Owner: State of Rhode Island Board of Education, University of Rhode Island, and State of Rhode Island

In care of: Office of Capital Projects or Office of Campus Planning
University of Rhode Island
60 Tootell Road - Sherman Building
Kingston, RI 02881

Attn: Schane Tallardy – 401.874.2151

Design Agent: Wilson HGA Architects – Matt Ellsworth – 617.338.5990

Consultant: Vanderweil Engineers – Joe Pescatore – 617.423.7423

PROJECT MANUAL

Beaupre Center for Chemistry and Forensic Science
Rodent Behavioral Lab Renovation

University of Rhode Island
Kingston Campus

24 May 2019

DA Job Number- 4437-001-00
URI Job Number- KC.G.CHEM.2009.001

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10 1405 Fire Safety Partition Signs
10 2600 Wall and Door Protection
10 4400 Interior Sign System
10 4415 Fire Extinguishers and Cabinets
10 5619 Plastic Storage Shelving
11 5070 Fume Snorkels
11 5213 Projection Screens

11 5300 Laboratory Equipment
12 2400 Window Shades
12 3555 Laboratory Furniture
12 3624 Plastic Laminate Counter Tops
12 3654 Epoxy Counter Tops
12 3662 Solid Surface Fabrications

DOCUMENT 00 0115 - LIST OF DRAWINGS

Dwg Number	Sheet Title	SCALE
ARCHITECTURAL DRAWINGS		
G0.00	TITLE PAGE AND DRAWING LIST	NTS
G0.01	GENERAL NOTES, SYMBOLS & ABBREVIATIONS	NTS
G1.01	CODE CRITERIA SUMMARY	NTS
G1.02	LIFE SAFETY PLANS - CLASSIFICATIONS AND OCCUPANT LOAD	1/32" = 1'-0"
G1.03	LIFE SAFETY PLANS - CHEMICAL CONTROL AREAS	1/32" = 1'-0"
G2.01	LIFE SAFETY PLANS - EGRESS PLANS AND DISTANCES	1/16" = 1'-0"
A1.01	ENLARGED DEMOLITION RCP & PLAN	1/4" = 1'-0"
A4.01	ENLARGED FLOOR PLAN & RCP	1/4" = 1'-0"
A5.10	INTERIOR ELEVATIONS 1	1/4" = 1'-0"
A5.11	INTERIOR ELEVATIONS 2	1/4" = 1'-0"
A9.10	RBAL - CASEWORK DETAILS	AS NOTED
A9.11	RBAL - PARTITION DETAILS & DOOR AND FRAME DETAILS	AS NOTED
ELECTRICAL DRAWINGS		
E0.01	ELECTRICAL LEGEND	NTS
E1.04	ELECTRICAL DEMOLITION PLAN	1/4" = 1'-0"
E2.04	ELECTRICAL LIGHTING PLAN	1/4" = 1'-0"
E3.04	ELECTRICAL POWER PLAN	1/4" = 1'-0"
E4.04	FIRE ALARM PLAN	1/4" = 1'-0"
E8.01	ELECTRICAL DETAILS	NTS
HVAC DRAWINGS		
M0.01	HVAC LEGEND & ABBREVIATIONS	NTS
M0.02	HVAC LEGEND & SPECIFICATIONS	NTS
M1.01	HVAC DUCTWORK DEMOLITION PLAN	1/4" = 1'-0"
M1.02	HVAC PIPING DEMOLITION PLAN	1/4" = 1'-0"
M2.01	HVAC NEW DUCTWORK PLAN	1/4" = 1'-0"
M2.02	HVAC NEW PIPING PLAN	1/4" = 1'-0"
M4.01	HVAC ROOM PRESSURIZATION PLAN	1/4" = 1'-0"
M5.01	HVAC DETAILS	NTS
M5.02	HVAC DETAILS	NTS
M6.01	HVAC SCHEDULES	NTS
M8.01	HVAC CONTROLS LEGEND	NTS
M8.02	HVAC CONTROLS	NTS
M8.03	HVAC CONTROLS	NTS

PLUMBING DRAWINGS		
P0.01	PLUMBING LEGEND & GENERAL NOTES	NTS
P4.01	PLUMBING FOURTH FLOOR PART PLAN	1/4" = 1'-0"
P4.02	PLUMBING FIRST FLOOR PART PLAN	1/4" = 1'-0"

FIRE PROTECTION DRAWINGS		
F0.01	SPRINKLER LEGEND	NTS
F4.01	SPRINKLER FOURTH FLOOR PART PLAN	1/4" = 1'-0"

END OF DOCUMENT

DOCUMENT 00900 - ADDENDA AND MODIFICATIONS

PART 1 – GENERAL

1.1 As of the time of publication of this Project Manual, no Addenda had been issued.

1.2 Should Addenda be issued during the Bid Period, they will augment this Document and become a part of the Project Manual.

1.3 Such Addenda and Modifications when issued, with reference to the Project Manual, the General Conditions, Supplemental General Conditions, Drawings or Specifications, shall be inserted following this page and become integral parts of the Contract Documents.

END OF DOCUMENT 00900

DOCUMENT 00 5200 – AGREEMENT FORM

PART 1 – GENERAL

1.1 The Agreement Form to be utilized on this project is AIA Document A101-2017 as amended, a copy of which follows this page.

END OF DOCUMENT

AIA® Document A101™ – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address, telephone and facsimile numbers, and website)

State of Rhode IslandOne Capitol Hill, Second Floor
Providence, Rhode Island 02908-5855
401.578.8100 (telephone); 401.574.8387 (facsimile)
www.puchasing.ri.gov

acting by and through,

The University of Rhode Island Purchasing Department
10 Tootell Road
Kingston, Rhode Island 02881
401.874.2171 (telephone); 401.874.2306 (facsmilie)
http://web.uri.edu/purchasing/

and
Rhode Island Council on Postsecondary Education
560 Jefferson Boulevard, Suite 100
Warwick, Rhode Island 02886
401.456.6000 (telephone); 401.732.3541 (facsimile)

on behalf of the User Agency:
(Name, legal status, address, telephone and facsimile numbers, and website)

The University of Rhode Island
Office of Capital Projects
60 Tootell Road – Sherman Building
Kingston, Rhode Island 02881
401.874.2725 (telephone)

and the Contractor:
(Name, legal status, address, telephone and facsimile numbers, and website)

for the following Project:
(Name, location and detailed description)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101™–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201™–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

Init.
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The Design Agent:
(Name, legal status, address, telephone and facsimile numbers, and website)

The Owner and Contractor agree as follows.

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(Paragraph Deleted)

The Owner and Contractor agree as follows.

TABLE OF ARTICLES

1 THE CONTRACT DOCUMENTS

2 THE WORK OF THIS CONTRACT

3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

4 CONTRACT SUM

5 PAYMENTS

6 DISPUTE RESOLUTION

7 TERMINATION OR SUSPENSION

8 MISCELLANEOUS PROVISIONS

9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General Conditions, Supplementary Conditions (if any), and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others. No part of the Work shall be performed by Subcontractors without the Owner's prior written consent.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall
be the later of: (i) the issuance of the Purchase Order by the Owner; and (ii) the
(Paragraph Deleted)

date set forth in a notice to proceed issued by the User Agency.

(Paragraphs Deleted)

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check one of the following boxes and complete the necessary information.)

[ ] Not later than ( ) calendar days from the date of commencement of the Work.

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[ ] By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. Subject to additions and deductions as provided in the Contract Documents, the Contract Sum shall be: $_____.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, are specified in the Bid Proposal Form and are included in the Contract Sum.
(Paragraph Deleted)

(Table Deleted)

§ 4.4 Unit prices, if
any, are specified in the Bid Proposal Form and include all costs, including without limitation, labor, materials, services, regulatory compliance, overhead, and profit necessary for the completion of the Work. Unit prices shall be used for both additions to, and deletions from the Work.

(Table Deleted)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

.1 In the event that there is one date for Substantial Completion of the Work, the Contractor shall pay the Owner the sum stipulated in this Section 4.5.1 as liquidated damages, and not as a penalty, for each calendar day of delay until the Work is substantially complete: $_____.

.2 In the event that the Project is scheduled to be completed in phases, and there is more than one date for Substantial Completion of the Work, the Contractor shall pay the Owner an aggregate amount equal to the sums stipulated in this Section 4.5.2 as liquidated damages, and not as a penalty, for each calendar day of delay until the Work for each phase is substantially complete:

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Phase	Liquidated Damages Sum

.3 The Owner and the Contractor have reasonably determined the sums set forth in this Section 4.5 to be a fair estimate of the Owner' actual damages which are difficult to ascertain in the event of delay.

§ 4.6 Other:
(Paragraph Deleted)

The Owner shall not be liable to the Contractor or any Subcontractor for claims or damages of any nature caused by or arising out of any delays. The sole remedy against the Owner for delays shall be the allowance of additional time for completion of the Work.

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Design Agent by the Contractor and Certificates for Payment issued by the Design Agent and approved by the Owner in writing, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

§ 5.1.3 The Owner shall make payment of the certified amount, less retainage, to the Contractor not later than the 30th working day following written approval by the Owner.

(Paragraph Deleted)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor and approved by the Design Agent and the Owner in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Design Agent and the Owner may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2007, General Conditions of the Contract for Construction as modified by the Owner, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

.1 That portion of the Contract Sum properly allocable to completed Work;

.2 That portion of the Contract Sum 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, suitably stored off the site at a location agreed upon in writing; and

.3 That portion of Construction Change Directives that the Design Agent determines, in the Design Agent's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Design Agent has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2007 as modified by the Owner;

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.3 For Work performed or defects discovered since the last payment application, any amount for which the Design Agent may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2007 as modified by the Owner; and

.4 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due: five (5%) percent.

(Paragraph Deleted)

§ 5.1.7.1.1 Deleted.

(Paragraph Deleted)

§ 5.1.7.2 Deleted.

(Paragraph Deleted)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Paragraph Deleted)

The amount of five (5%) percent shall be retained by the Owner through the date of Substantial Completion of the Work and then after the date of Substantial Completion of the Work in accordance with R.I. Gen. Laws § 37-12-10.1.

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2007 as modified by the Owner.

§ 5.1.9 Except with the Owner's prior written approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.1.10 Within 10 working days of receipt of any progress payment from the Owner, the Contractor must pay its Subcontractors the full amount included for each such Subcontractor within the Contractor's Application for Payment in accordance with the provisions of AIA A201 – 2007, General Conditions of the Contract for Construction as modified by the
Owner.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, less the amount withheld pursuant to § 5.1.7.3, shall be made by the Owner to the Contractor when:

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2007 as modified by the Owner, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Design Agent and approved in writing by the Owner;

.3 the Contractor has submitted its final release and final releases from all of its Subcontractors and suppliers in a form acceptable to the Owner; and

4 the Contractor has submitted to the Owner all close-out documents, including without limitation, all as-built plans, warranties, manuals, and other materials set forth in the Contract Documents.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 working days after the issuance of the Design Agent's final Certificate for Payment and written approval by the Owner.

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§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due in accordance with the provisions of "Prompt Payment by Department of Administration," R.I. Gen. Laws §§ 42-11.1-1 et seq.

§ 5.4 Owner's Rights

§ 5.4.1 The Owner shall have the right to deduct from any payments due to the Contractor the amount of any unpaid obligations owed to the State of Rhode Island by the Contractor, including without limitation, any and all unpaid taxes, the amount of any claim against the Contractor arising out of this Agreement, or any amount on account of any other reason permitted by applicable law.

§ 5.5 Pursuant to R.I. Gen. Laws § 44-1-6, the Owner shall withhold payment from the Contractor if the Contractor does not maintain a regular place of business in Rhode Island in the amount of three (3%) percent of the Contract Sum until 30 calendar days after Final Completion and compliance by the Contractor with the requirements of such section. The three (3%) percent withheld pursuant to R.I. Gen. Laws § 44-1-6 is not considered retainage which is *held pursuant to § 5.1.7.*

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

Claims shall be referred to the Initial Decision Maker for initial decision. The University of Rhode Island Vice President for Administration and Finance pursuant to the provisions of the "Delegation of Limited Procurement Authority," dated January 19, 2018 and the provisions of the "State Purchases Act," R.I. Gen. Laws § 37-2-1 et seq., will serve as the Initial Decision
Maker in accordance with the provisions of the State Purchases Act, State of Rhode Island Procurement Regulations, and this Section 6.1. An initial decision shall be required as a condition precedent to binding dispute resolution pursuant to Section 6.3 of any Claim arising prior to the date final payment is due.

§ 6.2 Mediation

For any Claim not resolved by the Initial Decision Maker procedures set forth in Section 6.1, and prior to the implementation of the binding dispute resolution procedures set forth in Section 6.3, the Contractor shall
have the
option to pursue mediation, exercisable by written notice to the Owner within 30 calendar days of an Initial Decision. In the event of the exercise of
such option by the Contractor, the Owner and the Contractor shall attempt to select a mediator, and in the event that the Owner and the Contractor cannot agree on a mediator, either party may apply in writing to the Presiding Justice of the Providence County Superior Court, with a copy to the other, with a request for the court to appoint a mediator, and the costs of the mediator shall be borne equally by both parties.

(Paragraph Deleted)

§ 6.3 Binding Dispute Resolution

For any Claim not resolved by the Initial Decision Maker procedures set forth in Section 6.1, or mediation at the option of the Contractor pursuant to Section 6.2, the method of binding dispute resolution shall be determined in accordance with the provisions of the "Public Works Arbitration Act," R.I. Gen. Laws §§ 37-16-1 et seq.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007, as modified by the Owner. The Contract may also be terminated by the Owner: (i) in the event of the unavailability of appropriated funds; (ii) in the absence of a determination of continued need; or (iii) as *otherwise provided in the State of Rhode Island Procurement Regulations General Conditions of Purchase or other applicable law.*

§ 7.1.1 Deleted.

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§ 7.2 The Work may be suspended by the Owner as provided in: (i) the State of Rhode Island General Conditions of Purchase Regulation or other applicable law; or (ii) Article 14 of AIA Document A201–2007 as modified by the Owner.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to: (i) the AIA Document A201 – 2007 or other Contract Document as modified by the Owner; and (ii) that provision in the AIA Document A201 – 2007 as modified by the Owner or other Contract Document as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Representatives for the Owner

§ 8.2.1 The Owner's representative:
(Name, title, address, email address, and other information for the preferred methods of contact)

The University of Rhode Island, Purchasing Department
10 Tootell Road
Kingston, Rhode Island 02881
Paul M. DePace, PE
401.874.2725 (telephone)

§ 8.2.2 The User Agency's representative:
(Name, title, address, email address, and other information for the preferred methods of contact)

The University of Rhode Island
Office of Capital Projects
60 Tootell Road – Sherman Building
Kingston, Rhode Island 02881
Paul M. DePace, PE
401.874.2725 (telephone)

§ 8.2.3 The Design Agent's representative:
(Name, title, address, email address, and other information for the preferred methods of contact)

§ 8.3 The Contractor's representative:
(Name, title, address, email address, and other information for the preferred methods of contact)

§ 8.4 Neither the Owner's nor the Contractor's representative nor the Design Agent's representative shall be changed without 10 working days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in the Solicitation and elsewhere in the Contract Documents.

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§ 8.5.2 The Contractor shall provide bonds as set forth in the Solicitation and elsewhere in the Contract Documents.

§ 8.6 Deleted.

