L. OSSC - Oregon Structural Specialty Code;1998 with current amendments.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings:
  - 1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners and finish.
  - 2. Connections not detailed.
  - 3. Show locations, critical dimensions, required clearances, construction details, installation methods including any splices, attachments and anchors. Show holes, Threaded Fasteners, and Welds.
  - 4. Indicate members to be galvanized, location and size of drain holes, and which members are to receive field finish painting that may impact the galvanizing process.
  - 5. Indicate portions of members not to be painted due to member receiving fire proofing, in contact with concrete, or connected with slip critical-bolts.
  - 6. Obtain Architect's acceptance before proceeding with contract work.
- C. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.
- D. Galvanizing Test Reports: Indicate thickness of shop galvanized finish.



## **1.05 QUALITY ASSURANCE**

- A. Fabricate structural steel members in accordance with AISC "Steel Construction Manual."
- B. Fabricator: Company specializing in performing the work of this section with minimum 5 years of successful documented experience.
- C. Welders:
  - 1. Welders must be qualified for Welds to be performed in accordance with AWS requirements.
  - 2. For each Welder, submit from approved Independent Laboratory or Inspection Service, Qualification Test Reports not older than one (1) year.

## **1.06 FIELD MEASUREMENTS**

- A. Verify that field measurements are as shown on Drawings.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Structural Steel Channels, Angles, Bars and Plates: ASTM A 36/A 36M, unless otherwise noted on Drawings. Architectural grade and finish quality where exposed.
- B. Steel W Shapes and Tees: ASTM A 992/A 992M (Fy = 50 ksi).
- C. Structural Tubing, Hollow Structural Sections: ASTM A 500, (Fy=46 ksi), Grade B.
- D. Steel Pipe: ASTM A 53/A 53M, Grade B, with sulfur not exceeding 0.05%, (Fy=35 ksi). Finish black. Type S where exposed to view, type E where concealed from view.
- E. Machine Bolts, Carbon Steel Bolts and Nuts: ASTM A 307, Grade A galvanized to ASTM A 153/A 153M, Class C where noted.
- F. Welding Materials: E70 Low Hydrogen Electrodes; electrodes shall be as recommended by their manufacturer for the materials, positions and conditions of actual use. Low Hydrogen type.
  - 1. E60 for light gage metal studs and metal decking.

### **2.02 FABRICATION**

- A. Shop fabricate to greatest extent possible.
- B. Shop assemble components to be field assembled prior to shipping to ensure fit-up.
- C. Fabricate connections not specifically detailed on Drawings as instructed by Architect. If instructions are not obtained, at no additional cost to Owner, fabricate connections consistent with balance of design and strong enough to fully develop members involved.
- D. Fabricate connections for bolt, nut, and washer connectors. Hole size 1/16 inch larger than bolt diameter unless shown otherwise, 1/8 inch larger than bolt at base plates.

### **2.03 FINISH**

- A. Prepare structural component surfaces in accordance with SSPC SP -2 and SP-6 and SP-10 where noted.
- B. Shop prime structural steel members that will be painted. Do not prime surfaces that will be fireproofed, field welded, in contact with concrete, or high strength bolted with slip critical connectors.
- C. Hot-dip galvanize structural steel members to comply with ASTM A 123/A 123M. Provide minimum 1.7 oz/sq ft galvanized coating. Provide vent holes in closed shapes. Clip end plates, tab plates and other features to prevent accumulation or pooling of galvanizing material.
- D. Galvanize steel lintels or shelf angles supporting masonry veneer, to ASTM A 123/A 123M. Provide minimum 1.3 oz/sq ft (390 g/sq m) galvanized coating. Provide vent holes in closed shapes. Clip end plates, tab plates and other features to prevent accumulation or pooling of galvanizing material.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

### **3.02 ERECTION**

- A. Erect structural steel in compliance with AISC "Code of Standard Practice for Steel Buildings and Bridges".
- B. Allow for erection loads, and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing and connections.
- C. Field weld components and shear studs indicated on drawings.
- D. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts".
- E. Do not field cut or alter structural members without approval of Architect.
- F. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete, or where shown to be fireproofed.
- G. Touch-up Field Connections and damaged Shop Treatment areas as erection proceeds. Immediately prior to final covering, remove Rust and retreat any Members showing evidence of Rust through Shop Treatment over approximately 5% or more to total Shop Treatment area.

### **3.03 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.

**END OF SECTION**

**SECTION 06 2000  
FINISH CARPENTRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Finish carpentry items.
- B. Running wall trim
- C. Shop finishing

**1.02 RELATED REQUIREMENTS**

- A. Section 06 4100 - Architectural Wood Casework: Shop fabricated custom cabinet work.
- B. Section 09 9000 - Painting and Coating: Painting and finishing of finish carpentry items.

**1.03 REFERENCE STANDARDS**

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the work with electrical rough-in and installation of associated and adjacent components.
- B. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Samples: Submit two samples of each type wood trim 12 inch long.

**1.06 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

**1.07 MOCK-UP**

- A. Wood Trim and Base:
  - 1. Provide one mock-up for each trim type. Mock up to include at least two pieces of material, at least one joint of every major type, and each type of fastener..
  - 2. Locate where directed.
  - 3. Mock-up may not remain as part of the Work.

**1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Do not deliver Products to Jobsite until notified by General Contractor that Project is conditioned and prepared to handle and store Products without damage or discoloration.
- B. Protect work from moisture damage.
- C. Protect material from discoloration due to uneven exposure to light.

**PART 2 PRODUCTS**

**2.01 FINISH CARPENTRY ITEMS**

- A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI Architectural Woodwork Standards for Premium Grade.

**2.02 WOOD-BASED COMPONENTS**

- A. Wood fabricated from old growth timber is not permitted.

**2.03 LUMBER MATERIALS**

- A. Interior Hardwood Trim: Maple species; PS 20, AWI Premium Grade; plain sawn, smooth texture; mixed grain; maximum moisture content of 6 percent; suitable for clear finish.

## **2.04 FASTENINGS**

- A. Fasteners: Of size and type to suit application.
- B. Fasteners at metal framing: Recessed head type with ribbed or threaded body. The maximum size of the hole in the trim not to exceed 3/16".

## **2.05 ACCESSORIES**

- A. Wood Dowel: 1/4" diameter wood dowel.
- B. Wood Filler: Solvent base, tinted to match surface finish color.

## **2.06 FABRICATION**

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

## **2.07 SHOP FINISHING**

- A. Apply wood filler in exposed nail and screw indentations.
- B. On items to receive transparent finishes, use wood filler that matches surrounding surfaces and is of type recommended for the applicable finish.
- C. Finish work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards, Section 5 - Finishing for Grade specified and as follows:
  - 1. Transparent:
    - a. System - 12, Polyurethane, Water-based.
    - b. Clear finish
    - c. Sheen: Flat.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

### **3.02 INSTALLATION**

- A. Install work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- D. Notify Architect about discrepancies between the Drawings and Existing Conditions.
- E. Use concealed fasteners wherever possible, unless noted otherwise on Drawings.
- F. At fasteners installed through the exposed surface(s) of the trim, countersink and/or set fasteners low enough to accommodate wood plugs or wood filler.
- G. Ease sharp external corners prior to finishing.
- H. Kerf Backs of Flat Grain Members more than 5 inches wide or more than 1 inch Nominal thickness. Back Plow Interior Trim.
- I. Install reveal screeds as recommended by manufacturer and spaced as shown on drawings.

### **3.03 BASE AND TRIM INSTALLATION**

- A. Fit carefully at Joints and against other Members.
- B. Locate Joints on Solid Bearing.
- C. Bevel-cut and glue End Joints.

- D. Except where Screws are required, which shall be Countersunk and Plugged, install Trim with Nails set for puttying.

**3.04 TOLERANCES**

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

**END OF SECTION**

**SECTION 06 4100  
CUSTOM CABINETS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Specially fabricated cabinet units.
- B. Cabinet hardware.

**1.02 RELATED REQUIREMENTS**

- A. Section 12 3600 - Countertops.
- B. Section 06 2000 - Finish Carpentry. Maple trim.

**1.03 REFERENCE STANDARDS**

- A. AWI P-400 - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute; 2005, 8th Ed., Version 2.0.
- B. NEMA LD 3 - High-Pressure Decorative Laminates; National Electrical Manufacturers Association; 2005.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate materials, grades, component profiles and elevations, assembly methods, joint details, fastening methods, connections to adjacent work, accessory listings, location of hardware and grommets, and schedule of finishes.
- C. Product Data: Provide data for hardware accessories and specialty items.
- D. Samples:
  - 1. Submit two samples of each plastic laminate color specified, 4 inch x 5 inch size.
  - 2. Submit two samples of each plastic laminate edge banding, 12 inches long

**1.05 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Do not deliver Products to Jobsite until notified by General Contractor that Project is conditioned and prepared to handle and store Products without damage or discoloration.
- B. Protect units from moisture damage.

**1.07 FIELD CONDITIONS**

- A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

**PART 2 PRODUCTS**

**2.01 CABINETS**

**2.02 WOOD-BASED COMPONENTS**

- A. Wood fabricated from old growth timber is not permitted.
- B. Softwood Lumber: NIST PS 20; Graded in accordance with AWI Architectural Woodwork Quality Standards Illustrated, Custom; average moisture content of 6 percent; Doug Fir or Hemlock species.
- C. Hardwood Lumber: NHLA graded in accordance with AWI Architectural Woodwork Quality Standards Illustrated, Custom; average moisture content of 6 percent; Select White Maple species.

- D. Softwood Plywood: NIST PS 1; Graded in accordance with AWI Architectural Woodwork Quality Standards Illustrated, core materials of veneer; type of glue recommended for application; Doug Fir or Hemlock species.
- E. Substrate for Surfaces to Receive Laminate Covering:
  - 1. Particle Board:
    - a. Manufacturer & Products:
      - 1) Boise Cascade "Boise Evergreen"
      - 2) Roseburg "Skyblend"
      - 3) Substitutions: See Section 01600 - Product Requirements.
    - b. Engineered composite panel wood product made from 100% pre-consumer and reclaimed Ponderosa Pine and species of western wood particles, and no added urea-formaldehyde.
    - c. Minimum Density 45.0 lb/cu ft
    - d. Moisture Content: 7%
    - e. Sanding: 100 grit
    - f. Surface Strength: 350 psi
- F. Hardboard: AHA A135.4; Pressed wood fiber with resin binder, Class 1 - Tempered, 1/4 inch thick, smooth one side (S1S); use for drawer bottoms, dust panels, and other components indicated on drawings.

### 2.03 LAMINATE MATERIALS

- A. Manufacturers:
  - 1. Formica Corporation: [www.formica.com](http://www.formica.com).
  - 2. Panolam Industries International, Inc: [www.nevamar.com](http://www.nevamar.com).
  - 3. Wilsonart International, Inc: [www.wilsonart.com](http://www.wilsonart.com).
  - 4. Pionite: [www.piointe.com](http://www.piointe.com).
  - 5. Substitutions: See Section 01 6000 - Product Requirements.
- B. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications.
- C. Provide specific types as follows:
  - 1. Horizontal Surfaces: HGS, 0.048 inch nominal thickness, colors as scheduled, satin finish.
  - 2. Vertical Surfaces: VGS, 0.028 inch nominal thickness, colors as scheduled, satin finish.
  - 3. Cabinet Liner: CLS, 0.020 inch nominal thickness, color as selected, satin finish.
  - 4. Laminate Backer: BKL, 0.020 inch nominal thickness, undecorated; for application to concealed backside of panels faced with high pressure decorative laminate.
- D. Low-Pressure Laminate (LPL): Melamine resin impregnated paper, thermally fused to substrate.
  - 1. Manufacturer: Willamette Industries, Panolam Industries, Roseburg Forest Products, or approved.
  - 2. Color: Architect to select from standard color line; matte finish.

### 2.04 COUNTERTOPS - REFER TO SECTION 12 3600

### 2.05 ACCESSORIES

- A. Adhesive: Type recommended by AWI/AWMAC to suit application.
- B. Fasteners: Size and type to suit application.
- C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.
- D. Concealed Joint Fasteners: Threaded steel.
- E. PVC Divider: 1/8 inch thick PVC panel; 'InteFoam' by Inteplast Group, Ltd., Sinatra, or approved.
- F. Utility Grommets: plastic material for cut-outs with removable cap, black color, 3 1/2 inch O.D.; similar to "XG" by Doug Mockett & Company.

- G. Countertop Supports: Knape & Vogt "#208 Ultimate L-Bracket" or approved.
  - 1. 5mm thick steel construction, epoxy coated.
  - 2. Color: White
  - 3. Size: 550mm (21.7" deep x 14.2" high).
  - 4. Loaded capacity, up to 1,000 pounds per pair.

## **2.06 HARDWARE**

- A. Hardware: BHMA A156.9.
- B. Adjustable Shelf Supports: Steel, pin-type, satin anachrome finish, 1/4 inch or 5mm holes.
- C. Adjustable Shelf Brackets & Supports: Steel, satin anachrome finish, "255" and "256" by Knape & Vogt, or approved.
- D. Drawer and Door Pulls: "U" shaped wire pull, steel with satin finish, 4 inch centers.
- E. Cabinet Locks: Keyed cylinder, two keys per lock, key each room different, and master keyed, steel with satin finish, National Lock, Russwin, Yale, or approved. Locate where shown on Drawings. Provide with standard or custom-fabricated strike plate to fit the style of casework detailed.
- F. Drawer Slides: Galvanized steel, ball-bearings separating tracks, Grant, Blum, Accuride, Knape & Vogt, or approved.
  - 1. Typical Drawers: 3/4 extension, bottom-mount, similar to Blum BS 230 M.
  - 2. At File Drawers: epoxy coated, full extension, bottom mount, 100 lb. rating, similar to Blum BS 430 E.
  - 3. At Undercounter Mounted applications: similar to 8100 series, by Knape & Vogt.
- G. Hinges: Rockford Overlay Hinges: Model #374, 5 Knuckle Hinge, or approved.
- H. Magnetic Catches: Contractor's choice.
- I. Door Silencers: Felt or rubber to prevent noisy door to frame contact.
- J. Provide clear rubber cabinet door bumpers at locations where cabinet doors or pulls hit adjacent walls, window sills, or other building elements.

## **2.07 KEYING**

- A. Key locks by room. Master Key all locks.
- B. Provide one uncombined core and a key blank to the Owner for each cabinet lock. Final core combination and keying to be done by the Owner.

## **2.08 GENERAL FABRICATION**

- A. Fabricate to AWI Custom Grade, Flush Overlay style, unless otherwise shown on Drawings.
- B. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.
- D. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
  - 1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
  - 2. Cap exposed plastic laminate finish edges with material of same finish and pattern unless otherwise noted.
- E. Use Concealed Fasteners wherever possible.
- F. Use screws and bolts where required for strength and rigidity.
- G. Use stainless steel screws in corrosive conditions.
- H. Install Finish Hardware specified above at Shop.
- I. Machine sand exposed and semi-exposed Wood surfaces.



## **2.09 OPEN AND CONCEALED CABINET SHELVING**

- A. All shelves shall be adjustable, unless required to be fixed in place for the stability of the casework, or as otherwise noted on Drawings.

## **2.10 COMPONENT FABRICATION**

- A. Cabinet Doors and Drawer Fronts: 3/4 inch Particle Board covered with HPDL.
- B. Concealed Cabinet Backs: 1/4 inch Particle Board covered with LPL.
- C. Exposed Cabinet Backs: 1/2 inch Particle Board covered with HPDL.
- D. Drawer Sides, Backs, and Subfronts: 1/2 inch Particle Board covered with LPL, top edges banded with PVC.
- E. Drawer Bottoms: 1/2 inch Particle Board covered with LPL (flush to bottom of sides)
- F. Drawer Bottoms: 1/4 inch Particle Board covered with LPL (captured into sides).
- G. Shelving: 3/4 inch Particle Board covered with HPDL
- H. Shelving: Particle Board covered with HDPL where exposed, LPL elsewhere.
  - 1. Thickness:
    - a. At spans up to 30 inches: 3/4 inch
    - b. At spans over 30 inches: 1 inch
  - 2. Number of shelves, unless otherwise noted on Drawings:
    - a. Wall cabinets: One shelf per 6 inch cabinet height over 24 inches.
    - b. Storage Cabinets: One shelf per 12 inch cabinet height over 24 inches.
- I. Cabinet Sides and Bottoms: 3/4 inch Particle Board covered with HDPL, with PVC edgebanding to match adjacent HPDL.
- J. Exposed Cabinet Ends: HPDL over substrate.
- K. Edge Banding:
  - 1. At Plastic Laminate Faced Surfaces: Band with .020 inch compatible PVC as shown or noted on the Drawings
  - 2. At exposed Plywood and other Panel Edges: Band in accordance with AWI Standards.
  - 3. At LPL Faced Surfaces: Band with .020 inch PVC to match adjacent color.
- L. Adjustable Shelf Brackets: Install Shelf Bracket Standard full height of space where Adjustable Shelves are shown. Recess flush into Cabinet Space. At optional 32mm line boring provide full length.
- M. Drawer Slides: Follow Manufacturer's Directions.
- N. Sink Cabinets: Hold Shelves, including Bottoms, 3/4 inch back from rear face of Door to provide open space for ventilation.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify field measurements prior to fabrication.
- B. If Field Measurements differ slightly from Drawing Dimensions, modify Work as required for accurate fit. If Measurements differ substantially, notify Architect prior to fabrication.
- C. Verify adequacy of backing and support framing.
- D. Verify location and sizes of utility rough-in associated with work of this section.

### **3.02 INSTALLATION**

- A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- B. Use concealed joint fasteners to align and secure adjoining cabinet units.
- C. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.
- D. Secure cabinets to floor using appropriate angles and anchorages.

- E. Countersink anchorage devices at exposed locations. Conceal with finish nails where possible, or solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.
- F. Ease sharp external corners prior to finishing.

**3.03 ADJUSTING**

- A. Adjust installed work.
- B. Adjust moving or operating parts to function smoothly and correctly.

**3.04 CLEANING**

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

**END OF SECTION**

**SECTION 08 0671  
DOOR HARDWARE SCHEDULE**

**GROUP 1 – Offices (Except as noted otherwise)**

Doors 311AA, 311AB, 320A, 320BA, 320CA

3	EA	BUTTS	T4A3386 4 ½" X 4 ½" NRP	630	MC
1	EA.	LOCKSET	ND50 Rhodes x 10-025 Office Function	626	SCH
1	EA	CYLINDER	1246 KEYWAY	626	SCH
2	EA.	WALLSTOP	408.5	626	IVES
2	EA	KICKPLATE	K0038 10 X 46	630	TRI
1	SET	SEALS	PK33BL	Black	PEMKO

**GROUP 2 – Teaching Labs**

Doors 323A, 327A

3	EA	BUTTS	T4A3786 4.5 X 4.5 NRP	652	MCK
1	EA	PANIC 99LF-03	626 Lever: Rhodes Lock function: Classroom	VD	
1	EA	CYLINDER 20-757	626	SCH	
2	EA.	WALLSTOP	408.5	626	IVES
2	EA	KICKPLATE	K0038 10 X 46	630	TRI
1	SET	SEALS	PK33BL	Black	PEMKO

**GROUP 3 – Server Room and IT Office**

Doors 320AA, 329A

3	EA	BUTTS	T4A3386 4 ½" X 4 ½" NRP	630	MC
1	EA.	LOCKSET	ND80 Rhodes x 10-025 Storeroom Function	626	SCH
1	EA	CYLINDER	1246 KEYWAY	626	SCH
2	EA.	WALLSTOP	408.5	626	IVES
2	EA	KICKPLATE	K0038 10 X 46	630	TRI
1	SET	SEALS	PK33BL	Black	PEMKO

End of Schedule

**SECTION 08 1113**  
**HOLLOW METAL DOORS AND FRAMES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Non-fire-rated steel doors and frames.
- B. Steel frames for wood doors.
- C. Sound-rated (acoustical) steel doors and frames.
- D. Steel glazing frames.
- E. Accessories, including glazing, louvers, and matching panels.

**1.02 PRODUCTS TO BE SUPPLIED BY A SINGLE VENDOR**

- A. To provide a higher level of coordination the following building materials must be provided by the same sub-contractor.
  - 1. 08 11 13 - Hollow Metal Doors and Frames
  - 2. 08 14 16 - Flush Wood Doors
  - 3. 08 71 00 - Door Hardware

**1.03 RELATED REQUIREMENTS**

- A. Section 08 14 16 - Flush Wood Doors
- B. Section 08 7100 - Door Hardware.
- C. Section 08 8000 - Glazing: Glass for doors and borrowed lites.
- D. Section 09 21 16 - Gypsum Board Assemblies: Grouting hollow steel door frames
- E. Section 09 9000 - Painting and Coating: Field painting.

**1.04 REFERENCE STANDARDS**

- A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2003.
- B. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003.
- C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998 (R2004).
- D. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.
- E. ASTM E413 - Classification for Rating Sound Insulation; 2010.
- F. ASTM E1408 - Standard Test Method for Laboratory Measurement of the Sound Transmission Loss of Door Panels and Door Systems; 1991 (Reapproved 2000).
- G. BHMA A156.115 - Hardware Preparation in Steel Doors and Steel Frames; 2006.
- H. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; The National Association of Architectural Metal Manufacturers; 2007.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced grade standard.
- C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.
- D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

- E. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.

## **1.06 QUALITY ASSURANCE**

- A. The steel door and frame supplier shall be a manufacturer or distributor regularly engaged in supplying hollow metal products in this geographic area who has competent field personnel available to consult with the Architect and Contractor regarding applications or field installation problems.
- B. It is the intent of this specification to provide a general guideline for the quality, function, and design of the hollow metal doors, frames, and windows. It is the specific responsibility of the hollow steel supplier to furnish products which are fully functional, in full compliance with state and local building codes, fire codes, and disability and accessibility codes. Any supplier bidding on this section of the work shall notify the Architect prior to bidding, in accordance with Instructions to Bidders, of discrepancies or will be assumed to have included correct material to make this compliance.

## **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Store in accordance with NAAMM HMMA 840.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Steel Doors and Frames:
  - 1. Assa Abloy Ceco, Curries, or Fleming: [www.assaabloydss.com](http://www.assaabloydss.com).
  - 2. Republic Doors: [www.republicdoor.com](http://www.republicdoor.com).
  - 3. Stiles Custom Metal Doors and Frames: [www.stilesdoor.com](http://www.stilesdoor.com)
  - 4. Steelcraft: [www.steelcraft.com](http://www.steelcraft.com).
  - 5. Substitutions: See Section 01 6000 - Product Requirements.

### **2.02 DOORS AND FRAMES**

- A. Requirements for All Doors and Frames:
  - 1. Accessibility: Comply with ANSI/ICC A117.1.
  - 2. Door Top Closures: Flush with top of faces and edges.
  - 3. Door Edge Profile: Beveled on both edges.
  - 4. Door Texture: Smooth faces.
  - 5. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.
  - 6. Hardware Preparation: In accordance with BHMA A156.115, with reinforcement welded in place, in addition to other requirements specified in door grade standard.
  - 7. Galvanizing : All exterior door and frame components hot-dipped zinc-iron alloy-coated (galvannealed), A40/ZF120.
  - 8. Finish: Factory primed, for field finishing.
- B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with all the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

### **2.03 STEEL DOORS**

- A. Interior Doors , Non-Fire-Rated, 18 gage:
  - 1. Grade: ANSI A250.8 Level 2, physical performance Level B, Model 2, seamless.
  - 2. Core: Manufacturer's standard core material.
  - 3. Thickness: 1-3/4 inches.
- B. Interior Doors , Sound-Rated (acoustical): 18 gage
  - 1. Grade: ANSI A250.8 Level 2, physical performance Level B, Model 2, seamless.

2. STC Rating of Assembled Door, Frame, and Seals: 35, calculated in accordance with ASTM E413, tested in accordance with ASTM E90 or ASTM E1408.
3. Core: Manufacturer's standard core material.
4. Texture: Smooth faces.
5. Sound Seals: Integral, concealed in door or frame.
6. Note: all Office and Teaching Lab doors to be Sound-Rated.

C. Panels: Same construction, performance, and finish as doors.

## **2.04 STEEL FRAMES**

A. General:

1. Comply with the requirements of grade specified for corresponding door, except:
  - a. ANSI A250.8 Level 1 Doors: 16 gage frames.
  - b. ANSI A250.8 Level 2 Doors: 16 gage frames.
  - c. ANSI A250.8 Level 3 Doors, exterior door frames, and door frames over 4 feet wide: 14 gage frames.
  - d. Frames for Wood Doors: Comply with frame requirements specified in ANSI A250.8 for Level 1, 16 gage
  - e. Frames for Sound-Rated Wood Doors: Comply with frame requirements specified in ANSI A250.8 for Level 1, 16 gage
2. Finish: Factory primed, for field finishing.
3. Frames Wider than 48 Inches: Reinforce with steel channel fitted tightly into frame head, flush with top.
4. Frames Installed Back-to-Back: Reinforce with steel channels anchored to floor and overhead structure.

B. Interior Door Frames , Non-Fire-Rated: Face welded type.

C. Interior Door Frames , Fire-Rated: Face welded type.

1. Fire Rating: Same as door, labeled.

D. Sound-Rated (Acoustical) Door Frames: Face welded type.

E. Frames for Interior Glazing or Borrowed Lights: Construction and face dimensions to match door frames, and as indicated on drawings. Place the glass and stops on the hallway side of the frame.

F. Frames for Cased Openings: Construction and face dimensions to match door frames, and as indicated on drawings.

## **2.05 ACCESSORY MATERIALS**

A. Glazing: As specified in Section 08 8000 .

B. Removable Stops in steel window frames: Formed sheet steel, shape as indicated on drawings, butted corners ; prepared for countersink style tamper proof screws.

C. Removeable stops in non-fire rated steel doors: Similar to Air Louvers, Inc. Model VLF1G square vision light steel stops. 18 gage cold rolled steel frame with mitered and welded corners, prepared countersunk style tamper proof screws.

1. Finish:

- a. Exterior Doors - Electro-galvanize and prime painted
- b. Interior Doors - Powder coated prime paint for field finishing with doors.

D. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.

E. Temporary Frame Spreaders: Provide for all factory- or shop-assembled frames.

## **2.06 FINISH MATERIALS**

A. Primer: Rust-inhibiting, complying with ANSI A250.10 , door manufacturer's standard.

B. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.

### **3.02 PREPARATION**

- A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

### **3.03 INSTALLATION**

- A. Install in accordance with the requirements of the specified door grade standard and NAAMM HMMA 840.
- B. Coordinate frame anchor placement with wall construction.
  - 1. Provide 4 fasteners per side; one by top hinge, one by bottom hinge, and the other two between the middle and top and bottom hinge.
- C. Coordinate installation of hardware.
- D. Coordinate installation of glazing.
- E. Pack frames with acoustical insulation after installation within framed wall, prior to installation of Gypsum Board.
- F. Touch up damaged factory finishes.
- G. At frames with exposed "punch and dimple" fasteners, cover fastener with 'Bondo' type patching compound, flush with door frame and sanded smooth, prior to painting.

### **3.04 TOLERANCES**

- A. Clearances Between Door and Frame: As specified in ANSI A250.8.
- B. Maximum Diagonal Distortion: 1/16 in measured with straight edge, corner to corner.

### **3.05 ADJUSTING**

- A. Adjust for smooth and balanced door movement.
- B. Adjust sound control doors so that seals are fully engaged when door is closed.

**END OF SECTION**

**SECTION 08 1416**  
**FLUSH WOOD DOORS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Flush wood doors; flush configuration; non-rated and acoustical.

**1.02 PRODUCTS TO BE SUPPLIED BY A SINGLE VENDOR**

- A. To provide a higher level of coordination the following building materials must be provided by the same sub-contractor.
  - 1. 08 11 13 - Steel Doors and Frames
  - 2. 08 14 16 - Flush Wood Doors
  - 3. 08 71 00 - Door Hardware

**1.03 RELATED REQUIREMENTS**

- A. Section 06 2000 - Finish Carpentry.
- B. Section 08 1113 - Hollow Metal Doors and Frames.
- C. Section 08 7100 - Door Hardware.
- D. Section 08 8000 - Glazing.

**1.04 REFERENCE STANDARDS**

- A. ASTM E413 - Classification for Rating Sound Insulation; 2010.
- B. ASTM E1408 - Standard Test Method for Laboratory Measurement of the Sound Transmission Loss of Door Panels and Door Systems; 1991 (Reapproved 2000).
- C. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2010.
- D. UL 1784 - Standard for Air Leakage Tests of Door Assemblies; Current Edition, Including All Revisions.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- C. Specimen warranty.
- D. Test Reports: Show compliance with specified requirements for the following:
  - 1. Sound-retardant doors and frames; sealed panel tests are not acceptable.
- E. Samples: Submit two samples of door veneer, 8x12 inch in size illustrating wood grain, stain color, and sheen.
- F. Manufacturer's Installation Instructions: Indicate special installation instructions.
- G. Warranty, executed in Owner's name.

**1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Installed Fire Rated Door and Transom Panel Assembly: Conform to NFPA 80 for fire rated class as indicated.
- C. Sound Retardant (Acoustical) Doors: Provide test reports showing that door and frame assembly meets requirements; sealed panel tests not acceptable.

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage.