§ 8.7 Other provisions:
§ 8.7.1 The Contractor represents and warrants to the Owner, in addition to any other representations and warranties of the Contractor elsewhere in the Contract Documents:

.1 The Contractor and its Subcontractors are each financially solvent, able to pay their debts as they mature, and possess sufficient working capital to perform their obligations under the Contract Documents.
.2 The Contractor and its Subcontractors are each able to furnish the tools, materials, equipment, and labor required to complete the Project as required under the Contract Documents.
.3 *The Contractor and each Subcontractor are authorized to do business in the State of Rhode Island and are properly licensed by all necessary governmental authorities having jurisdiction over them and over the Work and the Project.*
.4 The execution of this Agreement and its performance is within its duly authorized powers.
.5 The Contractor has visited the site of the Project, familiarized itself with the local and special conditions under which the Work is to be performed, and correlated its observations with the requirements of the Contract Documents.
.6 The Contractor possesses the requisite level of experience and expertise in the business administration, construction, and superintendence of projects of the size, complexity, and nature of the Project, and it will perform the Work with the care, skill, and diligence of a contractor possessing such experience and expertise.

§ 8.7.2 The representations and warranties of the Contractor in this Section 8.7 and elsewhere in the Contract Documents will survive the execution and delivery of this Agreement, any termination of this Agreement, and the final completion of the Work.

§ 8.7.3 Any Change Orders or other Modifications must be approved in writing by the Owner.

§ 8.7.4 The Owner is the State of Rhode Island, acting by and through its Department of Administration, Division of Purchases, and therefore, pursuant to the provisions of R.I. Gen. Laws § 34-28-31, mechanics liens may not be placed against the Project.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, as modified by the Owner

.2 **Deleted.**

.3 AIA Document A201™–2007, General Conditions of the Contract for Construction, as *modified by the* Owner.

.4 **Deleted.**

.5 Drawings

(Table Deleted)

The Drawings are included in the Solicitation and are available on the Division of Purchases website at www.purchasing.ri.gov.

.6 Specifications

(Table Deleted)

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The Specifications are included in the Solicitation and are available on the Division of Purchases website at www.purchasing.ri.gov.

.7 Addenda, if

(Table Deleted)

any, issued pursuant to the Solicitation form a part of the Solicitation and are available on the Division of Purchases website at www.purchasing.ri.gov.

.8

Supplementary and other Conditions of the Contract, including without limitation, the State of Rhode Island General Conditions of Purchase Regulation.

.9 Other documents listed below:

(Paragraph Deleted)

.1 The Solicitation, issued by the Owner, including without limitation, the Invitation to Bid, the Instructions to Bidders, the Specifications and Drawings, any Addenda, and the Bid Checklist.

(Paragraph Deleted)

.2 The Bid Proposal, including without limitation, the Bid Form and the Bidder Certification Cover Form.

(Table Deleted)

.3 The Purchase Order issued by the Owner.

§ 9.2 This Agreement and the Contract Documents are subject to, and governed by, the laws of the State of Rhode Island, including all procurement statutes and regulations (available at www.purchasing.ri.gov), and applicable federal and local law, all of which are fully incorporated into this Agreement by this reference.

(Table Deleted)

(Paragraph Deleted)

***§ 9.3** In the event of any conflict between or among the Contract Documents, or any Contract Documents and any provision of the State of Rhode Island Procurement Regulations and/or any other provision of the Rhode Island General Laws, the State of Rhode Island Procurement Regulations and the Rhode Island General Laws shall control.*

ARTICLE 10 BENEFITS OF AGREEMENT

§ 10.1 The User Agency is a disclosed third-party beneficiary of this Agreement and shall have all of the rights and benefits hereunder to which such a party is entitled. Nothing contained in this Agreement shall create a contractual relationship with, or a cause of action in favor of, any other third party against the Owner or the User Agency.

§ 10.2 This Agreement shall be binding on the Contractor and its successors and assigns; provided, however, that the Contractor may not assign its rights nor delegate its responsibilities under this Agreement without the Owner's prior written consent.

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This Agreement is entered into as of the day and year first written above; provided, however, that this Agreement shall not become a valid, binding, and enforceable contract unless and until the Owner shall have issued a Purchase Order.

THE STATE OF RHODE ISLAND, acting by and through THE UNIVERSITY OF RHODE ISLAND PURCHASING DEPARMENT and RHODE ISLAND COUNCIL ON POSTSECONDARY EDUCATION

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
Abigail RiderVice President, Division of Administration and Finance, University of Rhode Island	
(Printed name and title)	*(Printed name and title)*

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Section 00 5300 Computer File Transmittal Agreement

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES: Terms and conditions for Contractor's use of Architect's and Architect's consultants' computer files and CAD documents.

A. The Contractor may use information for preparation of base sheets for "Coordination Drawings" and "Record Drawings", but not for "Shop Drawings".
B. The Architect and the Architect's consultants retain all copyrights to their documents.
C. The Architect and the Architect's consultants give the Contractor a limited and nontransferable license to use their documents for the sole purpose of preparing "Coordination Drawings" and "Record Drawings" for this project only. No other use or purpose is authorized or permitted.
D. The Contractor shall not copy, distribute, or disseminate the documents furnished to him for any use or purpose other than the purposes authorized by this Agreement.
E. The Architect and the Architect's consultants do not warrant that the documents furnished to the Contractor are complete or accurate. All addenda and modifications may not have been incorporated into the documents furnished to the Contractor.
F. The documents will be furnished in their existing layering, filing, and directories. No special layering, file organization, directory organization, or compilation will be created for the Contractor.
G. The Architect and the Architect's consultants do not warrant that the electronic documents furnished to the Contractor are usable with any computer hardware or software other than the computer hardware and software used by the Architect and the Architect's consultants. The Architect and the Architect's consultants may have used multiple different and non compatible computer hardware and software systems and products.
H. The Contractor shall check the information contained in the documents furnished by the Architect and the Architect's consultants. The Contractor shall be solely responsible for the completeness and accuracy of the "Coordination Drawings" and "Record Drawings" prepared using the documents furnished by the Architect and the Architect's consultants.
I. The Contractor shall remove the Architect's and the Architect's consultants' professional seals from "Coordination Drawings" and "Record Drawings" prepared using the documents furnished to him.
J. The Contractor shall indemnify and hold harmless the Architect and the Architect's consultants and the officers, employees, and assigns of the Architect and the Architect's consultants from all damages and claims resulting from the Contractor's use of documents furnished to him.
K. Documents will be made available to the Contractor on an internet FTP [File Transfer Protocol] site.
    1. A user ID and password may be required to access information.
L. These terms and conditions constitute the complete Agreement between the Contractor and the Architect and the Architect's consultants.
M. These terms and conditions may only be modified in writing by mutual agreement of all parties to this Agreement.
N. This Agreement is governed by the laws of the Commonwealth of Massachusetts, the principal place of business of the Architect.

End of Section

DOCUMENT 00 6140 - WAIVER OF LIEN FORM

U. R. I. Document Waiver of Lien Form is included, following this page, as an integral part of the Contract documents. A copy with completed information must be submitted with the second and each succeeding Application for Payment.

UNIVERSITY OF RHODE ISLAND

Construction Project Title: _____

General Contractor: _____

Subcontractor/Supplier: _____

DUNS No.: _____

Application and Certificate for Payment No: _____
(prior to Application accompanying this form)

Schedule of Values Line Item No.: _____

DESCRIPTION OF WORK Heading: _____

Total payment Received, Including Current Payment: $ _____

The undersigned Representative of the above Subcontractor/Supplier has been contracted by the above General Contractor to furnish materials, or labor, or both, as included in the approved Schedule of Values under the Line Item No.___, and DESCRIPTION OF WORK heading indicated above, for the Construction Project listed above.

The undersigned acknowledges receipt of payment, under this Line Item No., and DESCRIPTION OF WORK heading, and hereby waives and releases any and all lien, or claim or right to lien, on the Construction Project listed above, and premises, under the statutes of the State of Rhode Island, relating to Mechanics Liens, on account of materials, or labor, or both, furnished, or which may be furnished, by the undersigned to, or on account of, the above numbered Application and Certificate for Payment.

Signed on this _____ day of _____, 20__.

_____ _____
(signature) (firm name)

END OF DOCUMENT

DOCUMENT 00 7000 – GENERAL CONDITIONS

PART 1 – GENERAL

1.1 The General Conditions to be utilized on this project is AIA Document A201-2007 as amended, a copy of which follows this page.

END OF DOCUMENT

AIA® Document A101™ – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address, telephone and facsimile numbers, and website)

State of Rhode IslandOne Capitol Hill, Second Floor
Providence, Rhode Island 02908-5855
401.578.8100 (telephone); 401.574.8387 (facsimile)
www.puchasing.ri.gov

acting by and through,

The University of Rhode Island Purchasing Department
10 Tootell Road
Kingston, Rhode Island 02881
401.874.2171 (telephone); 401.874.2306 (facsmilie)
http://web.uri.edu/purchasing/

and
Rhode Island Council on Postsecondary Education
560 Jefferson Boulevard, Suite 100
Warwick, Rhode Island 02886
401.456.6000 (telephone); 401.732.3541 (facsimile)

on behalf of the User Agency:
(Name, legal status, address, telephone and facsimile numbers, and website)

The University of Rhode Island
Office of Capital Projects
60 Tootell Road – Sherman Building
Kingston, Rhode Island 02881
401.874.2725 (telephone)

and the Contractor:
(Name, legal status, address, telephone and facsimile numbers, and website)

for the following Project:
(Name, location and detailed description)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101™–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201™–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

Init.
/

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The Design Agent:
(Name, legal status, address, telephone and facsimile numbers, and website)

The Owner and Contractor agree as follows.

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(Paragraph Deleted)

The Owner and Contractor agree as follows.

TABLE OF ARTICLES

1 THE CONTRACT DOCUMENTS

2 THE WORK OF THIS CONTRACT

3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

4 CONTRACT SUM

5 PAYMENTS

6 DISPUTE RESOLUTION

7 TERMINATION OR SUSPENSION

8 MISCELLANEOUS PROVISIONS

9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General Conditions, Supplementary Conditions (if any), and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others. No part of the Work shall be performed by Subcontractors without the Owner's prior written consent.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall
be the later of: (i) the issuance of the Purchase Order by the Owner; and (ii) the
(Paragraph Deleted)

date set forth in a notice to proceed issued by the User Agency.

(Paragraphs Deleted)

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check one of the following boxes and complete the necessary information.)

[ ] Not later than ( ) calendar days from the date of commencement of the Work.

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[ ] By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. Subject to additions and deductions as provided in the Contract Documents, the Contract Sum shall be: $_____.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, are specified in the Bid Proposal Form and are included in the Contract Sum.
(Paragraph Deleted)

(Table Deleted)

§ 4.4 Unit prices, if
any, are specified in the Bid Proposal Form and include all costs, including without limitation, labor, materials, services, regulatory compliance, overhead, and profit necessary for the completion of the Work. Unit prices shall be used for both additions to, and deletions from the Work.

(Table Deleted)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

.1 In the event that there is one date for Substantial Completion of the Work, the Contractor shall pay the Owner the sum stipulated in this Section 4.5.1 as liquidated damages, and not as a penalty, for each calendar day of delay until the Work is substantially complete: $_____.

.2 In the event that the Project is scheduled to be completed in phases, and there is more than one date for Substantial Completion of the Work, the Contractor shall pay the Owner an aggregate amount equal to the sums stipulated in this Section 4.5.2 as liquidated damages, and not as a penalty, for each calendar day of delay until the Work for each phase is substantially complete:

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Phase	Liquidated Damages Sum

.3 The Owner and the Contractor have reasonably determined the sums set forth in this Section 4.5 to be a fair estimate of the Owner' actual damages which are difficult to ascertain in the event of delay.

§ 4.6 Other:
(Paragraph Deleted)

The Owner shall not be liable to the Contractor or any Subcontractor for claims or damages of any nature caused by or arising out of any delays. The sole remedy against the Owner for delays shall be the allowance of additional time for completion of the Work.

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Design Agent by the Contractor and Certificates for Payment issued by the Design Agent and approved by the Owner in writing, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

§ 5.1.3 The Owner shall make payment of the certified amount, less retainage, to the Contractor not later than the 30th working day following written approval by the Owner.

(Paragraph Deleted)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor and approved by the Design Agent and the Owner in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Design Agent and the Owner may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2007, General Conditions of the Contract for Construction as modified by the Owner, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

.1 That portion of the Contract Sum properly allocable to completed Work;

.2 That portion of the Contract Sum 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, suitably stored off the site at a location agreed upon in writing; and

.3 That portion of Construction Change Directives that the Design Agent determines, in the Design Agent's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Design Agent has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2007 as modified by the Owner;

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.3 For Work performed or defects discovered since the last payment application, any amount for which the Design Agent may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2007 as modified by the Owner; and

.4 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due: five (5%) percent.

(Paragraph Deleted)

§ 5.1.7.1.1 Deleted.

(Paragraph Deleted)

§ 5.1.7.2 Deleted.

(Paragraph Deleted)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Paragraph Deleted)

The amount of five (5%) percent shall be retained by the Owner through the date of Substantial Completion of the Work and then after the date of Substantial Completion of the Work in accordance with R.I. Gen. Laws § 37-12-10.1.

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2007 as modified by the Owner.

§ 5.1.9 Except with the Owner's prior written approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.1.10 Within 10 working days of receipt of any progress payment from the Owner, the Contractor must pay its Subcontractors the full amount included for each such Subcontractor within the Contractor's Application for Payment in accordance with the provisions of AIA A201 – 2007, General Conditions of the Contract for Construction as modified by the
Owner.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, less the amount withheld pursuant to § 5.1.7.3, shall be made by the Owner to the Contractor when:

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2007 as modified by the Owner, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Design Agent and approved in writing by the Owner;

.3 the Contractor has submitted its final release and final releases from all of its Subcontractors and suppliers in a form acceptable to the Owner; and

4 the Contractor has submitted to the Owner all close-out documents, including without limitation, all as-built plans, warranties, manuals, and other materials set forth in the Contract Documents.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 working days after the issuance of the Design Agent's final Certificate for Payment and written approval by the Owner.

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§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due in accordance with the provisions of "Prompt Payment by Department of Administration," R.I. Gen. Laws §§ 42-11.1-1 et seq.

§ 5.4 Owner's Rights

§ 5.4.1 The Owner shall have the right to deduct from any payments due to the Contractor the amount of any unpaid obligations owed to the State of Rhode Island by the Contractor, including without limitation, any and all unpaid taxes, the amount of any claim against the Contractor arising out of this Agreement, or any amount on account of any other reason permitted by applicable law.

§ 5.5 Pursuant to R.I. Gen. Laws § 44-1-6, the Owner shall withhold payment from the Contractor if the Contractor does not maintain a regular place of business in Rhode Island in the amount of three (3%) percent of the Contract Sum until 30 calendar days after Final Completion and compliance by the Contractor with the requirements of such section. The three (3%) percent withheld pursuant to R.I. Gen. Laws § 44-1-6 is not considered retainage which is *held pursuant to § 5.1.7.*

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

Claims shall be referred to the Initial Decision Maker for initial decision. The University of Rhode Island Vice President for Administration and Finance pursuant to the provisions of the "Delegation of Limited Procurement Authority," dated January 19, 2018 and the provisions of the "State Purchases Act," R.I. Gen. Laws § 37-2-1 et seq., will serve as the Initial Decision
Maker in accordance with the provisions of the State Purchases Act, State of Rhode Island Procurement Regulations, and this Section 6.1. An initial decision shall be required as a condition precedent to binding dispute resolution pursuant to Section 6.3 of any Claim arising prior to the date final payment is due.

§ 6.2 Mediation

For any Claim not resolved by the Initial Decision Maker procedures set forth in Section 6.1, and prior to the implementation of the binding dispute resolution procedures set forth in Section 6.3, the Contractor shall
have the
option to pursue mediation, exercisable by written notice to the Owner within 30 calendar days of an Initial Decision. In the event of the exercise of
such option by the Contractor, the Owner and the Contractor shall attempt to select a mediator, and in the event that the Owner and the Contractor cannot agree on a mediator, either party may apply in writing to the Presiding Justice of the Providence County Superior Court, with a copy to the other, with a request for the court to appoint a mediator, and the costs of the mediator shall be borne equally by both parties.

(Paragraph Deleted)

§ 6.3 Binding Dispute Resolution

For any Claim not resolved by the Initial Decision Maker procedures set forth in Section 6.1, or mediation at the option of the Contractor pursuant to Section 6.2, the method of binding dispute resolution shall be determined in accordance with the provisions of the "Public Works Arbitration Act," R.I. Gen. Laws §§ 37-16-1 et seq.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007, as modified by the Owner. The Contract may also be terminated by the Owner: (i) in the event of the unavailability of appropriated funds; (ii) in the absence of a determination of continued need; or (iii) as *otherwise provided in the State of Rhode Island Procurement Regulations General Conditions of Purchase or other applicable law.*

§ 7.1.1 Deleted.

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§ 7.2 The Work may be suspended by the Owner as provided in: (i) the State of Rhode Island General Conditions of Purchase Regulation or other applicable law; or (ii) Article 14 of AIA Document A201–2007 as modified by the Owner.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to: (i) the AIA Document A201 – 2007 or other Contract Document as modified by the Owner; and (ii) that provision in the AIA Document A201 – 2007 as modified by the Owner or other Contract Document as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Representatives for the Owner

§ 8.2.1 The Owner's representative:
(Name, title, address, email address, and other information for the preferred methods of contact)

The University of Rhode Island, Purchasing Department
10 Tootell Road
Kingston, Rhode Island 02881
Paul M. DePace, PE
401.874.2725 (telephone)

§ 8.2.2 The User Agency's representative:
(Name, title, address, email address, and other information for the preferred methods of contact)

The University of Rhode Island
Office of Capital Projects
60 Tootell Road – Sherman Building
Kingston, Rhode Island 02881
Paul M. DePace, PE
401.874.2725 (telephone)

§ 8.2.3 The Design Agent's representative:
(Name, title, address, email address, and other information for the preferred methods of contact)

§ 8.3 The Contractor's representative:
(Name, title, address, email address, and other information for the preferred methods of contact)

§ 8.4 Neither the Owner's nor the Contractor's representative nor the Design Agent's representative shall be changed without 10 working days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in the Solicitation and elsewhere in the Contract Documents.

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§ 8.5.2 The Contractor shall provide bonds as set forth in the Solicitation and elsewhere in the Contract Documents.

§ 8.6 Deleted.

§ 8.7 Other provisions:
§ 8.7.1 The Contractor represents and warrants to the Owner, in addition to any other representations and warranties of the Contractor elsewhere in the Contract Documents:

.1 The Contractor and its Subcontractors are each financially solvent, able to pay their debts as they mature, and possess sufficient working capital to perform their obligations under the Contract Documents.
.2 The Contractor and its Subcontractors are each able to furnish the tools, materials, equipment, and labor required to complete the Project as required under the Contract Documents.
.3 *The Contractor and each Subcontractor are authorized to do business in the State of Rhode Island and are properly licensed by all necessary governmental authorities having jurisdiction over them and over the Work and the Project.*
.4 The execution of this Agreement and its performance is within its duly authorized powers.
.5 The Contractor has visited the site of the Project, familiarized itself with the local and special conditions under which the Work is to be performed, and correlated its observations with the requirements of the Contract Documents.
.6 The Contractor possesses the requisite level of experience and expertise in the business administration, construction, and superintendence of projects of the size, complexity, and nature of the Project, and it will perform the Work with the care, skill, and diligence of a contractor possessing such experience and expertise.

§ 8.7.2 The representations and warranties of the Contractor in this Section 8.7 and elsewhere in the Contract Documents will survive the execution and delivery of this Agreement, any termination of this Agreement, and the final completion of the Work.

§ 8.7.3 Any Change Orders or other Modifications must be approved in writing by the Owner.

§ 8.7.4 The Owner is the State of Rhode Island, acting by and through its Department of Administration, Division of Purchases, and therefore, pursuant to the provisions of R.I. Gen. Laws § 34-28-31, mechanics liens may not be placed against the Project.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, as modified by the Owner

.2 **Deleted.**

.3 AIA Document A201™–2007, General Conditions of the Contract for Construction, as *modified by the* Owner.

.4 **Deleted.**

.5 Drawings

(Table Deleted)

The Drawings are included in the Solicitation and are available on the Division of Purchases website at www.purchasing.ri.gov.

.6 Specifications

(Table Deleted)

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The Specifications are included in the Solicitation and are available on the Division of Purchases website at www.purchasing.ri.gov.

.7 Addenda, if

(Table Deleted)

any, issued pursuant to the Solicitation form a part of the Solicitation and are available on the Division of Purchases website at www.purchasing.ri.gov.

.8

Supplementary and other Conditions of the Contract, including without limitation, the State of Rhode Island General Conditions of Purchase Regulation.

.9 Other documents listed below:

(Paragraph Deleted)

.1 The Solicitation, issued by the Owner, including without limitation, the Invitation to Bid, the Instructions to Bidders, the Specifications and Drawings, any Addenda, and the Bid Checklist.

(Paragraph Deleted)

.2 The Bid Proposal, including without limitation, the Bid Form and the Bidder Certification Cover Form.

(Table Deleted)

.3 The Purchase Order issued by the Owner.

§ 9.2 This Agreement and the Contract Documents are subject to, and governed by, the laws of the State of Rhode Island, including all procurement statutes and regulations (available at www.purchasing.ri.gov), and applicable federal and local law, all of which are fully incorporated into this Agreement by this reference.

(Table Deleted)

(Paragraph Deleted)

***§ 9.3** In the event of any conflict between or among the Contract Documents, or any Contract Documents and any provision of the State of Rhode Island Procurement Regulations and/or any other provision of the Rhode Island General Laws, the State of Rhode Island Procurement Regulations and the Rhode Island General Laws shall control.*

ARTICLE 10 BENEFITS OF AGREEMENT

§ 10.1 The User Agency is a disclosed third-party beneficiary of this Agreement and shall have all of the rights and benefits hereunder to which such a party is entitled. Nothing contained in this Agreement shall create a contractual relationship with, or a cause of action in favor of, any other third party against the Owner or the User Agency.

§ 10.2 This Agreement shall be binding on the Contractor and its successors and assigns; provided, however, that the Contractor may not assign its rights nor delegate its responsibilities under this Agreement without the Owner's prior written consent.

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This Agreement is entered into as of the day and year first written above; provided, however, that this Agreement shall not become a valid, binding, and enforceable contract unless and until the Owner shall have issued a Purchase Order.

THE STATE OF RHODE ISLAND, acting by and through THE UNIVERSITY OF RHODE ISLAND PURCHASING DEPARMENT and RHODE ISLAND COUNCIL ON POSTSECONDARY EDUCATION

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
Abigail RiderVice President, Division of Administration and Finance, University of Rhode Island	
(Printed name and title)	*(Printed name and title)*

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AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

THE OWNER:
(Name, legal status and address)
State of Rhode Island
One Capitol Hill, Second Floor
Providence, Rhode Island 02908-5855
(401) 574-8100 (telephone)
(401 574-8387 (facsimile)

(Paragraphs deleted)
acting by and though
(Paragraphs deleted)
The University of Rhode Island Purchasing Department
(Paragraphs deleted)
10 Tootell Road
Kingston, Rhode Island 02881
(401) 874-2171 (telephone)
(401) 874-2306 (facsimile)
http://web.uri.edu/purchasing/

(Paragraph deleted)
and
Rhode Island Council on Postsecondary Education
560 Jefferson Boulevard, Suite 100
Warwick, Rhode Island, 02886
(401) 456-6000 (telephone)
(401) 732-3541 (facsimile)
On behalf of the User Agency

THE USER AGENCY

(Paragraphs deleted)
(Name, address, telephone and facsimile numbers, and web address)

The University of Rhode Island
(Paragraphs deleted)
Office of Capital Projects
(Paragraphs deleted)
60 Tootell Road – Sherman Building
Kingston, Rhode Island 02881
(Paragraphs deleted)
(401) 874-2725 (telephone)

(Paragraphs deleted)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Init.
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THE Design Agent:
(Paragraphs deleted)
(Name, legal status, address, telephone and facsimile numbers, and web address)

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (the Agreement) and consist of the Agreement (and the documents enumerated therein), Conditions of the Contract (General Conditions, Supplementary Conditions, if any, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Design Agent.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Design Agent or the Design Agent's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Design Agent or the Design Agent's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Design Agent shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Design Agent's duties.

§ 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Design Agent and the Design Agent's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items and services necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; the Contractor shall perform all work reasonably inferable from the Contract Documents as being necessary to produce the indicated results.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

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§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.2.4 In the event of any conflicts or discrepancies among the Contract Documents, the provisions of the Contract Documents will be interpreted in the following order of priority:

.1 Modifications (if any).
.2 The Purchase Order.
.3 The Agreement.
.4 The Solicitation, including any Addenda, and the Specifications and Drawings
.5 The Supplementary Conditions (if any).
.6 The General Conditions.
.7 The Bid Proposal.

§ 1.2.5 In the event of any conflicts or discrepancies between the Contract Documents and the State of Rhode Island Procurement Regulations or any provision of the Rhode Island General Laws, the State of Rhode Island Procurement Regulations and the Rhode Island General Laws will control.

§ 1.2.6 In the event of any inconsistency between the Drawings and Specifications, the better quality or greater quantity of Work shall be provided.

§ 1.2.7 The Owner will be the final decision maker for any and all interpretations.

§ 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Owner and the User Agency shall have a perpetual license to utilize the Drawings, Specifications, and other documents, including electronic or digital documents, prepared by the Design Agent and the Design Agent's consultants, for the execution of the Project and shall have and retain all rights to use them and reproduce them for the production and maintenance of the Work described therein. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Design Agent's or Design Agent's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Design Agent and the Design Agent's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express

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authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Design Agent does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 Deleted.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Deleted.

§ 2.2.2 The Contractor shall secure and pay for permits and fees, necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 If required for the Work in the discretion of the Owner, the Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of any information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Deleted.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a 10 working-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Design Agent's additional services made necessary by such default, neglect, or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Design Agent. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Design Agent, or by tests, inspections, or approvals required or performed by persons or entities other than the Contractor.

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§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Owner and the Design Agent any errors, inconsistencies, or omissions discovered by or made known to the Contractor or additional Drawings, Specifications, or instructions required to define the Work in greater detail to permit the proper progress of the Work as a request for information in such form as the Design Agent may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Design Agent and the Owner any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Design Agent or Owner may require.

§ 3.2.3.1 Omissions from the Drawings and Specifications of items obviously needed to perform the Work properly, such as attachments, bolts, hangers, and other fastening devices, shall not relieve the Contractor from the obligation to furnish and install such items.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Design Agent issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2, 3.2.3, or 3.2.3.1, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Design Agent for damages resulting from errors, inconsistencies, or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.2.4.1 The Contractor shall not make any changes without prior written authorization from the Design Agent and the Owner.

§ 3.2.5 The Owner is entitled to reimbursement from the Contractor for amounts paid to the Design Agent for evaluating and responding to the Contractor's requests for information that are not prepared in accordance with the Contract Documents or where the requested information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 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. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Design Agent and shall not proceed with that portion of the Work without further written instructions from the Design Agent. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without

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acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. Whenever the Contractor has an obligation to provide labor and materials under the Agreement, the Contractor, at a minimum, shall provide the labor for, and furnish and install and place in operation all items, including without limitation, all proper connections.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Design Agent in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Design Agent and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 WARRANTY

The Contractor warrants to the Owner and the Design Agent that materials and equipment furnished under the Contract will be of first quality, prime manufacture, and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements, including substitutions not properly authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Design Agent, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 TAXES

§ 3.6.1 The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.6.2 The State of Rhode Island is exempt from payment of any federal or state excise, transportation, or sales tax. The Rhode Island Department of Administration Division of Purchases will furnish Exemption Certificates upon request.

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections required by the Rhode Island State Building Code necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded. The Contractor shall be responsible for obtaining the Certificate of Occupancy from the appropriate governmental authorities.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

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§ 3.7.3 The Contractor shall promptly notify the Design Agent and the Owner if the Contractor becomes aware that the Contract Documents are not in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Design Agent before conditions are disturbed and in no event later than 21 working days after first observance of the conditions. The Design Agent will promptly investigate such conditions and, if the Design Agent determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Design Agent determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Design Agent shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Design Agent's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Design Agent. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum 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, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- **.1** Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- **.2** 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 Sum but not in the allowances; and
- **.3** Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Design Agent the name and qualifications of a proposed superintendent. The Design Agent may reply within 14 working days to the Contractor in writing stating (1) whether the Owner or the Design Agent has reasonable objection to the proposed superintendent or (2) that the Design Agent requires additional time to review. Failure of the Design Agent to reply within the 14 working-day period shall constitute notice of no reasonable objection.

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§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Design Agent has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, within 20 working days after the issuance of the Purchase Order, shall prepare and submit for the Owner's and Design Agent's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals, not less frequently than monthly, as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work. The Contractor shall certify on the initial schedule and all revised schedules that they comply with the Contract Documents.

§ 3.10.2 The Contractor shall prepare a submittal schedule, within 20 working days after the issuance of the Purchase Order, and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Owner's and the Design Agent's approval. The Owner's and the Design Agent's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Owner and the Design Agent reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Design Agent.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Design Agent and shall be delivered to the Design Agent for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 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.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Design Agent is subject to the limitations of Section 4.2.7. Informational submittals upon which the Design Agent is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Design Agent without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Design Agent Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Owner and the Design Agent or, in the absence of an approved submittal schedule, 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.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Design Agent that the Contractor has (1) reviewed and approved them, (2) determined and verified

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materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 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 Design Agent.

§ 3.12.8 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 Design Agent's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Design Agent in writing of such deviation at the time of submittal and (1) the Design Agent has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued 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 Design Agent's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Design Agent on previous submittals. In the absence of such written notice, the Design Agent's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Design Agent will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Design Agent. The Owner and the Design Agent shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Design Agent have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Design Agent will review, approve, or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.12.11 The Owner shall be entitled to reimbursement from the Contractor for amounts paid to the Design Agent for evaluation of resubmittals.

§ 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, and any restrictions imposed by the User Agency or the Owner, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably

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withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Design Agent access to the Work in preparation and progress wherever located.

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Design Agent harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Design Agent. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Design Agent and the Owner.