- C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

## **1.08 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Interior Doors: Provide manufacturer's warranty for the life of the installation.
- C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, telegraphing core construction, and discoloration.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Wood Veneer Faced Doors:
  - 1. Eggers Industries: [www.eggersindustries.com](http://www.eggersindustries.com).
  - 2. Haley Brothers: [www.haleybros.com](http://www.haleybros.com).
  - 3. Lynden Door, Inc. [www.lyndendoor.com](http://www.lyndendoor.com)
  - 4. Marshfield Door Systems, Inc: [www.marshfielddoors.com](http://www.marshfielddoors.com). (formerly Weyerhaeuser Door Division)
  - 5. Algoma; [www.algomahardwoods.com](http://www.algomahardwoods.com)
  - 6. Vancouver Architectural Doors: [www.vancouverdoorco.com](http://www.vancouverdoorco.com)
  - 7. Western Oregon Door; [www.oregondoors.com](http://www.oregondoors.com)
  - 8. VT Industries: [www.vtindustries.com](http://www.vtindustries.com), 1-800-827-1615

### **2.02 DOORS TYPES**

- A. All Doors: See drawings for locations and additional requirements.
  - 1. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
- B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
  - 1. Provide solid core doors at all locations .
  - 2. Smoke and Draft Control Doors : In addition to required fire rating, provide door assemblies tested in accordance with UL 1784 with maximum air leakage of 3.0 cfm per sq ft of door opening at 0.10 inch w.g. pressure at both ambient and elevated temperatures; with "S" label; if necessary, provide additional gasketing or edge sealing.
  - 3. Sound Retardant Doors (Indicated as "Acoustical Door" on the Drawings and/or Door Schedule): Minimum STC of 31, calculated in accordance with ASTM E 413, tested in accordance with ASTM E 1408. Provide gasket all around any door identified as a "Acoustical Door" regardless if the gasket is listed in the Door Hardware Schedule or not.
    - a. Note: All Office and Teaching Lab doors to be "Acoustical Door".
  - 4. Wood veneer facing with factory transparent finish where indicated on drawings.

### **2.03 DOOR AND PANEL CORES**

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated above.
- B. Fire Rated Doors: Mineral core, Type FD, plies and faces as indicated above; with core blocking as required to provide adequate anchorage of hardware without through-bolting.
- C. Sound Retardant Doors: Equivalent to Type PC construction with core as required to achieve rating specified; plies and faces as indicated above.

### **2.04 DOOR FACINGS**

- A. Wood Veneer Facing for Transparent Finish: Red oak, veneer grade as specified by quality standard, plain sliced, book veneer match, running, running assembly match; unless otherwise indicated.
  - 1. Vertical Edges: Any option allowed by quality standard for grade.
  - 2. Pairs: Pair match each pair; set match pairs within 10 feet of each other when doors are closed.

- B. Facing Adhesive: Type I - waterproof.

## **2.05 ACCESSORIES**

- A. Glazing Stops: Wood, of same species as door facing, mitered corners; prepared for countersink style nails. Similar to Marshfield W-2 Lit Kit Moldings.
- B. Removable stops in non-fire rated wood doors: Similar to Air Louvers, Inc. Model VLF1G square vision light steel stops. 18 gage cold rolled steel frame with mitered and welded corners, prepared countersunk style tamper proof screws.
  - 1. Finish:
    - a. Exterior Doors - Electro-galvanize and prime painted
    - b. Interior Doors - Powder coated prime paint for field finishing.

## **2.06 DOOR CONSTRUCTION**

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with stiles and rails:
- C. Provide solid blocks at lock edge and top of door for closer for hardware reinforcement.
  - 1. Provide solid blocking for other through-bolted hardware.
- D. Bond edge banding to cores.
- E. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- F. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
  - 1. Exception: Doors to be field finished.
- G. Provide edge clearances in accordance with the quality standard specified.
- H. Fabricate any Fire Rated doors to receive panic hardware with inner blocking which will permit hardware installation without through-bolting.

## **2.07 FACTORY FINISHING - WOOD VENEER DOORS**

- A. Seal door top edge with color sealer to match door facing.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

### **3.02 INSTALLATION**

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
  - 1. Install fire-rated doors in accordance with NFPA 80 requirements.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Adjust width of non-rated doors by cutting equally on both jamb edges.
  - 1. Trim maximum of 3/4 inch off bottom edges.
  - 2. Trim fire-rated doors in strict compliance with fire rating limitations.
- D. Seal job-cut Surfaces with 2 coats Waterproof Sealer compatible with Door Finish.
- E. Use machine tools to cut or drill for hardware.
- F. Coordinate installation of doors with installation of frames and hardware.
- G. Coordinate installation of glazing.
- H. Protect veneer from damage during construction. Do not wedge open doors with any material that might cause the veneer to split or chip.

### **3.03 TOLERANCES**

- A. Conform to specified quality standard for fit and clearance tolerances.
- B. Conform to specified quality standard for telegraphing, warp, and squareness.

### **3.04 ADJUSTING**

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

### **3.05 SCHEDULE**

- A. Refer to Door and Frame Schedule appended to the Drawings.

**END OF SECTION**

**SECTION 08 7100  
DOOR HARDWARE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Hardware for wood doors.

**1.02 PRODUCTS TO BE SUPPLIED BY A SINGLE VENDOR**

- A. To provide a higher level of coordination the following building materials must be provided by the same sub-contractor.
  - 1. 08 11 33 (08110) - Steel Doors and Frames
  - 2. 08 14 16 (08211) - Flush Wood Doors
  - 3. 08 71 00 (08710) - Door Hardware

**1.03 RELATED REQUIREMENTS**

- A. Section 08 1113 - Hollow Metal Doors and Frames.
- B. Section 08 1416 - Flush Wood Doors.

**1.04 REFERENCE STANDARDS**

- A. BHMA A156.2 - American National Standard for Bored and Preassembled Locks & Latches; Builders Hardware Manufacturers Association; 2003 (ANSI/BHMA A156.2).
- B. BHMA A156.8 - American National Standard for Door Controls - Overhead Stops and Holders; Builders Hardware Manufacturers Association, Inc.; 2005 (ANSI/BHMA A156.8).
- C. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems, Builders Hardware Manufacturers Association; 2005 (ANSI/BHMA A156.22).
- D. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute; 2004.
- E. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors; Door and Hardware Institute; 1993; also in WDHS-1/WDHS-5 Series, 1996.
- F. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2010.
- G. OSSC - Oregon Structural Specialty Code - Latest edition.
- H. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

**1.05 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the manufacture, fabrication, and installation of products onto which door hardware will be installed.
- B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.
- C. Convey Owner's keying requirements to manufacturers.
- D. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; require attendance by all affected installers.
  - 1. Coordinate meeting with progress and installation of Access Control systems at doors.
- E. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

**1.06 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Hardware Submittal: Prepare a vertical schedule of hardware:
  - 1. Door numbers must be in numerical sequence.
  - 2. List each opening, door size, door hand, door and frame material, description of to and from, manufacturer's numbers and finish.

3. Deliver six copies of this schedule, and three sets of catalog cut sheets for architect, owner and contractor.
  4. Hardware supplier will retype schedule when changes occur during the project and will supply the contractor with 4 new schedules.
- C. Keying Schedule: Submit for approval of Owner.
  - D. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.
  - E. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
    1. Provide a copy of the as-built record of the hardware schedule installed in the project with the operations and maintenance manuals.
  - F. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.
  - G. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
  - H. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
    1. See Section 01 6000 - Product Requirements, for additional provisions.
    2. Tools: One set of all special wrenches or tools applicable to each different or special hardware component, whether supplied by the hardware component manufacturer or not.
  - I. Prior to final project acceptance, supplier's representative shall make one field inspection and certify, in writing to the Architect, that hardware installation complies with the project documents, approved hardware schedule, and Manufacturer's instructions, and that installation is complete and all hardware items have been properly installed and correctly adjusted, or provide a list of items that require correction.
  - J. Prior to final project acceptance, supplier's representative shall instruct Owner how to properly adjust and maintain hardware.

#### **1.07 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware with five years of experience.
- C. Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC) to assist in the work of this section. This representative shall be available for consultation at the Jobsite by request of the Architect and Contractor to review, consult, advise, and help in the selection, specification and installation of all finish hardware. The representative must have current working knowledge of the State and Local Building Codes, Fire Codes, and disability and accessibility codes.
- D. Hardware supplier shall be a factory direct distributor for all products and services required for this project.

#### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

#### **1.09 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide one year warranty for all door hardware.
- C. Provide ten year warranty for door closers.

## **PART 2 PRODUCTS**

### **2.01 RESPONSIBILITY**

- A. This specification is intended as a guideline for quality and operation and is not to be construed as a complete list. It is the specific responsibility of the hardware supplier to furnish complete hardware for all openings that is functional, meets the Owner's intended use, and in full compliance with all State and Local Building Codes, Fire Codes, disability and accessibility codes. Any supplier bidding on this section of the work shall notify the Architect prior to bidding, of discrepancies or will be assumed to have included correct material to make this compliance.

### **2.02 DOOR HARDWARE - GENERAL**

- A. Provide all hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.
- B. Provide all items of a single type of the same model by the same manufacturer.
- C. Provide products that comply with the following:
  - 1. Applicable provisions of federal, state, and local codes.
  - 2. Fire-Rated Doors: NFPA 80.
  - 3. All Hardware on Fire-Rated Doors : Listed and classified by UL as suitable for the purpose specified and indicated.
  - 4. Hardware for Smoke and Draft Control Doors (Indicated as "S" on Drawings): Provide hardware that enables door assembly to comply with air leakage requirements of the applicable code.

### **2.03 HINGES**

- A. Note: First manufacturer listed represents the manufacturer for the basis of the hardware schedule. The other manufacturers listed are acceptable manufacturers.
- B. Hinges and Butts: Mortise type. At any unusual sized doors provide size and quantity of hinges recommended by hinge manufacturer. Provide non-removable pins on all doors.
- C. Hinges: Provide hinges on every swinging door.
  - 1. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
  - 2. Provide ball-bearing hinges at all doors having closers.
  - 3. Provide hinges in the quantities indicated.
  - 4. Provide non-removable pins on exterior outswinging doors.
  - 5. Where electrified hardware is mounted in door leaf, provide power transfer hinges.

### **2.04 LOCKS AND LATCHES**

- A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
  - 1. Hardware Sets indicate locking functions required for each door.
  - 2. If no hardware set is indicated for a swinging door provide an office lockset.
  - 3. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
  - 4. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.
- B. Lock Cylinders: Manufacturer's standard tumbler type, six-pin standard core.
  - 1. Provide cams and/or tailpieces as required for locking devices required.
- C. Keying: Grand master keyed.
- D. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".

### **2.05 CYLINDRICAL LOCKSETS**

- A. Cylindrical Locksets:
- B. Locking Functions: As defined in BHMA A156.2, and as follows:
- C. Manufacturers - Cylindrical Locksets:

1. Schlage: [www.schlage.com](http://www.schlage.com).
2. Substitutions: See Section 01 6000 - Product Requirements.

## **2.06 STOPS AND HOLDERS**

- A. Stops: Complying with BHMA A156.8; provide a stop for every swinging door, unless otherwise indicated.
  1. Provide wall stops, unless otherwise indicated.
  2. If wall stops are not practical, due to configuration of room or furnishings, provide overhead stop.
  3. Stop is not required if positive stop feature is specified for door closer; positive stop feature of door closer is not an acceptable substitute for a stop unless specifically so stated.

## **2.07 GASKETING AND THRESHOLDS**

- A. Gaskets: Complying with BHMA A156.22.
  1. On each door in smoke partition, provide smoke gaskets; top, sides, and meeting stile of pairs. If fire/smoke partitions are not indicated on drawings, provide smoke gaskets on each door identified as a "smoke door" and 20-minute rated fire doors.
  2. On doors indicated as "sound-rated", "acoustical", or with an STC rating, provide sound-rated gaskets and automatic door bottom; make gaskets completely continuous, do not cut or notch gaskets for installation.

## **2.08 KEYING**

- A. Provide locks and interchangeable cylinder cores for construction purposes. In addition, provide one uncombined core and two key blanks to the Owner for each lockset scheduled. Final core combining and keying to be done by the Owner.
- B. Keying Conference:
  1. Upon receipt of approved hardware schedule, supplier will, at the earliest convenience, attend a meeting with the Owner and Architect at the project site. The purpose of the meeting will be to review existing keying patterns and determine keying requirements for the new work.
  2. Following this meeting, the Supplier will provide Written Schedule showing keying of all new Lock Systems.
  3. 6 master keys all stamped "DO NOT DUPLICATE".
  4. 4 change keys for each lock, all stamped "DO NOT DUPLICATE".

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.
- B. Verify that electric power is available to power operated devices and of the correct characteristics.

### **3.02 INSTALLATION**

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Use templates provided by hardware item manufacturer.
- C. Install hardware on fire-rated doors and frames in accordance with code and NFPA 80.
- D. Mounting heights for hardware from finished floor to center line of hardware item:
  1. For steel doors and frames: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames."
  2. For wood doors: Comply with DHI "Recommended Locations for Architectural Hardware for Wood Flush Doors."

### **3.03 FIELD QUALITY CONTROL**

- A. Provide an Architectural Hardware Consultant to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

### **3.04 ADJUSTING**

- A. Adjust work under provisions of Section 01 7000.

### **3.05 CERTIFICATION OF COMPLIANCE**

- A. Prior to final project acceptance, supplier's representative shall make one field inspection and certify, in writing to the Architect, that hardware installation complies with the project documents, approved hardware schedule, and manufacturer's instructions, and that installation is complete and all hardware items have been properly installed and correctly adjusted, or provide a list of items that require correction.
- B. Prior to final project acceptance, supplier's representative shall instruct Owner how to properly adjust and maintain Hardware.

### **3.06 PROTECTION**

- A. Protect finished Work under provisions of Section 01 7000.
- B. Do not permit adjacent work to damage hardware or finish.

**END OF SECTION**



## SECTION 08 8000

### GLAZING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Glass.
- B. Glazing compounds and accessories.

##### 1.02 RELATED REQUIREMENTS

- A. Section 08 1113 - Hollow Metal Doors and Frames: Glazed doors and borrowed lites.
- B. Section 08 1416 - Flush Wood Doors: Glazed doors.

##### 1.03 REFERENCE STANDARDS

- A. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005.
- B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2011.
- C. ASTM C1036 - Standard Specification for Flat Glass; 2006.
- D. ASTM C1048 - Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass; 2004.
- E. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2010.
- F. GANA (GM) - GANA Glazing Manual; Glass Association of North America; 2009.
- G. GANA (SM) - FGMA Sealant Manual; Glass Association of North America; 2008.
- H. OSSC - Oregon Structural Specialty Code - Latest edition

##### 1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
- C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.
- D. Samples: Submit two samples 12x 12 inch in size of glass and plastic units, showing coloration and design.
- E. Certificates: Certify that products meet or exceed specified requirements.
- F. Manufacturer's Certificate: Certify that sealed insulating glass meets or exceeds specified requirements.

##### 1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods.
- B. Sealed Insulating Glass Material Manufacturer: Company specializing in the manufacture of sealed insulated glass units with a minimum of five years experience.
- C. Installer Qualifications: Company specializing in performing the work of this section with minimum ten years documented experience.

##### 1.06 FIELD CONDITIONS

- A. Do not install glazing when ambient temperature is less than 50 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

##### 1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

- B. Sealed Insulating Glass Units: Provide a ten (10) year warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units.
- C. Laminated Glass: Provide a ten (10) year warranty to include coverage for delamination, including replacement of failed units.

## **PART 2 PRODUCTS**

### **2.01 GLASS MATERIALS**

- A. Float Glass Manufacturers:
  - 1. AGC Flat Glass North America, Inc: [www.afgglass.com](http://www.afgglass.com).
  - 2. Pilkington Building Products North America: [www.buildingproducts.us.pilkington.com](http://www.buildingproducts.us.pilkington.com).
  - 3. PPG Industries, Inc: [www.ppgideascales.com](http://www.ppgideascales.com).
  - 4. Viricon.
  - 5. Cardinal Glass Industries: [www.cardinalcorp.com](http://www.cardinalcorp.com)
  - 6. Substitutions: Refer to Section 01 6000 - Product Requirements.
- B. Float Glass: All glazing is to be float glass unless otherwise indicated.
  - 1. Annealed Type: ASTM C1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).
  - 2. Heat-Strengthened and Fully Tempered Types: ASTM C1048.
  - 3. Thicknesses: As indicated; for exterior glazing comply with specified requirements for wind load design regardless of specified thickness.
- C. Tempered Safety Glass : ; fully tempered.
  - 1. Extent of Work: Where shown on drawings and where required by current version of the OSSC (building code).
  - 2. Interior glazed openings: Clear
  - 3. Exterior glazed openings: Solar Control Low-E and clear in insulated units as specified below.

### **2.02 OTHER GLAZING PRODUCTS**

- A. Interior Relites:
  - 1. Single glazed clear float, tempered, except noted below.
- B. Glass in Wood or HS doors:
  - 1. Clear, tempered, i, safety glass.
- C. Edge Seal Construction: Aluminum, bent and soldered corners.

### **2.03 GLAZING COMPOUNDS**

- A. As recommended by the glazing manufacturer for particular applications.
- B. Silicone Sealant : Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C 920, Type S, Grade NS, Class 25, Uses M, A, and G; cured Shore A hardness of 15 to 25; color as selected.

### **2.04 GLAZING ACCESSORIES**

- A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness, ASTM C 864 Option I. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness, ASTM C 864 Option I. Minimum 3 inch long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face.
- C. Glazing Tape: Preformed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; size as needed for conditions of application; black color.
- D. Glazing Gaskets: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C 864 Option I; black color.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that openings for glazing are correctly sized and within tolerance.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

### **3.02 PREPARATION**

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant.
- D. Install sealants in accordance with ASTM C1193 and FGMA Sealant Manual.
- E. Install sealant in accordance with manufacturer's instructions.

### **3.03 INSTALLATION**

- A. Install in strict accordance with manufacturer's instructions and FGMA Glazing Manual.

### **3.04 INSTALLATION - EXTERIOR/INTERIOR DRY METHOD (GASKET GLAZING)**

- A. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
- B. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.
- C. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

### **3.05 INSTALLATION - INTERIOR DRY METHOD (TAPE AND TAPE)**

- A. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch (1.6 mm) above sight line.
- B. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
- C. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
- D. Place glazing tape on free perimeter of glazing in same manner described above.
- E. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
- F. Knife trim protruding tape.

### **3.06 CLEANING**

- A. Remove glazing materials from finish surfaces.
- B. Remove labels after Work is complete.

### **3.07 PROTECTION**

- A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

**END OF SECTION**

**SECTION 09 2116**  
**GYPSUM BOARD ASSEMBLIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Acoustic insulation in wall and ceiling assemblies receiving gypsum board.
- B. Acoustical sealant and accessory installation
- C. Building Paper over Gypsum Sheathing.
- D. Gypsum wallboard.
- E. Joint treatment and accessories.
- F. Textured finish system.
- G. Installation of Wall and Ceiling Mounted Access Hatches provided by other sections.

**1.02 RELATED REQUIREMENTS**

- A. Section 09 2216 - Non-Structural Metal Framing.
- B. Section 09 96 00 - Painting: PVA Sealer coating on Gypsum Board

**1.03 REFERENCE STANDARDS**

- A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002 (Reapproved 2007).
- B. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2008.
- C. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2010.
- D. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2007.
- E. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2010a.
- F. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2009a.
- G. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2010.
- H. OSSC - Oregon Structural Specialty Code; 2007 with current amendments.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Samples: Submit two samples of gypsum board finished with proposed texture application, 24 inches square in size, illustrating finish color and texture.

**1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing , with minimum 2 years of documented experience.

**PART 2 PRODUCTS**

**2.01 GYPSUM BOARD ASSEMBLIES**

- A. Provide completed assemblies complying with ASTM C840 and GA-216.

**2.02 BOARD MATERIALS**

- A. Manufacturers - Gypsum-Based Board:
  - 1. Georgia-Pacific Gypsum LLC: [www.gp.com/gypsum](http://www.gp.com/gypsum).
  - 2. National Gypsum Company: [www.nationalgypsum.com](http://www.nationalgypsum.com).
  - 3. USG Corporation: [www.usg.com](http://www.usg.com).
  - 4. Celotex Corp.

5. Domtar Gypsum America, Inc.
  6. Substitutions: See Section 01 6000 - Product Requirements.
- B. Wallboard: Paper-faced gypsum wallboard as defined in ASTM C 1396/C 1396M; sizes to minimize joints in place; ends square cut, edges tapered.
1. Application: Use for vertical surfaces, unless otherwise indicated.
  2. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
  3. Thickness:
    - a. Vertical Surfaces: 5/8 inch.
    - b. Multi-Layer Assemblies: Thicknesses as indicated on drawings.
- C. Fire Resistant Gypsum Wallboard: ASTM C 1396/C 1396M. Sizes to minimize joints in place, ends square cut. Complying with Type X requirements; UL or WH rated.

### **2.03 ACOUSTICAL ACCESSORIES**

- A. Acoustic Insulation: ASTM C 665; preformed glass fiber, friction fit type, unfaced. Provide materials meeting Greenguard Indoor Air Quality Certified by the Greenguard Environmental Institute under the Greenguard Standard for Low Emitting Products. Fill entire stud cavity unless otherwise shown on drawings.
- B. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.

### **2.04 ACCESSORIES**

- A. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless otherwise indicated.
1. Types: As detailed or required for finished appearance.
  2. Special Shapes: In addition to conventional cornerbead and control joints, provide U-bead at exposed panel edges.
- B. Expansion and Control Joints: Aluminum, similar to Fry Reglet DRM-50-50 2 piece.
- C. Reveal Molding: Aluminum, 5/8 inch deep, 1/2 inch wide, similar to Fry Reglet DRM 625-50.
- D. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
1. Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
  2. Ready-mixed vinyl-based joint compound.
- E. High Build Drywall Surfer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.
- F. Textured Finish Materials: Latex-based compound; plain.
- G. Screws for Attachment to Steel Members Less Than 0.03 inch In Thickness, to Wood Members, and to Gypsum Board: ASTM C1002; self-piercing tapping type; cadmium-plated for exterior locations.
- H. Screws for Attachment to Steel Members From 0.033 to 0.112 Inch in Thickness: ASTM C954; steel drill screws for application of gypsum board to loadbearing steel studs.
- I. Paint Primer: As specified and installed in Section 09900.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that project conditions are appropriate for work of this section to commence.

### **3.02 ACOUSTIC SEALANT AND ACCESSORIES INSTALLATION**

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
1. Place one bead continuously on substrate before installation of perimeter framing members.

2. Place continuous bead at perimeter of each layer of gypsum board.
  3. In non-fire-rated construction, seal around all penetrations by conduit, pipe, ducts, and rough-in boxes.
- C. Fill all gaps between inside of door frame at head and jambs and wall framing members at door opening the full depth of the wall prior to the installation of gyp board.

### **3.03 BOARD INSTALLATION**

- A. Comply with ASTM C 840 and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
1. Exception: Tapered edges to receive joint treatment at right angles to framing.
- C. Double-Layer Non-Rated: Use gypsum board for first layer, placed perpendicular to framing or furring members, with ends and edges occurring over firm bearing. Use glass mat faced gypsum board at exterior walls and at other locations as indicated. Place second layer perpendicular to framing or furring members. Offset joints of second layer from joints of first layer.
- D. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- E. Installation on Metal Framing: Use screws for attachment of all gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.

### **3.04 INSTALLATION OF TRIM AND ACCESSORIES**

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.
- D. Reveal Moulding: Install in patterns as shown on drawings according to manufacturer's instructions, directly to wall framing, or base layer of wall board in multiple layer applications. Cutting in reveal molding after wall board installation is not acceptable.
- E. Wall and Ceiling Mounted Access Hatches: Coordinate size, location and number of access hatches shown to be provided in other specification sections or on the drawings. Install these access hatches in gypsum board walls and ceilings in accordance with manufacturer's instructions flat and smooth in wall and ceiling surfaces. Leave clean and ready for finish painting specified in Section 09900.

### **3.05 JOINT TREATMENT**

- A. Paper Faced Gypsum Board: Use paper joint tape, bedded with ready-mixed vinyl-based joint compound and finished with ready-mixed vinyl-based joint compound.
- B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
  2. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
  3. Level 3: Walls to receive textured wall finish.
  4. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
  5. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.
  6. Level 0: Temporary partitions and surfaces indicated to be finished in later stage of project.
- C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
1. Feather coats of joint compound so that camber is maximum 1/32 inch.

2. Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile and fixed cabinetry.
  3. Taping, filling and sanding is not required at base layer of double layer applications.
- D. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.
- E. Spray apply high build drywall Surfacers over entire surface after joints have been properly treated to achieve Level 5 finish in areas indicated.

### **3.06 TEXTURE FINISH**

- A. Coordinate application of primer paint over Gyp Board after taping, filling, and sanding, but prior to texture application with Work of Section 09900.
- B. Apply a "light fog and splatter (orangepeel)" finish texture coating by means of spraying apparatus in accordance with manufacturer's instructions and to match approved sample.

### **3.07 TOLERANCES**

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

**END OF SECTION**

**SECTION 09 2216**  
**NON-STRUCTURAL METAL FRAMING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Metal partition, ceiling, and soffit framing where Non-Load Bearing Metal Studs is identified on the drawings.
- B. Framing accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 05 4000 - Cold-Formed Metal Framing: Structural load bearing metal stud framing and Exterior wall stud framing.
- B. Section 10 440 - Fire Protection Specialties: Coordinate wall rough-in for fire extinguisher cabinet.

**1.03 REFERENCE STANDARDS**

- A. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2009a.
- B. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2009a.
- C. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2007.
- D. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

**1.04 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years experience.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Metal Framing, Connectors, and Accessories:
  - 1. Contractor's Choice

**2.02 FRAMING MATERIALS**

- A. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
  - 1. Studs: C shaped with flat or formed webs with knurled faces.
  - 2. Stud Spacing: 16 inches on center
  - 3. Runners: U shaped, sized to match studs.
  - 4. Ceiling Channels: C shaped.
  - 5. Furring: Hat-shaped sections, minimum depth of 7/8 inch.
  - 6. Minimum Metal Thickness
    - a. Adjacent to door jambs: 20 ga
    - b. At plywood wall coverings, wall panels: 20 ga
    - c. At backerboard to receive ceramic tile: 20 ga
    - d. Wall supporting metal ceiling framing: 20 Contractor to size
    - e. At walls taller than 11'-0" (unsupported height): 20 ga
    - f. Walls to support casework or plumbing fixtures: 20 ga
    - g. Walls to support TV brackets: 20 ga
    - h. Elsewhere: 25 ga
- B. Deflection Track



1. Two Piece Deflection Track: Upper track with 2 inch minimum flange, web dimension to slip over normal track allowing 1 1/2 inch deflection of structure. "VST" by Dale Incor, or approved.
  2. Slip Connection and Slide Clips: Curtain wall type clip allowing vertical slip connection of studs while providing lateral support.
- C. Tracks and Runners: Same material and thickness as studs, bent leg retainer notched to receive studs with provision for crimp locking to stud.
  - D. Furring and Bracing Members: Of same material as studs; thickness to suit purpose; complying with applicable requirements of ASTM C754.
  - E. Fasteners: ASTM C1002 self-piercing tapping screws.
  - F. Sheet Metal Backing: 0.036 inch thick, galvanized.
  - G. Anchorage Devices: Power actuated.
  - H. Acoustic Insulation: As specified in Section 09 21 16.
  - I. Acoustic Sealant: As specified in Section 09 21 16.
  - J. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic.

### **2.03 FABRICATION**

- A. Fabricate assemblies of framed sections to sizes and profiles required.
- B. Fit, reinforce, and brace framing members to suit design requirements.
- C. Fit and assemble in largest practical sections for delivery to site, ready for installation.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.

### **3.02 INSTALLATION OF STUD FRAMING**

- A. Comply with requirements of ASTM C754.
- B. Extend partition framing as shown on the Drawings.
- C. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
- D. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.
- E. Align and secure top and bottom runners at 24 inches on center.
- F. At partitions indicated with an acoustic rating or where shown on drawings to contain acoustic insulation :
  1. Place two beads of acoustic sealant between runners and substrate , studs and adjacent construction.
  2. Place two beads of acoustic sealant between studs and adjacent vertical surfaces.
- G. Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.
- H. Install studs vertically at spacing indicated on drawings.
- I. Align stud web openings horizontally.
- J. Secure studs to tracks using fastener method. Do not weld.
- K. Stud splicing is not permissible.
- L. Fabricate corners using a minimum of three studs.
- M. Double stud at wall openings, door and window jambs, not more than 2 inches from each side of openings.

- N. Brace stud framing system rigid.
- O. Coordinate erection of studs with requirements of door frames, window frames, and openings required by other trades; install supports and attachments.
- P. Coordinate installation of bucks, anchors, and blocking with electrical, mechanical, and other work to be placed within or behind stud framing.
- Q. Blocking: Use steel channels secured to studs. Provide blocking for support of wall cabinets, hardware, and opening frames.
- R. Use sheet metal backing for reinforcement of wall hung components.

### **3.03 TOLERANCES**

- A. Maximum Variation From True Position: 1/8 inch in 10 feet.
- B. Maximum Variation From Plumb: 1/8 inch in 10 feet.

**END OF SECTION**

**SECTION 09 5100**  
**ACOUSTICAL CEILINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Suspended metal grid ceiling system.
- B. Suspended metal grid Cloud ceiling system
- C. Acoustical units.