§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, the State of Rhode Island, and each executive, legislative, judicial, regulatory, and administrative body of the state, and any political subdivision thereof, including without limitation, any department, division, agency, commission, board, office, bureau, committee, authority, educational institution, school, water, and fire district, and other agency of Rhode Island state, municipal, and local government that exercises governmental functions, any other governmental authority, and any quasi-public corporation and/or body corporate and politic, including without limitation, the User Agency, their elected and appointed officials, members, employees, and agents, the Design Agent, the Design Agent's Consultants, Subconsultants, and Subcontractors, and agents and employees and any of them from and against any and all claims, demands, damages, liabilities, judgments, losses and expenses, including but not limited to attorneys' fees and costs of mediation, arbitration, and/or litigation, arising out of or resulting from performance of the Work, and/or the obligations of the under the Contract Documents, but only to the extent caused by the acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not any such claim, demand, damage, liability, judgment, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 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 3.18.1 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.

§ 3.18.3 Without limiting the generality of the foregoing, the defense and indemnity set forth in this Section 3.18 includes, without limitation, all liabilities, damages, losses, claims, demands, and actions on account of bodily injury, death, or property loss to a person or entity indemnified hereunder or any other persons or entities, whether based upon statutory (including, without limitation, workers compensation), contractual, tort, or other liability of any person or entity so indemnified.

§ 3.18.4 The remedies set forth herein shall not deprive any person indemnified hereunder of any other indemnity action, right, or remedy otherwise available to any such person or entity at common law or otherwise.

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§ 3.18.5 The Contractor will include the indemnity set forth in this Section 3.18, without modification, in each Subcontract with any Subcontractor.

§ 3.18.6 Notwithstanding any other language in the Contract Documents to the contrary, the indemnity hereunder shall survive Final Completion of the Work and final payment under the Agreement and shall survive any termination of the Agreement.

ARTICLE 4 DESIGN AGENT

§ 4.1 GENERAL

§ 4.1.1 The Design Agent is the person lawfully licensed to practice his or her profession in the State of Rhode Island or an entity lawfully practicing its profession in the State of Rhode Island and identified in the Contract Documents as the Design Agent. The term "Design Agent" means the Design Agent or the Design Agent's authorized representative.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Design Agent as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Design Agent. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Design Agent is terminated, the Owner shall employ a successor Design Agent as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Design Agent.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Owner with assistance from the Design Agent will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction through the date the Design Agent issues the final Certificate for Payment and continuing until the expiration of the one-year period following Final Completion. The Design Agent will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Design Agent will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Design Agent will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Design Agent will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.2.1 The Owner is entitled to reimbursement from the Contractor for amounts paid to the Design Agent for site visits made necessary by the fault of the Contractor or by defects and deficiencies in the Work.

§ 4.2.3 On the basis of the site visits, the Design Agent will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Design Agent will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Design Agent will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Design Agent about matters arising out of or relating to the Contract. Communications by and with the Design Agent's consultants shall be through the Design Agent. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Design Agent's evaluations of the Contractor's Applications for Payment, the Design Agent will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

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§ 4.2.6 The Design Agent has authority to reject Work that does not conform to the Contract Documents. Whenever the Design Agent considers it necessary or advisable, the Design Agent will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Design Agent nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Design Agent to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Design Agent will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Design Agent's action will be taken in accordance with the submittal schedule approved by the Design Agent or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Design Agent's professional judgment to permit adequate review. Review of such submittals 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, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Design Agent's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Design Agent's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Design Agent, of any construction means, methods, techniques, sequences or procedures. The Design Agent's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Design Agent will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Design Agent will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Design Agent will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Design Agent agree, the Design Agent will provide one or more project representatives to assist in carrying out the Design Agent's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Design Agent will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Design Agent's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Design Agent will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Design Agent will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Design Agent's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents and approved by the Owner.

§ 4.2.14 The Design Agent will review and respond to requests for information about the Contract Documents. The Design Agent's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Design Agent will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

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ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner and the Design Agent the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each portion of the Work. The Owner may reply within 14 working days to the Contractor in writing stating (1) whether the Owner or the Design Agent has reasonable objection to any such proposed person or entity or (2) that the Owner or Design Agent requires additional time for review.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Design Agent has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Design Agent has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Design Agent has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Design Agent makes reasonable objection to such substitution.

§ 5.2.5 MANUFACTURERS AND FABRICATORS

§ 5.2.5.1 Not later than 10 working days after the date of commencement of the Work, the Contractor shall furnish in writing to the Owner and the Design Agent the names of the manufacturers or fabricators for certain products, equipment, and systems identified in the Specifications and, where applicable, the name of the installing Subcontractor. The Owner may reply within 14 working days to the Contractor in writing, stating: (i) whether the Owner or the Design Agent has reasonable objection to any such proposed person manufacturer or fabricator; or (ii) whether the Owner or Design Agent requires additional time to review.

§ 5.2.5.2 The Contractor shall not contract with a proposed manufacturer, fabricator, or Subcontractor to whom the Owner or Design Agent has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.5.3 If the Owner or Design Agent has an objection to a manufacturer, fabricator, or Subcontractor proposed by the Contractor, the Contractor shall propose another to whom the Owner or Design Agent has no objection.

§ 5.2.5.4 The Contractor shall not substitute a manufacturer, fabricator, or Subcontractor previously selected if the Owner or Design Agent makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the

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Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Design Agent. Upon the request of the User Agency and/or the Owner, the Contractor shall provide the User Agency and/or the Owner with copies of each subcontract agreement. Each subcontract agreement shall preserve and protect the rights of the Owner and Design Agent under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

(Paragraph deleted)

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 working days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

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§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Design Agent apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement between the Owner and the Contractor; a Construction Change Directive requires agreement by the Owner and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Design Agent alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Contractor and signed by the Owner, Contractor and Design Agent stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.2.2 Subsequent to the approval of a Change Order as provided in § 7.1.2, whether such Change Order changes the Contract Sum or Contract Time or both, no additional claim related to such Change Order will be considered by the Owner. Any change, once incorporated into a Change Order, is all inclusive, and includes all factors that could have been considered at the time of the Change Order such as Project impact or schedule "ripple" effect.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Design Agent and signed by the Owner, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

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§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

.2 Unit prices stated in the Contract Documents or subsequently agreed upon;

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in Section 7.3.7.

§ 7.3.4 Deleted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Design Agent of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Design Agent shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in Section 7.3.1. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Design Agent may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;

.2 Costs of materials, supplies and equipment, including cost of delivery;

.3 Rental costs of machinery and equipment, exclusive of hand tools; or

.4 Costs of premiums for all bonds and insurance and permit fees related to the Work..

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Design Agent. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Design Agent will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Design Agent determines, in the Design Agent's professional judgment, to be reasonably justified. The Design Agent's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Design Agent concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Contractor will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.3.11 The combined overhead and profit included in the total cost to the Owner for a change in the Work shall be based on the following schedule:

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.1 For the Contractor, for work performed by the Contractor's own forces, an amount not to exceed ten (10%) percent of the cost.
.2 For the Contractor, for work performed by the Contractor's Subcontractors, an amount not to exceed five (5%) of the amount due to the Subcontractors.
.3 For each Subcontractor, for work performed by the Subcontractor's own forces, an amount not to exceed ten (10%) percent of the cost.
.4 Where the Work represents both additions and deletions and results in a net increase, the allowable overhead and profit shall be in accordance with this Section 7.3.11, but in no event shall the amount exceed fifteen (15%) percent of the net increase in the cost of the Work.

§ 7.3.12 All proposals with an aggregate cost equal to or in excess of $500.00 shall be accompanied by a detailed itemization of costs, including labor, materials (quantities and prices), and Subcontracts, in a form acceptable to the Owner. In no event will a change order request reflecting an aggregate cost equal to or in excess of $500.00 be approved without such itemization.

§ 7.4 MINOR CHANGES IN THE WORK

The Design Agent with the prior written approval of the Owner has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be affected by written order signed by the Design Agent and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

The date of commencement of the Work is the date established in Section 3.1 of the Agreement..

(Paragraph deleted)
§ 8.1.3 The date of Substantial Completion is the date certified by the Design Agent in accordance with Section 9.8.

§ 8.1.4 Deleted.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Design Agent, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control, then the Contract Time shall be extended by Change Order for such reasonable time as the Owner may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

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ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

Within 20 working days of the issuance of the Purchase Order, and promptly if revision is necessary from time to time as a result of a Change Order, the Contractor shall submit to the Owner, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Design Agent and the Owner may require. This schedule, if and when approved by the Design Agent and the Owner in writing, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least 10 working days before the date established for each progress payment, the Contractor shall submit to the Design Agent and the Owner for approval an itemized Application for Payment prepared in accordance with the schedule of values for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or the Design Agent may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 All Applications for Payment for Change Orders must be accompanied by a Notice of Change in Purchase Order issued by the Owner, and if directed by the Owner, by the User Agency.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.1.3 The form of Application for Payment shall be AIA Document G702, Application and Certification for Payment, supported by AIA Document G702A, Continuation Sheet.

§ 9.3.1.4 Until Substantial Completion, the Owner shall pay ninety-five (95%) percent of the amount due the Contract on account of progress payments.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants 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 Certificates for Payment have been previously issued and payments 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. The Contractor shall immediately satisfy any lien, claim, or encumbrance against the site where the Project is located and indemnify the Owner from and against all resulting costs and expenses, including without limitation, attorneys' fees.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Design Agent will, within 7 working days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Design Agent determines is properly due, or notify the Contractor and Owner in writing of the Design Agent's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

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§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Design Agent to the Owner, based on the Design Agent's evaluation of the Work and the data comprising the Application for Payment, that, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Design Agent. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Design Agent has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.4.3 The Contractor must submit all product literature, material and color samples with each Application for Payment, or as otherwise required by the Owner.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Design Agent will withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Design Agent's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Design Agent is unable to certify payment in the amount of the Application, the Design Agent will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Design Agent cannot agree on a revised amount, the Design Agent will promptly issue a Certificate for Payment for the amount for which the Design Agent is able to make such representations to the Owner. The Design Agent may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Design Agent's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of:

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- **.3** failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- **.4** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- **.5** damage to the Owner or a separate contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- **.7** failure to carry out the Work in accordance with the Contract Documents; or
- **.8** any other failure to comply with the obligations of the Contractor under the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 The Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Design Agent and the Design Agent will reflect such payment on the next Certificate for Payment.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Design Agent has issued a Certificate for Payment and the Owner has approved the Certificate for Payment in writing, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Design Agent.

§ 9.6.2 The Contractor shall pay each Subcontractor no later than 10 working days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

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§ 9.6.3 The Design Agent will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Design Agent and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within 7 working days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. The Owner shall have the right to withhold payment(s) to the Contractor in the event that any Subcontractors or material and equipment suppliers have not been properly paid. Neither the Owner nor Design Agent shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 FAILURE OF PAYMENT

If the Design Agent does not issue a Certificate for Payment, through no fault of the Contractor, within 7 working days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within 7 working days after the date established in the Contract Documents the amount certified by the Design Agent or awarded by binding dispute resolution, then the Contractor may, upon 7 additional working days' written notice to the Owner and Design Agent, make a claim for payment as provided under the provisions of applicable law.

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§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Design Agent a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Design Agent will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Design Agent's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Design Agent. In such case, the Contractor shall then submit a request for another inspection by the Design Agent to determine Substantial Completion. The Design Agent will perform no more than 2 inspections to determine whether the Work or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. The Owner is entitled to reimbursement from the Contractor for amounts paid to the Design Agent for any additional inspections.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Design Agent will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish

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responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment less the amount of five (5%) percent to be retained by the Owner in accordance with R.I. Gen. Laws § 37-12-10.1. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Design Agent as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Design Agent.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Design Agent 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.

§ 9.9.3 Unless otherwise agreed upon, 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.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Design Agent will promptly make such inspection and, when the Design Agent finds the Work acceptable under the Contract Documents and the Contract fully performed, the Design Agent will promptly issue a final Certificate for Payment stating that to the best of the Design Agent's knowledge, information and belief, and on the basis of the Design Agent's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Design Agent's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled. The Design Agent will perform no more than 2 inspections to determine whether the Work or a designated portion thereof has attained Final Completion in accordance with the Contract Documents. The Owner is entitled to reimbursement from the Contractor for amounts paid to the Design Agent for any additional inspections.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Design Agent (1) an affidavit 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 30 working 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, (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, and (6) all other close-out documents required by the Owner, including without limitation, all as-built plans, warranties, manuals, and other materials set forth in the Contract Documents. 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

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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.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Design Agent so confirms, the Owner shall, upon application by the Contractor and certification by the Design Agent, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Design Agent prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from:

- **.1** liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents;
- **.3** terms of special warranties required by the Contract Documents; or
- **.4** claims permitted under the State of Rhode Island General Conditions of Purchase Regulation.

§ 9.10.5 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.

§ 9.11 The Contractor and the Contractor's surety shall be liable for and shall pay the Owner as liquidated damages the sums specified in the Solicitation and Bid Form, or if completed, the amount set forth in Section 3.4 of the Agreement.

§ 9.12 Warranties required by the Contract Documents shall commence on the date of Final Completion of the Work.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

- **.1** employees on the Work and other persons who may be affected thereby;
- **.2** the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- **.3** other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel and in consultation with the appropriate governmental authorities.

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§ 10.2.4.1 When use or storage of explosives, or other hazardous materials, substances or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall give the User Agency and the Owner reasonable advance notice.

§ 10.2.4.2 If the Contract Documents require the Contractor to handle materials or substances that under certain circumstances may be designated as hazardous, the Contractor shall handle such materials in an appropriate manner.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Design Agent or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Design Agent.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Design Agent in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Design Agent the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Design Agent will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Design Agent has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Design Agent have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the extent permitted by the provisions of R.I. Gen. Laws §§ 9-31-1 et seq., the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Design Agent, Design Agent's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or

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destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as is specified in the Solicitation and as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- **.1** Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- **.2** Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- **.3** Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- **.4** Claims for damages insured by usual personal injury liability coverage;
- **.5** Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- **.6** Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- **.7** Claims for bodily injury or property damage arising out of completed operations; and
- **.8** Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.1.2 The Contractor's liability insurance shall include all major coverages and be on a comprehensive general liability basis.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance as specified in the Solicitation and as otherwise acceptable to the Owner shall be filed with the Owner and the User Agency prior to commencement of the Work and thereafter upon renewal or replacement

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of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 working days' prior written notice has been given to the Owner and the User Agency. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the User Agency, and their elected and appointed officials, members, employees, and agents, the Design Agent and the Design Agent's consultants as additional insureds for claims caused in whole or in part by the Contractor's acts or omissions during the Contractor's operations; and (2) the Owner, the User Agency, and their elected and appointed officials, members, employees, and agents, as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.1.5 The Contractor shall be responsible for the prompt payment to the Owner of any deductible amounts under any insurance policies required under the Contract Documents for claims made pursuant to such policies.

§ 11.2 OWNER'S LIABILITY INSURANCE.

§ 11.2.1 The Contractor shall furnish the Owner and the User Agency, through the Design Agent, an insurance certificate providing Owner's Protective Liability extended to include the interests of the Design Agent, and to protect the Owner, User Agency, and Design Agent from any liability which might be incurred against any of them as a result of any operation of the Contractor or Subcontractors or their employees or anyone for whom either the Contractor or Subcontractors are responsible. Such insurance shall be written for the same limits as the Contractor's commercial general liability insurance and shall include the same coverage.

§ 11.2.2 If the Owner engages separate contractors to perform work for, or in or around, the Project, it shall require in its contracts with each separate contractor that Contractor and its officers, directors, partners, members, employees, and agents shall be: (i) named as additional insureds on a primary, noncontributory basis to any commercial general liability, pollution liability, and excess liability insurance policies; and (ii) provided a waiver of subrogation on all workers compensation and professional liability insurance policies.

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 The Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the state of Rhode Island, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the User Agency, the Contractor, Subcontractors and Sub-subcontractors in the Project. If the Owner and/or the User Agency incur any damages by failure of the Contractor to maintain such insurance, then the Contractor shall bear all reasonable cost resulting from such failure.

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

§ 11.3.1.2 Deleted.

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§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 Deleted.

§ 11.3.3 Deleted.

§ 11.3.4 Deleted.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Contractor shall file with the Owner a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 working days' prior written notice has been given to the Owner and the User Agency.

§ 11.3.7 WAIVERS OF SUBROGATION

The Contractor waives all rights against the Owner and the User Agency and any of their subcontractors, sub-subcontractors, agents and employees, and (2) the Design Agent, Design Agent's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Design Agent, Design Agent's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under this property insurance shall be adjusted by the Contractor as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. 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.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Contractor's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Contractor shall deposit in a separate account proceeds so received, which the Contractor shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for

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convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Contractor as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within 5 working days after occurrence of loss to the Contractor's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in the Solicitation.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Design Agent's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Design Agent, be uncovered for the Design Agent's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Design Agent has not specifically requested to examine prior to its being covered, the Design Agent may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Design Agent or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Design Agent's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Final Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. If the Contractor fails to correct nonconforming Work within a reasonable time after receipt of notice from the Owner or Design Agent, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.2.4 Upon request by the Owner and prior to the expiration of one year from the date of Final Completion, the Design Agent will conduct and the Contractor shall attend 2 meetings with the Owner to review the facility operations and performance.

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§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 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.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that 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 Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the State of Rhode Island.

§ 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to any executive, legislative, judicial, regulatory, or administrative body of the state, or any political subdivision thereof, including without limitation, any department, division, agency, commission, board, office, bureau, authority, school, water, or fire district, or other agency of Rhode Island state or local government that exercises governmental functions, any other governmental authority, and any quasi-public corporation and/or body corporate and politic. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice, or when received, if manually delivered or transmitted by electronic mail or facsimile to the last such address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Design Agent or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an

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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. The Contractor shall give the Design Agent timely notice of when and where tests and inspections are to be made so that the Design Agent may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Design Agent, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Design Agent will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Design Agent of when and where tests and inspections are to be made so that the Design Agent may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal 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 Design Agent's services and expenses shall be at the Contractor's expense.

§ 13.5.4 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 Design Agent.

§ 13.5.5 If the Design Agent is to observe tests, inspections or approvals required by the Contract Documents, the Design Agent will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 INTEREST

No interest shall be due or payable on account of any payment due or unpaid under the Contract Documents except in accordance with the provisions of "Prompt Payment by Department of Administration," R.I. Gen. Laws §§ 42-11.1-1 et seq.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 calendar days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- **.1** Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- **.2** An act of government, such as a declaration of national emergency that requires all Work to be stopped; or
- **.3** Because the Design Agent has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1

§ 14.1.2 Deleted.

§ 14.1.3 If one of the reasons described in Section 14.1.1 exists, the Contractor may, upon 7 working days' written notice to the Owner and Design Agent, terminate the Contract and recover from the Owner payment for Work executed.

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§ 14.1.4 If the Work is stopped for a period of 60 calendar days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon 7 additional days' written notice to the Owner and the Design Agent, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor:

.1 refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 disregards or fails to comply with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority;

.4 otherwise is guilty of breach of a provision of the Contract Documents; or

.5 cancels or the Contractor or the Owner receives notice of cancellation or nonrenewal of any insurance required under the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, 7 working days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Design Agent's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The

(Paragraphs deleted)

Owner shall not be liable to the Contractor or any Subcontractor for claims or damages of any nature caused by or arising out of any delays. The sole remedy against the Owner for delays shall be the allowance of additional time for completion of the Work in accordance with the provisions of Section 8.3.1.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall:

.1 cease operations as directed by the Owner in the notice;

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.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party. Such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly serviced if delivered in person, by mail, by courier, or by electronic transmission. Claims by either party must be initiated within 21 working days after occurrence of the event giving rise to such Claim or within 21 working days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Design Agent will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.5.3 Claims for increase in the Contract Time shall set forth in detail the circumstances that form the basis for the Claim, the date upon which each cause of delay began to affect the progress of the Work, the date upon which each cause of delay ceased to affect the progress of the Work and the number of days' increase in the Contract Time claimed as a consequence of each such cause of delay. The Contractor shall provide such supporting documentation as the Owner may require including, where appropriate, a revised construction schedule indicating all the activities affected by the circumstances forming the basis of the Claim.

§ 15.1.5.4 The Contractor shall not be entitled to a separate increase in the Contract Time for each one of the number of causes of delay which may have concurrent or interrelated effects on the progress of the Work, or for concurrent delays due to the fault of the Contractor.

§ 15.1.6

(Paragraphs deleted)

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Deleted.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims shall be referred to the Initial Decision Maker for initial decision. The University of Rhode Island Vice President for Administration and Finance appointed pursuant to the provisions of the "Delegation of Limited Procurement Authority," dated January 19, 2018, will serve as the Initial Decision Maker in accordance with the provisions of the "Delegations of Limited Procurement Authority," State Purchases Act, State of Rhode Island Procurement Regulations, and this Section 15.2.1. An initial decision shall be required as a condition precedent to binding dispute resolution pursuant to Section 15.3.1 of any Claim arising prior to the date final payment is due.

§ 15.2.2 Deleted.

§ 15.2.3 Deleted.

§ 15.2.4 Deleted.

§ 15.2.5 Deleted.

§ 15.2.6 Deleted.

§ 15.2.6.1 Deleted.

§ 15.2.7 Deleted.

§ 15.2.8 Deleted.

§ 15.3 MEDIATION

§ 15.3.1 For any Claim not resolved by the Initial Decision Maker procedures set forth in Section 15.2.1, and prior to the implementation of the binding dispute resolution procedures set forth in Section 15.4.1, the Contractor or the Design Agent shall have the option to pursue mediation, exercisable by written notice to the Owner within 30 calendar days of an Initial Decision. In the event of the exercise of such option by the Contractor or the Design Agent, the Owner and the Contractor or the Design Agent shall attempt to select a mediator, and in the event that the Owner and the Contractor or the Design Agent cannot agree on a mediator, either party may apply in writing to the Presiding Justice of the Providence County Superior Court, with a copy to the other, with a request for the court to appoint a mediator, and the costs of the mediator shall be borne equally by both parties.

§ 15.3.2 Deleted.

§ 15.3.3 Deleted.

§ 15.4 BINDING DISPUTE RESOLUTION

§ 15.4.1 For any Claim not resolved by the Initial Decision Maker procedures set forth in Section 15.2.1, or mediation at the option of the Contractor pursuant to Section 15.3.1, the method of binding dispute resolution shall be determined in accordance with the provisions of the "Public Works Arbitration Act," R.I. Gen. Laws §§ 37-16-1 et seq.

(Paragraphs deleted)

§ 15.4.4 Deleted.

§ 15.4.4.1 Deleted.

§ 15.4.4.2 Deleted.

§ 15.4.4.3 Deleted.

§ 16 COMPLIANCE WITH APPLICABLE LAW

The Contractor and its Subcontractors shall comply with all applicable federal, state, and local laws.

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DOCUMENT 00 7200 – URI STANDARD DOCUMENTS

PART 1 – GENERAL

1.1 The latest version of the following documents, available on the URI Capital Projects website, http://web.uri.edu/capitalprojects/manual-for-construction-project-safety-procedures/, will apply to all of the work of this project and are hereby incorporated by reference:

URI Sexual Harassment Policy
Manual for Construction Project Safety Procedures
Access Box Keys
Residential Sprinkler Protection
Hot Work Permitting
Fire Protection System Impairment
Fire Watches
URI Water System Regulations/Policies

END OF DOCUMENT

WILSON HGA

UNIVERSITY OF RHODE ISLAND
Kingston Campus

Rodent Behavior Analysis Lab Renovation

4437-001-00

THE UNIVERSITY OF RHODE ISLAND

VOLUME ONE

05. 24. 2019

ARCHITECT:
Wilson HGA
374 Congress Street, Suite 400
Boston, MA 02210
p 617.338.5990

WILSON HGA

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SECTION 01 1000 - SUMMARY

PART 1 - GENERAL

1.01 PROJECT

A. See Bid Form for official Project Information.

B. The Project consists of the construction of the following types of work:
   1. Renovation of existing Vivarium space into a Rodent Behavioral Analysis Lab - Modifying the layout, architectural finishes and building systems within the defined scope of work.
   2. Asbestos Not Present – New Construction – N/A

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 5200 - Agreement.

1.03 DESCRIPTION OF WORK

A. Scope of demolition and removal work is shown on drawings plus as specified in Section 02 4120.

B. Scope of alterations work is shown on drawings and/or as specified herein.

C. Site modifications: N/A

D. Architectural modifications: Scope of alterations work is shown on drawings and/or as specified herein.

E. M/E/P/FP Modifications: Scope of alterations work is shown on drawings and/or as specified herein.

1.04 OWNER OCCUPANCY/SCHEDULE

A. Owner intends to continuously occupy the facility. Work areas will be made available as mutually agreed to during project scheduling. See Attachment A at the end of this section for availability and restrictions on access to spaces.

B. Work to begin within 7 days of receipt of Purchase Order unless otherwise defined in Attachment A at the end of this section.

D. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

1.05 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings. Coordinate with Attachment A following this section. Include all costs of this coordination, including all premium time wages that may be required to meet these requirements, in the Base bid.

B. Arrange use of site and premises to allow:
   1. Adjacent projects to progress as planned for the Owner.
   2. Use of street and adjacent properties by the Public.
   3. Continued operation of the facility in accordance with Attachment A.

C. Provide access to and from site as required by law and by Owner:
   1. Maintain appropriate egress for workforce and users of the facility.
   2. Do not obstruct roadways, sidewalks, or other public ways without permit. Provide necessary signage and barriers to direct pedestrians around work areas.

D. Time Restrictions:
   1. Limit conduct of especially noisy work when events are in process.
   2. Night and weekend work is not allowed unless previously authorized.
   3. Refer to Attachment A following this section for building specific scheduling restrictions

E. Utility Outages and Shutdown:
   1. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days notice to Owner and authorities having jurisdiction.
   2. Prevent accidental disruption of utility services to other facilities.
   3. Contractor to provide written notification on Fire Sprinkler and Alarm System Impairment Notification Form following this section as Attachment B.

1.06 ITEMS TO BE SALVAGED

A. *Refer to Construction Documents dated 24 May 2019*

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION – NOT USED

END OF MAIN SECTION – See Attachments A, B, following.

Attachment A – 01 1010

NOTE:
Unrestricted = Contractor to plan and schedule work and submit for review by Owner
Limited Restriction = Contractor to meet with Owner and coordinate access to these areas
Restricted = Contractor to perform work on dates provided in this document

Schedule:

- **Start of Construction** **February 03, 2020**
- **Substantial Completion** **May 14, 2020**
- **Final Completion** **May 30, 2020**

Work Times in building to be coordinated with URI Project Manager and Building Manager prior to commencement of work.

THE UNIVERSITY OF RHODE ISLAND
DIVISION OF ADMINISTRATION AND FINANCE

THINK BIG WE DO

OFFICE OF CAPITAL PROJECTS
Sherman Building, 523 Plains Road, Kingston, RI 02881 USA p: 401.874.2725 f: 401.874.5599

Fire Sprinkler and Alarm System Impairment Notification Form

To: URI Office of Capital Projects

Date _____

Start of Planned Impairment: _____
End of Planned Impairment: _____
Building occupied during impairment: Yes:_____ No:_____
Any hot work to be performed: Yes:_____ No:_____

Description of Work to be performed: _____

URI Manager of Alarms, Mike Suriani, can also be directly contacted at 401-639-2268.

Contractor supervisory personnel shall remain in the building for the entire duration of the impairment.

Name:_____

Company:_____

Phone:_____

The University of Rhode Island is an equal opportunity employer committed to the principles of affirmative action.

SECTION 01 2000 - PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Allowances.

B. Testing and inspection allowances.

C. Schedule of values.

D. Applications for payment.

E. Warranty inspection retainage.

F. Sales tax exemption.

G. Change procedures.

H. Defect assessment.

I. Unit prices.

J. Alternates.

1.02 ALLOWANCES

A. See General Conditions Article 3.8 for Allowance provisions.

B. Design Agent Responsibility:
   1. Consult with Contractor for consideration and selection of products, suppliers, and Installers.
   2. Select products in consultation with Owner and transmit decision to Contractor.
   3. Prepare Change Order to adjust final cost.

C. Contractor Responsibility:
   1. Assist Design Agent or its Consultants in selection of products, suppliers and installers.
   2. Obtain proposals from suppliers and installers, and offer recommendations.
   3. On notification on selection by Design Agent, execute purchase agreement with designated supplier and installer.
   4. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
   5. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.

D. Schedule of Allowances: See Attachment A.

1.03 TESTING AND INSPECTION ALLOWANCE

A. All costs of regularly scheduled testing are included in the Base Bid. See Attachment A for allowance to cover costs of additional testing to be provided when directed by the Owner.

B. See Section 01 4000 and its attachment for testing requirements.

1.04 SCHEDULE OF VALUES

A. Submit Schedule of Values in duplicate, one copyrighted original and one copy.

B. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the major specification Section. Identify site mobilization, bonds, insurance and closeout.

C. Include in each line item, the amount of Allowances specified in this Section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.

D. Include separately for each line item, a direct proportional amount of Contractor's overhead and profit.

E. Revise schedule to list approved Change Orders, with each Application for Payment.

1.05 APPLICATIONS FOR PAYMENT

A. Submit each application on an original AIA Form G702 - Application and Certificate for Payment and AIA G703 - Continuation Sheet, accompanied by three copies.
   1. Prepare a draft version “pencil copy” of each application and distribute via email 5 days prior to due date for review by Design Agent and Owner’s representative.
   2. After making agreed revisions, individually sign and notarize and emboss with notary's official seal, the original and each of the three copies. Deliver to Owner’s representative for further processing and distribution.
   3. Applications not including original copyrighted AIA G702, and G703 Forms, will be rejected, and returned for re-submittal.
   4. Applications not properly signed and notarized will be rejected, and returned for re-submittal.
   5. Applications submitted without the following items described in this section and its attachments will be returned for resubmittal.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Provide one hard copy and one copy in disc form of the updated construction schedule with each Application for Payment submission, prepared per Section 01 3300.

1. Provide a statement signed by the Contractor's firm principal certifying that there are no unidentified outstanding claims for delay.

D. Include with each monthly Application for Payment, following the first application, Certified Monthly Payroll Records with proper compliance cover sheet for the previous month's pay period. Identify MBE/DBE subcontractors and hours worked in a format acceptable to URI. See Attachment A this section for current State and Federal requirements.

E. Submit with transmittal letter as specified for Submittals in Section 01 3300.

F. Beginning with the second Application for Payment, Contractor's right to payment must be substantiated by documenting, on a copy of the URI Waiver of Lien Form included in Document 00 6140 - Waiver of Lien Form in this Project Manual, that payment monies due, less retainage not exceeding ten percent, have been paid in full to subcontractor and suppliers for work, materials, or rental of equipment billed for under specific line item numbers in the immediately preceding application.