**1.02 RELATED REQUIREMENTS**

**1.03 REFERENCE STANDARDS**

- A. ASCE 7-05 - Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers.
- B. ASTM C635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2007.
- C. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2008e1.
- D. NWCB 401 Oregon - Suspension Systems for Acoustical Lay-in Ceilings, Field Technical Information; Northwest Wall and Ceiling Bureau; 2007.
- E. OSSC - Oregon Structural Specialty Code, 2007.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Do not install acoustical units until after interior wet work is dry.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on suspension system components, acoustical units, and seismic restraint components including perimeter clips.
- C. Samples: Submit two samples 12x12 inch in size illustrating material and finish of acoustical units.
- D. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention, and seismic restraint details.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Acoustical Units: Quantity equal to 5 percent of total installed for each type of acoustical unit.
  - 3. Store where directed in un-opened cartons.

**1.06 QUALITY ASSURANCE**

- A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years experience.
- B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years experience.

**1.07 PRODUCT DELIVERY**

- A. Deliver panels in original, unopened, protective packages with manufacturer's legible labels indicating brand name, pattern, size, thickness and fire rating, if any.

**1.08 PRODUCT STORAGE & HANDLING**

- A. Protect against damage and discoloration.

- B. Store panel cartons open at each end to stabilize moisture content and temperature.

## **1.09 FIELD CONDITIONS**

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

## **PART 2 PRODUCTS**

### **2.01 ACOUSTICAL UNITS**

- A. Manufacturers: Manufacturers listed are approved provided they can supply units that match specified tile patterns to Architect's satisfaction.
  - 1. Armstrong World Industries, Inc: [www.armstrong.com](http://www.armstrong.com).
  - 2. CertainTeed Corporation: [www.certainteed.com](http://www.certainteed.com).
  - 3. USG: [www.usg.com](http://www.usg.com).
  - 4. National Gypsum: [www.national-gypsum.com](http://www.national-gypsum.com)
  - 5. Substitutions: See Section 01 6000 - Product Requirements.
- B. Acoustical Units - General: ASTM E1264, Class A.
- C. Acoustical Panels: Painted mineral fiber, ASTM E 1264 Type III, with the following characteristics:
  - 1. Size: 24 x 48 inches.
  - 2. Thickness: 3/4 inches.
  - 3. Composition: Wet felted.
  - 4. Light Reflectance: 0.90 percent, determined as specified in ASTM E 1264.
  - 5. Ceiling Attenuation Class (CAC): 35, determined as specified in ASTM E 1264.
  - 6. NRC Range: 0.65 to 0.70, determined as specified in ASTM E 1264.
  - 7. Fire Resistance: Class A
  - 8. Edge: Bevel Tegular Lay-In.
  - 9. Surface Color: White.
  - 10. Product: Ultima Beveled Tegular by Armstrong Model #1915

### **2.02 SUSPENSION SYSTEM(S)**

- A. Manufacturers:
  - 1. Armstrong World Industries, Inc: [www.armstrong.com](http://www.armstrong.com).
  - 2. Chicago Metallic Corporation: [www.chicagometallic.com](http://www.chicagometallic.com).
  - 3. USG: [www.usg.com](http://www.usg.com).
  - 4. Substitutions: See Section 01 6000 - Product Requirements.
- B. Suspension Systems - General: ASTM C 635; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, hold down clips, and expansion joints as required.
- C. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled; heavy duty main beams and intermediate duty cross runners.
  - 1. Profile: Tee; 15/16 inch wide face.
  - 2. Construction: Double web.
  - 3. Factory Finish: White painted.
- D. Products:
  - 1. Grid: System compatible with Cloud Suspension System.
  - 2. Cloud Suspension System:
    - a. Armstrong Formations Acoustical & Accent Clouds

### **2.03 ACCESSORIES**

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Perimeter Moldings: Same material and finish as grid.

1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.
- C. Perimeter Clips: Manufacturer's standard; approved for use in lieu of 2 inch wide perimeter molding.
- D. Seismic ceiling joint trim or device: Manufacturer's standard providing 3/4 inch movement, matching grid.
- E. Touch-up Paint: Type and color to match acoustical and grid units.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

#### **3.02 INSTALLATION - SUSPENSION SYSTEM**

- A. Install suspension system in accordance with ASCE 7-05, ASTM C 636, ASTM E 580, and manufacturer's instructions and as supplemented in this section.
- B. Provide seismic bracing as shown on drawings and as required by OSSC for Occupancy Category III, Seismic Design Category D. NWCB Technical Document 401-Oregon may be used as a reference.
  1. Secure grid system to two adjacent walls, provide 3/4 inch movement at opposite walls.
  2. Utilize approved perimeter clips instead of 2 inch wide perimeter moldings.
- C. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- D. Locate system on room axis according to reflected plan.
- E. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.
- F. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- G. Install seismic ceiling expansion joints where indicated on drawings to divide ceiling system areas to less than 2,500 square feet.
- H. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- I. Do not attach to or pass hangers through mechanical or electrical ductwork.
- J. Do not allow hangers or bracing to obstruct parts of mechanical or electrical systems requiring maintenance.
- K. Provide framing around any recessed lighting fixtures and other openings.
- L. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- M. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
- N. Do not eccentrically load system or induce rotation of runners.
- O. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
  1. Use longest practical lengths.
  2. Overlap and rivet corners.
- P. Install Cloud to match existing Clouds.

#### **3.03 INSTALLATION - ACOUSTICAL UNITS**

- A. Install acoustical units in accordance with manufacturer's instructions.

- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install units after above-ceiling work is complete.
- E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- F. Cutting Acoustical Units:
  - 1. Cut to fit irregular grid and perimeter edge trim.
  - 2. Make field cut edges of same profile as factory edges.
  - 3. Double cut and field paint exposed reveal edges.

#### **3.04 TOLERANCES**

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

**END OF SECTION**

**SECTION 09 6500  
RESILIENT FLOORING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Anti Static Rubber Tile Flooring
- B. Resilient base.
- C. Installation accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 6000 - Product Requirements

**1.03 REFERENCE STANDARDS**

- A. ASTM F150 - 06 Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring.
- B. ANSI/ESD S7.1-2005 Resistive Characterization of Materials – Floor Materials.
- C. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Verification Samples: Submit two samples of each type of resilient flooring, 12x12 inch in size illustrating color and pattern for each resilient flooring product specified.
- D. Submit two 4 inch long samples of each type and color of rubber base material specified.
- E. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing specified flooring with minimum three years experience.
- B. Installer Qualifications: Company specializing in installing specified flooring products with minimum with minimum 5 years experience and approved by manufacturer.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Protect roll materials from damage by storing on end.
- B. Deliver in unopened packages with manufacturer's original legible labels thereon.
- C. Matching coverings shall bear manufacturer's run number.
- D. Do not remove labels or open packages until Architect inspects.
- E. Do not work under less than 30 foot candles measured 3 ft. above floor.
  - 1. If necessary, notify General Contractor to provide additional light.

**1.07 FIELD CONDITIONS**

- A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.
- C. When using offensive smelling adhesive, provide sufficient ventilation to maintain healthy and pleasant environment for building occupants.

- D. Store where directed in un-opened cartons.

## **PART 2 PRODUCTS**

### **2.01 COLORS AND PATTERNS**

- A. Selected by Architect from Manufacturer's Standard Product Line.
- B. Manufacturers listed herein are approved, provided their material matches selected color and pattern to Architect satisfaction.

### **2.02 ANTI-STATIC RUBBER TILE**

- A. Manufacturer:
- B. Material: Rubber meeting or exceeding the static conductive per ANSI/ESD S7.1, smooth surface, vulcanized 2-layer construction
- C. Thickness: 2.0 mm
- D. Tile Size: 24 inches by 24 inches
- E. Back of Tile: Flat back, double sanded
- F. Pattern: Through mottled.
- G. Product: "6103 Presto" Eclipse Collection by Staticworx.
- H. Manufacturers:
  - 1. Staticworx; [www.staticworx.com](http://www.staticworx.com)
  - 2. Julie Industries; [www.julieind.com](http://www.julieind.com)
  - 3. Armstrong World Industries; [www.armstrong.com](http://www.armstrong.com)
  - 4. Substitutions: See Section 01 6000 - Product Requirements.

### **2.03 RESILIENT BASE**

- A. Resilient Base: ASTM F1861, Type TP, rubber, thermoplastic; top set Style B, Cove, and as follows:
  - 1. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
  - 2. Height: 4 inch typical.
  - 3. Thickness: 0.125 inch thick.
  - 4. Finish: Satin.
  - 5. Length: Roll.
  - 6. Color: Color as selected from manufacturer's standards.
  - 7. Manufacturers:
    - a. Burke Flooring: [www.burkemercer.com](http://www.burkemercer.com).
    - b. Johnsonite, Inc: [www.johnsonite.com](http://www.johnsonite.com).
    - c. Roppe Corp: [www.roppe.com](http://www.roppe.com).
    - d. Marley Flexco: [www.marleyflexco.com](http://www.marleyflexco.com) .
    - e. Substitutions: See Section 01 6000 - Product Requirements.

### **2.04 ACCESSORIES**

- A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.
- C. Filler for Coved Base: Plastic.
- D. Sealer : Types recommended by flooring manufacturer.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.



- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Verify that concrete sub-floor surfaces are ready for resilient flooring installation by testing for moisture emission rate and alkalinity of 5 pounds per 1000 square foot per 24 hour per ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; obtain instructions if test results are not within the following limits:
- D. Verify that concrete sub-floor surfaces are ready for resilient flooring installation by testing for moisture emission rate and alkalinity per ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; obtain instructions if test results are not within the following limits:
  - 1. Test to verify that the concrete slab meet the requirements of the latest edition of ASTM F710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
  - 2. Perform a Calcium Chloride Test to determine if the concrete slab is sufficiently dry for flooring installation. Conduct in accordance with the latest edition of ASTM F1869, Standard Test Method for measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
    - a. Moisture emission rate: Not greater than the manufacturer's required limitations for moisture content.
  - 3. Perform a Bond and Moisture Test to determine if the concrete slab is sufficiently dry as well as to determine the compatibility of the flooring adhesives to the subfloor materials after removal of curing agents, oil, grease, etc.
  - 4. Perform a test for alkalinity.
    - a. Alkalinity: Not greater than the manufacturer's required limitations.
- E. The time to take the above listed tests, the number of tests, and the need to repeat testing until passing values are achieved shall be coordinated between the contractor, flooring subcontractor, and the owner. All testing shall be done by an independent testing agency and all costs shall be paid for by the contractor.
- F. Verify compatibility of resilient flooring adhesive to concrete substrate and if concrete is sufficiently dry (in conjunction with calcium chloride test required above) by utilizing "Bond and Moisture Test" as follows: Using flooring material and recommend adhesives install 3 ft x 3 ft panels spaced approximately 50 feet apart throughout subfloor area. Select areas next to walls, columns or other light traffic areas. After 72 hours check to ensure panels are securely bonded to substrate. Material may be considered "Securely bonded" if an unusual amount of force is required from subfloors.
- G. Furnish copies of test reports to Architect.
- H. Verify that required floor-mounted utilities are in correct location.

### **3.02 PREPARATION**

- A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- B. Remove sub-floor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
  - 1. Prohibit traffic until filler is cured.
- C. Clean substrate.
- D. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

### **3.03 INSTALLATION**

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install in accordance with manufacturer's instructions.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Fit joints tightly.

- E. Set flooring in place, press with heavy roller to attain full adhesion.
- F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
  - 1. Metal Strips: Attach to substrate before installation of flooring using stainless steel screws.
  - 2. Resilient Strips: Attach to substrate using adhesive.
- H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

### **3.04 TILE FLOORING**

- A. Install flooring prior to the installation of the casework. Provide flooring from wall to wall, including under the casework. Note that the floor pattern drawings, if provided, do not typically indicate flooring under the casework, but it must be provided.
- B. Mix tile from container to ensure shade variations are consistent when tile is placed, unless manufacturer's instructions say otherwise.
- C. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.
- D. Install tile to ashlar pattern. Allow minimum 1/2 full size tile width at room or area perimeter.
- E. Install tile all in same direction. Refer to drawings for joint locations.
- F. Install metal edge strips at unprotected or exposed edges, where flooring terminates, and where indicated. After installation of flooring, secure metal strips with stainless steel screws.
- G. For Anti Static Tile
  - 1. Attach one copper ground connection as follows: min one copper group strip per 1,000 sf.

### **3.05 RESILIENT BASE**

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
- B. Miter internal corners. At external corners, 'V' cut back of base strip to 2/3 of its thickness and fold. At exposed ends, use premolded units.
- C. Install base on solid backing. Bond tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.

### **3.06 CLEANING**

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's instructions.
- C. Leave surfaces smooth and defect-free.
- D. Next spec should review the following:
- E. Clean and seal. See manufacturer's instructions for additional requirements
  - 1. Remove manufacturer's maintenance coat. Obtain manufacturer's instructions for removal.
  - 2. Apply protective floor finish to horizontal surfaces that are free from soil, visible adhesive, and surface blemishes.
    - a. Apply two coats of Base Coat, and four coats of Top Coat.

### **3.07 PROTECTION**

- A. Prohibit traffic on resilient flooring for 48 hours after installation unless otherwise recommended by manufacturer.

**END OF SECTION**

**SECTION 09 6813  
TILE CARPETING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Carpet tile
- B. Removal of existing carpet tile.

**1.02 REFERENCE STANDARDS**

- A. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2008.
- B. CRI (CIS) - Carpet Installation Standard; Carpet and Rug Institute; 2009.
- C. CRI (GLA) - Green Label Testing Program - Approved Adhesive Products; Carpet and Rug Institute; Current Edition.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate layout of joints, direction of carpet pile, and location of edge moldings.
- C. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- D. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.
- E. Submit two, 12 inch long samples of edge strip.
- F. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in installing carpet with minimum 5 years experience.

**1.05 FIELD CONDITIONS**

- A. Store materials in area of installation for minimum period of 24 hours prior to installation.
- B. Maintain minimum 70 degrees F ambient temperature 24 hours prior to, during and 24 hours after installation.
- C. Ventilate installation area during installation and for 72 hours after installation.
- D. Store where directed in un-opened cartons.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Shaw Contract Group .; [www.shawcontractgroup.com](http://www.shawcontractgroup.com)
- B. Other Acceptable Manufacturers:
  - 1. Interface, Inc: [www.interfaceinc.com](http://www.interfaceinc.com).
  - 2. Lees Carpets: [www.leescarpets.com](http://www.leescarpets.com).
  - 3. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 MATERIALS**

- A. Carpet Tile : Tufted, tip sheared, manufactured in one color dye lot.
  - 1. Product: Mirror Image Tile, Style Number 59466 manufactured by Shaw Contract Group.

2. Thickness: 0.300 inch.
3. Color: Architect to select from Manufacturer's Quickship options.
4. Construction: Multi-level pattern loop
5. Backing: EcoWorx
6. Installation: Monolithic
7. Yarn Weight: 19 oz./sq.yd.

### **2.03 ACCESSORIES**

- A. Sub-Floor Filler: White premix latex; type recommended by flooring material manufacturer.
- B. Edge Strips: Rubber, black color.
- C. Where adhesives are required for conditions of use, use materials acceptable to carpet tile manufacturer, compatible with materials being adhered; maximum VOC of 50 g/L; CRI Green Label certified; in lieu of labeled product, independent test report showing compliance is acceptable.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.
- B. Verify that concrete sub-floor surfaces are dry enough and ready for flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F710; obtain instructions if test results are not within limits recommended by carpet tile manufacturer and adhesive materials manufacturer.
- C. The time to take the above listed tests, the number of tests, and the need to repeat testing until passing values are achieved shall be coordinated between the contractor, flooring subcontractor, and the owner. All testing shall be done by an independent testing agency and all costs shall be paid for by the contractor.
- D. Verify that required floor-mounted utilities are in correct location.

### **3.02 PREPARATION**

- A. Remove existing carpet tile.
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

### **3.03 INSTALLATION**

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install carpet tile in accordance with manufacturer's instructions and CRI Carpet Installation Standard.
- C. Blend carpet from different cartons to ensure minimal variation in color match.
- D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- E. Unless otherwise shown on drawings, lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.
- F. Locate change of color or pattern between rooms under door centerline.
- G. Adhere carpet tiles to each other with glue-free adhesive TacTiles in accordance with instructions, to create a "floating floor". Apply TacTile at every corner.
- H. If adhesive is also used, use sparingly and follow manufacturer's instructions.
- I. Trim carpet tile neatly at walls and around interruptions.
- J. Complete installation of edge strips, concealing exposed edges.

### **3.04 CLEANING**

- A. Remove excess adhesive without damage, from floor, base, and wall surfaces.

B. Clean and vacuum carpet surfaces.

**END OF SECTION**

**SECTION 09 9000**  
**PAINTING AND COATING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints.
- C. Surfaces to be finished are indicated in this section and on the Drawings.

**1.02 RELATED REQUIREMENTS**

**1.03 REFERENCE STANDARDS**

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. GreenSeal GS-11 - Architectural Paints; 1993.
- C. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, [www.paintinfo.com](http://www.paintinfo.com).
- D. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Master Painters and Decorators Association; 2004.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of all products to be used, with the following information for each:
  - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
  - 2. MPI product number (e.g. MPI #47).
  - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system (copy of relevant MPI Manual page is acceptable).
  - 4. Manufacturer's installation instructions and surface preparation procedures.
  - 5. If proposal of substitutions is allowed under submittal procedures, submit an explanation of all substitutions proposed.
- C. Certification by manufacturer that products comply with Contract Documents and are compatible with applicable substrates and with each other.
- D. Certification: By manufacturer that all paints and coatings do not contain any of the prohibited chemicals specified; GreenSeal GS-11 certification is not required but if provided shall constitute acceptable certification.
- E. Samples: Submit three paper "drop" samples, 8-1/2 by 11 inches in size, illustrating actual color and finish for each finishing product specified. Submit on stiff paper.
  - 1. Where sheen is specified, submit samples in only that sheen.
  - 2. Where sheen is not specified, submit each color in each sheen available.
- F. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years experience.
- B. Applicator Qualifications: Company specializing in performing the work of this section with minimum five years experience.
- C. Maintain one copy of relevant portions of MPI Architectural Painting Specification Manual on project site at all times.

- D. Material Safety Data Sheets: At project site maintain file of MSDS sheets for each product used; become familiar with and follow manufacturer's stated application and safety requirements.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.
- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction over project.

#### **1.07 FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

#### **1.08 EXTRA MATERIALS**

- A. See Section 01 6000 - Product Requirements, for additional provisions.
- B. Supply 1 gallon of each color, type, and surface texture; store where directed.
- C. Label each container with color, type, texture, and project title and date in addition to the manufacturer's label.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
- B. Provide all paint and coating products from the same manufacturer to the greatest extent possible.
- C. In the event that a single manufacturer cannot provide all specified products, minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.
  - 1. Substitution of MPI-approved products by a different manufacturer is preferred over substitution of unapproved products by the same manufacturer.
  - 2. Substitution of a different system using MPI-approved products by the same manufacturer will be considered.
- D. Paints, Transparent Finishes and Stains: Acceptable manufacturers are limited to the following:
  - 1. GliddenProfessional / Devoe Coatings (formerlyICI Paints): [www.gliddenprofessional.com](http://www.gliddenprofessional.com) or [www.devoecoatings.com](http://www.devoecoatings.com)
  - 2. Benjamin Moore & Co: [www.benjaminmoore.com](http://www.benjaminmoore.com)
  - 3. Parker Paint: [www.parkerpaint.com](http://www.parkerpaint.com)
  - 4. PPG Architectural Finishes, Inc: [www.ppgaf.com](http://www.ppgaf.com)

5. Rodda: [www.roddavision.com](http://www.roddavision.com)
6. Sherwin-Williams Co: [www.sherwin-williams.com](http://www.sherwin-williams.com)
7. Miller Paint; [www.millerpaint.com](http://www.millerpaint.com)
8. Sikkens: [www.nam.sikkens.com](http://www.nam.sikkens.com)
9. TNEMEC Company, Inc.: [www.tnemec.com](http://www.tnemec.com)

E. Substitutions: See Section 01 6000 - Product Requirements.

## **2.02 MATERIALS - GENERAL**

- A. Volatile Organic Compound (VOC) Content:
1. Provide coatings that comply with the most stringent requirements specified in the following:
    - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
    - b. Architectural coatings VOC limits of State in which the project is located.
  2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- B. Chemical Content: The following compounds are prohibited:
1. Aromatic Compounds: In excess of 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
  2. Acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate., dimethyl phthalate, ethylbenzene, formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, vinyl chloride.
- C. Paints and Coatings: Where MPI product numbers are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at [www.paintinfo.com](http://www.paintinfo.com), for specified MPI Categories, except as otherwise indicated.
1. Provide ready mixed paints and coatings , except field-catalyzed coatings.
  2. Do not dilute or thin coatings, except as instructed.
  3. For opaque finishes, tint each coat, including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
  4. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- D. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified; commercial quality.
- E. Patching Material: Latex filler.
- F. Fastener Head Cover Material: Latex filler.

## **2.03 PAINT SYSTEMS**

- A. Provide Premium Grade systems (2 top coats) as defined in MPI Architectural Painting Specification Manual, except as otherwise indicated.
- B. Where a specified paint system does not have a Premium Grade, provide Custom Grade system.
- C. Where sheen is not specified or more than one sheen is specified, sheen will be selected later by Architect from the manufacturer's full line.
- D. Provide colors as indicated in the Color Schedule bound in the Project Manual Appendix, except for mechanical and electrical color coding.

## **2.04 REFERENCED GLOSS LEVELS**

- A. Not all of the following Gloss Level references may be used in the Paint Systems outlined below:



1. Gloss Level 1 a traditional matte finish - flat maximum 5 units and maximum 10 units.
2. Gloss Level 2 a high side sheen flat - a 'velvet-like' finish maximum 10 units and 10-35 units .
3. Gloss Level 3 a traditional 'eggshell-like' finish 10-25 units and 10-35 units .
4. Gloss Level 4 a 'satin- 20-35 units and minimum 35 units.
5. Gloss Level 5 a traditional semi-gloss 35-70 units.
6. Gloss Level 6 a traditional gloss 70-85 units.
7. Gloss Level 7 a high gloss.

## 2.05 INTERIOR PAINT SYSTEMS

- A. Galvanized Metal, Not Chromate Passivated:
  1. Applications include but are not limited to doors, frames, railings, and piping.
  2. INT 5.3H W.B. Dry Fall: Waterborne Dry Fall MPI #131, #133 or #158.
    - a. Refer to section 01 60 00 (01600) - Paints selected for interior use must comply with product requirements for VOC limits for adhesives, sealants, paints and coatings.
  3. INT 5.3N Institutional Low Odor/VOC: W.B. Galvanized Primer MPI #134, Institutional Low Odor/VOC MPI #147, gloss level 5.
    - a. Refer to section 01 60 00 (01600) - Paints selected for interior use must comply with product requirements for VOC limits for adhesives, sealants, paints and coatings.
- B. Plaster and Gypsum Board:
  1. Applications include but are not limited to walls, ceilings, soffits, and bulkheads.
  2. INT 9.2M Institutional Low Odor/VOC: PVA Interior/Exterior Primer-Sealer, Latex Primer Sealer MPI #50, Institutional Low Odor/VOC MPI #147, gloss level 5.
    - a. Refer to section 01 60 00 (01600) - Paints selected for interior use must comply with product requirements for VOC limits for adhesives, sealants, paints and coatings.
    - b. Apply first coat of primer coat prior to wall texture Specified in Section 09260.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that surfaces are ready to receive Work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work for surface imperfections and for contaminants which could impair performance or appearance of coatings, including but not limited to, loose primer, rust, scale, oil, grease, mildew, algae, or fungus, stains or marks, cracks, indentations, or abrasions. Report any condition that may potentially affect proper application.

### 3.02 PREPARATION

- A. Prepare surfaces as specified in MPI Architectural Painting Specification Manual and as follows for the applicable surface and coating; if multiple preparation treatments are specified, use as many as necessary for best results; where the Manual references external standards for preparation (e.g. SSPC standards), prepare as specified in those standards; comply with coating manufacturer's specific preparation methods or treatments, if any.
- B. Coordinate painting work with cleaning and preparation work so that dust and other contaminants do not fall on newly painted, wet surfaces.
- C. Surface Appurtenances: Prior to preparing surfaces or finishing, remove electrical plates, hardware, light fixtures, light fixture trim, escutcheons, machined surfaces, fittings, and similar items already installed that are not to be painted.
  1. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before preparation and finishing.
  2. After completing painting in each space or area, reinstall items removed using workers skilled in the trades involved.
- D. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.
- E. Stains and Marks: Seal with shellac those which may bleed through surface finishes.

- F. Impervious Surfaces: Remove mildew by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
  - 1. Provide the primer over Gypsum Board after taping, filling, and sanding, but prior to application of texture by 09 21 16.
- H. Plaster Surfaces to be Painted: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- I. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
  - 1. Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical or chemical methods as recommended as best practice by primer manufacturer.

### 3.03 APPLICATION

- A. Apply products in accordance with manufacturer's instructions and as specified or recommended by MPI Manual, using the preparation, products, sheens, textures, and colors as indicated.
  - 1. Remove, refinish, or repaint work not complying with requirements.
- B. Do not apply finishes over dirt, rust, scale, grease, moisture, scuffed surfaces, or other conditions detrimental to formation of a durable coating film; do not apply finishes to surfaces that are not dry.
- C. Use applicators and methods best suited for substrate and type of material being applied and according to manufacturer's instructions.
  - 1. Brush Application: Use brushes best suited for the type of material applied; use brush of appropriate size for the surface or item being painted; produce results free of visible brush marks.
  - 2. Roller Application: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
  - 3. Spray Application: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
  - 4. Where application method is listed in the MPI Manual for the paint system that application method is required; otherwise any application method recommended by manufacturer for material used and objects to be painted is acceptable.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate; provide total dry film thickness of entire system as recommended by manufacturer.
  - 1. Number of coats and film thickness required are the same regardless of application method.
  - 2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance.
  - 3. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive dry film thickness equivalent to that of flat surfaces.
- E. Apply finish to completely cover surfaces with uniform appearance without brush marks, roller marks, runs, sags, laps, ropiness, holidays, spotting, cloudiness, or other surface imperfections.
  - 1. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.
  - 2. Before applying finish coats, apply a prime coat of material recommended by manufacturer, unless the surface has been prime coated by others; where evidence of suction spots or unsealed areas in first coat appear, recoat primed and sealed surfaces to ensure finish coat with no burn through or other defects due to insufficient sealing.

3. Apply first coat to surface that has been cleaned, pretreated, or otherwise prepared as soon as practical after preparation and before subsequent surface deterioration.
4. Do not apply succeeding coats until the previous coat has cured as recommended by manufacturer.
5. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat will not cause the undercoat to lift or lose adhesion.
6. If manufacturer's instructions recommend sanding to produce a smooth, even surface, sand between coats.
7. Before applying next coat vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

#### **3.04 FIELD QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection.
- B. Owner will provide field inspection.
- C. Before proceeding with remaining work, request Architect to review each first-finished room, space, and item for acceptability.
- D. Dry film paint thicknesses may be measured upon work completion using a Mark II Tooke Coating Inspection Gage, a precision instrument designed for measuring paint coating thickness. Recoat any work measuring less than specified thickness. Touch-up test surface, which will measure approximately 1 sq. inch per test.
- E. Unless otherwise approved, refinish entire surface where portion of coating is unacceptable.

#### **3.05 CLEANING AND PROTECTION**

- A. Collect waste material which may constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from site.
- C. Protect other work, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting as approved by Architect.
- D. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
- E. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in MPI Manual.

**END OF SECTION**

**SECTION 10 2226.33**  
**FOLDING PANEL PARTITIONS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Acoustic operable panel partition.
- B. Ceiling track , ceiling guards, and operating hardware.

**1.02 RELATED REQUIREMENTS**

- A. Section 05 1200 - Structural Steel Framing: Overhead track structural support framing.
- B. Section 09 2116 - Gypsum Board Assemblies: Acoustic barrier placed between top of partition track and roof deck above.

**1.03 REFERENCE STANDARDS**

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.
- B. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.
- C. ASTM E413 - Classification for Rating Sound Insulation; 2010.
- D. ASTM E557 - Standard Guide for The Installation of Operable Partitions; 2000 (Reapproved 2006)e1.
- E. ASTM E596 - Standard Test Method for Laboratory Measurement of Noise Reduction of Sound-Isolating Enclosures; 1996 (Reapproved 2009).

**1.04 PERFORMANCE REQUIREMENTS**

- A. Sound Transmission Coefficient (STC): STC of 50, measured in accordance with ASTM E90, tested on panel size of 100 sq ft.
- B. Surface Burning of Fabric Finish: ASTM E84; Class A fire rating.
- C. Install partition system track capable of supporting imposed loads, with maximum deflection of 1/360 of span.
- D. Operation: Side opening; continuous hinged panels; center stacking.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on partition materials, operation, hardware and accessories, and colors and finishes available.
- C. Shop Drawings: Indicate opening sizes, track layout, details of track and required supports, static and dynamic loads, adjacent construction and finish trim, and stacking depth.
- D. Samples for Selection: Submit two samples of full manufacturer's color range for selection of colors.
- E. Manufacturer's Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- F. Certificates: Certify that partition system meets or exceeds specified acoustic requirements.
- G. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods. Describe cleaning materials detrimental to finish surfaces and hardware finish.

**1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified this section with minimum three years of documented experience.

- B. Installer Qualifications: Company specializing in performing work of this section with minimum three years of documented experience.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Design is based on Modernfold ; Product 932.
- B. Other Acceptable Manufacturers:
  - 1. Hufcor, Inc: [www.hufcor.com](http://www.hufcor.com).
  - 2. Modernfold, Inc: [www.modernfold.com](http://www.modernfold.com).
  - 3. Panelfold, Inc: [www.panelfold.com](http://www.panelfold.com).
  - 4. Substitutions: See Section 01 6000 - Product Requirements.