G. Substantiating Data: When the Owner or Design Agent requires additional substantiating information from the review of the “pencil copy”, submit data justifying dollar amounts in question.

H. In addition to the items above, include the following with the Application for Payment :
1. Record Documents as specified in Section 01 7800, for review by the Owner which will be returned to the Contractor.
2. Affidavits attesting to off-site stored products with insurance certificates as requested.
3. Digital Photographs as specified in Section 01 3300. Include on same disc with construction schedule.

I. Payment Period: Submit at monthly intervals unless stipulated otherwise in the Supplemental General Conditions.

1.06 WARRANTY INSPECTION RETAINAGE

A. A percentage of job cost as defined in Attachment A will be retained from Final Payment for a duration of ten months. If, after ten months, all systems including mechanical and electrical, are determined by the Owner to be properly functioning, the Warranty Inspection Retainage will be released.

B. If, after ten months, there are found to be modifications, adjustments, or corrections necessary to be made to address any system or product malfunction, in order to fulfill specified performance or requirements of such systems or products, release of the warranty inspection retainage will be delayed until such malfunctions are rectified.

C. If, after twelve months from the date of Final Completion, all systems have not been fully addressed, the Owner may utilize the Warranty Inspection Retainage to hire others to execute necessary modifications, adjustments, or corrections.

1.07 SALES TAX EXEMPTION

A. Owner is exempt from sales tax on products permanently incorporated in Work of the Project.
   1. Obtain sales tax exemption certificate number from Owner.
   2. Place exemption certificate number on invoice for materials incorporated in the Work of the Project.
   3. Furnish copies of invoices to Owner.
   4. Upon completion of Work, file a notarized statement with Owner that all purchases made under exemption certificate were entitled to be exempt.
   5. Pay legally assessed penalties for improper use of exemption certificate number.

1.08 CHANGE PROCEDURES

A. Submittals: Submit name of the individual authorized to receive change documents, and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.

B. The Design Agent will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time by issuing supplemental instructions on AIA Form G710.

C. The Design Agent may 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 will prepare and submit an estimate within 15 days.

D. The Contractor may propose changes by submitting a request for change to the Design Agent, describing the proposed change and its full effect on the Work. Include 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.

E. Stipulated Sum Change Order: Based on Proposal Request, and Contractor's fixed price quotation, or Contractor's request for a Change Order as approved by Design Agent.

F. Unit Price Change Order: For contract unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute the Work under a Construction Change Directive. Changes in the Contract Sum or Contract Time will be computed as specified for a Time and Material Change Order.

G. Construction Change Directive: Design Agent may issue a directive, on AIA Form G713 Construction Change Directive signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in the Contract Sum or Contract Time. Promptly execute the change.

H. Time and Material Change Order: Submit an itemized account and supporting data after completion of the change, including timeslips signed by Owner's representative, within the time limits indicated in the Conditions of the Contract. The Design Agent will determine the change allowable in the Contract Sum and Contract Time as provided in the Contract Documents. Only Owner-representative-signed timeslips will be considered.

I. Maintain detailed records of work done on a Time and Material basis. Submit timeslips daily for verification and sign-off by Owner's representative on-site. Provide full information required for an evaluation of the proposed changes, and to substantiate costs for the changes in the Work.

J. Document each quotation for a change in cost or time with sufficient data to allow an evaluation of the quotation. Provide detailed breakdown of costs and estimates for labor and materials including a detailed breakdown for subcontractor's or vendor's Work. Include copies of written quotations from subcontractors or vendors.

K. Change Order Forms: AIA G701 Change Order.

L. Execution of Change Orders: The Design Agent will issue Change Orders for signatures of the parties as provided in the Conditions of the Contract.

M. Correlation Of Contractor Submittals:
   1. Promptly revise the Schedule of Values and the Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum. Promptly revise progress schedules to reflect any change in the Contract Time, revise sub-schedules to adjust times for any other items of work affected by the change, and resubmit.
   2. Promptly enter changes in the Project Record Documents.

1.09 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of the Design Agent, it is not practical to remove and replace the Work, the Design Agent will direct an appropriate remedy or adjust payment.

C. The defective Work may remain, but the unit sum will be adjusted to a new sum at the discretion of the Design Agent.

D. The defective Work will be partially repaired to the instructions of the Design Agent, and the unit sum will be adjusted to a new sum at the discretion of the Design Agent.

E. The individual Specification Sections may modify these options or may identify a specific formula or percentage sum reduction.

F. The authority of the Design Agent to assess the defect and identify a payment adjustment, is final.

G. Non-Payment for Rejected Products: Payment will not be made for rejected products for any of the following:
1. Products wasted or disposed of in a manner that is not acceptable.
2. Products determined as unacceptable before or after placement.
3. Products not completely unloaded from the transporting vehicle.
4. Products placed beyond the lines and levels of the required Work.
5. Products remaining on hand after completion of the Work.
6. Loading, hauling, and disposing of rejected products.

1.10 UNIT PRICES

A. See Attachment A.

1.11 ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at the Owner's option. Accepted Alternates will be identified in the Purchase Order.

B. Coordinate related work and modify surrounding work as required.

C. Schedule of Alternates: See Attachment A.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

01 2010 PRICE AND PAYMENT PROCEDURES - Attachment A

A. Allowances

1. Additional. Unforeseen MEP Coord.	$20,000.00
2. Additional. Unforeseen Architectural Coord.	$20,000.00

B. Testing Allowance

1. N/A

C. Unit Prices

1. N/A

D. Alternates

1. N/A

E. Payroll Reporting

1. Forms for the submission of Certified Payroll Records may be found from the Rhode Island Prevailing Wage Website in either PDF or Excel formats. These forms must be used on monthly submittals.

2. Identify Apprenticeship hours required under RIGL 37-13-3.1 for all contracts over $1million in value.

3. A Minority Utilization Report for minority subcontractors must be included. Use the form provided as Attachment B.

E. Warranty Inspection Retainage

1. One-half of one percent of the cost of the Work will be retained from Final Payment for this purpose.

END OF ATTACHMENT

MBE Compliance Office
1 Capitol Hill, 2nd Floor
Providence, RI 02908
401-574-8670, 401-574-8387 (fax)

Attachment B – 01 2020

www.mbe.ri.gov (website)

Pursuant to RIGL 37-14.1 as well as the regulations promulgated thereto, the MBE Compliance Office requires that you complete the following table. Please note that these figures will be verified with the MBEs identified. If there are outstanding issues, such as retainage or a dispute, please indicate and attach supporting documentation for same. Also note that copies of invoice and cancelled checks for payment to all MBE subcontractors and suppliers are required.

Contractor/Vendor Name:
Project Name & Location:
Original Prime Contract Amount: $_____ **Current Prime Contract Amount: _____**

MBE/WBE Subcontractor	Original Contract Amount	Change Orders	Revised Contract Value	% Completed To Date	Amount Paid To Date	Amount Due	Retainage %	Retainage Amount	Explanation

I declare, under penalty of perjury, that the information provided in this verification form and supporting documents is true and correct.

_____ _____
Signature Date

_____
Printed Name

Notary Certificate:

Sworn before me this _____ day of _____ , 2012.

_____ _____
Notary Signature Commission Expires

SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Site administration

B. Coordination and project conditions.

C. Preconstruction meeting.

D. Site mobilization meeting.

E. Progress meetings.

F. Pre-installation meetings.

1.02 SITE ADMINISTRATION

A. Maintain a daily attendance log to include the names of all project employees and guests to the site. Each guest signing the log should indicate a brief description of the reason for the visit, the guest's employer or organization. The log sheet, or sheets, must clearly indicate the Project Name, and the name of the Prime contractor. Each line in the log should allow for the name of that employee, the employee's job title (use terminology used by prevailing wage job title), and the name of that employee's employer. This log shall be kept on a uniform form prescribed by the Director of Labor and Training. Such log shall be available for inspection on the site at all times by the Purchaser, Owner, and/or the Director of the Department of Labor and Training and his or her designee. Provide copies when requested. The log shall comply with requirements of RIGL 37-12-12(c.).

1.03 COORDINATION AND PROJECT CONDITIONS

A. Coordinate the scheduling, submittals, and the Work of the various Sections of the Project Manual to ensure an efficient and orderly sequence of the installation of interdependent construction elements.

B. Verify that the utility requirements and characteristics of the operating equipment are compatible with the building utilities. Coordinate the Work of the various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

C. Coordinate the space requirements, supports and installation of the mechanical and electrical Work, which are indicated diagrammatically on the Drawings. Follow the routing shown for the pipes, ducts, and conduit, as closely as practicable; place runs parallel with the lines of the building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. Coordinate the completion and clean up of the Work of the separate Sections in preparation for Substantial Completion and for portions of the Work designated for the Owner's partial occupancy.

E. After the Owner's occupancy of the premises, coordinate access to the site for correction of defective Work and the Work not in accordance with the Contract Documents to minimize disruption of the Owner's activities.

1.04 PRECONSTRUCTION MEETING

A. The Design Agent will schedule a meeting after a Purchase Order is issued to the Contractor.

B. Attendance Required: Owner's Representative, Design Agent, and Contractor.

C. Agenda:
1. Distribution of the Contract Documents.
2. Submission of a list of Subcontractors, a list of products, schedule of values, and a progress schedule.
3. Designation of the personnel representing the parties in the Contract and the Design Agent.
4. The procedures and processing of the field decisions, submittals, substitutions, applications for payments, proposal requests, Change Orders, and Contract closeout procedures.
5. Scheduling.

D. Contractor shall record the minutes and distribute copies within two days after the meeting to the participants, with copies to the Design Agent, Owner, other participants, and those consultants affected by the decisions made.

1.05 SITE MOBILIZATION MEETING

A. The Design Agent will schedule a meeting at the Project site prior to the Contractor's occupancy and may occur at the same time as the Preconstruction meeting noted above.

B. Attendance Required: The Owner, Design Agent, Contractor, the Contractor's Superintendent, and major Subcontractors.

C. Agenda:
1. Use of the premises by the Owner and the Contractor.
2. The Owner's requirements and partial occupancy.
3. Construction facilities and controls provided by the Owner.
4. Temporary utilities provided by the Owner.
5. Security and housekeeping procedures.
6. Schedules.
7. Application for payment procedures.
8. Procedures for testing.

9. Procedures for maintaining the record documents.
10. Requirements for the start-up of equipment.
11. Inspection and acceptance of the equipment put into service during the construction period.

D. Contractor shall record the minutes and distribute the copies within two days after the meeting to the participants, with copies to the Design Agent, Owner, other participants, and those consultants affected by the decisions made.

1.06 PROGRESS MEETINGS

A. Schedule and administer the meetings throughout the progress of the Work at weekly intervals while work is in process.

B. Make arrangements for the meetings, prepare the agenda with copies for the participants, and preside at the meetings.

C. Attendance Required: The job superintendent, major subcontractors and suppliers, the Owner, Design Agent, and Consultants as appropriate to agenda topics for each meeting.

D. Agenda:
1. Review the minutes of previous meetings.
2. Review of the Work progress.
3. Field observations, problems, and decisions.
4. Identification of the problems which impede the planned progress.
5. Review of the submittals schedule and status of the submittals.
6. Review of delivery schedules.
7. Maintenance of the progress schedule.
8. Corrective measures to regain the projected schedules.
9. Planned progress during the succeeding work period.
10. Coordination of the projected progress.
11. Maintenance of the quality and work standards.
12. Effect of the proposed changes on the progress schedule and coordination.
13. Other business relating to the Work.

E. Contractor shall record the minutes and distribute the copies within two days after the meeting to the participants, with copies to the Design Agent, Consultants, Owner, participants, and others affected by the decisions made.

1.07 PREINSTALLATION MEETINGS

A. When required in the individual specification Sections, convene a pre-installation meeting at the site prior to commencing the Work of the Section.

B. Require attendance of the parties directly affecting, or affected by, the Work of the specific Section.

C. Notify the Design Agent four days in advance of the meeting date.

D. Prepare an agenda and preside at the meeting:
   1. Review the conditions of installation, preparation and installation procedures.
   2. Review coordination with the related work.

E. Record the minutes and distribute the copies within two days after the meeting to the participants, with copies to the Design Agent, Owner, participants, and those Consultants affected by the decisions made.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01 3010 ADMINISTRATIVE REQUIREMENTS - Attachment A

A. Pre-installation Meetings

1. The following items of work will require pre-installation meetings:
(None Required)

END OF ATTACHMENT

SECTION 01 3300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Submittal procedures.

B. Construction progress schedules.

C. Proposed products list.

D. Product data.

E. Shop drawings.

F. Design Data.

G. Samples.

H. Test reports.

I. Certificates.

J. Manufacturer's instructions.

K. Manufacturer's field reports.

L. Digital Photographs.

M. Erection drawings.

N. Construction photographs.

1.02 SUBMITTAL PROCEDURES

A. Master List Submittal:
   1. Submit a master list of the required submittals with a proposed date for each item to be submitted. See Attachment A for initial minimum list on which to base master.
   2. Show the date submittal was sent, days since submittal was sent, status of submittal, date submittal was received in return, and any date associated with resubmittals.
   3. Up date master list with each submission and response.
   4. Issue copy of master list at least monthly to the Design Agent.

B. Transmit each submittal with a dated Design Agent-accepted transmittal form.

C. Transmit printed copies and electronic PDF copy of each submittal to the Design Agent for review and comment as outlined in each section below.

D. Sequentially number the transmittal form. Mark revised submittals with an original number and a sequential alphabetic suffix.

E. Identify the Project, Contractor, subcontractor and supplier; the pertinent drawing and detail number, and the specification Section number, appropriate to the submittal.

F. Apply a Contractor's electronic stamp certifying that the review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of the information is in accordance with the requirements of the Work and the Contract Documents.

G. Schedule submittals to expedite the Project, and deliver to the Design Agent's FTP site. Coordinate the submission of related items.

H. For each submittal, allow 15 days for review.

I. Identify all variations from the Contract Documents and any Product or system limitations which may be detrimental to a successful performance of the completed Work.

J. Allow space on the submittals for the Contractor's, Design Agent's, and Consultant's electronic review stamps.

K. When revised for resubmission, identify the changes made since the previous submission.

L. Distribute copies of the reviewed submittals as appropriate. Reproduce as necessary to inform subcontractors without internet download capabilities. Instruct the parties to promptly report any inability to comply with the Contract requirements.

M. Produce additional copies as required for the Record Document purposes as described in Section 01 7800.

1.03 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial progress schedule in duplicate within 20 days after Date of Commencement for Design Agent to review. After a review, submit detailed schedules within 15 days modified to accommodate the revisions recommended by the Design Agent and Owner.

B. Distribute copies of the reviewed schedules to the Project site file, subcontractors, suppliers, and other concerned parties. Instruct the recipients to promptly report, in writing, the problems anticipated by the projections indicated in the schedules

C. Submit updated schedules with each Application for Payment, identifying changes since previous version as follows:
   1. Indicate the progress of each activity to the date of submittal, and the projected completion date of each activity.
   2. Identify the activities modified since the previous submittal, major changes in the scope, and other identifiable changes.
   3. Provide a narrative report to define the problem areas, the anticipated delays, and impact on the Schedule. Report the corrective action taken, or proposed, and its effect including the effect of changes on the schedules of separate contractors.

D. Submit a computer-generated horizontal bar chart with separate line for each major portion of the Work or operation, identifying the first work day of each week.

E. Show a complete sequence of construction by activity, identifying the Work of separate stages and other logically grouped activities. Indicate the early and late start, the early and late finish, float dates, and duration.

F. Indicate an estimated percentage of completion for each item of the Work at each submission.

G. Provide a separate schedule of submittal dates for shop drawings, product data, and samples, including Owner-furnished Products and Products identified under Allowances, if any, and the dates reviewed submittals will be required from the Design Agent. Indicate the decision dates for selection of the finishes.

H. Indicate the delivery dates for Owner furnished Products, and for Products identified under Allowances.

1.04 PROPOSED PRODUCTS LIST

A. Within 20 days after the Date of Commencement, submit a list of major products proposed for use, with the name of the manufacturer, the trade name, and the model number of each product.

B. For the products specified only by reference standards, give the manufacturer, trade name, model or catalog designation, and reference standards.

C. With each product listed, indicate the submittal requirements specified to be adhered to, and an indication of relevant "long-lead-time" information , when appropriate.

1.05 PRODUCT DATA

A. Product Data: Submit to the Design Agent for review for the limited purpose of checking for conformance with the information given and the design concept expressed in the Contract Documents. Provide copies and distribute in accordance with the SUBMITTAL PROCEDURES article and for the record documents purposes described in Section 01 7800.

B. Submit one (1) printed copy and one (1) electronic PDF copy for review. The Design Agent will retain the reviewed printed copy for record and return the reviewed electronic PDF copy to the Contractor for distribution.

C. Mark each copy to identify the applicable products, models, options, and other data. Supplement the manufacturers' standard data to provide the information specific to this Project.

D. Indicate the product utility and electrical characteristics, the utility connection requirements, and the location of utility outlets for service for functional equipment and appliances.

E. After a review distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01 7800.

1.06 SHOP DRAWINGS

A. Shop Drawings: Submit to the Design Agent for review for the limited purpose of checking for conformance with the information given and the design concept expressed in the Contract Documents. Produce copies and distribute in accordance with the SUBMITTAL PROCEDURES article and for the record documents purposes described in Section 01 7800.

B. Submit two (2) printed copies and one (1) electronic PDF copy for review. The Design Agent and /or Consultants will retain the reviewed printed copies for record and return the reviewed electronic PDF copy to the Contractor for distribution.

C. Indicate the special utility and electrical characteristics, the utility connection requirements, and the location of utility outlets for service for functional equipments and appliances.

1.07 SAMPLES

A. Samples: Submit to the Design Agent for review for the limited purpose of checking for conformance with the information given and the design concept expressed in the Contract Documents. Produce duplicates and distribute in accordance with the

SUBMITTAL PROCEDURES article and for the record documents purposes described in Section 01 7800.

B. Samples for Selection as Specified in Product Sections:
   1. Submit to the Design Agent for aesthetic, color, or finish selection.
   2. Submit samples of the finishes in the colors selected for the Design Agent's records.
   3. After review, produce duplicates and distribute in accordance with the SUBMITTAL PROCEDURES article and for the record documents purposes described in Section 01 7800.

C. Submit samples to illustrate the functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate the sample submittals for interfacing Work.

F. Include identification on each sample, with the full Project information.

G. Submit at least the number of samples specified in the individual specification Sections; the Design Agent will retain two samples.

H. Reviewed samples, which may be used in the Work, are indicated in the individual specification Sections.

I. Samples will not be used for testing purposes unless they are specifically stated to be in the specification Section.

1.08 TEST REPORTS

A. Submit (1) printed and (1) electronic PDF lab reports in accordance with Section 01 4000.

B. Submit test reports for information for the limited purpose of assessing conformance with the information given and the design concept expressed in the Contract Documents.

1.09 DESIGN DATA

A. Submit (1) printed and (1) electronic PDF data for the Design Agent’s knowledge as contract administrator for the Owner.

B. Submit information for the limited purpose of assessing conformance with the information given and the design concept expressed in the Contract Documents.

1.10 CERTIFICATES

A. When specified in the individual specification Sections, submit (1) printed and (1) electronic PDF certification by the manufacturer, installation/application subcontractor, or the Contractor to the Design Agent in the quantities specified for the Product Data.

B. Indicate that the material or product conforms to or exceeds the specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

A. Certificates may be recent or previous test results on the material or product, but must be acceptable to the Design Agent and its Consultants.

1.10 MANUFACTURER'S INSTRUCTIONS

A. When specified in the individual specification Sections, submit (1) printed and (1) electronic PDF copy of instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to the Design Agent for delivery to the Owner in the quantities specified for Product Data.

B. Indicate the special procedures, and the perimeter conditions requiring special attention, and the special environmental criteria required for application or installation.

1.11 MANUFACTURER'S FIELD REPORTS

A. Submit (1) printed and (1) electronic PDF of reports for the Design Agent's benefit as contract administrator for the Owner.

B. Submit the report within 30 days of observation to the Design Agent for the limited purpose of assessing conformance with the information given and the design concept expressed in the Contract Documents.

1.12 DIGITAL PHOTOGRAPHS

A. Submit minimum 12 digital photographs of construction progress each month on the same CD as the project schedule submittal. Include both jpg. and reduced-size PDF versions for email use.

B. Include an additional minimum of 12 photographs documenting underground utilities when installed in relationship to visible site features.

C. Include photographs of important in-wall or ceiling utilities before close-in at appropriate stages of construction.

D. See Section 01 7800 for close-out copy requirements of these files.

1.13 ERECTION DRAWINGS

A. When specified in the individual Specification sections, the trade contractors shall submit (1) printed and (1) electronic PDF copy of erection drawings for review prior to proceeding with fabrication and/or construction.

B. Erection drawings shall be prepared in accordance with the latest edition of the respective trades' codes of standard practice.

C. All erection drawings shall be fully developed by the trade contractors or by agents of the contractors. CAD files, photocopies, or other reproductions of the contract drawings in whole or in part shall not be used by the trade contractors or their agents for the preparation and development of erections drawings without the expressed written consent of the Design Agent.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

01 3310 SUBMITTAL PROCEDURES - Attachment A

A. Submittal List

1. (*include initial submittal list from specification sections by DA.*)

B. Other

1. (*None)*

END OF ATTACHMENT

SECTION 01 4000 – QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Quality control and control of installation.

B. Verification of Credentials and Licenses.

C. Tolerances

D. References.

E. Testing and inspection services.

F. Manufacturers' field services.

G. Mock-up Requirements.

1.02 QUALITY CONTROL AND CONTROL OF INSTALLATION

A. Monitor a quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of the specified quality.

B. Comply with all manufacturers' instructions and recommendations, including each step in sequence.

C. When the manufacturers' instructions conflict with the Contract Documents, request a clarification from the Design Agent before proceeding.

D. Comply with the specified standards as a minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform the Work by persons qualified to produce the required and specified quality.

F. Verify that field measurements are as indicated on the 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, or disfigurement.

1.03 VERIFICATION OF CREDENTIALS AND LICENSES

A. The Owner has implemented a project management oversight process and is applying it to current construction projects at URI.

B. An element of this oversight process is the verification that persons employed on the project site have appropriate and current credentials and licenses in their possession, at the project site, for the work they are performing.

C. Be forewarned that state resident inspectors will be checking for verification of credentials and licenses of both union and non-union persons, in their onsite inspections.

D. State resident inspectors will also be reviewing Contractor's Certified Monthly Payroll Records for conformance with RI State Prevailing Wage Rate requirements.

E. Those persons without the appropriate credentials and licenses will be subject to dismissal from the project site.

1.04 TOLERANCES

A. Monitor the fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with the manufacturers' tolerances. When the manufacturers' tolerances conflict with the Contract Documents, request a clarification from the Design Agent before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.05 REFERENCES

A. For products or workmanship specified by association, trade, or other consensus 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 by the date of issue current on the date of the Contract Documents, except where a specific date is established by code.

C. Obtain copies of the standards where required by the product specification Sections.

D. When the specified reference standards conflict with the Contract Documents, request a clarification from the Design Agent before proceeding.

E. Neither the contractual relationships, duties, or responsibilities of the parties in the Contract, nor those of the Design Agent, shall be altered from the Contract Documents by mention or inference otherwise in reference documents.

1.06 TESTING AND INSPECTION SERVICES

A. The Contractor will submit the name of an independent firm to the Design Agent for approval by the Owner, to perform the testing and inspection services. The Contractor shall pay for all the services required in the Base Bid as described in Attachment A. Contractor shall coordinate any Owner-authorized testing also described in Attachment A, to be paid for from Testing Allowance.

B. The independent firm will perform the tests, inspections and other services specified in the individual specification Sections and as required by the Design Agent or its Consultants.
1. Laboratory: Authorized to operate in the location in which the Project is located.
2. Laboratory Staff: Maintain a full time registered Engineer on staff to review the services.
3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either the National Bureau of Standards or to the accepted values of natural physical constants.

C. Testing, inspections and source quality control may occur on or off the project site. Perform off-site testing as required by the Design Agent or the Owner.

D. Reports will be submitted by the independent firm to the Design Agent, the Consultant for that trade, and the Contractor, in duplicate, indicating the observations and results of tests and indicating the compliance or non-compliance with Contract Documents.

E. Cooperate with the independent firm; furnish samples of the materials, design mix, equipment, tools, storage, safe access, and the assistance by incidental labor as requested.
1. Notify the Design Agent and Engineer and the independent firm 24 hours prior to the expected time for operations requiring services.
2. Make arrangements with the independent firm and pay for additional samples and tests required for the Contractor's use.

F. Testing and employment of the testing agency or laboratory shall not relieve the Contractor of an obligation to perform the Work in accordance with the requirements of the Contract Documents.

G. Re-testing or re-inspection required because of a non-conformance to the specified requirements shall be performed by the same independent firm on instructions by the Design Agent or its Consultant. Payment for the re-testing or re-inspection will be charged to the Contractor by deducting the testing charges from the Contract Sum.

H. Agency Responsibilities:
1. Test samples of mixes submitted by the Contractor.
2. Provide qualified personnel at the site. Cooperate with the Design Agent or its Consultant and the Contractor in performance of services.
3. Perform specified sampling and testing of the products in accordance with the specified standards.
4. Ascertain compliance of the materials and mixes with the requirements of the Contract

Documents.

5. Promptly notify the Design Agent, Consultant and the Contractor of observed irregularities or non-conformance of the Work or products.
6. Perform additional tests required by the Design Agent or its Consultants.
7. Attend the preconstruction meetings and the progress meetings.

I. Agency Reports: After each test, promptly submit two copies of the report to the Design Agent, appropriate Consultant, and to the Contractor. When requested by the Design Agent, provide an interpretation of the test results. Include the following:
1. Date issued.
2. Project title and number.
3. Name of inspector.
4. Date and time of sampling or inspection.
5. Identification of product and specifications section.
6. Location in the Project.
7. Type of inspection or test.
8. Date of test.
9. Results of tests.
10. Conformance with Contract Documents.

J. Limits On Testing Authority:
1. Agency or laboratory may not release, revoke, alter, or enlarge on the requirements of the Contract Documents.
2. Agency or laboratory may not approve or accept any portion of the Work.
4. Agency or laboratory may not assume any duties of the Contractor.
5. Agency or laboratory has no authority to stop the Work.

1.08 MANUFACTURERS' FIELD SERVICES

A. When specified in the individual specification Sections, require the material or Product suppliers, or manufacturers, to provide qualified staff personnel to observe the site conditions, the conditions of the surfaces and installation, the quality of workmanship, the start-up of equipment, or test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Submit the qualifications of the observer to the Design Agent 30 days in advance of the required observations. Observer is subject to approval of the Design Agent.

C. Report the observations and the site decisions or instructions given to the applicators or installers that are supplemental or contrary to the manufacturers' written instructions.

D. Refer to Section 01 3300 - SUBMITTAL PROCEDURES, MANUFACTURERS' FIELD REPORTS article.

1.09 MOCK-UP REQUIREMENTS

A. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

B. Accepted mock-ups shall be a comparison standard for the remaining Work.

C. Where mock-up has been accepted by Design Agent and is no longer needed, remove mock-up and clear area when directed to do so.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01 4010 QUALITY REQUIREMENTS - Attachment A

A. Base Bid Testing Requirements List

1. *(testing noted in specification sections included in the Base Bid work.)*

B. Additional Owner-Authorized Testing Requirements List

1. (*None at this time)*

C. Other

1. *(None)*

END OF ATTACHMENT

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Section 01 4012 Abbreviations and Definitions

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section. This section applies to all specification sections and work of the Contract.

1.1 SECTION INCLUDES: General requirements for abbreviations and definitions.

1.2 ABBREVIATIONS: Abbreviations used typically have well known meanings. Ask the Architect for clarification when necessary.

A. Trade Association Abbreviations: See "Encyclopedia of Associations: National Organizations of the U.S.".

1.3 DEFINITIONS:

A. Contract Documents: Defined by the "General Conditions of the Contract for Construction".

B. Contract: Means the "Agreement for Construction between Owner and Contractor".

C. Owner: Defined by the "Agreement for Construction between Owner and Contractor".
1. The Owner may formally authorize by written notice to the Contractor and Architect an "Owner's Project Manager" and one or more "Owner's Representatives" who each shall represent the "Owner" and shall have authority to make decisions and binding commitments for the "Owner".
2. The Owner may change the "Owner's Project Manager" and "Owner's Representatives" for the Owner's convenience upon written notice to the Contractor and Architect.

D. Contractor: Defined by the "Agreement for Construction between Owner and Contractor".
1. Construction Manager: In Contract Specifications, "Contractor" means "Construction Manager".

E. Architect: Defined by the "Agreement for Construction between Owner and Contractor".
1. All communications with the Architect's consultants shall be directed through the Architect.

F. Authorities Having Jurisdiction: Means all governing agencies, organizations, bodies, and authorities which have authority or jurisdiction over aspects of the Contract.

G. Approved: Means "approved in writing by Owner or Architect".

H. Day: Means "calendar day", unless otherwise specifically defined.

I. Provide: Means "furnish and install".

J. Furnish: Means "supply and deliver to the site, complete with all necessary components".

K. Install: Means "unload, store, handle, unpack, assemble, erect, locate, place, anchor, apply, work to dimension, finish, cure, place in service, clean, protect, and make ready for intended use".

L. Final Connection: Means "place in service, connect to utilities and services, make operational, and make ready for intended use".

M. Indicated, Shown: Is a reference to other Contract Documents.

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N. Match: Means “identical in visual characteristics, quality, construction, material, and other features and characteristics”.
   1. For appearance characteristics, the Architect will judge what is an acceptable “match”.

O. Basis of Design, Reference Product, Example Product: Is a specific product used to help the reader understand a specification.
   1. Since the specification may require options, custom features, and other special characteristics, the “Basis of Design”, “Reference Product”, “Example Product” is not the complete specification and does not supersede the specification.
   2. “Basis of Design”, “Reference Product”, “Example Product” is not a proprietary specification and is not intended to restrict competition, unless identified as “proprietary” or “no substitutions”.

P. Proprietary: Are specific items which shall be provided as named without substitution or “equal”.

Q. Exposed: Means “visible in the completed Contract”.
   1. Interiors of closets, mechanical/electrical rooms, and similar spaces are visible and are exposed.

R. Concealed: Means “not visible in the completed Contract”.
   1. Interiors of chases, shafts, and crawl spaces are concealed.
   2. Areas above continuous ceilings are concealed.
   3. Conditions above lay in ceilings are not “concealed” or “unknown” for the purposes of claims.