### **2.02 COMPONENTS**

- A. Operable Panel Partition: Center opening; paired panels; center stacking; manually operated.
  - 1. Panel Finish: Vinyl coated fabric ; manufacturer's standard "Reflections" fabric; Architect to select.
  - 2. Noise Reduction Coefficient (NRC): ASTM E596, NRC of 0.65 minimum.
  - 3. Sound Transmission Class (STC): 38-42 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90, on panel size of 100 sq ft.
  - 4. Surface Burning Characteristics of Panel Finish: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84.
  - 5. Installed partition system track capable of supporting imposed loads, with maximum deflection of 1/360 of span.
- B. Core: 16 gage formed sheet steel frame top, bottom, jambs, and intermediates; welded construction , with acoustical insulation fill.
  - 1. Thickness with Finish: 3 inches.
  - 2. Panel to Panel Seals: Grooved and gasketed astragals; continuous flexible ribbed vinyl seal fitted to panel edge construction; color to match panel finish.
- C. Track: Formed steel; 1-1/4 x 1-1/4 inches size; thickness and profile designed to support loads, steel sub-channel and track connectors .
- D. Carriers: Ball bearing, steel wheels on trolley carrier at top of every second panel, sized to carry imposed loads, with threaded pendant bolt for vertical adjustment.
- E. Hardware: Latching door handles of cast steel, satin chrome finish ; lock cylinder keyed to building keying system ; pull bars .
- F. Acoustic Seals: Flexible acoustic seals at jambs, meeting mullions, ceilings, retractable floor and ceiling seals, and above track to structure acoustic seal.
- G. Acoustic Sealant: Manufacturer's standard.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field measurements are as indicated.
- B. Verify track supports are laterally braced and will permit track to be level within 1/4 inch of required position and parallel to the floor surface.
- C. Verify floor flatness of 1/8 inch in 10 feet, non-cumulative.
- D. Verify wall plumbness of 1/8 inch in 10 feet, non-cumulative.

### **3.02 INSTALLATION**

- A. Install partition in accordance with manufacturer's instructions and ASTM E 557.
- B. Fit and align partition assembly and pocket doors level and plumb.
- C. Lubricate moving components.
- D. Apply acoustic sealant to achieve required acoustic performance.

### **3.03 ADJUSTING**

- A. Adjust partition assembly to provide smooth operation from stacked to full open position. Do not over-compress acoustic seals.

### **3.04 CLEANING**

- A. Clean finish surfaces and partition accessories.

### **3.05 CLOSEOUT ACTIVITIES**

- A. Demonstrate operation of partition and identify potential operational problems.

**END OF SECTION**

**SECTION 10 4400**  
**FIRE PROTECTION SPECIALTIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fire extinguishers.
- B. Fire extinguisher cabinets.
- C. Accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 09 2216 - Non Structural Metal Framing: Roughed-in wall openings.

**1.03 REFERENCE STANDARDS**

- A. NFPA 10 - Standard for Portable Fire Extinguishers; 2010.
- B. UL (FPED) - Fire Protection Equipment Directory; Underwriters Laboratories Inc.; current edition.
- C. Obtain Fire Marshall approval for extinguisher type and location.

**1.04 FIELD CONDITIONS**

- A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Fire Extinguishers, Cabinets and Accessories:
  - 1. JL Industries, Inc: [www.jlindustries.com](http://www.jlindustries.com)
  - 2. Amerex Corporation: [www.amerex-fire.com](http://www.amerex-fire.com)
  - 3. Larsen's Manufacturing Co: [www.larsensmfg.com](http://www.larsensmfg.com).
  - 4. Potter-Roemer: [www.potterroemer.com](http://www.potterroemer.com).
  - 5. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 FIRE EXTINGUISHERS**

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
- B. Dry Chemical Type Fire Extinguishers: Stainless steel tank, with pressure gage. Similar to JL "Cosmic Series".
  - 1. UL Classification: A:B:C
    - a. 2-A:10B:C (Similar to JL "Cosmic 5E")
    - b. Nominal Capacity: 5 lbs.
  - 2. Extent of Work: Provide Extinguishers in each Fire Extinguisher Cabinet and elsewhere where shown on Drawings.
- C. Dry Chemical Type: Stainless steel tank, with pressure gage. Similar to JL "Cosmic Series".

**2.03 FIRE EXTINGUISHER CABINETS**

- A. Metal: Formed primed steel sheet; 0.036 inch thick base metal.
- B. Cabinet Configuration: Semi-recessed type. Similar to JL Industries Ambassador C1817V17.
  - 1. Sized to accommodate extinguisher and accessories.
  - 2. Trim: Returned to wall surface, with 2-1/2 inch projection, 1-3/4 inch wide face.
- C. Door: 0.036 inch thick, reinforced for flatness and rigidity; latch. Hinge doors for 180 degree opening with two butt hinge. Provide nylon catch.
- D. Door Glazing: Glass, clear, 1/8 inch thick tempered, thin vertical pane. Set in resilient channel gasket glazing.
- E. Cabinet Mounting Hardware: Appropriate to cabinet. Pre-drill for anchors.

- F. Weld, fill, and grind components smooth.
- G. Finish of Cabinet Exterior Trim and Door: Primed for field paint finish.
- H. Finish of Cabinet Interior: White enamel.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install cabinets plumb and level in wall openings, 54 inches from finished floor to inside top of cabinet.
- C. Secure rigidly in place.
- D. Place extinguishers and accessories in cabinets.

**END OF SECTION**



**SECTION 11 0001**  
**MISCELLANEOUS FURNITURE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Work Chair
- B. Task Stool
- C. Counter Stool
- D. Mobile Marker Board
- E. Work Table
- F. Private Office Furniture & Coordinating Storage

**1.02 SUBMITTALS**

- A. See Section 01 3000 – Administrative Requirements, for submittal procedures.
- B. Product Data: Provide product data including cut sheets, color selection card, and other manufacturer's literature.
- C. Shop Drawings: For Private Office Furniture & Coordinating Storage provide shop drawings.

**PART 2 PRODUCTS**

**2.01 SEE SECTION 01 6000 FOR ADDITIONAL REQUIREMENTS.**

**2.02 MANUFACTURERS**

- A. Equipment & Furnishings:
  - 1. Haworth Local Dealer:
    - a. Interior Office Solutions, Portland 503.205.2200
    - b. Herman Miller Local Dealer:
      - 1) OfficeWorld, Eugene 541.687.9704
      - 2) Workplace Resource of Oregon, Portland 503.238.1590
    - c. Knoll Local Dealer:
      - 1) Environments, Portland 503.236.3600
    - d. Substitutions: See Section 01 6000 – Product Requirements.

**2.03 EQUIPMENT & FURNISHINGS**

- A. WORK CHAIR
  - 1. Quantity Required: 68
  - 2. Manufacturer:
    - a. Haworth "Very"
    - b. Herman Miller "Caper"
    - c. Knoll "MultiGeneration"
    - d. Details:
      - 1) Height Adjustable
      - 2) Casters
      - 3) Plastic Mesh Back
      - 4) Plastic Seat; No upholstery
      - 5) Fixed Arms
      - 6) Finish: Owner to choose from Manufacturer's standards.
- B. TASK STOOL
  - 1. Quantity Required: 2
  - 2. Manufacturer:
    - a. Haworth "Improv Stool"
    - b. Sit On It "Focus Work Stool"
    - c. Knoll "Chadwick High Task"
  - 3. Details:

- a. Height Adjustable
  - b. Casters
  - c. Mesh or Upholstered seat and back
  - d. Adjustable Arms
  - e. Foot Ring
  - f. Finish: Owner to choose from Manufacturer's standards.
- C. COUNTER STOOL
- 1. Quantity Required: 7
  - 2. Manufacturer:
    - a. Haworth "Very Stool"
    - b. Sit On It "InFlex Cafe Stool"
    - c. Knoll "Gigi Stool"
  - 3. Details:
    - a. Plastic Back and Seat
    - b. No Arms
    - c. 30" Seated Height
    - d. Finish: Owner to choose from Manufacturer's standards.
- D. MOBILE MARKER BOARD
- 1. Quantity Required: 6
  - 2. Manufacturer:
    - a. Egan "A-Frame Mobile EVS"
    - b. Egan "Lite Mobile"
    - c. Knoll "Upstart Screen"
  - 3. Details:
    - a. 36" Wide
    - b. Casters
    - c. Markerboard surface on both sides
    - d. Finish: Owner to choose from Manufacturer's standards.
- E. WORK TABLE
- 1. Quantity Required: 54
  - 2. Manufacturer:
    - a. Haworth "Planes Table"
    - b. Herman Miller "Everywhere Table"
    - c. Knoll "Propellor Table"
  - 3. Details:
    - a. 60" wide x 30" deep
    - b. Lockable Casters
    - c. Finish: Wood-Grain Laminate Top: Maple
    - d. Wire Management Provisions
- F. PRIVATE OFFICE FURNITURE & COORDINATING STORAGE
- 1. Quantity Required: See individual components.
  - 2. Manufacturer:
    - a. Haworth "Compose"
    - b. Herman Miller "Canvas Office Landscape"
    - c. Knoll "Dividends Horizon"
  - 3. Details:
    - a. Freestanding Desk, Type 1
      - 1) Type 1: 30"d x 48"w
      - 2) Wire Management provisions.
      - 3) Finish: Wood-Grain Laminate Top – Maple
      - 4) Quantity: 11
    - b. Freestanding Desk, Type 2
      - 1) Size: 24"d x 72"w

- 2) Wire Management provisions.
- 3) Finish: Wood-Grain Laminate Top – Maple
- 4) Quantity: 11
- c. Overhead Unit
  - 1) 36" Wide
  - 2) Enclosed with Door
  - 3) Lockable
  - 4) Quantity: 11
- d. Tower Unit – Painted Metal
  - 1) 24"w x 24"d
  - 2) Height Range: 64"-68"
  - 3) Configuration: 2 file drawers, wardrobe compartment, side access shelves
  - 4) Lockable
  - 5) Finish: Metallic Silver
  - 6) Quantity: 7
- e. Mobile Box-File – Painted Metal
  - 1) 1 file drawer, 1 box drawer
  - 2) Lockable
  - 3) Casters
  - 4) Cushion Top – Manufacturer's Standard Upholstery
  - 5) Finish: Metallic Silver
  - 6) Quantity: 11
- f. Round Freestanding Table
  - 1) 36" Diameter
  - 2) Pedestal base
  - 3) Finish: Wood-Grain Laminate Top – Maple
  - 4) Quantity: 1

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Unpack and verify condition of equipment. Notify shipper and manufacturer of any damage or missing components.
- B. Install in accordance with Manufacturer's instructions.

#### **3.02 ADJUSTING**

- A. Adjust moving parts for smooth operation

#### **3.03 CLEANING**

- A. Remove packing labels and shipping conveniences
- B. Clean all inside and outside surfaces.

#### **3.04 PROTECTION**

- A. Protect installed equipment from subsequent construction operations.
- B. Do not permit use of equipment for any purpose before owner takes possession of building.

**END OF SECTION**

**SECTION 11 5213**  
**PROJECTION SCREENS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Front projection screen assemblies - Owner Furnished Contractor Installed.

**1.02 RELATED REQUIREMENTS**

- A. Section 09 5100 - Acoustical Ceilings: Suspended panel ceilings for recessed screens.

**PART 2 PRODUCTS**

**2.01 FRONT PROJECTION SCREENS**

- A. Owner to provide screens, which are anticipated to be Ceiling Recessed Electrical Screen with Closure Doors.
- B. Owner to provide mounting hardware, brackets, supports, fasteners, and other mounting accessories

**2.02 ELECTRICAL COMPONENTS**

- A. Contractor to provide power to connect to the following:
- B. Electrical Components: Listed and classified by UL as suitable for the purpose specified and indicated.
- C. Motors: Direct drive, 110 V, 60 Hz.
  - 1. Door and Adjustable Masking Motor: Mounted inside roller; three wire with ground; quick reverse type; equipped with thermal overload cut-off.
    - a. Electrical Characteristics: 1.2 amps.
- D. Controls: 3 position control switch with plate.
  - 1. In classrooms, provide control stations at front and rear of room.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that substrate is finished and ready to accept screen installation.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Verify type and location of electrical connections.
- D. Do not install projection screens until climate control systems are in place and interior painting and other finishes are completed.

**3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions, using manufacturer's recommended hardware for relevant substrates.
- B. Do not field cut screens.
- C. Install screens in mountings as specified and as indicated on drawings.
- D. Install plumb and level.
- E. Install electrically operated screens ready for connection to power and control systems by others.
- F. Adjust projection screens and related hardware in accordance with manufacturer's instructions for proper placement and operation.
- G. Test electrical screens for proper working condition. Adjust as needed.

**3.03 PROTECTION**

- A. Protect installed products until completion of project.

B. Touch up, repair, or replace damaged products before Substantial Completion.

**END OF SECTION**

**SECTION 12 3600  
COUNTERTOPS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Countertops for architectural cabinetwork.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 4100 - Architectural Wood Casework.

**1.03 REFERENCE STANDARDS**

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.
- B. ISSFA-2 - Classification and Standards for Solid Surfacing Material; International Solid Surface Fabricators Association; 2001 (2007).
- C. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Specimen warranty.
- C. Shop Drawings: Complete details of materials and installation ; combine with shop drawings of cabinets and casework specified in other sections.
- D. Selection Samples: For each finish product specified, color chips representing manufacturer's full range of available colors and patterns.
- E. Test Reports: Chemical resistance testing, showing compliance with specified requirements.
- F. Installation Instructions: Manufacturer's installation instructions and recommendations.
- G. Maintenance Data: Manufacturer's instructions and recommendations for maintenance and repair of countertop surfaces.

**1.05 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Same fabricator as for cabinets on which tops are to be installed.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

**1.07 FIELD CONDITIONS**

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

**PART 2 PRODUCTS**

**2.01 COUNTERTOP ASSEMBLIES**

- A. Plastic Laminate Countertops: High pressure decorative laminate sheet bonded to substrate.
  - 1. Laminate Sheet , Unless Otherwise Indicated: NEMA LD 3 Grade HGS, 0.048 inch nominal thickness.
    - a. Manufacturers:
      - 1) Formica Corporation : [www.formica.com](http://www.formica.com).
      - 2) Lamin-Art, Inc : [www.laminart.com](http://www.laminart.com).
      - 3) Panolam Industries International, Inc\Nevamar : [www.nevamar.com](http://www.nevamar.com).

- 4) Panolam Industries International, Inc \Pionite : [www.pionitelaminates.com](http://www.pionitelaminates.com).
  - 5) Wilsonart International, Inc : [www.wilsonart.com](http://www.wilsonart.com).
  2. Exposed Edge Treatment: Square, substrate built up to minimum 1-1/4 inch thick; covered with matching laminate.
  3. Back and End Splashes: Same material, same construction.
  4. Fabricate in accordance with AWI/AWMAC Quality Standards Illustrated Custom Grade.
- B. Solid Surfacing Countertops: Solid surfacing sheet or plastic resin casting over continuous substrate.
1. Flat Sheet Thickness: 1/4 inch, minimum.
  2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISSFA-2 and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
    - a. Surface Burning Characteristics: Flame spread 25, maximum; smoke developed 450, maximum; when tested in accordance with ASTM E84.
    - b. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
    - c. Color and Pattern: As selected by Architect from manufacturer's full line.
    - d. Manufacturers:
      - 1) Dupont : [www.corian.com](http://www.corian.com).
      - 2) Formica Corporation : [www.formica.com](http://www.formica.com).
      - 3) Avonite Surfaces : [www.avonitesurfaces.com](http://www.avonitesurfaces.com).
      - 4) Wilsonart International, Inc : [www.wilsonart.com](http://www.wilsonart.com).
  3. Other Components Thickness: 1/2 inch, minimum.
  4. Back and End Splashes: Same sheet material, square top; minimum 4 inches high.
- C. High Density Polyethylene (HDPE) Countertops:
1. Materials: Made entirely from postconsumer recycled high density polyethylene (HDPE). Provide sound, hard, durable, sheet material of uniform strength, color, and texture, free of flaws, cracks, seams, or other mineral or organic defects which affect visual appearance or structural integrity.
  2. Color: See Color Schedule.
  3. Gauge and Sheet Size:
    - a. Backsplash and Endsplash: 3/8" (9 mm) 48"x96" (1.2 m x 2.4 m)
    - b. Countertops: 1.0" (25.4 mm) 48"x96" (1.2 m x 2.4 m)
  4. Surface Finish: Manufacturer's standard subtle texture.
  5. Exposed Edge Treatment: Square smooth edge with chamfered top.
  6. Manufacturers:
    - a. 3form ([www.3-form.com](http://www.3-form.com))
    - b. Substitutions: See Section 01600 - Product Requirements
  7. Extent of Work; Reception Area Countertops and where shown on drawings.

## 2.02 ACCESSORY MATERIALS

- A. Wood-Based Components:
1. Wood fabricated from old growth timber is not permitted.
- B. Substrate for Surfaces to Receive Laminate Covering (other than sink countertops):
1. Particle Board:
    - a. Manufacturer & Products:
      - 1) Boise Cascade "Boise Evergreen"
      - 2) Roseburg "Skyblend"
      - 3) Substitutions: See Section 01600 - Product Requirements.
    - b. Engineered composite panel wood product made from 100% pre-consumer and reclaimed Ponderosa Pine and species of western wood particles, and no added urea-formaldehyde.
    - c. Minimum Density 45.0 lb/cu ft
    - d. Moisture Content: 7%

- e. Sanding: 100 grit
- f. Surface Strength: 350 psi
- C. Substrate for Sink Countertop Surfaces to Receive Laminate Covering
  - 1. Interior Medium Density Fiberboard (MDF): Industrial Grade engineered wood-based panel, water resistant, manufactured with a formaldehyde-free binder (no added formaldehyde) and which meets the requirements of ANSI A208.2-1994, product class MD.
    - a. Manufacturer and Brand: Medite II, by Sierrapine.
    - b. Substitutions: See Section 01600 - Product Requirements.
- D. Adhesives: Chemical resistant waterproof adhesive as recommended by manufacturer of materials being joined.
- E. Joint Sealant: Mildew-resistant silicone sealant, clear.
  - 1. Refer to section 01 60 00 (01600) - Product Requirements for VOC limits for adhesives, sealants, paints and coatings.
- F. Grommets & Wire Managers: Trash Managers 6" X 6" Polished Stainless Steel Trash Grommet Model TM1A-PSS by Doug Mockett & Co.
  - 1. Utility Grommets: plastic material for cut-outs with removable cap, black color, 3 1/2 inch O.D.; similar to "XG" by Doug Mockett & Company.
  - 2. Trash Managers: 6" X 6" Polished Stainless Steel Trash Grommet Model TM1A-PSS by Doug Mockett & Co.

## **2.03 FABRICATION**

- A. Fabricate tops and splashes in the largest sections practicable, with top surface of joints flush.
  - 1. Join lengths of tops using best method recommended by manufacturer.
  - 2. Fabricate to overhang fronts and ends of cabinets 1 inch except where top butts against cabinet or wall.
  - 3. Prepare all cutouts accurately to size; replace tops having improperly dimensioned or unnecessary cutouts or fixture holes.
- B. Provide back/end splash wherever counter edge abuts vertical surface unless otherwise indicated.
  - 1. Secure to countertop with concealed fasteners and with contact surfaces set in waterproof glue.
  - 2. Height: 4 inches, unless otherwise indicated.
- C. Solid Surfacing: Fabricate tops up to 144 inches long in one piece; join pieces with adhesive sealant in accordance with manufacturer's recommendations and instructions.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Verify that wall surfaces have been finished and mechanical and electrical services and outlets are installed in proper locations.

### **3.02 PREPARATION**

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### **3.03 INSTALLATION**

- A. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.



- B. Attach plastic laminate countertops using screws with minimum penetration into substrate board of 5/8 inch.
- C. Attach wood countertops using screws with minimum penetration into substrate board of 5/8 inch.
- D. Attach HDPE countertops using compatible adhesive.
- E. Seal joint between back/end splashes and vertical surfaces.

**3.04 CLEANING**

- A. Clean countertops surfaces thoroughly.

**3.05 PROTECTION**

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

**END OF SECTION**

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**DIVISION 20 – GENERAL MECHANICAL**

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20 05 00	GENERAL MECHANICAL PROVISIONS
20 05 48	SEISMIC CONTROL FOR MECHANICAL SYSTEMS
20 05 53	IDENTIFICATION FOR MECHANICAL EQUIPMENT
20 05 93	TESTING, ADJUSTING AND BALANCING FOR MECHANICAL

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**DIVISION 21 – FIRE SUPPRESSION**

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21 13 13	WET-PIPE SUPPRESSION SYSTEM
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**DIVISION 23 – HVAC**

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23 07 00	HVAC INSULATION
23 21 13	HYDRONIC PIPING
23 31 13	METAL DUCTWORK
23 31 17	FLEXIBLE DUCTWORK
23 31 19	DUCTWORK HANGERS, SUPPORTS, AND SEALS
23 33 00	DUCTWORK ACCESSORIES
23 37 00	AIR OUTLETS AND INLETS

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**DIVISION 26 – ELECTRICAL**

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26 01 26	SUBMITTALS AND SHOP DRAWINGS
26 05 00	COMMON WORK RESULTS FOR ELECTRICAL
26 05 01	ELECTRICAL DEMOLITION
26 05 19	LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
26 05 26	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
26 05 29	HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
26 05 33	RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
26 05 53	IDENTIFICATION FOR ELECTRICAL SYSTEMS
26 09 23	LIGHTING CONTROL EQUIPMENT
26 24 16	PANELBOARDS
26 27 26	WIRING DEVICES
26 28 16	OVERCURRENT PROTECTIVE DEVICES
26 29 13	MOTOR AND CIRCUIT DISCONNECTS
26 32 13	EMERGENCY POWER PACKS
26 51 13	INDOOR LIGHTING FIXTURES, LAMPS, AND BALLASTS

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**DIVISION 27 – COMMUNICATIONS**

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27 20 00	VOICE AND DATA WIRING
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**DRAWINGS**

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M001	LEGEND AND DETAILS
M101	CHILES PARTIAL THIRD FLOOR PLAN MECHANICAL DEMOLITION
M121	CHILES PARTIAL THIRD FLOOR PLAN – MECHANICAL AIR DISTRIBUTION
M141	CHILES PARTIAL THIRD FLOOR PLAN FIRE PROTECTION
E001	LEGEND, GENERAL NOTES & LUMINAIRE
E101	CHILES PARTIAL THIRD FLOOR PLAN – DEMOLITION
E111	CHILES PARTIAL THIRD FLOOR PLAN – LIGHTING
E121	CHILES PARTIAL THIRD FLOOR PLAN – POWER & SIGNAL

## SECTION 20 05 00

### GENERAL MECHANICAL PROVISIONS

#### PART 1 - GENERAL

##### 1.01 CONTRACT DOCUMENTS

- A. General mechanical requirements specified in Division 20 apply to all work performed in Divisions 21 and 23.
- B. The Contract Documents are complementary. What is required by any one, as affects this Division, shall be as binding as if repeated herein.
- C. Separation of this Division from other Contract Documents shall not be construed as segregation of the work.
- D. Particular attention is called to Instructions to Bidders, General Conditions, Drawings and Specifications, and modifications incorporated in the documents before execution of the Agreement.
- E. Location of equipment on Drawings is approximate. Plan exact location with respect to site measurements and work of other trades prior to starting work. If measurements differ slightly, modify work. If measurements differ substantially, notify Architect/Engineer and Owner's Authorized Representative prior to fabrication.
- F. Make minor changes in equipment connections and equipment locations as directed or required before rough-in without extra cost.

##### 1.02 WORK INCLUDES

- A. Contractor shall furnish and install all necessary equipment and labor to provide the specified mechanical systems. The work includes but is not limited to:
  - 1. Expand the building wet pipe fire protection system to serve the 3<sup>rd</sup> floor of the Chiles Wing.
  - 2. Replace existing fiberboard ductwork located in the ceiling space.
  - 3. Provide a new terminal unit and associated hydronic piping, and make ductwork modifications as necessary.
  - 4. Provide new controls for the terminal unit.
- B. Omissions: Omission of expressed reference to any item of labor or material necessary for the proper execution of the work shall not relieve responsibility from providing such additional labor or material.

##### 1.03 COORDINATION

- A. Contractor shall coordinate all work in Divisions 20 through 25 with work specified in other Divisions to provide a complete installation. Expense of changes required because of lack of supervision or coordination shall be borne by the Contractor. Such changes shall be to the satisfaction of and directly supervised by the Owner's Authorized Representative.
- B. Check drawings of other trades to avert possible installation conflicts. Should major changes from original drawings be necessary to resolve such conflicts, notify Architect and secure written approval and agreement on necessary adjustments before installation is started.

- C. Architectural drawings govern all other drawings. Consult in detail the door swings, counter heights and similar items affecting work before rough-in.

#### **1.04 SUBMITTALS AND SHOP DRAWINGS**

- A. Provide in accordance with SECTION 01 33 00 – SUBMITTAL PROCEDURES.
- B. Manufacturers' product data and Shop Drawings shall be submitted as follows:
  - 1. Prior to delivery of submittal documents, contractor shall review all manufacturers' product data, Shop Drawings, and samples for compliance and conformance with specifications, and shall incorporate changes, corrections and deviations known to exist. Contractor shall affix his review stamp to documents and acknowledge such review by his signature.
  - 2. Submittals for manufacturers' product data and Shop Drawings shall be in sufficient detail to establish conformance with specified requirements and as outlined under Product Data, Shop Drawings and Samples described below. Specific features shall be marked with color contrasting ink on printed literature. If translucent highlighting method is used, highlighted print shall be reproducible by photocopy.
  - 3. A complete submittal document shall be assembled in one or more three-ring, loose-leaf binders. The complete document shall consist of all items identified in the submittal schedule.
  - 4. Order of the bound contents shall be same as in the submittal schedule.
  - 5. Each item or logical group of items shall be identified by a separate tab marker in the bound document (example: "pumps," "air compressors," etc.).
  - 6. Each bound document shall contain a Table of Contents which lists each tab and each item under each tab.
  - 7. Catalog data and Shop Drawings (each separate item) shall be identified by the name of the item, the system, the applicable specification paragraph number, drawings number, and schedule.
  - 8. Multiple submissions or submissions of manufacturers' product data or Shop Drawings other than in one complete assembled document are not acceptable except where prior written approval has been obtained. In such cases, a list of data to be submitted later shall be included with the first submission.
- C. Resubmittals shall be complete substitutions of original submittals.
- D. Submittal information required must be provided regardless of whether the proposed item or work is in exact accordance with specification requirements.
- E. No item requiring approved submittal information shall be delivered to the site or installed or any associated work performed until required submittals have been approved for compliance with the Contract Documents by the Engineer. Any item delivered to the site or installed, or any work performed without an approved submittal, which is deficient in any way, shall be removed from the site at no expense to Owner.
- F. Manufacturers' Product Data:
  - 1. Manufacturers' product data shall consist of one or more levels of manufacturer's information as described below and as requested in the submittal schedule. The three levels of information include: manufacturer's list, manufacturer's catalog data, and manufacturer's technical and engineering data. Mark submittal information under each level to identify applicable products, models, options, and other information as it relates to the specifications.
  - 2. Manufacturer's List. Manufacturer's list shall include a typewritten list of manufacturer's name, sizes and model or catalog numbers, referenced to the specification section.

3. Manufacturer's Catalog Data. Manufacturer's catalog data shall include standard catalog information marked to indicate specific equipment proposed and point of operation, if appropriate. Include installation instructions.
4. Manufacturer's Technical and Engineering Data. Manufacturer's Technical and Engineering Data shall include materials, dimensions, details, installation instructions, weights capacities, illustrations, wiring diagrams, control diagrams, piping diagrams, connection diagrams, performance data (including performance curves), mix designs, and any other information required for a complete and thorough evaluation of the equipment or items specified, and to verify compliance with the specifications. Such data shall be clearly marked to indicate point of operation and performance as required by the specifications. Control diagrams or control schematics, where specified and required by the submittal schedule, shall include a detailed schematic of the proposed control modifications and their interface with existing control equipment, where appropriate, and a manufacturer and model number listing of all proposed control components shown on the control schematic.

G. Shop Drawings:

1. Shop drawings are construction drawings of an item being manufactured specifically for this project. Shop Drawings include dimensions, construction details, weights, and additional information to identify the physical features of the piece of equipment.
2. Submit Shop Drawings in the form of blue-line reproductions. After review by Engineer, contractor shall make appropriate changes on original, reproduce, and distribute to the necessary parties including the Architect/Engineer.
3. Minimum scale for Shop Drawings shall be 1/4" = 1'0" or larger if required for clarity.

H. Submittal Schedule

1. Submittals for manufacturers' product data, Shop Drawings, and samples are as indicated below. Each item requiring a submittal is given the following code.

- 1 - Manufacturer's list
- 2 - Manufacturer's catalog data
- 3 - Manufacturer's technical and engineering data
- 4 - Shop Drawings
- 5 - Samples
- 6 - Certificates
- 7 - Test data
- 8 - Worker's qualifications
- 9 - Special requirements, see individual specification sections

Division 20 - General Mechanical

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**1.05 QUALITY ASSURANCE**

- A. All materials and equipment provided hereunder shall be installed and started in complete conformance with the manufacturer's recommendations.
- B. Asbestos products or equipment or materials containing asbestos shall not be used.
- C. Certify that each welder has passed the American Welding Society (AWS) qualification tests for the welding processes involved, and that certification is current.

**1.06 DESIGN REQUIREMENTS**

- A. Equipment and systems provided hereunder shall be rated to provide performance specified and scheduled on drawings at the elevation of the project site.

**1.07 CODES, STANDARDS**

- A. Applicable codes and standards shall determine minimum requirements for materials, methods, and labor practices not otherwise stated herein.
- B. Work shall comply with the Americans with Disabilities Act (ADA).

**1.08 TEMPORARY SERVICES**

- A. Provide in accordance with SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS as required for completion of work. Provide additional filters as required to keep areas clean during construction.
- B. Maintain existing systems operational. Damage to existing equipment resulting from work under this Contract repaired at no expense to Owner.

**1.09 OPERATIONS AND MAINTENANCE MANUALS**

- A. Bind manuals in three-ring, high quality vinyl covered binders, clearly indexed and provided with thumb tabs for each item or product. Include a directory of all subcontractors and maintenance contractors with names, addresses, and telephone numbers, indicating the area of responsibility for each. Index tabs shall match submittal schedule and include any additional information required for operations and maintenance, whether in submitted schedule or not.
- B. Maintenance instructions shall indicate routine-type work with step-by-step instructions that should be performed to ensure long life and proper operations. Recommended frequency of performance shall also be included.
- C. Provide copy of approved submittal for each product included in manual.
- D. Provide printed copy and electronic configuration files for all packaged equipment control systems furnished with equipment.
- E. Mark the model actually provided where the literature covers more than one model. Include four copies of all submittal data corrected to "as-built" conditions within the manual.

- F. Provide a composite summary table indicating each item of equipment listed in the operations and maintenance manual and its required maintenance and time period. This summary table shall be the first section in the O&M manual.
- G. Operation and Maintenance Schedule
  - 1. Manuals shall contain full information for each item of mechanical, electrical, or other operating equipment, as given the following code.
    - 1- Manufacturer's instructions for installation, startup, operation, inspection, and maintenance.
    - 2 - Lubrication schedules.
    - 3 - Performance capacity.
    - 4 - Catalog data sheets.
    - 5 - Parts list.
    - 6 - Maintenance schedules.

Code

Division 21 – Fire Suppression

21 13 13      Wet-Pipe Suppression System ..... -

Division 23 - HVAC

23 37 00      Air Outlets and Inlets..... 4

**1.10 RECORD DRAWINGS**

- A. Provide record "as-built" drawings in accordance with Division 1 requirements. Show all deviations from Contract Drawings and location of underground lines by accurate dimensions from building lines. Show depth of all stub outs and underground lines. Dimension all concealed piping from column grids or building lines..

**1.11 DEMONSTRATION**

- A. General: After installation is complete, demonstrate to Engineer and Owner's Authorized Representative satisfaction as being complete and operational and entirely in conformance with Contract Documents.
- B. Preparation: Prior to demonstration:
  - 1. Submit check-off list indicating completeness of submittals and certificates of compliance for review to Owner's Authorized Representative.
  - 2. Operate completed system for one week.
  - 3. Verify that control verification is complete and verification report has been approved by Architect.
- C. Arrange for demonstration with Owner, Engineer, required factory technicians, and installer at least one week in advance of demonstration.

**1.12 TRAINING**

- A. Instruct Owner in proper operation and maintenance of equipment and systems. Instruction shall generally include topics listed in manufacturer's operations and maintenance manual. Operator instructions shall cover all aspects of manual, automatic, and safety controls. Contractor shall also instruct the Owner in the general configuration of systems and location of equipment and components.

- B. Furnish competent qualified technicians knowledgeable in the specific building systems and equipment provided for this project for a minimum of 4hours on-site to instruct Owner in operation and maintenance of systems and equipment. This figure does not include additional training noted under individual specification sections. Contractor shall keep a log of this instruction including date, times, subjects, and those present and shall present such log when requested by Engineer. Contractor shall coordinate training with Owner's Project Manager and provide a schedule for training minimum two-weeks prior to substantial completion. All training shall be complete 30-days after substantial completion.
- C. Contractor shall furnish training by equipment manufacturers in addition to training described in this section where specifically listed in other sections. Contractor shall schedule training with Owner's Project Manager minimum 48-hours prior to training session. Equipment shall be fully operational prior to scheduling training session. Manufacturer's field start-up, adjustment, and service will not fulfill manufacturer's training requirement.

## **PART 2 - PRODUCTS**

### **2.01 PRODUCTS AND MATERIALS**

- A. All materials employed in permanent construction shall be new, full weight, in first class condition, and suitable for space provided. All similar materials shall be of one manufacturer.
- B. Scheduled equipment was used as the basis of design. If Contractor chooses to use equipment that is not the basis of design, Contractor is responsible for all re-design and construction costs associated with variations in arrangement, dimension, or capacity. Such work may include, but is not limited to, changes to facility structure or dimensions and revisions to associated mechanical and electrical systems needed to provide equal system performance and maintainability.

## **PART 3 - EXECUTION**

### **3.01 ACCESS TO EQUIPMENT AND ACCESSORIES**

- A. Install equipment with sufficient access for service. Where not conveniently accessible by other means, provide adequately sized access doors for valves, dampers, motors, belts, and all other mechanical equipment requiring access for removal or maintenance. Type, size and exact location of access doors shall be coordinated with Architect prior to work.
- B. Provide clearances for maintenance access as indicated on drawings or as recommended by manufacturer. If access requirements shown on drawings conflict with manufacturer's recommendations, provide larger clearance of the two.
- C. If equipment location shown on drawings does not allow required access, notify Architect/Engineer prior to start of work.
- D. Apply and install all items in accordance with manufacturer's written instructions. Refer conflicts between the manufacturer's instructions and the contract drawings and specifications to Architect/Engineer for resolution prior to starting work.



### 3.02 ARRANGEMENT AND INSTALLATION OF EQUIPMENT AND PIPING

- A. Coordinate location of piping, sleeves, inserts, hangers, ductwork and equipment. Locate piping, sleeves, inserts, hangers, ductwork and equipment clear of windows, doors, openings, lights, electrical outlets, and other services and utilities. Follow manufacturer's published recommendations for installation methods not otherwise specified.
- B. Operating Personnel Access and Observation Provisions: Select and arrange all equipment and systems to provide clear view and easy access, without use of portable ladders, for maintenance and operation of all devices including, but not limited to: all equipment items, valves, filters, strainers, transmitters, sensors, control devices. All gauges and indicators shall be clearly visible by personnel standing on the floor or on permanent platforms. Do not reduce or change maintenance and operating space and access provisions that are shown on the drawings.
- C. Equipment and Piping Support: Coordinate structural systems necessary for pipe and equipment support with pipe and equipment locations to permit proper installation.
- D. Location of pipe sleeves, trenches and chases shall be accurately coordinated with equipment and piping locations.
- E. Minor Piping: Small diameter pipe runs from drips and drains, water cooling, and similar minor services are generally not shown but must be provided. Contractor is responsible to provide all such minor piping where needed to maintain mechanical spaces clean and dry and to allow full equipment function and maintenance.
- F. Interconnection of Controls and Instruments: Generally not shown but must be provided. This includes interconnections of sensors, transmitters, transducers, control devices, control and instrumentation panels, instruments and computer workstations. Comply with NFPA-70.
- G. Work in Existing Building: Cut required openings through existing masonry and reinforced concrete using diamond core drills. Use of pneumatic hammer type drills, impact type electric drills, and hand or manual hammer type drills, will be permitted only with approval of the Owner's Authorized Representative. Locate openings that will least affect structural slabs, columns, ribs or beams. Refer to the Architect/Engineer for determination of proper design for openings through structural sections and obtain layout approval prior to cutting or drilling into structure. After Architect/Engineer's approval, carefully cut opening through construction no larger than absolutely necessary for the required installation.
- H. Switchgear Drip Protection: Do not install piping above electrical switchgear.
- I. Inaccessible Equipment:
  - 1. Where the Owner's Authorized Representative determines that the Contractor has installed equipment not conveniently accessible for operation and maintenance, equipment shall be removed and reinstalled or remedial action performed as directed at no additional cost to the Owner.
  - 2. The term "conveniently accessible" is defined as capable of being reached without the use of ladders, or without climbing or crawling under or over obstacles such as motors, fans, pumps, belt guards, transformers, high voltage lines, piping, and ductwork.

### **3.03 CLEANING SYSTEMS**

- A. General: After all equipment, pipes and duct systems are installed, system shall be thoroughly cleaned. Remove all stickers and tags from equipment or fixtures. Clean all piping systems prior to installation of insulation or painting.
- B. Air Distribution Duct System:
  - 1. Remove all debris from system before operation. Under no circumstances shall system be operated without filters. Replace filters used during construction with new filters.
  - 2. Repair or replace any discolorations or damage to system, building finish, or furnishings resulting from Contractor's failure to properly clean system.

### **3.04 START UP**

- A. The Mechanical Contractor shall be responsible for proper operation of all systems and shall coordinate startup procedures, calibration and system checkout. System operational problems shall be diagnosed and corrected as required for system operation prior to substantial completion inspection.
- B. Start equipment in accordance with manufacturer's recommendation and under manufacturer's supervision where required. Ensure that associated filters, strainers, electrical overloads, and other devices intended to protect the equipment are installed and functional prior to startup.
- C. Verify that piping has been flushed and cleaned prior to startup.

**END OF SECTION**

## SECTION 20 05 48

### SEISMIC CONTROL FOR MECHANICAL SYSTEMS

#### PART 1 – GENERAL

##### 1.01 SECTION INCLUDES

- A. Design and installation of seismic restraint of new mechanical equipment, piping, and ductwork installed or relocated hereunder.

##### 1.02 DEFINITIONS AND ABBREVIATIONS

- A. Custom Engineered Assembly: Anchorage and seismic restraint assembly comprised of standard or proprietary components, designed and applied to system by the seismic restraint system Engineer.
- B. Pre-Engineered Assembly: Previously designed anchorage and seismic restraint assembly selected and applied to system by the seismic restraint system Engineer.
- C. Equipment:
  - 1. Includes (but not limited to) boilers, economizers, flues, etc. Equipment referred to by type is typical. Equipment not specifically listed here is still subject to the requirements listed herein.
  - 2. Weight: Installed operating weight of equipment as reported by equipment manufacturer.
  - 3. Floor-Mounted: Equipment located on and attached to floor.

##### 1.03 PROJECT DESIGN CRITERIA

- A. Restraint system, assemblies, and components shall be designed and installed to resist lateral loads in accordance with the current adopted State of Oregon Structural Specialty Code.
- B. Seismic Design Criteria: Use State of Oregon Structural Specialty Code for the site.
- C. Seismic restraint design calculations shall consider localized effects on structural elements induced by the connection loads.

##### 1.04 SYSTEM ENGINEERING AND QUALITY ASSURANCE

- A. Seismic restraint system shall be engineered to comply with criteria stated and referenced herein.
- B. System engineering shall be performed by a Structural Engineer currently licensed to practice in the State of Oregon.
- C. System engineering shall include design and application of Custom Engineered and/or Pre-Engineered Assemblies, as applicable to this project.
- D. Approved System Engineering Services: Mason Industries, Amber-Booth, Kinetics, Vibro-Acoustics, or an independent structural engineer.

## **1.05 SUBMITTALS**

- A. Submittals are required for all equipment anchors, supports and seismic restraints. Submittals shall include weights, dimensions, standard connections, and manufacturer's certification that all specified equipment will withstand seismic forces.
  - 1. Seismic Restraint Location Plan: Full or half size copies of ductwork and piping plans from the Contract Documents, showing locations and type of seismic restraint assemblies to be used. Drawings shall consist of mechanically reproduced copies of the Contract Documents, or custom drafted specifically for the Work of this Project. Each drawing shall be printed on a single sheet. Drawings pieced together from multiple copies are not acceptable.
  - 2. Seismic Restraint Assembly Installation Details: Pre-Engineered or Custom Engineered assembly details showing required components, dimensions, and method of connection to supporting structure.
  - 3. Calculations for System Application: Calculations shall indicate maximum forces anticipated at each restraint assembly, method of determining forces, and selection of restraint assemblies.
    - a. For Pre-Engineered Assemblies, include documentation of assumed design conditions and maximum load capacity of assembly, certified by a Registered Professional Engineer.
    - b. For Custom Engineered Assemblies, submit calculations identifying maximum load capacity of assembly, maximum forces on each component, sizing/selection of each component and maximum forces at anchorage points.
- B. The entire submittal package comprised of drawings, details, and calculation shall be stamped and signed by the seismic restraint system Engineer.
- C. At completion of seismic restraint system installation, submit three (3) copies of report from seismic restraint system Engineer, or the Engineer's representative, certifying that seismic restraints are installed in conformance with approved shop drawings and no additional restraints are necessary based on field conditions. Include written authorization, from seismic restraint system Engineer or the designated representative.

## **PART 2 - PRODUCTS**

### **2.01 PRE-ENGINEERED ASSEMBLIES**

- A. Acceptable Manufacturers: Mason Industries, Amber-Booth, Kinetics, Tolco, B-Line, Vibro-Acoustics, or approved.
- B. Anchorage and seismic restraint assembly comprised of standard or proprietary components, capable of application to restraint system and supporting structure.
- C. Assemblies may be selected from SMACNA Seismic Restraint Manual or as engineered by an approved proprietary manufacturer.

## **PART 3 - EXECUTION**

### **3.01 COORDINATION**

- A. Coordinate the design of seismic restraint systems with contract documents indicating a specific seismic design approach and load capabilities of the existing building structure.
- B. Coordinate the design of seismic restraint systems with the equipment and piping support structure provided hereunder.

- C. Where information presented in the contract documents is not adequate to allow design of seismic restraint, provide a request for information including a listing of specific information required.
- D. Notify the engineer when the existing building support structure or new equipment and piping support structure is not adequate to provide seismic restraint.
- E. Coordinate the seismic restraint design with new equipment to ensure manufacturer's recommended maintenance clearances are maintained.

### **3.02 INSTALLATION**

- A. Install seismic restraint system in strict accordance with the manufacturer's written instructions and certified submittal data.
- B. Maintain all existing walkways and service routes clear of seismic restraint cables and other restraint equipment.
- C. Attach restraints and anchors to a common structural element plane and within a common structural system.
- D. For non-isolated suspended equipment and piping, install solid braces or taut flexible cable restraints.
- E. Provide supplementary support steel for equipment, piping, and ductwork required for the work of this Section.

**END OF SECTION**

## SECTION 20 05 53

### IDENTIFICATION FOR MECHANICAL EQUIPMENT

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

- A. Piping Identification
- B. Valve Identification
- C. Equipment Identification

##### 1.02 REFERENCE STANDARDS

- A. ANSI A 13.1, Scheme for the Identification of Piping Systems.

#### PART 2 - PRODUCTS

##### 2.01 PIPING IDENTIFICATION

- A. Acceptable Manufacturer: Seton, Brady, MSI.
- B. Label Description:
  - 1. Semi-rigid plastic snap-around type with printed piping identification on colored background.
  - 2. Letter size: Conform to ANSI A 13.1.
  - 3. Background color: Conform to ANSI A 13.1.
  - 4. Direction arrow on each label indicating direction of flow.
  - 5. Legend Wording: Match piping description shown on Symbols list.

##### 2.02 VALVE IDENTIFICATION

- A. Acceptable Manufacturer: Seton, Brady, MSI.
- B. Valves identified by distinguishing numbers and letters as shown on valve chart.
- C. Valve Tag:
  - 1. Material: Polished brass or aluminum.
  - 2. Identification: 1/4-inch high letters, 1/2-inch high numbers. Black filled.
  - 3. 1-1/2 inch diameter.
  - 4. Attachment: Smooth ply brass wire, brass "S" hook, or brass chain.
  - 5. Legend Wording: Match piping abbreviation shown on Symbols list. Number valves sequentially by system type. Coordinate with existing numbering sequence where appropriate.
- D. Valve Chart:
  - 1. Valve identification number for each valve.
  - 2. Location of each valve.
  - 3. Purpose of each valve.
  - 4. Normal position of each valve.

## **2.03 EQUIPMENT IDENTIFICATION**

- A. Nameplates:
  - 1. Aluminum: 2-1/2" x 3/4" high. Black enamel background. Etched or engraved natural aluminum lettering.
  - 2. Plastic: Laminated black-white-black phenolic plastic. Engraved to show white lettering on black background, except for labels attached to ceiling grid or located within finished spaces shall have black lettering on white background. Gothic letters minimum 3/16-inches high.
- B. Name of unit and number designation as scheduled on drawings.

## **PART 3 - EXECUTION**

### **3.01 PREPARATION**

- A. Ensure surfaces are clean, dry, and free of debris before attaching nameplates.

### **3.02 PIPE IDENTIFICATION**

- A. Provide labels for piping. Labels shall be visible from walkways and service locations at floor level.
- B. Locations of Pipe Labels as follows:
  - 1. Adjacent to equipment connections.
  - 2. Adjacent to each valve and fitting, except plumbing fixtures.
  - 3. At each branch and riser take-off.
  - 4. At each passage through wall, floor and ceiling construction.
  - 5. At each passage to underground.
  - 6. On all horizontal pipe runs every 20 feet.
  - 7. Minimum one marker between pieces of equipment.
  - 8. Coordinate location of piping labels in occupied spaces with Architect.

### **3.03 VALVE IDENTIFICATION**

- A. Identify all valves specified in Division 23.
- B. Valve Charts: One copy in each O&M manual.
- C. Continue existing numbering sequence for new valves installed in existing buildings.

### **3.04 EQUIPMENT IDENTIFICATION**

- A. Provide labels for all scheduled equipment. Place labels in a conspicuous place. Nameplate either aluminum or plastic permanently attached to equipment. Provide identical identification plate on starter and on disconnects.
- B. Provide labels for all ceiling mounted equipment located above T-bar ceiling on ceiling support frame adjacent to unit.

**END OF SECTION**

## SECTION 20 05 93

### TESTING, ADJUSTING, AND BALANCING FOR MECHANICAL

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. Section includes testing, adjusting, and balancing of air and water systems specified in Division 23. Work shall generally consist of volume adjustments, speed adjustments, performing tests, recording equipment data and measurements, and preparing reports to achieve system performance as required by Contract Documents.

##### 1.02 DEFINITIONS

- A. TAB: Testing, adjusting, and balancing.
- B. AABC: Associated Air Balance Council.
- C. NEBB: National Environmental Balancing Bureau.
- D. Project Supervisor: Individual employed by balancing contractor having administrative and technical responsibility for work performed under this Section.
- E. BAS: Building Automation System. Automatic control system consisting of standalone or integrated digital controllers used to control HVAC equipment.

##### 1.03 SUBMITTALS

- A. Contractor Qualifications: Submit documentation within 14 days of the Contract Date demonstrating that TAB Contractor and Project Supervisor are AABC or NEBB certified.
- B. Final Balancing Report: Provide six certified copies of final balancing report bearing seal of Project Supervisor. Update draft balancing report responding to draft report review comments.

##### 1.04 QUALITY ASSURANCE

- A. Balancing Contractor and Project Supervisor shall be certified by AABC or NEBB.
- B. Balancing Contractor must be approved prior to bid closing. Unless Balancing Contractor is listed as pre-approved below, Bidder must submit a request for approval, in writing, to the Engineer. The request must include documentation, including references, that demonstrate that the Balancing Contractor has the necessary training and experience to perform the work specified. Approval determinations will be made by the Engineer. In addition to documentation provided by the Bidder, the Engineer may use any information available to him in determining qualifications/suitability of the Balancing Contractor.
- C. Pre-approved Contractors: Air Balancing Specialties; Air Introduction and Regulation, Inc.; Northwest Engineering Services, Inc., Southern Oregon Engineering Services, Inc.



- D. All work under this Section shall be performed under the direction of the Project Supervisor.

## **1.05 SEQUENCING**

- A. Prebalancing meeting shall be conducted 30 days prior to start of balancing.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Test Instruments: Furnished by Contractor.
- B. Plugs: Provide plastic plugs in test holes drilled in ductwork.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

- A. Review Contract Documents for testing and balancing devices that are not included but necessary to complete work such as balancing dampers, valves, flow measuring stations, test plugs, access doors, etc. Submit list of recommended additional devices needed to perform work.
- B. Review Contract Documents for any conditions that are unclear, contradictory, or otherwise may prevent specified systems from achieving design performance. Submit list of conditions observed.

### **3.02 APPLICATION**

- A. Work shall be performed in accordance with the latest addition of the AABC National Standards or NEBB Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems.
- B. Accuracy of measurements and balancing tolerances shall be in accordance with AABC or NEBB standards.
- C. Special Balancing Procedures
  - 1. Mark final position of balancing devices after balancing is complete.
- D. BAS Calibration and Testing
  - 1. Perform tests as required to determine calibration parameters for terminal unit flow measurement. Test at maximum, minimum, and zero flow.
  - 2. Perform tests as required to determine BAS control setpoints and control parameters.
- E. Balancing is complete when following conditions are achieved:
  - 1. Systems and components are tested and balanced within specified tolerances.
  - 2. All efforts within the extent of TAB have been exhausted, and systems or components are not operating within acceptable tolerances. Balancing is not complete until written notification of all abnormal or deficient conditions is provided to the Engineer, written direction is received, and all work required by Contract Documents is fully completed.

### **3.03 QUALITY CONTROL**

- A. Testing instruments shall be reliable, accurate, and in good working order. Calibration maintenance of all instruments shall be in accordance with AABC and NEBB requirements.

**END OF SECTION**

## SECTION 21 13 13

### WET-PIPE SUPPRESSION SYSTEM

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Provide complete wet-pipe fire suppression system to serve all spaces within the construction area as shown on drawings.

##### 1.02 DESIGN REQUIREMENTS

- A. The fire suppression system shall comply with the rules, regulations, and ordinances of the Authority Having Jurisdiction and the following referenced standards:
  - 1. NFPA 13 - Standard for Installation of Fire Sprinkler Systems
- B. Design shall be performed and stamped by a Professional Engineer registered in fire protection design IF required by the Authority Having Jurisdiction.
- C. Hazard Classifications: Light hazard.

##### 1.03 SYSTEM DESCRIPTION

- A. Provide wet pipe sprinkler system for full coverage of construction area shown on drawings. Coverage shall include:
  - 1. Equipment rooms.
  - 2. Mechanical rooms.

##### 1.04 QUALITY ASSURANCE

- A. Contractor shall have five-years experience in design and installation of equipment and systems similar to that specified hereunder. Contractor shall have an office within 100 miles radius of job site which can provide emergency maintenance service.
- B. The system designer shall be responsible for verifying site conditions, design requirements, and work being performed by other trades as related to the suppression system design. Design shall accommodate work being performed by other trades. Contractor shall identify areas of the building which will be subject to freezing.
- C. Piping system shall be concealed above ceilings, except where shown on drawings or where no ceilings are installed. Piping routing must be approved by the Architect where piping is exposed of view.
- D. Sprinkler head locations must be approved by the Architect.
- E. Contractor shall obtain water service test data including static pressure, residual pressure/water flow available at the project site.

## **1.05 SUBMITTALS**

- A. Product Data: Submit manufacturer's technical literature and installation instructions for products and materials.
- B. Fabrication Drawings: Prepare scaled drawings for fire protection piping, heads, valves, and accessories including pipe sizes, locations, elevations, slope of horizontal runs, wall and floor penetrations and connections. Identify system components which are located in areas of the building which are subject to freezing.
- C. Calculations: Prepare hydraulic calculations of fire protection systems. Submit copy of calculations for approval.
- D. Submittal Process:
  - 3. Submit preliminary drawings showing exposed piping and sprinkler layout to Architect for approval.
  - 4. Upon approval by Architect, submit drawings to Authority Having Jurisdiction.
  - 5. Upon approval by Authority Having Jurisdiction, submit final drawings with approval stamp to Architect.
- B. Certificate of Installation: Submit certification upon completion of fire protection piping work confirming that the work was tested in accordance with NFPA 13, and that the system is fully complete and operational.

## **PART 2 - PRODUCTS**

### **2.01 GENERAL**

- A. All products shall be UL listed and FM approved.

### **2.02 PIPE AND FITTINGS**

- A. Automatic Fire Sprinkler (AFS), above grade:
  - 1. Black steel. ASTM A-135, Grade B, black, schedule 10 steel pipe or ASTM A53 Type E, Grade B, black, schedule 40 standard weight steel pipe.
  - 2. Weight: Schedule as required in NFPA No. 13.
  - 3. Fittings: Threaded, malleable iron threaded, 150 lb. ANSI B16.3 or mechanical joint, ASTM 47.

### **2.03 SPRINKLER HEADS**

- A. General:
  - 1. Quick response.
  - 2. UL Listed and FM approved.
  - 3. Provide temperature rating in accordance with NFPA 13.
- B. Acceptable Manufacturers: Standard, Tyco, Viking, or approved.
- C. Semi-recessed Wet Pendent:
  - 1. Finish: Chrome head and escutcheon.
  - 2. Application: Acoustical tile and hard ceiling areas.

- D. Upright:
  1. Finish: Exposed, standard chrome head and escutcheon; concealed, standard brass.
  2. Application: Exposed piping and concealed spaces.
  
- E. Wet Pendent:
  1. Finish: Exposed, standard chrome; concealed, standard brass.
  2. Application: Exposed piping and concealed spaces.
  
- F. Upright/Pendent Sidewall: Directional discharge designed for upright or pendent operation.
  1. Finish: Standard chrome.
  2. Application: Exposed piping and concealed spaces.
  
- G. Spare Sprinklers and Cabinet:
  1. Provide additional spare sprinkler heads of type and quantity as required by NFPA 13.
  2. Provide storage cabinet with red enamel finish labeled "EXTRA FIRE SPRINKLER HEADS." Size to hold number of sprinklers provided.
  3. Provide label in cabinet listing heads inventory and a brief description of where installed.

## 2.04 VALVES

- A. O S & Y Gate Valves
  1. 2-Inch and Smaller: All bronze, O.S. and Y gate valve. Cast-iron handwheel. Factory Mutual approved or Underwriter Laboratories labeled. 175 psi WSP. Similar to Kennedy Fig. 66.
  2. 2-1/2-inch and Larger: Iron body, bronze trim, O.S. and Y gate valve. Factory Mutual approved or Underwriters Laboratories labeled. 175 psi WSP. Similar to Kennedy Fig. 68.
  
- B. Swing Check Valves
  1. 2-inch and Smaller: Bronze swing check valve with renewable Teflon disc. Screwed ends. WW-V-51, Class B, Type IV, 150 WSP. Similar Grinnell Fig. No. 3330.
  2. 2-1/2-inch and Larger: Iron body, bronze mounted, swing check valve with renewable bronze disc. Flanged ends. MSS-SP-71. 125 WSP. Similar to Grinnell Fig. No. 6300.
  
- C. Butterfly Valves: 2-Inch and Larger for Fire Protection Service: MSS-SP-67 up to 12-inches, cast-iron lugged body, bronze dies, stainless steel trim. Replaceable Buna-N-Seat. 175 WOG. 8-inch through 12-inch tested for bubble-tight closure at 200 psi, 12-inch and larger tested for bubble-tight closure at 150 psi. Gear operators mounted on key stems. Totally enclosed, lifetime lubricated and gasketed. High strength body, position indicator, travel adjustment screws, ductile iron segment gears, high strength worm gears, handle wheel operators. Similar to Grinnell Series 8000.
  
- D. Ball Valves
  1. 1/4-inch to 1-inch: Full flow port, cast-bronze body. Teflon seals, removable handle ball valve. WW-V-35, Type II, Class A, 150 WSP. Ends to match connected pipe. Similar to Grinnell Fig. No. 3700.

2. 1-1/4-inch to 2-inch: Full flow port, cast-bronze body. Teflon seals, removable handle ball valve. WW-V-35, Type II, Class A, 125 WSP. Ends to match connected pipe. Similar to Grinnell Fig. No. 3500.

## **2.05 SPECIALTIES**

- A. Combination Fire Sprinkler Zone Station: Self-contained assembly consisting of water flow switch, drain valve, inspectors test valve, sight flow indicator, and pressure gauge. Central Riser Manifold Model 13 or as approved.

## **PART 3 - EXECUTION**

### **3.01 INSTALLATION**

- A. Drawings show approximate locations of piping mains, sprinkler zones, and types of systems. Drawings do not show the location of most heads. In general, sprinkler shall be located in the center of ceiling panels and symmetrically within rooms and down corridors, coordinate head locations with lights and grilles. Some sprinkler heads may be shown on drawings where appearance is critical.
- B. Fire sprinkler guards will be provided on exposed sprinkler in areas subject to damage.
- C. Install pipe parallel to building structural system and in a neat and professional manner.
- D. Discharge drain piping to outside with suitable splash plate to a location approved by the Architect.
- E. Provide seismic bracing as required by NFPA and Authority Having Jurisdiction. Verify Seismic Zone and classification as "Essential" or "Non-essential" with Authority Having Jurisdiction.
- F. Connect zone station drain to existing drain.

### **3.02 PAINTING**

- A. Paint all exposed piping and hangers. Do not paint heads. Refer to SECTION 09 9000.

### **3.03 TESTS**

- A. Perform tests as required by Authority Having Jurisdiction.
- B. Perform hydrostatic test of all piping at 125 psi or 50 psi above system static pressure and maintain for four hours.
- C. Provide duplicate test certificates and approvals by the Authority Having Jurisdiction to Architect.

### **3.04 RECORD DRAWINGS.**

- A. Provide as-built drawings in accordance with SECTION 01 78 39 – PROJECT RECORD DOCUMENTS.

**END OF SECTION**

## SECTION 23 07 00

### HVAC INSULATION

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Piping Insulation.
- B. Ductwork Insulation.
- C. Equipment Insulation.

##### 1.02 QUALITY ASSURANCE

- A. Insulation materials and accessories shall be installed in a professional manner by skilled and experienced workers who specialize in commercial insulation work.
- B. Products shall have flame spread and smoke developed ratings based on test procedures in accordance with NFPA-255 and UL 723. Rating shall be indicated on the product or on the shipping containers.
- C. Unless otherwise specified, products shall have flame spread rating no greater than 25 and smoke development ratings no greater than 50.
- D. Specified k factors are at 100°F mean temperature unless stated otherwise. Where optional insulation material is used, select thickness to provide thermal conductance no greater than that for the specified material.

#### PART 2 - PRODUCTS

##### 2.01 PIPING INSULATION

- A. Glass Fiber Insulation (GF)
  - 1. Acceptable Manufacturers: Certainteed, John Manville, Knuaf, Owens-Corning.
  - 2. Type: Preformed fiberglass insulation with factory applied vapor barrier facing.
  - 3. Insulation: ASTM C 547 Type 1.
  - 4. Conductivity: Maximum 0.25 BTU-in/(hr-ft<sup>2</sup>-°F) at 100°F mean temperature.
  - 5. Jacket: ASTM C 1136
  - 6. Maximum Operating Temperature: Pipe surface - 800°F, ambient - 150°F.
  - 7. Basis of Design: John Mansville, Mirco-lok
  - 8. Basis of Design: Pittsburg Corning, Foamglas
- B. PVC Jacket and Fitting Covers
  - 1. Acceptable Manufacturers: Certainteed, John Manville, Knuaf, Owens-Corning.
  - 2. Jacketing: 20 mil. PVC.
  - 3. Fitting Covers: Molded PVC snap-on type valve and fitting covers with precut or molded insulation to match adjacent piping. Provide stainless steel tack fasteners, vapor barrier mastic, and pressure sensitive tape as necessary.
  - 4. Basis of Design: John Mansville, Zeston 2000 PVC

C. Insulation Schedule

Piping System	Operating Range	Type	Run-outs	Piping Mains			
			Up to 2"	Thru 1"	1.25" to 2"	2.5" to 4"	Over 4"
Heating Water, Indoor	105-350	GF	<b>Note 1</b>				
Note 1: Insulation thickness as required by Code.							

**2.02 DUCTWORK INSULATION**

- A. Acceptable Manufacturers: Manville, Owens-Corning, PPG, Certainteed.
- B. Description: Blanket-type, thermal and acoustical, glass fiber insulation.
  - 1. Thickness: Minimum 2-inch.
  - 2. Density: Minimum 0.6- lb.
  - 3. Service temperature 35°F to 250°F.
  - 4. R-Value: Minimum installed R-value of 5.0 (hr – ft<sup>2</sup>-°F)/Btu.
  - 5. Vapor Barrier: Foil-Scrim-Kraft laminated composite.
  - 6. Fed Spec. HH-I-558, Form A (Board, Block), Class I or 2, k = 0.26, external insulation for temperatures up to 400°F.
  - 7. Feedwater Tank:
    - a. 1-inch thick insulation faces with ASJ (white all service jacket).

**PART 3 – EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with manufacturer’s recommendations and as specified.

**3.02 PIPING INSULATION**

- A. General
  - 1. Pressure tests of joints and connections shall be completed and work approved before application of insulation.
  - 2. Surfaces shall be clean and dry with all foreign materials, such as dirt, oil, loose scale and rust removed.
  - 3. Except for specific exceptions, insulate entire specified piping systems including piping, fittings, valves and accessories.
  - 4. Insulation shall be installed in accordance with manufacturer's recommendations and in a neat and professional manner. Insulation shall have smooth and even surfaces, jackets and facings drawn tight, and smoothly cemented down at all laps. Finish all exposed ends and other surfaces with insulating cement.
  - 5. Insulation shall be continuous through all sleeves and openings, except at fire partitions and duct heaters.
  - 6. Insulate piping individually.
  - 7. Do not insulate the following piping components:
    - a. Instrumentation piping.
    - b. Vent and drain piping, except where protective insulation is required to prevent physical damage.



- c. Unions
  - d. Expansion devices, flexible connectors
- B. Glass Fiber Insulation
- 1. Butt all joints firmly together. Seal all longitudinal joint laps and circumferential butt strips. Seal all vapor barrier penetrations on cold piping with application of vapor barrier mastic.
  - 2. Fittings: PVC fitting covers with pre-cut fiberglass inserts. Completely fill fitting cover with fiberglass inserts to level of adjacent insulation. Tape fitting joints. Seal seam edges with vapor barrier mastic on cold piping.

### **3.03 DUCT INSULATION**

- A. Unless constructed of pre-insulated ductwork or shown on drawings as internally lined, insulate the following ductwork.
- 1. Supply air ductwork
  - 2. Return air outside of conditioned spaces.
  - 3. Outside air ductwork.
- B. Insulation materials shall be installed in a first class manner with smooth and even surfaces, with jackets and facings drawn tight and smoothly cemented down at all laps. Insulation shall be continuous through all sleeves and openings, except at fire dampers and duct heaters (NFPA 90A). Vapor barriers shall be continuous and uninterrupted throughout systems with operating temperature 60°F and below. Lap and seal vapor barrier over ends and exposed edges of insulation. Anchors, supports and other metal projections through insulation on cold surfaces shall be insulated and vapor sealed for a minimum length of six inches.
- C. Lap edges of insulation and seal all joints with vapor barrier tape set in vapor barrier lap adhesive.
- D. Adhesive applied to bottom of duct in approximately 6-inch strips about 12-inches on center to adhere insulation to ductwork. Wire insulation securely in place.

**END OF SECTION**

## SECTION 23 21 13

### HYDRONIC PIPING

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Recirculated water piping for HVAC systems.

##### 1.02 QUALITY ASSURANCE

- A. Entire installation shall conform to B31.9 Building Service Piping.
- B. Mechanics shall be skilled in their work or trade. Welders on pressure vessels or piping shall show evidence of qualification in accordance with the ASME Code for Pressure Piping, Power Piping, building service piping, and the ASME Boiler and Pressure Vessel Code. Each welder shall utilize a stamp to identify all work performed by the welder as required. The Owner reserves the right to reject any personnel found unqualified in the performance of work for which they are employed.

#### PART 2 – PRODUCTS

##### 2.01 HEATING WATER PIPING (Above Grade)

- A. Piping: Seamless copper water tube, ASTM B 88 hard drawn, Type L.
- B. Fittings:
  - 1. ANSI B16.22: Wrought copper and bronze solder joint pressure fittings.
  - 2. ANSI B16.18: Cast bronze solder joint pressure fittings.
  - 3. Pipe Joints
    - a. Up to 1-1/4 inches: Soldered.
    - b. 1-1/2 inches and larger: Brazed.
- C. Solder Materials :
  - 1. Solder Filler Alloy: ASTM B 32, 95-5 Tin-antimony (Sb5).
  - 2. Flux: Fed. Spec. FS-0-F-506C, non-corrosive flux.
- D. Brazing Materials:
  - 1. Brazing Filler Metals: AWS A5.8, Classification BCuP-5.
  - 2. Brazing Filler Alloys: ASTM B260-52T, Sil-Fos (15% silver, 80% copper).
  - 3. Flux: Silver brazing flux, non-corrosive.

##### 2.02 CONTROL AND INSTRUMENTATION PIPING

- A. Instrument process piping to pressure gauges, pressure transmitters, and flow elements: 3/8-inch 316L, stainless steel; ASTM A 213/A269; 316 stainless steel Swagelok compression fittings.
- B. Instrument and control piping connected to service piping having an operating temperature of 55°F or less and penetrating piping insulation shall be constructed using galvanized steel, bronze, or stainless steel fittings and bushings. Use materials compatible with service piping.

## **PART 3 – EXECUTION**

### **3.01 INSTALLATION**

- A. Piping, equipment, appurtenances and devices installed in professional manner in conformance with the Specifications and drawings. Changes in direction made by appropriate use of fittings. Approved provisions made for expansion and flexibility in water piping. Arrange piping to drain to equipment, drain point, or as approved.
  - 1. Where optional piping materials are specified for a specific service, all piping provided for that service must be of the same type.
  
- B. Piping Layout:
  - 1. Give special attention to appearance of complete installation.
  - 2. Make provision for expansion and contraction during normal operation.
  - 3. Do not obstruct openings or passageways.
  - 4. Run parallel to walls of building.
  - 5. Keep free of contact with building construction or installed items.
  
- C. Cutting: Cut pipe from measurements taken at the site, not from drawings.
  
- D. Drainage: Arrange so that system can be completely drained.
  
- E. Corrosion Protection: Wherever steel pipe is connected to copper pipe, or equipment containing copper, bronze, or cupro-nickel, use di-electric unions properly installed with no electrical path through connection.
  
- F. Copper Piping
  - 1. Brazed and Solder Joints:
    - a. Ream or file pipe to remove burrs.
    - b. Clean and polish contact surfaces of joint.
    - c. Apply flux to both male and female ends.
    - d. Insert end of tube into fittings full depth of socket.
    - e. Bring joint to temperature in as short of time as possible.
    - f. Form continuous bead around entire circumference of joint.

### **3.02 CLEANING**

- A. Keep inside of all pipe and fittings clean and free from dirt and debris.
  
- B. Thoroughly blow all lines before testing or placing in service.

### **3.03 INSPECTION**

- A. No piping covered or concealed until it has been first tested, inspected and approved.

**END OF SECTION**

## SECTION 23 31 13

### METAL DUCTWORK

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. Ductwork and accessories for HVAC systems.

##### 1.02 DESIGN REQUIREMENTS

- A. Ductwork construction shall comply with SMACNA “HVAC Duct Construction Standards – Metal and Flexible” including material thickness, seam and joint construction, and reinforcement.
- B. Static Pressure Class: Minimum 2-inches water gauge or 200% fan unit external static pressure, whichever is greater; unless otherwise listed below:
  - 1. Supply air ductwork in VAV systems upstream of terminal units – 4” wg.
- C. Leakage Class: Air leakage from ductwork systems shall not exceed the amount listed below:
  - 1. Rectangular ductwork: 4 cfm/100 square feet at 1-inch wg.
  - 2. Round and Flat oval ductwork: 2 cfm/100 square feet at 1-inch wg.
  - 3. Flexible ductwork: 4 cfm/100 square feet at 1-inch wg.

##### 1.03 QUALITY ASSURANCE

- A. Entire ductwork system provided in accordance with NFPA 90A.
- B. Ductwork and components UL 181 listed as Class 1 air duct with flame spread rating not to exceed 25 and smoke rating not to exceed 50.

#### PART 2 – PRODUCTS

##### 2.01 RECTANGULAR DUCTWORK

- A. Material: galvanized steel, ASTM A527, G-60.
- B. Fabrication: Minimum gauge, duct construction, joint reinforcing, fittings, hangers, and supports shall be in accordance with SMACNA “HVAC Duct Construction Standards”
  - 1. Transverse Joints: Joining systems manufactured by Ductmate, Roloc, or TDC are acceptable.
    - a. Ductmate 25 is equivalent to SMACNA “F”.
    - b. Ductmate 35 is equivalent to SMACNA “J”.
  - 2. Crossbreaking: Diagonally cross break or bead using an automatic bead machine for panels 24 inches wide or larger, except cross break all panels for exterior applications. Beads shall be 1/8-inch deep and 12-inches on center.
  - 3. Fittings: As detailed on drawings.
  - 4. Sealing: Seal seams, joints, and connections with liquid duct sealer.

## **2.02 ROUND AND OVAL DUCTWORK**

- A. Material: galvanized steel, ASTM A527, G-60.
- B. Fabrication: Minimum gauge, duct construction, joint reinforcing, fittings, hangers, and supports shall be in accordance with SMACNA "HVAC Duct Construction Standards"
  - 1. Construction: Longitudinal or spiral seam.
  - 2. Lined round or oval ductwork rated over 2 inches wg: United McGill Acousti-K27 or approved.
  - 3. Seams: Longitudinal slip drive or spiral lock-seam, except provide spiral lock-seam where installed in finished spaces.
  - 4. Transverse Joints: beaded sleeve joints or flanges with gaskets.
  - 5. Fittings: As detailed on drawings. Long radius elbows with center line radius of 150% of diameter and welded. Mitered elbows shall be 5-gore.
  - 6. Sealing: Seal seams, joints, and connections with liquid duct sealer.

## **2.03 DUCT SEALANT**

- A. Liquid Duct Sealer, Indoors
  - 1. Acceptable Manufacturers: United McGill Corp., United Duct Sealer; Hardcast Inc. IG-601; Ductmate Proseal.
  - 2. Liquid duct sealer, UL listed flame spread rating not to exceed 25, smoke developed rating not to exceed 50.

## **PART 3 - EXECUTION**

### **3.01 EXECUTION**

- A. Ductwork dimensions shown on drawing are inside clear dimensions. Adjust outside metal duct dimensions to allow for duct liner.

### **3.02 INSTALLATION**

- A. Install ductwork and accessories in accordance with referenced SMACNA HVAC Duct Construction Standards, Metal and Flexible.
- B. Joint Sealing: All duct joints sealed before insulating.
- C. Flexible Connectors: Install at inlet and outlet connection to fans, except for fans that are internally isolated. Provide minimum 2 inches clearance between ductwork and fan connection for fan inlets or outlets smaller than 36 inches. For inlets or outlets above 36 inches, provide 4 inches clearance between ductwork and fan connection.

**END OF SECTION**

**SECTION 23 31 17**  
**FLEXIBLE DUCTWORK**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

- A. Flexible Ductwork

**PART 2 – PRODUCTS**

**2.01 FLEXIBLE DUCTWORK**

- A. Acceptable Manufacturers
  - 1. Automation Industries, Inc., Certainteed, Genflex, JP Lamborn Co.
  
- B. Insulated Flexible Ductwork:
  - 1. Description: Fiberglass insulation wrapped around a continuous, 2-ply polyethylene air tight inner liner, reinforced with an encapsulated steel wire helix, polyethylene outer vapor barrier.
  - 2. Insulation Value: R-4.2
  - 3. Approvals: UL-181 Class 1 Air Duct, NFPA 90A & 90B
  - 4. Working pressure 4" w.g. positive, ½ w.g. negative
  - 5. Maximum velocity: 4000 FPM.
  
- C. Ductwork Accessories
  - 1. Ductwork strap: Heat stabilized Nylon suitable for continuous operation to 250°F, tensile strength 175 lbs, UL 181 listed.
  - 2. Ductwork clamp: Stainless steel strap with worm gear tightening device.
  - 3. Duct tape: Aluminum foil backed, rated temperature -20°F to 250°F, listed and labeled to UL 181, ASTM 3330.

**PART 3 – EXECUTION**

**3.01 INSTALLATION**

- A. Insulated Flexible Ductwork
  - 1. Install in professional manner with no sagging or drooping. Maximum length of 2-feet or as detailed on drawings.
  - 2. Duct connections: Seal connections to metal ductwork, duct accessories, or diffuser collars with a beaded end.
    - a. Tape inner duct liner to ductwork.
    - b. Secure inner duct liner with ductwork strap.
    - c. Secure outer liner with ductwork strap.
  - 3. Duct connections: Seal connections to metal ductwork, duct accessories, or diffuser collars.
    - a. Secure inner and outer duct liner with ductwork clamp.
    - b. Tape inner duct liner to ductwork. Provide collar bead for ductwork 12-inches and larger.
  - 4. Hang ductwork as recommended by SMACNA.

**END OF SECTION**

## SECTION 23 31 19

### DUCTWORK HANGERS, SUPPORTS, AND SEALS

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. Support and bracing of HVAC ductwork.

##### 1.02 QUALITY ASSURANCE

- A. Provide ductwork hangers and support systems in accordance with SMACNA HVAC Duct Construction Standards – Metal and Flexible.
- B. Provide seismic bracing for ductwork in accordance with SMACNA Seismic Restraint Manual.
- C. Alternative hanger, support, and bracing methods may be submitted. Approval will be based on demonstration that alternative methods provide equivalent function and satisfy the functional requirements for the referenced standards.

##### 1.03 SUBMITTALS

- A. Submit shop drawings, load ratings, approved calculations and attachments required for alternative seismic assemblies. Provide registered structural engineer's stamp where required by regulatory authority.

#### PART 2 - PRODUCTS

##### 2.01 HANGERS & SUPPORTS

- A. Materials: Structural support members, fasteners, and attachment in accordance with SMACNA.
- B. Vibration Isolation: Acoustically isolate duct from structure where specified.

##### 2.02 SEISMIC BRACING

- A. Structural support members, fasteners, and attachments in accordance with SMACNA Seismic Restraint Manual. Alternative assemblies may be used, as approved by Engineer.

#### PART 3 - EXECUTION

##### 3.01 INSTALLATION

- A. Hangers and Supports: Securely fasten all ductwork to the building construction by means of hangers, supports, guides, anchors, and sway braces to maintain duct alignment, to prevent sagging, and to prevent noise and excessive strain on ductwork due to movement under operating conditions.
  - 1. Maximum spacing between hangers shall not exceed eight (8) feet.
  - 2. Do not support ductwork from fans or any other pieces of equipment

**END OF SECTION**

## SECTION 23 33 00

### DUCTWORK ACCESSORIES

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Manual Balancing Dampers
- B. Spin-in Fittings
- C. Duct Liners

##### 1.02 QUALITY ASSURANCE

- A. Entire ductwork system provided in accordance with NFPA 90A.
- B. Ductwork and components UL 181 listed as Class 1 air duct with flame spread rating not to exceed 25 and smoke rating not to exceed 50.

#### PART 2 - PRODUCTS

##### 2.01 MANUAL BALANCING DAMPERS

- A. Acceptable Manufacturers: Air Balance Inc; Flexmaster, USA Inc; McGill Airflow LLC; Ruskin, Vent Products.
- B. Small balancing damper
  - 1. Construction:
    - a. Blade: 22-gauge galvanized steel.
    - b. Hinge: 3/8-inch pin at each end of blade.
    - c. Positioner: 3/8-inch locking quadrant at one end similar to Elgen No. RP-3C or RP-4C. Provide matching open-end bearings.
    - d. Size: As shown on drawings with 1/8-inch clearance all around. Maximum 18-inches wide.
- C. Medium balancing damper
  - 1. Construction:
    - a. Blade: 16-gauge galvanized steel.
    - b. Hinge: 1/2-inch rod entire width.
    - c. Positioner: 1/2-inch locking quadrant at one end similar to Elgen No. RP-3C or RP-4C. Provide matching open-end bearings. Brush chrome finish.
    - d. Size: As shown on drawings with 1/8-inch clearance all around. Maximum 12-inches high and 48-inches wide.
- D. Cable Controls
  - 1. General: Provide cable (Bowden) controls on all damper regulators above hard ceilings.
  - 2. Components:
    - a. Young dampers #5020CC (round) or #830ACC (rectangular).
    - b. Cable (Bowden) Control Kit.
    - c. Casing and wire, Bowden #BCW. Maximum length 50-feet.



## **2.02 DUCT LINERS**

- A. Flexible Fiberglass Duct Liner for Rectangular Ductwork
  - 1. Acceptable Manufacturers: Manville "Permacote Linacoustic", Knauf Duct Liner M, Certainteed "ultralite".
  - 2. Supply Air Duct: One inch thick, 1-1/2 lb. density. Minimum 70 NRC, minimum 0.25 k at mean temperature 75°F. Black coating one side NFPA 90A approved. UL ratings less than flame spread 25, fuel contribution 50, smoke developed 50.
- B. Pre-Formed Round Fiberglass Duct Liner
  - 1. Acceptable Manufacturers: Manville "Spiracoustic," or approved.
  - 2. Description: Round pre-formed fiberglass duct liner design for thermal and acoustic treatment in round metal duct system. One inch thick, minimum 0.23 k at mean temperature 75°F. NFPA 90A approved. UL rating less flame spread 25, smoke developed not over 50.

## **PART 3 – EXECUTION**

### **3.01 INSPECTION**

- A. Roof Caps: Examine curbs to receive ventilators for:
  - 1. Horizontal mounting surface.
  - 2. Water tightness.
  - 3. Proper anchoring.
  - 4. Unevenness, irregularities and incorrect dimensions that would affect quality of execution of installation.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's recommendations and UL Listings.
- B. Manual Balancing Dampers
  - 1. Install in ductwork where shown on drawings and as required to properly balance airflow rates to values shown on drawings. Provide manual balancing damper of each air inlet and outlet.
  - 2. Damper positioner shall be accessible. Where positioners are not accessible or are located above hard ceilings provide cable control extension.
  - 3. Damper shall move freely throughout full range of travel.
  - 4. Dampers shall be rigid and secure not producing any audible noise.
- C. Duct Liner
  - 1. Install inside of air ductwork where shown on drawings. Completely cover inside surface with adhesive and liner. All exposed edges and butt joints coated with adhesive. Fasteners and installation as recommended by manufacturer.

**END OF SECTION**

## SECTION 23 37 00

### AIR OUTLETS AND INLETS

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Diffusers and Grilles
- B. Air Louvers and Accessories

#### PART 2 - PRODUCTS

##### 2.01 DIFFUSERS, REGISTERS, AND GRILLES

- A. Ceiling Supply Diffusers (SD-1)
  - 1. Acceptable Manufacturers: Carnes, Krueger, Price Industries, Titus, Tuttle & Bailey. Similar to Titus TDC.
  - 2. Type: Louvered face, removable inner vane assembly.
  - 3. Material: steel.
  - 4. Neck: Square or rectangular, size as shown on drawings.
  - 5. Blow Pattern: 4-way or as shown on drawings. Provide adjustable vane assembly or movable deflectors to adjust vertical to horizontal blow pattern where shown on drawings.
  - 6. Finish: White
  - 7. Frame:
    - a. Suspended T-bar ceilings: lay-in, 24x24 modules.
    - b. Hard ceilings: surface-mounted, beveled drop face.
- B. Return/Exhaust Air Grille (RG-1)
  - 1. Acceptable Manufacturers: Anemostat, Carnes, Krueger, Price Industries, Titus, Tuttle & Bailey. Similar to Titus 350 RL
  - 2. Type: Single deflection fixed blade, 1 ¼ inch border with countersunk screw holes, gasket.
  - 3. Material: steel
  - 4. Blades: ¾ inch, fixed between 35 to 45 degrees, parallel to long dimension.
  - 5. Finish: White
  - 6. Frame:
    - a. Suspended T-bar ceilings: lay-in, 24x24 or 24x48 modules.
    - b. Hard ceilings: surface mount.
    - c. Walls: surface mount.

#### PART 3 - EXECUTION

##### 3.01 INSTALLATION

- A. Install in accordance with manufacturer's recommendations.
- B. Inlets and Outlets
  - 1. Install where shown on drawings. Notify Architect of conflicts between mechanical and architectural drawings.
  - 2. Center on building features.

3. Locate in center of ceiling tiles.
4. Install plumb and square with walls and ceilings.
5. Mounted devices tight to finished surface
6. Secure grille and diffusers with flat head screws flush with border. Screw heads to match border finish.
7. Provide air tight connection between ductwork and diffuser.
8. Install return grilles so that blades prevent vision through grille.
9. Adjust airflow pattern control devices prior to balancing.
10. Paint ductwork behind return grilles, where visible, flat black.

**END OF SECTION**

## SECTION 26 01 26

### SUBMITTALS AND SHOP DRAWINGS

#### PART 1 - GENERAL

##### 1.01 REQUIREMENTS

- A. Refer to General Divisions for submittal requirements and procedures.

##### 1.02 DEFINITIONS

- A. **Manufacturer's Product Data:** Manufacturer's product data consist of one or more levels of manufacturer's information as described below and as requested in the submittal schedule. The three levels of information include: manufacturer's list, manufacturer's catalog data, and manufacturer's technical and engineering data.
  - 1. **Manufacturer's List:** Manufacturer's list shall include a typewritten list of manufacturer's name, sizes and model or catalog numbers, referenced to the specification section.
  - 2. **Manufacturer's Catalog Data:** Manufacturer's catalog data shall include standard catalog information marked to indicate specific equipment proposed and point of operation, if appropriate. Include installation instructions.
  - 3. **Manufacturer's Technical and Engineering Data:** Manufacturer's technical and engineering data shall include materials, dimensions, details, installation instructions, weights, capacities, illustrations, wiring diagrams, control diagrams, piping diagrams, connection diagrams, performance data (including performance curves), mix design, and any other information required for a complete and thorough evaluation of the equipment or items specified, and to verify compliance with specifications. Control diagrams or control schematics, where specified and required by the submittal schedule, shall include a detailed schematic of the proposed control modifications and their interface with existing control equipment, where appropriate, and a manufacturer and model number listing of all proposed control components shown on the control schematic.
- B. **Shop Drawings:** Shop Drawings are construction drawings of items manufactured specifically for this project. Shop Drawings include dimensions, construction details, weights, and additional information to identify the physical features of the system or piece of equipment.
- C. **Samples:** Samples illustrate functional characteristics of the product with integral parts and attachment devices. Samples shall allow evaluation of full range of manufacturer's standard colors, textures, and patterns.
- D. **Certificates, Test Data or Other Information:** Requirements for certificates, test data, or other information will be listed under referenced specification sections.

##### 1.03 SUBMITTALS REQUIRED

- A. **Product Evaluation Data.** The submittal schedule for product evaluation data is as indicated below. Each item requiring a submittal is given the following code:
  - 1. Manufacturer's list
  - 2. Manufacturer's catalog data
  - 3. Manufacturer's technical and engineering data
  - 4. Shop Drawings

5. Samples
6. Certificates
7. Test data
8. Worker's qualifications
9. See individual sections for special requirements

#### 1.04 SUBMITTAL SCHEDULE

<u>Division 26 – Electrical</u>	<u>Codes</u>
Section 26 09 23 - Lighting Control Equipment	2
Section 26 24 16 - Panelboards	2,3
Section 26 27 26 - Wiring Devices	1
Section 26 28 16 - Overcurrent Protective Devices	1
Section 26 29 13 - Motor and Circuit Disconnects	2,3
Section 26 32 13 - Emergency Power Packs	2,3
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#### PART 2 - PRODUCTS

2.01 THIS PART NOT USED

#### PART 3 - EXECUTION

3.01 THIS PART NOT USED

**END OF SECTION**

## SECTION 26 05 00

### COMMON WORK RESULTS FOR ELECTRICAL

#### PART 1 - GENERAL

##### 1.01 CONTRACT DOCUMENTS

- A. The Contract Documents are complementary. What is required by any one, as affects this Division, shall be as binding as if repeated herein.
- B. Separation of this Division from other Contract Documents shall not be construed as complete segregation of the Work.
- C. Particular attention is called to Advertisement For Bids, Instructions to Bidders, Supplemental Instructions to Bidders, General Conditions, Supplemental General Conditions, Drawings and Specifications, and modifications incorporated in the documents before execution of the Agreement.

##### 1.02 SCOPE OF WORK

- A. General: Provide and install complete and satisfactorily operating electrical systems as specified in this Division, as shown on Drawings, as required, and as reasonably intended. Work generally includes, but is not limited to electrical distribution, lighting, devices, wiring systems and control systems.
- B. Omissions: Omission of expressed reference to any item of labor or material necessary for the proper execution of the work shall not relieve responsibility from providing such additional labor or material.

##### 1.03 EXAMINATION OF SITE

- A. Examine Site of Work before making Bid and ascertain all related physical conditions.
- B. Field verify scale dimensions shown since exact locations, distances and levels will be governed by actual field conditions.
- C. Owner will not be responsible for any loss or unanticipated costs which may be suffered by the successful Bidder as a result of such Bidder's failure to fully inform himself in advance in regard to all conditions pertaining to the Work and character of the Work.

##### 1.04 COORDINATION OF TRADES

- A. Check Drawings of other trades to avert possible installation conflicts. Should major changes from original Drawings be necessary to resolve such conflicts, notify Architect and secure written approval and agreement on necessary adjustments before installation is started.
- B. Check equipment connections and equipment locations on the job for coordination with other Divisions equipment and connections, structure, and the like.

**1.05 MINOR DEVIATIONS**

- A. Make minor changes in equipment connections and equipment locations as directed or required before rough-in without extra cost.

**1.06 SUBSTITUTIONS**

- A. Equal material of other manufacturer may be used following Architect's approval of a written request submitted at least 7 working days prior to prebid date.

**1.07 RECORD DRAWINGS**

- A. Maintain a marked set of prints at job site at all times. Show all changes from contract drawings, whether visible or concealed. Dimension accurately from building lines, floor or curb elevations. Show exact location, elevation, and size of conduit, access panel and doors, and all other information pertinent to the work.
- B. At project completion, submit marked set to Architect for approval.

**1.08 WARRANTY**

- A. Warrant all work, materials, and equipment for one year.

**PART 2 - PRODUCTS**

2.01 THIS PART NOT USED

**PART 3 - EXECUTION**

3.01 THIS PART NOT USED

**END OF SECTION**

## SECTION 26 05 01

### ELECTRICAL DEMOLITION

#### PART 1 - GENERAL

##### 1.01 SCOPE

- A. It is the intent of these documents to provide the necessary information and adjustments to the electrical system required to meet Code, and accommodate installation of the new work.
- B. Contractor shall coordinate with the Owner so that work can be scheduled not to interrupt operations, normal activities, building access, access to different areas. The Owner will cooperate to the best of their ability to assist in a coordinated schedule, but will remain the final authority as to time of work permitted.

##### 1.02 EXISTING CONDITIONS:

- A. The locations of existing utilities and equipment are shown in an approximate way only and have not been independently verified by the Owner or its representative. The Contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all utilities and equipment. Replace damaged items with new material to match existing. Promptly notify Owner if utilities are found which are not shown on the drawings.

#### PART 2 - PRODUCTS

##### 2.01 MATERIALS

- A. All materials accumulated during the demolition process are the Owner's property and shall be removed from the job site as directed by the Owner.

#### PART 3 - EXECUTION

##### 3.01 DEMOLITION

- A. Remove all existing fixtures, clocks, switches, receptacles, and other electrical equipment and devices and associated wiring from walls, ceilings, floors, and other surfaces scheduled for remodeling, relocation, or demolition unless specifically shown as retained or relocated on the Drawings.
- B. Disconnect all existing mechanical equipment scheduled for removal, relocation or abandonment. See mechanical Drawings for scope of work. Remove abandoned cables and unusable raceways. Relabel panels and motor control centers to reflect changes.
- C. Maintain electrical continuity of all existing systems. Remove or relocate electrical boxes, conduit, wiring, equipment, fixtures, etc. as may be encountered in removed or remodeled areas in the existing construction affected by this work. Wiring which serves usable existing outlets shall be removed and restored clear of the construction or demolition. If existing junction boxes will be made inaccessible, or if abandoned outlets serve as feed through boxes for other existing electrical equipment which is being retained, new conduit and wire shall be provided to bypass the abandoned outlets. If existing conduits pass



through partitions or ceiling which are being removed or remodeled, new conduit and wire shall be provided to reroute clear of the construction or demolition and maintain service to the existing load.

- D. Extend circuiting and devices in all existing walls to be furred out.
- E. Existing electrical outlets and light fixtures are denoted by dotted or dashed lines. Verify exact location of existing electrical outlets and light fixtures in the field. Only partial existing electrical shown. Locations of items shown on the Drawings as existing are partially based on as-built and other drawings which may contain errors. The contractor shall verify the accuracy of the information shown prior to bidding and provide such labor and material as is necessary to accomplish the intent of the contract documents.
- F. Remove all abandoned wiring to leave site clean.
- G. Keep outages to occupied areas to a minimum and prearrange all outages with the Owner's representative. Requests for outages shall state the specific dates and hours and the maximum durations, with the outages kept to these specific dates and hours and the maximum durations. This Contractor will be liable for any damages resulting from unscheduled outages or for those not confined to the preapproved times. Outages shall take place at times when the facility is not in operation or occupied by non-essential personnel. Include all costs for overtime labor as necessary to maintain electrical services in the initial bid proposal. Temporary wiring and facilities, if used, shall be removed and the site left clean before final acceptance. Requests for outages must be submitted at least (5) days prior to intended shutdown time.
- H. No circuit breaker or disconnects shall be turned off without prior approval from Owner. Coordinate with the Owner's representative responsible for the area or equipment affected for any electrical interruptions which affect the operation of the remaining portions of the facility.
- I. Verify with the General Contractor a location for storage of materials, supplies, tools, rubbish, etc. prior to start of work.

**END OF SECTION**

## SECTION 26 05 19

### LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. Wires and Cables.
- B. Wire Connections.

##### 1.02 REFERENCE STANDARDS

- A. National Fire Protection Association (NFPA).  
NFPA 70 National Electrical Code.

##### 1.03 DELIVERY, STORAGE AND HANDLING

- A. Deliver new wire to Site in new standard coils or reels with approved tag denoting length, wire size, insulation type and manufacturer's name.
- B. Protect from weather and damage during storage and handling.

#### PART 2 - PRODUCTS

##### 2.01 CONDUCTOR AND CABLE MATERIALS

- A. Building Wiring: 98 percent conductivity copper, 600 volt insulation, stranded. Type THHN for interior dry and damp locations. Type THWN or XHHW for wet and exterior locations.
- B. Branch Circuit Wiring: Conductors smaller than No. 12 AWG for power system branch circuits not permitted.
- C. Motor control wires shall be No. 14 minimum.
- D. Wire for special areas shall be as specified on the Drawings.

##### 2.02 TWIST-ON CONNECTOR

- A. UL pressure-type, solderless, insulated, wound spring grip twist on connector.
- B. Solderless pressure connectors for terminals, taps, and splices.

##### 2.03 COMPRESSION ADAPTER

- A. For terminating a single aluminum wire into mechanical connectors, such as a circuit breaker or set screw lugs. Burndy "Hyplug" Type AYP, or approved equal by Anderson, Illsco, Kearney, Mac-Adapt, T&B.

**2.04 TERMINAL, CRIMP-ON**

- A. Flat, fork tongue, self-insulating.
- B. For connection of stranded wire to screw terminals.
- C. T & B "Sta-Kon," or approved equal.

**PART 3 - EXECUTION**

**3.01 CONDUCTOR AND CABLE INSTALLATION**

- A. Make conductor length for parallel feeders identical.
- B. Lace or clip groups of feeder conductors at distribution centers, pullboxes, and wireways.
- C. Provide copper grounding conductors and straps. A ground wire shall be pulled through conduits and used as the equipment grounding conductor.
- D. Install wire and cable in code conforming raceway.
- E. Use wire pulling lubricant for pulling No. 4 AWG and larger wire. UL approved type only.
- F. Install wire in conduit runs after concrete and masonry work is complete and after moisture is swabbed from conduits.
- G. Splice only in accessible junction or outlet boxes. Splice in feeders and services not permitted. Splices or taps in branch circuits permitted only in junction boxes where circuits divide.
- H. Color code conductors to designate neutral, phase, and ground as follows:

CONDUCTOR	120/208 OR 120/240	277/480
Phase A	Black	Brown
Phase B	Red	Orange
Phase C	Blue	Yellow
Neutral	White	Gray
Ground	Green	Green
Switchlegs	Pink or Tan	Pink or Tan
Travelers	Purple	Purple
Fire Alarm	Red	
Intercom/Clock/Bell	Grey	
Security	Orange	
HVAC Control	Green	
Data/Telecom	White (CAT6)	

- I. Wires shall be factory color coded by integral pigmentation. Colored plastic tape permitted on No. 6 and larger where integral pigmentation impractical. Apply tape in spiral half-lap over exposed portions in manholes, boxes, panels, switchboards and other enclosures.

- J. All circuit conductors shall be identified with circuit number at all terminals, intermediate outlets, disconnect switches, circuit breakers, motor control centers, etc. Both ends of a given conductor shall be identified alike.
- K. DO NOT install wires of different voltage systems in same raceway, box, gutter or other enclosure.
- L. Radius of cable bends shall not be less than 10 times the outer diameter of the cable.

### **3.02 CONNECTIONS AND SPLICES**

- A. Follow manufacturer's instructions using manufacturers recommended tools.
- B. Stripping Insulation: Carefully strip, avoid nicking conductor. No "ringing."
- C. Design: Connectors shall be designed and approved for the purpose used. Connectors between aluminum and copper shall be listed "AL/CU" for the purpose of preventing electrolytic action.
- D. Bare Connectors and Conductor Free Ends: Wrap with insulating rubber or friction tape to equivalent insulation of wire.
- E. Ground Continuity to Metallic Surfaces: Remove any paint coating and polish surface beneath connection.
- F. Copper conductors may be terminated in any approved compression or mechanical connector, including set screws.
- G. No splices or taps permitted in feeder or branch circuit terminating in a single outlet.
- H. Branch circuit splices and taps in junction and outlet boxes: Twist-on connectors.
- I. Conductor and cable copper shall not be reduced at the terminal for making connections.
- J. Slack shall be left at equipment, pullboxes, or outlet boxes to allow for a neat termination.

**END OF SECTION**

## SECTION 26 05 26

### GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. Electric and power system grounding.
- B. Communication system grounding.

##### 1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Provide grounds in accordance with National Electrical Code and additional requirements as required herein.
- B. NEC references below are based on the 2011 edition.

#### PART 2 - PRODUCTS

##### 2.01 GROUNDING CONDUCTORS

- A. Size: Equipment grounding conductor: Table 250-122.
- B. Material: Copper.
- C. Protection: Conductors not in raceway or concealed shall be insulated. Provide conduit where shown or required for physical protection.
- D. Bonding Jumpers: Same requirements.

#### PART 3 - EXECUTION

##### 3.01 POWER SYSTEM GROUNDING

- A. Circuit Grounding: Install grounding bushings, studs, and jumpers at distribution centers, pullboxes, motor control centers, panelboards, and junction boxes.
- B. Ground Connections: Clean surfaces thoroughly before applying ground lugs or clamps. If surface is coated, the coating must be removed down to the bare metal. After the coating has been removed, apply a noncorrosive approved compound to cleaned surface and install lugs or clamps. Where galvanizing is removed from metal, it shall be painted or touched up.
- C. Conduit Systems:
  - 1. Ground all metallic conduit systems.
  - 2. Non-metallic conduit systems shall contain a grounding conductor.
  - 3. Conduit provided for mechanical protection containing only a grounding conductor, bond to that conductor at the entrance and exit from the conduit.
- D. Feeders and Branch Circuits: Install green grounding conductors with feeders and branch circuits as follows:
  - 1. Feeders.

2. Circuits serving preparation and kitchen equipment.
  3. Receptacle outlets.
  4. Directly connected laboratory equipment.
  5. Motors and motor controllers.
  6. Fixed equipment and appliances.
  7. Items of equipment where the final connection is made with flexible metal conduit shall have a grounding wire.
  8. Additional locations and systems as shown.
- E. Boxes, Cabinets, Enclosures, and Panelboards:
1. Bond the grounding wires to each pullbox, junction box, outlet box, cabinets, and other enclosures through which the ground wires pass (except for special grounding systems for intensive care units and other critical units shown).
  2. Provide lugs in each box and enclosure for ground wire termination.
  3. Provide ground bars in panelboards, bolted to the housing, with sufficient lugs for terminating the ground wires.
- F. Receptacles - Refer to Section 26 27 26 – WIRING DEVICES.
- G. Ground lighting fixtures to the green grounding conductor of the wiring system when the green ground is provided; otherwise, ground the fixtures through the conduit systems. Fixtures connected with flexible conduit shall have a green ground wire included with the power wires from the fixture through the flexible conduit to the first outlet box.

**END OF SECTION**

## SECTION 26 05 29

### HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. Raceway Supports.

#### PART 2 - PRODUCTS

##### 2.01 RACEWAY SUPPORTS

- A. Single Runs: Steel rod hangers, galvanized single hole conduit straps, or ring bolt type hangers with specialty spring clips. Plumbers perforated tape or "J-nails" not acceptable.
- B. Multiple Runs: Conduit rack with 25 percent spare capacity. Maximum width per manufacturer's recommendations.
- C. Vertical Runs: Channel support with conduit fittings.
- D. All hardware such as inserts, straps, bolts, nuts, screws and washers shall be galvanized or cadmium-plated steel.

##### 2.02 ANCHOR METHODS

- A. Hollow Masonry and Framed Walls: Toggle bolts or spider type expansion anchors.
- B. Solid Masonry: Lead expansion anchors or preset inserts.
- C. Metal Surfaces: Machine screws, bolts, or welded studs.
- D. Wood Surfaces: Wood screws.
- E. Concrete Surfaces: Self-drilling anchors or powder-driven studs.

#### PART 3 - EXECUTION

##### 3.01 INSTALLATION

- A. Layout to maintain headroom, neat mechanical appearance, and to support equipment loads required.
- B. Exact location and spacing between supports per manufacturer's recommendations and NEC requirements as minimum.
- C. Conduit shall be installed in such a manner as to prevent the collection of trapped condensation. All runs of conduit shall be arranged so as to be devoid of traps wherever possible.
- D. Conduit risers exposed in wire shafts shall be supported at each floor level by means of approved U-clamp hangers.

**END OF SECTION**

## SECTION 26 05 33

### RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. Conduit, Tubing, and Fittings.
- B. Flexible Conduit.
- C. Electrical boxes and fittings as required for a complete installation.

##### 1.02 REFERENCE STANDARDS

- A. National Fire Protection Association (NFPA).
  - 1. NFPA 70 National Electrical Code--Chapter 3.

#### PART 2 - PRODUCTS

##### 2.01 MATERIALS AND COMPONENTS

- A. Conduit and Tubing: Galvanized steel rigid threaded conduit, electrical metallic tubing, intermediate metallic conduit.
- B. Flexible Conduit: Steel armor, flexible plastic jacketed type with liquidtight connectors (liquidtight flexible metallic conduit).
- C. Fittings:
  - 1. General: Approved for purpose. Water, concrete tight where required.
  - 2. Galvanized Rigid Steel Conduit (GRC): Threaded - no pressure type. Bushings with factory insulated throat.
  - 3. Electrical Metallic Tubing (EMT): Connectors and couplings to be case steel. Preinsulated connectors and couplings shall be compression, setscrew type. All connectors shall have insulated throats.
  - 4. Flexible Metallic Conduit: Clamp type, galvanized malleable iron with insulated throat.
  - 5. Liquidtight Flexible Metallic Conduit: Continuous copper ground in core; approved watertight.
- D. Expansion Joints: Offset or sliding type with bending straps and clamps. Approved for purpose.

##### 2.02 TYPE

- A. Utilize GRC or IMC in concrete with concrete-tight connectors or exterior with watertight connectors.
- B. Utilize electrical metallic tubing concealed in interior spaces or exposed in unfinished, interior where not subject to physical damage.
- C. Utilize surface metal raceways for exposed runs in finished areas. Paint to match wall finish.



- D. Make connections to motors and equipment with flexible metallic conduit or liquidtight flexible metallic conduit. Use liquidtight type in damp locations. Minimum size 1/2-inch for motor connections. Use 3/8-inch only for fixture and control wiring. Provide sufficient length of flexible conduit to avoid transmission of vibration. Sizes not noted on the Drawings shall be as required by the NEC.
- E. Utilize schedule 40 PVC with rigid steel elbows and risers under slab or underground.

### **2.03 OUTLET BOXES**

- A. Minimum Box: 4-inch box, 1-1/2-inches deep. Provide raised covers on bracket surface mounted outlets, plaster rings on flush outlets.
- B. Flush Switch and Receptacle Outlets for One or Two Devices: 4-inch square box, 1-1/2-inches or more deep, with single or two-gang plaster ring.
- C. Three or More Devices at One Location: Use one piece gang boxes with device cover, install one device per gang.
- D. Provide galvanized steel interior outlet wiring boxes, of the type, shape and size, including depth of box, to suit each respective location and installation; constructed with stamped knockouts in back and sides, and with threaded holes with screws for securing box covers or wiring devices.
- E. Provide outlet box accessories as required for each installation, including mounting brackets, wallboard hangers, extension rings, fixture studs, cable clamps and metal straps for supporting outlet boxes, compatible with outlet boxes being used and meeting requirements of individual wiring situations. Choice of accessories is Installer's option.
- F. Outlet Box Plate Covers:
  - 1. Flush Mounting: Bevelled, pressure formed, type 302 stainless steel, match device installed.
  - 2. Surface Mounting: Bevelled, steel, pressure formed.

### **2.04 WEATHERPROOF OUTLET BOXES**

- A. Provide corrosion-resistant cast metal weatherproof outlet wiring boxes, of the type, shape and size, including depth of box, with threaded conduit ends, cast metal face plate with spring-hinged waterproof cap suitably configured for each application, including face plate gasket and corrosion proof fasteners.
- B. Weatherproof boxes to be constructed to have smooth sides, gray finish.
- C. Boxes used in contact with soil shall be cast iron alloy with gasketed screw cover and water-tight hubs.
- D. Weatherproof Plates: Cast metal, gasketed, for switches and receptacles provide spring loaded doors.

### **2.05 WEATHERPROOF JUNCTION AND PULL BOXES**

- A. Provide galvanized sheet steel junction and pull boxes, with screw-on covers; of the type, shape and size, to suit each respective location and installation; with welded seams and equipped with stainless steel nuts, bolts, screws and washers.

## **2.06 PULLBOXES**

- A. Pullboxes and Junction Boxes: Sheet metal (indoors) or cast metal (exterior or damp locations) construction, conforming to National Electrical Code, with screw-on cover.
- B. Flush Mounted Pullboxes: Provide overlapping covers with flush-head retaining screws, finished in light gray enamel.
- C. Box volumes shall meet NEC for size and number of entering conduits.

## **PART 3 - EXECUTION**

### **3.01 RACEWAY INSTALLATION**

- A. Install conduit concealed in all areas excluding mechanical and electrical rooms, connections to motors, connections to surface cabinets, underfloor spaces, and above suspended ceilings.
- B. For exposed runs, attach surface mounted conduit with clamps.
- C. Coordinate installation of conduit in masonry work.
- D. Install conduit free from dents and bruises. Plug ends to prevent entry of dirt or moisture.
- E. Clean out conduit before installation of conductor.
- F. Alter conduit routing to avoid structural obstructions, minimizing crossovers. Bends and offsets shall be avoided where possible, but when necessary shall be made with an approved hickey or conduit bending machine. The use of a pipe tee or a vise for bending conduit will not be permitted.
- G. Provide UL approved expansion fittings complete with grounding jumpers where conduits cross building expansion joints and for long runs where conduit expansion may be excessive. Provide bends or offsets in conduit adjacent to building expansion joints where conduit is installed above suspended ceilings.
- H. Route all exposed conduits parallel or perpendicular to building lines.
- I. Allow minimum of 6 inches clearance at flues, steam pipes, and heat sources.
- J. Vertical Runs: Straight and plumb.
- K. Raceways Running in Groups: Run at same relative elevation, properly spaced and supported.
- L. Dissimilar Metals: Avoid contact with pipe runs of other systems.
- M. Lengths and Bends: Maximum number of bends in any run shall be the equivalent of four quarter bends (360 degrees total). Maximum length of any run shall be 300 feet, less 50 feet for each equivalent quarter bend. Junction and pull boxes shall be provided to maintain these limits.

- N. Provide waterproof seal for all exterior wall and underground raceway penetrations.
- O. All empty raceways shall be provided with pull string or #12 conductor.

### **3.02 BOX INSTALLATION**

- A. Locate outlet boxes flush in areas other than mechanical rooms, electrical rooms, and above suspended ceilings.
- B. For boxes mounted in exterior walls make sure that there is insulation behind outlet boxes to prevent condensation in boxes.
- C. Coordinate location and mounting heights with built-in units. Adjust outlet mounting height to agree with required location for equipment served.
- D. Locate pullboxes and junction boxes above suspended ceilings or in electrical rooms, utility rooms, or storage areas.
- E. Support: Secure boxes independent of entering conduits, by attaching directly to structure with bar hanger, blocking or flat side bracket.
- F. Identify each junction and pullbox with system description including branch circuit numbers of enclosed circuits.
- G. Conduit shall be securely fastened to all sheet metal outlet, junction, and pullboxes with galvanized locknuts, and bushing.
- H. Do not mount boxes back-to-back. Boxes on opposite sides of wall shall be separated by at least 3 inches.

**END OF SECTION**

## SECTION 26 05 53

### IDENTIFICATION FOR ELECTRICAL SYSTEMS

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. Permanent Identification of all electrical system components.

##### 1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Identification shall conform to the latest edition of the National Electrical Code (NEC), Articles 110-21 and as a minimum requirement.

#### PART 2 – PRODUCTS

##### 2.01 MATERIALS

- A. Laminated Plastic:
  - 1. Three layer, black front and back with white core.
  - 2. Engraved through outer layer to show white characters on black background.
  - 3. Beveled edges.
  - 4. Other colors as specified.
- B. Panelboard Directory Card: Fiberboard neatly typed for newly installed panels. Circuit changes to existing panels shall be noted on the directory card by hand printing in ink. When more than five changes have been made on the directory card, a new card shall be typed.

#### PART 3 – EXECUTION

##### 3.01 ITEMS TO BE IDENTIFIED

- A. Motor starters, power panels, lighting panels and the disconnecting devices contained therein.
- B. Disconnecting devices that are located in the area and not part of the items listed in 3.01 (A).
- C. Control panels, starters, pushbutton stations, pilot lights and other control devices.
- D. Transformers.
- E. Remote control devices.
- F. Conductors at both device and terminal strip terminations for control and instrumentation cables and conductors.
- G. Other items as specified or noted.

### **3.02 USE OF NAMEPLATES AND TAGS**

- A. Panel designations, as described in paragraph 3.04 (A), and disconnecting devices in motor control centers shall be identified by nameplates that are engraved or etched. Nameplates that are engraved or etched shall have a black background with white letters. Letters for panel designations shall be a minimum of 1/2 inch high and letters for disconnect devices, mentioned in this paragraph, shall be smaller than the panel designation but have a minimum height of 3/8 inch.
- B. Disconnect devices in lighting panels and power panels shall be identified on the panelboard directory card.
- C. All wiring shall be identified with self-laminating, machine made thermal transfer labels.

### **3.03 APPLYING NAMEPLATES AND TAGS**

- A. Nameplates that are engraved or etched, shall be attached with screws.
- B. Panelboard directory cards shall be placed in holders, provided for this purpose, located inside the panel doors.

### **3.04 IDENTIFICATION ON NAMEPLATES AND TAGS**

- A. The voltage designation shall also be shown on the nameplate.
- B. Nameplates for disconnecting devices contained in panels and motor control centers shall show the equipment name and location by floor and column number. Voltage designation shall not be included when the voltage is the same as for the panel or motor control center.
- C. Nameplates on disconnect devices located in the area but not part of a panel or motor control center shall have the equipment name, power source identification, and voltage designation. Nameplates for disconnect devices located remotely from the equipment shall also show the equipment location by floor and column number.
- D. Nameplates on items listed in paragraph 3.01 (C) shall have the equipment name while the individual switches and lights shall have the function (such as start, stop, on, off, etc.).
- E. Panelboard directory cards shall list the circuit numbers and show the equipment name and location supplied by the circuits. Equipment locations shall be shown by floor and column numbers or by room numbers.

**END OF SECTION**

## SECTION 26 09 23

### LIGHTING CONTROL EQUIPMENT

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. Provide lighting control equipment:
  - 1. Lighting control system, including lighting control panel, relays, and switches
  - 2. Lighting level sensors.
  - 3. Automatic wall switches.
  - 4. Motion sensors.
  - 5. 0-10V wall switch dimmers.

##### 1.02 QUALITY ASSURANCE

- A. Minimum Standards:
  - 1. UL 916 Energy Management Equipment.
  - 2. NEMA enclosure standards.

##### 1.03 SUBMITTALS

- A. Shop Drawings:
  - 1. System diagram, including lighting control panel and all accessories.
  - 2. Switch input wiring.

#### PART 2 - PRODUCTS

##### 2.01 LIGHT LEVEL SENSOR

- A. Light level sensor shall use an internal photodiode and a Fresnel lens system to measure light levels uniformly across 60 degree field of view.
- B. Light level sensor shall be capable of controlling standard electronic dimming ballasts directly by supplying 2-10 VDC to ballast. Each light level sensor shall be capable of controlling up to 50 ballasts.
- C. Sensor to be fully compatible with lighting control panel.
- D. Adjustments:
  - 1. Light level shall be adjustable from 10 to 150 footcandles.
  - 2. At least two rate of change speeds, 10 seconds and 60 seconds, shall be selectable.
- E. Light level sensor shall not protrude more than 1.25 inches from ceiling.
- F. Acceptable product: Watt Stopper LS-30, ILC HDPS, or approved.

## **2.02 AUTOMATIC WALL SWITCH**

- A. Sensor shall recess into single gang switch box and fit a standard DFI opening.
- B. Sensor must meet NEC grounding requirements by providing a dedicated ground connection and grounding to mounting strap. Line and load wire connections shall be interchangeable. Sensor shall not allow current to pass to the load when sensor is in the unoccupied (Off) condition.
- C. Sensor shall use PIR sensing incorporating a nominal one half inch focal length lens viewing 9 inches above and below horizontal view pattern measured at 10 feet.
- D. In areas with inboard/outboard switching, sensor shall provide two dedicated relays and override switches. Each relay shall have independent programmable time delays.
- E. Sensor shall utilize programmable dual technology PIR/Microphonic sensing.
- F. All models shall have "Reduced Turn On". This is a field programmable function for problematic areas with unforeseen reflective surfaces. False turn on shall be eliminated with this feature.
- G. Acceptable products: SensorSwitch WSD-PST series with switch or approved.

## **2.03 LOW VOLTAGE SENSORS**

- A. Sensors shall operate on a class 2, three-conductor system. Sensor shall operate on 12 to 24 VAC or VDC and consume no more than 5 milliamps so that up to 14 sensors may be connected to a single power pack.
- B. Upon initial power up, sensors must immediately turn on. Power packs may be wired on the line or load side of local switching and must not exhibit any delays when switch is energized.
- C. All sensors shall use PIR/Microphonic detection.
- D. Optional interface with Building Automation System (BAS): Each zone designated shall provide one sensor with SPDT class 2 relay providing a digital input to BAS. All sensors in designated zone shall communicate to sensor with relay status to BAS. Sensor relay coil shall energize in the occupied state to load share the low voltage current from power pack. Note that Power Pack must be installed on the Line side of the local toggle switch for Relay to work properly.
- E. Acceptable product: Sensor Switch CM-PDT series or approved.

## **2.04 MOTION SENSOR POWER PACK**

- A. Power pack shall be self-contained DC power supply and relay module. Relay shall be capable of switching 20 A ballast load using zero crossing circuitry. Power supply shall provide DC output to motion sensor.
- B. Voltage to match fixtures controlled.
- C. Power pack and ceiling motion sensor from same manufacturer.

- D. Acceptable product: Sensorswitch PP-20, or approved.

**2.05 0-10V WALL SWITCH DIMMER**

- A. Switch to be fully compatible with ballast to be controlled
- B. Switch shall be slide style with integral on/off control.
- C. Switch shall have locator LED that illuminates when load is off.
- D. Switch shall have decora style faceplate.
  - 1. Finish to match other wall switched on project.
- E. Acceptable product: Leviton Illuma Tech series, Hunt Dimming, Lutron, or approved.

**PART 3 - EXECUTION**

**3.01 INSTALLATION**

- A. System shall be installed as shown on Drawings.
- B. Motion sensor manufacturer shall verify Drawings to ensure coverage is adequate.
- C. At Owner's request, return once within 60 days to adjust sensitivity of all motion sensors and to adjust programming of lighting control system.

**3.02 WARRANTY**

- A. Light level sensors, automatic wall switches, and ceiling motion sensors shall have a 5 year manufacturer's warranty.

**END OF SECTION**



## SECTION 26 24 16

### PANELBOARDS

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. Provide panelboards incorporating switching and protective devices of the number, rating and type specified herein and shown in Panel Schedules.

##### 1.02 REFERENCE STANDARDS

- A. American National Standards Institute (ANSI).
  - 1. 67 Panelboards (ANSI/UL 67).
  - 2. C37.20 Switchgear Assemblies Including Metal-Enclosed Bus (ANSI/IEE C37.20).
- B. Institute of Electrical and Electronics Engineers (IEEE).
  - 1. Std. 141-76 Electric Power Distribution for Industrial Plants.
  - 2. Std. 241-74 Electric Systems for Commercial Buildings.
- C. National Fire Protection Agency (NFPA).
  - 1. NFPA 70 National Electrical Code.
- D. Underwriters' Laboratory (UL).
  - 1. U.L. 67 Panelboards.
  - 2. U.L. 869 Service Disconnects.

##### 1.03 QUALITY ASSURANCE

- A. Coordination: Panelboard breakers shall be coordinated with feeder breakers in switchboard.
- B. Acceptable Manufacturers: Cutler-Hammer, Square D, Siemens.

#### PART 2 - PRODUCTS

##### 2.01 CONSTRUCTION

- A. Box:
  - 1. Material: Galvanized code gauge steel.
  - 2. Size: 20-inch minimum width; 4-inch minimum gutter space on all sides.
  - 3. Mounting Studs: Minimum 4 interior.
  - 4. Knockouts: Individual knockouts by manufacturer or field-cut by Contractor. No concentric knockouts.
  - 5. Finish: Except for box, all exterior and interior steel surfaces properly cleaned and finished with industry standard gray baked enamel paint over a rust-inhibiting phosphatized primer coating approved by the paint manufacturer, except panelboards exposed in finished spaces shall have factory finish to match adjacent surfaces.
- B. Bussing:
  - 1. Material: Copper.
  - 2. Tap Arrangement: Phase sequence type, permitting a two or three pole breaker to be installed at any location.

3. Short Circuit Bracing: Fully rated, 10,000 amperes RMS symmetrical minimum for 240V AC Panels, and minimum 14,000 amperes RMS Symmetrical for 480V AC Panels, or as otherwise noted.
4. Phase Bussing: Full height without reduction.
5. Neutral Bussing:
  - a. Full size, unless otherwise noted.
  - b. Suitable lug for each outgoing feeder requiring a neutral connection.
6. All bolts used to connect current-carrying parts together shall be accessible for tightening from the front of the panel.
7. Wiring terminals: Compression or set screw type for copper conductors; bolted to bus.

C. Trim:

1. Material: Code gauge steel.
2. Flush Panels: 3/4-inch minimum overlap all around.
3. Surface Panels: Same width and height as box.
4. Mountable by screwdriver, without need for special tools.
5. Tamper-proof: Trim shall not be removable with door closed. Adjustable indicating trim clamps shall be concealed inside door.
6. Trim shall have piano hinge down one side and shall be openable by removing crews. Dead front cover shall not open with trim.
7. Doors:
  - a. Shall cover all device handles, except panels having individual metal clad externally operable dead front units.
  - b. Hinges: Concealed, 5-knuckle, steel.
  - c. Over 48-inches in Height: Shall have auxiliary fasteners at top and bottom of door in addition to flush latch (3-point).
  - d. Latches:
    - i. Flush, not protruding beyond front of door.
    - ii. Spring-loaded door pull.
  - e. Locks: Equip latches with flush locks keyed alike.

D. NEMA 1 unless otherwise noted or otherwise required per NEC for location installed.

## 2.02 CIRCUIT BREAKERS

A. Main Breaker:

1. Where required, main breakers shall be individually mounted separate from branch breakers.
2. Covered by a metal plate, except for the operating handle.
3. Connection from the load side to the panel bus shall be bus bar. Insulated wire not permitted.
4. Where used as service disconnect, breaker and panelboard shall be listed for use as service entrance equipment.

B. Branch Breakers:

1. Connection to Bus: Bolt-on.

C. Other requirements as noted elsewhere in these Specifications and as per NEC.

## **PART 3 – EXECUTION**

### **3.01 INSTALLATION**

- A. Provide mounting brackets, busbar drillings, and filler pieces for unused spaces.
- B. Prepare and affix typed directory to inside cover of panelboard indicating loads controlled by each circuit as required elsewhere in these Specifications.
- C. Provide panelboards flush in areas other than mechanical rooms, electrical rooms, and above removable ceilings.
- D. Conduit shall be securely fastened to all panelboards and sheet metal outlet, junction, and pull boxes with galvanized locknuts, and one bushing installed in accordance with standard practice. The full number of threads shall project through to permit the bushing to be drawn tight against the end of the conduit, after which the locknut shall be made up sufficiently tight to draw each into firm electrical contact with the box.
- E. Keys: Collect all panel keys. Combine all keys on one key ring and submit at time of substantial completion.
- F. Provide handle ties per NEC for breakers serving circuits with shared neutral conductors.

**END OF SECTION**

## SECTION 26 27 26

### WIRING DEVICES

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. Wall Switches.
- B. Receptacles.
- C. Ground Fault Receptacles.

##### 1.02 REFERENCE STANDARDS

- A. American National Standards Institute (ANSI).
  - 1. 467 Grounding and Bonding Equipment (ANSI/UL467).
  - 2. 498 Attachment Plugs and Receptacles (ANSI/UL498).
  - 3. C73 Series Dimensions of Attachment Plugs and Receptacles.
- B. Federal Specification (FS).
  - 1. W-C-596D and E Specification for Electrical Power Connector, Plug, Receptacle and Cable Outlet.
- C. National Electrical Manufacturer's Association (NEMA).
  - 1. WD 1-79 General Purpose Wiring Devices.
- D. National Fire Protection Association (NFPA).
  - 1. NFPA 70 National Electrical Code.
- E. Underwriters' Laboratory (UL).
  - 1. UL-20 Standard for Snap Switches.

##### 1.03 QUALITY ASSURANCE

- A. Receptacles shall be Industry Class 5362.
- B. Acceptable Manufacturers: Hubbell, P&S, Sierra, Bryant, Arrow-Hart, Leviton, GE, or approved.

#### PART 2 - PRODUCTS

##### 2.01 MATERIALS

- A. Switches: 120/277 Volt. AC Quiet, slow make, slow break design, toggle handle, with totally enclosed case, rated 20 ampere, specification grade. Provide matching two-pole, three-way and four-way switches.
- B. Switch and Pilot Light: Toggle action type with red handle, integral long-life neon pilot light, rated at 15 ampere, 120 volts.

- C. Duplex Receptacles: Full gang size, polarized, duplex, parallel blade, U-grounding slot, specification grade, rated at 20 amperes, 125 volts (unless otherwise noted), designed for split feed service.
- D. Ground Fault Receptacles: Specification grade duplex receptacle with integral ground fault circuit interrupter. Test and reset buttons. Matching wall plate.
- E. Wall Plates: Satin stainless steel, Type 302. Nominal .040-inch thick. Match device configuration.
- F. Nameplates: Provide engraved or embossed plastic nameplates for receptacles other than standard duplex receptacles indicating voltage, phase, amperes, circuit and panel.
- G. Color: Provide gray switches and receptacles in all areas.

### **PART 3 - EXECUTION**

#### **3.01 INSTALLATION**

- A. Furnish and install wiring devices of number, rating and type shown.
- B. Devices to include appropriate outlet box, cover, wall plate and other necessary installation materials for a complete operating outlet.
- C. Mount switches 42 inches (to center line of faceplate) above floor except as otherwise noted on the Drawings.
- D. Coordinate switch mounting location with architectural detail.
- E. Mount receptacles vertically at 15 inches (to bottom of faceplate) above finished floor, with grounding pole at top.
- F. Coordinate receptacle height with benches and counters.
- G. When mounting receptacle above bench or counter, mount horizontally with grounding pole at left.
- H. Back wiring wells may be used for receptacles.
- I. Grounding: Install a separate green or bare wire between the receptacle strap grounding (green) screw and a screw into the outlet box. Self-grounding strap not approved as grounding means.

**END OF SECTION**

## SECTION 26 28 16

### OVERCURRENT PROTECTIVE DEVICES

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. Fuses.
- B. Circuit Breakers.

##### 1.02 REFERENCE STANDARDS

- A. American National Standards Institute (ANSI).
  - 1. C37.16 Preferred Ratings, Related Requirements, and Application Recommendations for Low Voltage Power Circuit Breakers and AC Power Circuit Protectors.
  - 2. C37.17 Trip Devices for AC and General-Purpose DC Low-Voltage Power Circuit Breakers.
  - 3. C97.1 Low Voltage Cartridge Fuses 600 Volts or Less.
- B. Federal Specifications (FS).
  - 1. W-C-375B/GEN Circuit Breakers, Molded Case; Branch Circuit and Service, Federal Supply Classification (FSC) 5925.
  - 2. W-C-375/(1 through 20) Circuit Breakers, Molded Case, Branch Circuit and Service (FSC) 5925.
  - 3. W-F-1814 Fuse Cartridge, High Interrupting Capacity. (FSC) 5920.
- C. Institute of Electrical and Electronic Engineers, Inc. (IEEE).
  - 1. 20-73 Low Voltage AC Power Circuit Breakers Used in Enclosures (ANSI C37.13- 73).
- D. National Electrical Manufacturer's Association (NEMA).
  - 1. FU-1 Low Voltage Cartridge Fuses.

##### 1.03 APPLICABLE REGULATIONS

- A. Underwriters' Laboratories (UL).
  - 1. UL 489-72 Molded Case Circuit Breakers and Circuit Breaker Enclosures.
  - 2. UL 198 E Class R Fuses.
  - 3. UL 198.2 High Interrupting - Capacity Fuses, Current Limiting Type.
  - 4. UL 869 Service Disconnects.
- B. National Fire Protection Association (NFPA).
  - 1. NFPA 70 National Electrical Code.

#### PART 2 - PRODUCTS

##### 2.01 FUSES

- A. Feeder, Branch Circuit and Service Entrance Fuses: 600 amperes and below, UL Class J or RK1 current limiting type, 600 volt 200,000 ampere interrupting capacity.
- B. Motor and Inductive Circuit Fuses: UL class RK5 time delay current limiting type, 600 volt, 200,000 ampere interrupting capacity.

- C. Control Circuit Fuses: UL Class J or R current, limiting type, 600V.

## **2.02 MOLDED CASE CIRCUIT BREAKERS**

- A. Circuit Breakers:
  1. Connection to Bus: Bolt-on.
  2. Thermal-magnetic, molded case, with inverse time current overload and instantaneous magnetic tripping unless otherwise shown.
  3. Quick-make, quick-break, with tripped indication clearly shown by breaker handle taking a position between ON and OFF.
  4. Multi-pole breakers shall have a common internal trip. No handle ties between single pole breakers.
  5. Contacts: T-rated, for heavy duty switching applications.
  6. Breakers feeding convenience outlets shall have sensitive instantaneous trip settings of not more than 10 times the breaker trip rating to prevent repeated arcing shorts resulting from frayed appliance cords.
  7. Additions to existing panelboards and switchboards shall match or be compatible with existing.
  8. Provide handle ties per NEC for breakers serving circuits with shared neutral conductors.
  9. Where used as service disconnects, breakers shall be listed for use as service entrance equipment.

## **PART 3 - EXECUTION**

### **3.01 FUSE INSTALLATION**

- A. Label each switch to indicate type and rating of fuse installed.
- B. All fuses shall be selected to provide selective system coordination.
- C. Provide 10% (3 minimum) spare fuses of each size and rating used.

### **3.02 CIRCUIT BREAKER INSTALLATION**

- A. Label each breaker located in switchboard or separate enclosure to indicate load served.
- B. Adjust settings on breakers to operate properly under actual field conditions and to provide selective system coordination.
- C. Update directory in panelboards which have new breakers installed.

**END OF SECTION**

## SECTION 26 29 13

### MOTOR AND CIRCUIT DISCONNECTS

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. Provide and install motor disconnects as shown and as required by Codes.
- B. Provide and install circuit disconnects as shown and as required by Codes.
- C. Disconnects to include mounting stands, brackets, plates, supports, and required hardware and accessories for complete installation.

##### 1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Conform to National Electrical Code and to applicable inspection authority.
- B. Provide circuit and motor disconnects in the proper enclosure as required by NEC for the location installed unless more stringent requirements otherwise noted on the Drawings or herein.

##### 1.03 REFERENCE STANDARDS

- A. Underwriters' Laboratory (UL).
  - 1. Annual Product Directories.
  - 2. UL-98 Enclosed Switches.
- B. National Electrical Manufacturer's Association (NEMA).
  - 1. NEMA KS-1 Enclosed Switches.

#### PART 2 - PRODUCTS

##### 2.01 COMPONENTS

- A. Motor and circuit disconnects shall have an Underwriters' Laboratory label.
- B. Three-Phase Disconnect Switches: Three-pole heavy duty quick make, quick break 600 volt. Number of poles and ampacity as noted or required by Code. Fusible where noted with fuse clips suitable for dual element fuses unless current limiting fuses are noted. Short circuit rating sufficient to withstand the available fault current or let-through current before the fuse melts without damage or changes in rating.
- C. Compression or set-screw lugs approved for use with copper wire.
- D. ON/OFF Positions: Clearly marked, lockable in "OFF" position.
- E. Cover Interlock:
  - 1. Prevents switch from being opened when "on."
  - 2. Prevents closing switch when cover is open.
  - 3. Defeater to permit authorized personnel to open door and inspect switch when "on," or operate with cover open.



- F. Enclosure for Dry, Indoor Locations: NEMA 1 minimum. Enclosures for outdoor locations: NEMA 3R minimum. Others as required for location installed.

### **PART 3 - EXECUTION**

#### **3.01 INSTALLATION**

- A. Install motor and circuit disconnects as recommended by manufacturer and as required by Code and UL.
- B. Maintain Code clearances.
- C. Provide a nameplate on each motor and circuit disconnect identifying the equipment item served. Where disconnect is to be installed in existing motor control center replace existing nameplate with new nameplate identifying new equipment item served.

**END OF SECTION**

## SECTION 26 32 13

### EMERGENCY POWER PACKS

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

- A. Emergency Lighting Units.

#### PART 2 - PRODUCTS

##### 2.01 ACCEPTABLE MANUFACTURERS

- A. Quality Assurance: Bodine or approved.

##### 2.02 OPERATION

- A. Unit shall be capable of powering the specified lamp combinations for a minimum of 90 minutes.
- B. Unit shall be capable of being connected in any of the following modes:
  - 1. Normally on: Lamps continuously on under normal and emergency power conditions.
  - 2. Normally off: Lamps off under normal power conditions and on under emergency power conditions.
  - 3. Switchable: Lamps switch controlled under normal power conditions. Switch bypassed and lamps on under emergency power conditions.

##### 2.03 POWER PACKS

- A. Solid-state, high frequency output, remote battery pack with the following features:
  - 1. Transistorized inverter ballast.
  - 2. Transfer relay.
  - 3. Sealed, self-restoring nickel cadmium battery charger.
- B. Test button and disarrangement signal light to be flush wall mounted. Provide nameplate "Emergency Light Test Switch."
- C. Suitable for operation on either 120 or 277 VAC.
- D. Two-lamp, octron-Bodine B50, quad compact fluorescent-Bodine B426 or as noted on Drawings.

#### PART 3 - EXECUTION

##### 3.01 INSTALLATION

- A. Mount in ballast compartment. Verify size and type of conductor required for connection with manufacturer.

### **3.02 TESTING**

- A. Test units by shutting down normal power for approximately 1-1/2 hours. Replace any units that fail. Coordinate test schedule with Architect.

**END OF SECTION**

## SECTION 26 51 13

### INDOOR LIGHTING FIXTURES, LAMPS AND BALLASTS

#### PART 1 – GENERAL

##### 1.01 WORK INCLUDED

- A. This Section includes supply and installation of luminaires, supports and accessories; and supply of plaster frames, trim rings and backboxes for plaster, tile, drywall or concrete ceilings.
- B. Provide and install lamps in all light fixtures. Refer to lighting fixture schedule.

##### 1.02 REFERENCE STANDARDS

- A. National Electrical Manufacturer's Association (NEMA).
  - 1. NEMA LE1: Fluorescent Luminaires.

##### 1.03 COORDINATION

- A. Confirm compatibility and interface of other materials with luminaire and ceiling system. Report discrepancies to the Engineer/Architect, and defer ordering until clarified.
- B. Supply plaster frames, trim rings and backboxes to other trades.
- C. Coordinate with Division 23 to avoid conflicts between luminaires, supports, fittings, and mechanical equipment.

#### PART 2 - PRODUCTS

##### 2.01 ACCEPTABLE MANUFACTURERS

- A. Refer to Fixture Schedule.

##### 2.02 BALLASTS

- A. Linear Fluorescent Electronic Ballast
  - 1. Program start, universal voltage, extreme system
  - 2. THD < 10%
  - 3. Ballast Power Factor > 99%
  - 4. 0 degree F minimum lamp starting temperature
  - 5. Operating input voltage +/- 20%
  - 6. Operating input frequency 50/60 Hz
  - 7. Audible noise rating "A" or better
  - 8. Output frequency > 40 KHz with no visible flicker
  - 9. Lamp current crest factor < 1.5
  - 10. Constant light output for line voltage variation of +/- 10%
  - 11. Ballast factor 0.71
  - 12. No PCBs
  - 13. 5 year warranty + \$15.00 labor allowance.
  - 14. Meets FCC Class A specifications for EMI/RFI
  - 15. Meets ANSI C62.41 Cat A for transient protection
  - 16. UL listed

17. Acceptable product: Osram Sylvania Xtreme System Low Ballast Factor, Advance, or approved.
- B. Compact Fluorescent Electronic Ballast
1. Program rapid start
  2. THD < 10%
  3. Ballast Power Factor > 99%
  4. 0 degree F minimum lamp starting temperature
  5. Operating input voltage +/- 10%
  6. Operating input frequency 50/60 Hz
  7. Audible noise rating "A" or better
  8. Output frequency > 25 KHz with no visible flicker
  9. Lamp current crest factor < 1.5
  10. Constant light output for line voltage variation of +/- 10%
  11. Ballast factor > 0.95
  12. No PCBs
  13. 5 year warranty + \$10.00 labor allowance
  14. Meets ANSI C62.41 Cat A for transient protection
  15. UL listed (Osram/Sylvania)
  16. Acceptable product: Sylvania Quicktronic Professional or approved
- C. HID Ballasts
1. Metal halide, pulse start.
    - a. -40 degrees F minimum lamp starting temperature.
    - b. Operation input frequency 50/60 Hz.
    - c. Lamp current crest factor of 1.6.
    - d. Constant Wattage multitap auto transformer (CWA) type.
    - e. No PCBs.
    - f. 5 year warranty and \$10 labor allowance.
    - g. UL listed.
    - h. Acceptable Products: Venture Lighting, Advanced, Sylvania, or approved.

### 2.03 FLUORESCENT LUMINAIRES

- A. Prime coat and finish in high reflectance baked white enamel, two coats minimum on exposed and reflective surfaces, giving reflectance of 85 percent. Paint after fabrication.
- B. Reflective plates: 22-gauge (0.80 mm) metal.
- C. Provide 20-gauge (0.90 mm) steel housing.
- D. Provide Hinged Frames with Catches; removable for cleaning without tools. Support lay-in lenses on four sides with flip ends on short dimension.
- E. Provide gasketing, stops, and barriers to form light traps and prevent light leaks.
- F. Design luminaire to dissipate ballast and lamp heat.
- G. Use formed or ribbed backplates, endplates, reinforcing channels.
- H. Suitable for mounting on low density ceilings, where applicable.

#### **2.04 RECESSED LUMINAIRES**

- A. Recessed Incandescent Luminaires: Prewired type with junction box forming an integral part of the assembly.
- B. Supply recessed luminaire complete with trim type required for ceiling system installed. Before ordering, confirm ceiling construction details and architectural finish for each area.

#### **2.05 PENDANTS/CABLE HANGERS**

- A. Swivel sockets permitting normal fixture motion and self-adjustment. Adjustable to provide fixture height alignment.
- B. One piece, white finish, with matching canopies.
- C. Fixtures shall be factory counter-weighted and balanced to provide level hanging. Weights shall not be visible.
- D. Cable hangers shall be adjustable for a minimum of 18".

#### **2.06 LAMP TYPE AND COLOR**

- A. Refer to Lighting Fixture Schedule.
- B. All lamps of each type and color shall be by the same manufacturer.

#### **2.07 INCANDESCENT LAMPS**

- A. Incandescent Lamps: 130 volt, extended service type.

#### **2.08 LINEAR FLUORESCENT LAMPS**

- A. Low mercury, TCLP compliant, 85 CRI, 4100K color temperature.
- B. Minimum of 3000 Initial Lumens.
- C. Acceptable manufacturers: Osram Sylvania F032/850/XP/ECO, GE, Philips.

#### **2.09 COMPACT FLUORESCENT LAMPS**

- A. Low mercury, TCLP compliant 81 CRI, 4100K color temperature.
- B. Acceptable manufacturers: GE, Philips, Osram Sylvania.

#### **2.10 HID LAMPS**

- A. Metal Halide: Pulse start, coated, 88 CRI, 4200K color temperature.
- B. High Pressure Sodium: Low mercury, TCLP compliant.
- C. Acceptable manufacturers: GE, Philips, Osram Sylvania.

## **PART 3 - EXECUTION**

### **3.01 COORDINATION**

- A. Refer to Reflected Ceiling Plans for exact locations with respect to ceiling construction.
- B. Consult Finish Schedule for ceiling and wall construction and finish.
- C. Prior to ordering lighting fixtures, coordinate style of mounting with ceiling construction and trim details for ceiling system finally selected.

### **3.02 SURFACE MOUNTING**

- A. Attach with means that will draw fixtures snugly to finished surface without bending or tipping. Twist-on clips with studs not allowed on exposed "T" grid ceilings, except where specified. Support from channel above ceiling framing members with bolt at each corner of fixture.

### **3.03 PENDANTS**

- A. Support from structure per paragraph titled "SUPPORT".
- B. Provide steel, stranded safety cable between fixture and structure to support fixture in the event of a pendant breakage.

### **3.04 SUPPORT**

- A. Suspended ceiling:
  - 1. Positively attach all light fixtures to the suspended ceiling system. The attachment device shall have a capacity of 150% of the lighting fixture weight acting in any direction.
  - 2. Support grid with No. 12 minimum gage hangers attached to the grid members within 3 inches of the corner of each fixture, attached to structure above.
  - 3. Attach two No. 12 minimum hangers from the fixture housing to the structure above. These wires may be slack.
  - 4. Where suspended fixtures do not align with grid, provide "bridging" above grid and support from structure.
  - 5. Support pendant-hung lighting fixtures directly from the structure above with No. 9 minimum wire or approved alternate support.
- B. Support all other fixtures from structure by method rated at least five times support weight.

### **3.05 ACCESS**

- A. Recessed fixtures shall have code accessible supply. Use reach-through type fixtures in non-accessible ceilings or other suitable means. Coordinate with ceiling installer.

### **3.06 FIRE RATED CEILINGS**

- A. Where a ceiling carries a fire rating, recessed fixtures shall carry UL rating for use in protective enclosures. Coordinate installation of protective enclosures to provide sufficient air space for heat dissipation. 3 inch minimum all around.

### **3.07 CLEAN-UP**

- A. At time of acceptance, fixtures and lamps shall be clean, with visible labels removed. Touch-up any blemishes.
- B. Remove ballast leakage and dispose of cleaning materials in accordance with EPA regulations.

### **3.08 FIXTURES AS RACEWAYS**

- A. Code Reference: NEC 410-31.
- B. Through-Wiring: In continuous rows of fluorescent lighting, a connection to a single point in the row indicates that the branch circuit conductors are to be routed through the fixture wiring compartments and a connection made to each ballast.

### **3.09 LAMP INSTALLATION**

- A. Install lamps in accordance with manufacturer's instructions.

### **3.10 EXTRA STOCK**

- A. Provide extra lamps of all types, based on initial lamping quantity: Incandescent 25%, all others 10%. Where a fraction occurs, round up to next larger integer.

### **3.11 BURNOUT REPLACEMENT**

- A. Make replacements from extra stock as required until 90 days after Substantial Completion date. Deliver remaining lamps to Owner.

**END OF SECTION**



## SECTION 27 20 00

### VOICE AND DATA WIRING

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

- A. Furnish and install all labor and materials required for the installation of a complete voice and data cable infrastructure.

##### 1.02 QUALITY ASSURANCE

- A. Do all work in accordance with the guidelines published in EIA/TIA standard 568 and 569. Where conflicts exist, the plans and specifications shall take precedence.
- B. All workers involved in the installation and termination of cable shall have at least two years of experience. No less than 33% of the workers on the job shall have attended a vendor sponsored training program covering installation and termination of cable.

##### 1.03 SUBMITTALS

- A. Submit complete and descriptive shop drawings in accordance with Section 01 33 00. Include data for wall jacks, cable, and a layout for each IDF and MDF terminal board.

##### 1.04 GUARANTEE

- A. Guarantee all work against faulty and improper material and workmanship for a minimum period of one (1) year from the date of final written acceptance by Owner, except where guarantee or warranties for longer terms are specified herein.

#### PART 2 - PRODUCTS

##### 2.01 ACCEPTABLE MANUFACTURERS

- A. Copper Cable: Belden, Berktek, AMP, Avaya.
- B. Termination Hardware: AMP, Avaya.
- C. Outlets: AMP
- D. Requests for substitution of other products will be considered if submitted in accordance with Section 01 60 00.

##### 2.02 HORIZONTAL DISTRIBUTION

- A. All UTP cable shall be 4-pair cable, of 23AWG solid copper conductors under a common sheath. Cable must meet the requirement for Category 6 standards and be rated for use in the environment in which it is used.
- B. UTP cables shall terminate on 110-type terminating Category 6 modular RJ-45 patch panels and shall be provided and installed in equipment racks. Rack mount wire management panels are to be installed between each pair of 48 jack port mount 110 type modular patch panels.

- C. All voice and data outlet plates shall be of a modular design capable of accepting interchangeable RJ-11, RJ-45, video F connectors, BNC, fiber ST or MT-RJ connectors or blank inserts into a single plate. Plates shall be nylon, 4 port single gang, color to match adjacent power receptacle plates.
- D. Each outlet shall have UTP cables terminated on CAT 6 RJ-45 jacks. Quantity of jacks as indicated on the floor plans, but no less than two per plate.
- E. Wall phone outlets shall have one 4 pair UTP cable terminated in a single gang plate.
- F. All Data UTP station cable to terminate on 8-pin CAT 6 RJ-45 inserts. Wiring configuration (568A 568B) as directed by Owner. Inserts shall be designed to permit them to be disconnected from the plate without removing the cable, and reinstalled on another plate. In addition to wall mounted outlets, include outlets in modular furniture and floor boxes.

### **2.03 CONNECTOR CABLES**

- A. Provide one data connector cable for each data jack. 50% shall be 6 feet and 50% shall be 12 feet in length. Data grade, category 6 with RJ-45 male connector on each end.
- B. Provide one, 6 foot min. telephone connector cable for each telephone jack. Voice grade, category 6 with RJ-11/45 compatible male connector on each end.
- C. Provide one, 1-foot patch cable for each patch panel jack. Data grade, category 6 with RJ-45 male connector on each end.

## **PART 3 - EXECUTION**

### **3.01 EXECUTION**

- A. The Contractor shall furnish and install all cabling in accordance with these specifications, and as indicated on the cable schedules and drawings.
- B. Install each cable as an uninterrupted conductor section between the designated termination points, unless otherwise directed by the cable installation specifications. There shall be no splices or mechanical coupler installed between the cable points of origin and termination except as shown on drawings and/or specifications.
- C. Unless otherwise noted, all cable shall be rerouted through the building low voltage cable tray/conduit system where available.
- D. Contractor is responsible for insuring that cable jacket is suitable for the environment in which it is placed, i.e., CM, CMR, CMP rated.
- E. All cable shall be attached to building structure except as noted below, at intervals not to exceed 6 feet.
- F. At the same time cable is pulled into a cable pathway, also install a pull string of appropriate size to facilitate future cable pulls along those pathways.
- G. Install "J-hooks" or reusable "o-rings" for horizontal cable support. Coordinate location of support hardware to avoid conflicts with other trades.

- H. At no point will any station cable be tie wrapped or fastened to the cable tray. After cables have exited the cable tray they will be tie wrapped to the "J-hooks". The tie wraps will be clinched snug enough around the cable bundle to keep them uniform and in the hooks, but not so tight as to damage the construction of the cables themselves.
- I. Installation of workstation cables shall be coordinated with the modular furniture system contractor. Prior to the furniture system installation, the workstation cables will be pulled near the "stub-ups" or poke-thrus" and left coiled with enough slack to reach the eventual outlet location. After the modular furniture systems are installed and walls are finished, the contractor will pull cable to the outlet locations and complete the cable installation.
- J. Provide firestopping at all locations where cables penetrate fire rated surfaces. Materials and methods used shall be acceptable to the code authority having jurisdiction and shall maintain the fire integrity of the wall, floor, or ceiling.

### **3.02 CABLE IDENTIFICATION**

- A. Cable tags containing a unique cable ID designator shall be placed on both ends of all cables, 6 inches from the connector and/or termination blocks. Also, label all backbone cables passing through telecommunications rooms. Each label shall be pre-printed with the appropriate cable number as indicated. Hand written cable labels are not acceptable.
- B. Individual station outlets shall be labeled with the designator of the cables terminated at that particular outlet.
- C. If at any time during the job the cable tag becomes illegible or removed for whatever reason, the Contractor shall immediately replace it with a duplicate pre-printed cable tag at the Contractor's expense.
- D. Labeling sequence to be determined by the Owner and to be followed by the Contractor.

### **3.03 TERMINATION HARDWARE**

- A. Quantities of termination blocks, racks, splice enclosures, and patch panels, etc. shown on drawings are illustrative only and are meant to indicate the general configuration of the work. The Contractor is responsible for providing the correct quantities of termination hardware required to terminate, patch, cross connect, etc. the volume of cable described herein and shown on the drawings. Rack quantities shall be no less than what is shown on the drawings.
- B. At all times during the construction, the Contractor shall protect the equipment from damage and theft. Equipment shall not be installed until such time as other trades have completed their work in the area.

### **3.04 CABLE TERMINATIONS**

- A. Fiber optic cables: After dressing the fiber to its final destination, sheath shall be removed to a point that allows the fibers to be splayed and terminated in a neat and uniform fashion. At this point all fiber strands will be terminated in strict compliance with the manufacturer's instructions.

- B. Twisted pair metallic cables: After dressing cable to its final location the sheath shall be removed to a point that allows the conductors to be splayed and terminated in a neat and uniform fashion. Every effort must be made to maintain sheath integrity by removing only as much as is practical to accomplish termination. Cable pair twist shall be maintained up to the point of termination. Under no circumstances shall cable pairs be untwisted or otherwise altered beyond ½" per EIA/TIA-568.
- C. Cross-connect wire: Cable pair twist shall be maintained up to the point of termination. Under no circumstances shall cable pairs be untwisted or otherwise altered prior to termination.

### **3.05 GROUNDING**

- A. All metallic cable tray, ladder rack, raceways, cable sheath/armor, enclosures, and equipment racks and other conductive surfaces shall be properly bonded to the grounding system. All paint and other coatings shall be removed at all contact surfaces to ensure proper ground.
- B. Furnish and install an insulated #6 copper ground wire from all telecommunication rooms to the main building electrical ground point in the main electrical room. Drawing notes indicating a larger size shall take precedence.
- C. Ground all cable shields, ducts, connector panels and grounding blocks.
- D. All grounding shall be in compliance with the NEC code Article 800, Article 250, as well as EIA/TIA standard 607.

### **3.06 CABLE TESTING**

- A. Copper:
  - 1. Visually inspect all cables, cable reels, and shipping cartoons to detect cable damage incurred during shipping and transport. Return visibly damaged items to the manufacturer.
  - 2. Conduct cable testing as described below upon completion of installation. Test fully completed systems only. Piecemeal testing is not acceptable, except by prior written approval from the Architect.
  - 3. After terminating both ends, but before any cross connects are installed, test all UTP voice and data stations cables for attenuation and for near-end cross talk (NEXT) to 100 Mhz. Test all UTP backbone, distribution and patch cable for cable pair/conductor continuity, ground fault, proper cross-connect, shorts, loose connectors, and crossed pairs.
  - 4. Remove all defective cables from pathways system. Do not abandon cables in place.

### **3.07 ACCEPTANCE**

- A. Upon receipt of the Contractor's documentation of cable testing, the Architect will review the installation and may request a retest using contractor equipment and labor, of up to 5% of the cable/wires installed.

**END OF SECTION**