S. Shall: Is a verb which expresses obligation and necessity.

End of Section

SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities:
   1. Temporary electricity.
   2. Temporary lighting for construction purposes.
   3. Temporary heating.
   4. Temporary cooling.
   5. Temporary ventilation.
   6. Telephone service.
   7. Temporary water service.
   8. Temporary sanitary facilities.

B. Construction Facilities:
   1. Field offices and sheds.
   2. Hoisting.
   3. Parking/Traffic.
   4. Progress cleaning and waste removal.
   5. Project identification.
   6. Traffic regulation.

C. Temporary Controls:
   1. Barriers.
   2. Enclosures and fencing.
   3. Security.
   4. Fire detection.
   5. Water control.
   6. Dust control.
   7. Erosion and sediment control.
   8. Noise control.
   9. Pest control.
   10. Pollution control.
   11. Rodent control.

D. Removal of utilities, facilities, and controls with reseeding and repair of grounds.

E. See Attachment A for any modifications.

1.02 TEMPORARY ELECTRICITY

A. The Owner will pay the cost of energy used. Exercise measures to conserve energy. Utilize the Owner's existing power service.
B. Complement the existing power service capacity and characteristics as required for construction operations.

C. Provide power outlets, with branch wiring and distribution boxes located at each floor or as required for construction operations. Provide flexible power cords as required for portable construction tools and equipment. All flexible power cords shall be suspended with hangers to eliminate trip hazards.

D. Provide main service disconnect and over-current protection at a convenient location, or a feeder switch at the source distribution equipment or meter.

E. Permanent convenience receptacles may not be utilized during construction.

F. Provide distribution equipment, wiring, and outlets to provide single-phase branch circuits for power. Provide 20-ampere duplex outlets, single-phase circuits for power tools.

1.03 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain incandescent lighting for construction operations to achieve a minimum lighting level of 2 watt/sq ft (21 watt/sq m).

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

C. Maintain lighting and provide routine repairs.

D. Permanent building lighting may be utilized during construction where not removed.

1.04 TEMPORARY HEATING

A. Existing facilities will be occupied and heated by the University when temperatures require. Take care to avoid leaving doors open in exterior walls that could compromise heating operations. For new construction, the cost of energy will be borne by the Contractor. Provide temporary heating as necessary for construction operations.

B. Supplement with temporary heat devices if needed to maintain the specified conditions for construction operations even in existing buildings.

C. Maintain a minimum ambient temperature of 50 degrees F in the areas where construction is in progress, unless indicated otherwise in the product Sections.

D. In areas of work with mechanical hot-air heating, clean units and replace filters after Substantial Completion.

E. Do not use new equipment for heating after replacement during construction.

1.05 TEMPORARY COOLING

A. Existing cooling facilities are typically not available.

B. Provide and pay for cooling devices and cooling as needed to maintain the specified conditions for construction operations.

C. Maintain a maximum ambient temperature of 80 degrees F in the areas where construction is in progress, unless indicated otherwise in the specifications.

1.06 TEMPORARY VENTILATION

A. Ventilate enclosed areas to achieve a curing of materials, to dissipate humidity, and to prevent the accumulation of dust, fumes, vapors, or gases.

B. If existing ventilation fans are used during construction, clean fans in areas of work after Substantial Completion.

1.07 TELEPHONE SERVICE

A. Provide, maintain, and pay for cell phone service to the field supervisor at the time of project mobilization and until project Final Completion.

1.08 TEMPORARY WATER SERVICE

A. The Owner will pay the cost of temporary water. Exercise measures to conserve energy. Utilize the Owner's existing water system, extend and supplement with temporary devices as needed to maintain the specified conditions for construction operations.

B. Extend branch piping with outlets located so that water is available by hoses with threaded connections. Provide temporary pipe insulation if needed to prevent freezing.

1.09 TEMPORARY SANITARY FACILITIES

A. Contractor shall provide and maintain temporary toilet facilities for use by all construction personnel. Trades people will not be permitted to use existing facilities within the building.

1.10 FIELD OFFICES AND SHEDS

A. Do not use existing facilities for storage. Job meetings will be held on campus at a location to be chosen by the University.

B. Storage Areas and Sheds: Size to the storage requirements for the products of the individual Sections, allowing for access and orderly provision for the maintenance and for the inspection of Products to the requirements of Section 01 6000. Containers will be permitted within the project limit line. Coordinate with URI for storage areas.

C. Preparation: Fill and grade the sites for the temporary structures to provide drainage away from the buildings.

D. Removal: At the completion of the Work remove the buildings, foundations, utility services, and debris. Restore the areas.

1.11 HOISTING

A. Contractor is responsible for all hoisting required to facilitate, serve, stock, clean, and complete the Work. Include all costs for Operating Engineers, fuel, delivery and removal, mobilization, staging, protection of grades and surfaces, and equipment.

1.12 PARKING/TRAFFIC

A. Workers must park in lots assigned by the University with daily permits. See Site Utilization Plan.

B. Use of designated existing on-site streets and driveways for construction traffic is permitted. Tracked vehicles are not allowed on paved areas.

C. Do not allow heavy vehicles or construction equipment in parking areas.

D. Do not allow vehicle parking on existing sidewalks.

E. Provide and maintain access to fire hydrants and control valves free of obstructions.

F. Remove mud from construction vehicle wheels before entering streets. Cleanup dirt, rocks, and debris left on street from construction vehicles.

G. Use designated existing on-site roads for construction traffic.

H. Maintenance:
   1. Maintain the traffic and parking areas in a sound condition free of excavated material, construction equipment, products, mud, snow, and ice.
   2. Maintain existing and permanent paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain the paving and drainage in original, or specified, condition.

I. Removal, Repair:
   1. Remove temporary materials and at Substantial Completion.
   2. Remove underground work and compacted materials to a depth of 2 feet; fill and grade the site as specified.
   3. Repair existing and permanent facilities damaged by use, to the original or specified condition.

1.13 PROGRESS CLEANING AND WASTE REMOVAL

A. Maintain areas free of waste materials, debris, and rubbish. Maintain the site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other remote spaces, prior to enclosing the space.

C. Broom and vacuum clean the interior areas prior to the start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and rubbish from the site daily, as necessary to prevent an on-site accumulation of waste material, debris, and rubbish, and dispose off-site.

E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.14 PROJECT IDENTIFICATION

A. Project Identification Sign: One painted sign, 32 sq ft area, bottom 6 feet above the ground.
   1. Content:
      a. Project title, and name of the Owner as indicated on the Contract Documents.
      b. Names and titles of the authorities.
      c. Names and titles of the Design Agent and Consultants.
      d. Name of the Design Agent Contractor.
   2. Graphic Design, Colors, and Style of Lettering: 3 colors, as designated by the Design Agent during construction.

B. Project Informational Signs:
   1. Painted informational signs of same colors and lettering as the Project Identification sign, or standard products; size lettering to provide legibility at 100-foot distance.
   2. Provide sign at each field office, storage shed, and directional signs to direct traffic into and within site. Relocate as the Work progress requires.
   3. No other signs are allowed without the Owner's permission except those required by law.

C. Design all signs and their structures to withstand a 60-miles/hr-wind velocity.

D. Sign Painter: Experienced as a professional sign painter for a minimum of three years.

E. Finishes, Painting: Adequate to withstand weathering, fading, and chipping for the duration of construction.

F. Show content, layout, lettering, color, foundation, structure, sizes, and grades of members.

G. Installation:
   1. Install the project identification sign within 15 days after the date of receipt of the Purchase Order from State of Rhode Island Department of Administration, Division of Purchases.
   2. Erect at the designated location.
   3. Erect the supports and framing on a secure foundation, rigidly braced and framed to resist wind loadings.
   4. Install the sign surface plumb and level, with butt joints. Anchor securely.
   5. Paint exposed surfaces of the sign, supports, and framing.

H. Maintenance: Maintain the signs and supports clean, repair deterioration and damage.

I. Removal: Remove the signs, framing, supports, and foundations at the completion of the Project and restore the area.

1.15 TRAFFIC REGULATION

A. Signs, Signals, and Devices:
   1. Post Mounted and Wall Mounted Traffic Control and Informational Signs: As approved by local jurisdictions.
   2. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.
   3. Flag person Equipment: As required by local jurisdictions.
   4. Police Details: Provide all police details as required by local jurisdictions, including payment directly to officers.

B. Flag Persons: Provide trained and equipped flag persons to regulate the traffic when construction operations or traffic encroach on the public traffic lanes.

C. Flares and Lights: Use flares and lights during the hours of low visibility to delineate the traffic lanes and to guide traffic.

D. Haul Routes:
   1. Consult with the authority having jurisdiction, establish the public thoroughfares to be used for haul routes and site access.

E. Traffic Signs and Signals:
   1. At approaches to the site and on site, install at crossroads, detours, parking areas, and elsewhere as needed to direct the construction and affected public traffic.
   2. Install and operate automatic traffic control signals to direct and maintain the orderly flow of traffic in areas under the Contractor's control, and areas affected by the Contractor's operations.
   3. Relocate as the Work progresses, to maintain effective traffic control.

F. Removal:
   1. Remove equipment and devices when no longer required.
   2. Repair damage caused by installation.
   3. Remove post settings to a depth of 2 feet .

1.16 BARRIERS

A. Provide barriers to allow for the Owner's use of the site and to protect existing facilities and adjacent properties from damage from the construction operations, or demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way, or for public access to the building.

C. Provide protection for plants designated to remain. Replace damaged plants.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.17 ENCLOSURES AND FENCING

A. Construction: Provide 6-ft. high commercial grade chain link fence around on-site equipment or areas of site disturbance for the period required to protect work and the public. Equip with vehicular and pedestrian gates with locks. Provide one set of keys to all gates and door locks to the Owner.

A. Perform adjustment to the proposed layout as may be directed by the Owner.

B. Interior Enclosures:
   1. Provide temporary partitions and ceilings as indicated to separate the work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to the existing materials and equipment.
   2. Construction: Framing and reinforced polyethylene, plywood, or gypsum board sheet materials with closed joints and sealed edges at intersections with existing surfaces, as agreed with the Owner:
      a. Maximum flame spread rating of 75 in accordance with ASTM E84.

1.18 SECURITY

A. Security Program:
   1. Protect the Work, the existing premises, or the Owner's operations from theft, vandalism, and unauthorized entry.
   2. Initiate the program in coordination with the Owner's existing security system at mobilization.
   3. Maintain the program throughout the construction period until Owner occupancy of each designated area.

B. Entry Control: Coordinate the access of the Owner's personnel to the site in coordination with the Owner's security forces.

1.19 FIRE DETECTION

A. Before beginning any construction operation that can potentially trigger the existing fire alarm detection system, notify the Owner through use of the form provided in Section 01 1020.

B. Failure to so notify the Owner will subject the Contractor to a monetary fine for each occurrence, should the fire detection system be activated inadvertently by a construction activity.

C. Comply with FM Global insurance underwriting standards and insurer recommendations for Hot Work, sprinkler impairment, and site maintenance.

1.20 WATER CONTROL

A. Grade the site to drain. Maintain excavations free of water. Provide, operate, and maintain the pumping equipment.

B. Protect the site from puddling or running water. Provide water barriers as required to protect the site from soil erosion.

1.21 DUST CONTROL

A. Execute the Work by methods to minimize raising dust from construction operations.

B. Provide positive means to prevent air-borne dust from dispersing into the atmosphere.

1.22 EROSION AND SEDIMENT CONTROL

A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

B. Minimize the amount of bare soil exposed at one time.

C. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.

D. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.

E. Periodically inspect the earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

1.23 NOISE CONTROL

A. Provide methods, means, and facilities to minimize noise produced by the construction operations.

1.24 PEST CONTROL

A. Provide methods, means, and facilities to prevent pests and insects from damaging the Work, or entering the facility.

1.25 POLLUTION CONTROL

A. Provide methods, means, and facilities to prevent the contamination of soil, water, and the atmosphere from discharge of noxious, toxic substances, and pollutants produced by the construction operations.

1.26 RODENT CONTROL

A. Provide methods, means, and facilities to prevent rodents from accessing or invading the premises.

1.27 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, and materials, prior to Substantial Completion.

B. Remove the underground installations to a minimum depth of 2 feet. Grade the site as indicated.

C. Clean and repair the damage caused by installation or use of temporary work.

D. Restore the existing and new facilities used during construction to their original condition.

E. Restore any temporary exterior laydown or storage areas to the original condition. After each use, regrade and reseed as required to meet this requirement.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

01 5010 TEMPORARY FACILITIES AND CONTROLS - ATTACHMENT A

1.01 SECTION INCLUDES

1. Temporary electricity.
2. Temporary lighting for construction purposes.
3. Temporary heating.
4. Temporary cooling.
5. Temporary ventilation.
6. Telephone service.
7. Temporary water service.
8. Temporary sanitary facilities.

END OF ATTACHMENT

SECTION 01 6000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Products.

B. Product delivery requirements.

C. Product storage and handling requirements.

D. Product options.

E. Product substitution procedures.

1.02 PRODUCTS

A. Products: Means new material, machinery, components, fixtures, or systems forming the Work; but does not include the machinery or equipment used for the preparation, fabrication, conveying, or erection of the Work. Products may include the existing materials or components required or specified for reuse.

B. Furnish products of qualified manufacturers suitable for the intended use. Furnish products of each type by a single manufacturer unless specified otherwise.

C. Do not use materials and equipment removed from the existing premises, except as specifically permitted by the Contract Documents.

D. Furnish interchangeable components of the same manufacturer for the components being replaced.

1.03 PRODUCT DELIVERY REQUIREMENTS

A. Transport and handle products in accordance with the manufacturer's instructions.

B. Promptly inspect shipments to ensure that the products comply with the requirements, the quantities are correct, and the products are undamaged.

C. Provide equipment and personnel to handle the products by methods to prevent soiling, disfigurement, or damage.

1.04 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store and protect the products in accordance with the manufacturers' instructions.

B. Store with seals and labels intact and legible.

C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to the product.

D. For exterior storage of fabricated products, place on sloped supports above the ground.

E. Provide bonded off-site storage and protection when the site does not permit on-site storage or protection.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent the condensation and degradation of products.

G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

H. Provide equipment and personnel to store the products by methods to prevent soiling, disfigurement, or damage.

I. Arrange storage of the products to permit access for inspection. Periodically inspect to verify that the products are undamaged and are maintained in acceptable condition.

1.05 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of one of the manufacturers named and meeting the 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 in accordance with the following article.

1.06 PRODUCT SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify the time restrictions for submitting requests for Substitutions during the bidding period to requirements specified in this section.

B. Substitutions may be considered after the bid only in the following circumstances:
1. when a product becomes no longer in production following the date of receipt of the Purchase Order for this Contract. Submit certification both that specified product was carried in Bid, and is no longer obtainable. Provide cost change documentation.
2. there is a significant cost savings offered to the Owner. Provide price comparison of both bid and offered substitution products as well as all collateral costs of the change.

3. Code changes or site conditions require a different item from that bid. Submit as for 2 above.

C. Document each request with complete data substantiating the compliance of a proposed Substitution with the Contract Documents.

D. A request constitutes a representation that the Bidder:
   1. Has investigated the 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 the installation and make changes to other Work which may be required for the Work to be complete with no additional cost to the Owner, including redesign.
   4. Waives claims for additional costs or time extension which may subsequently become apparent.
   5. Will reimburse the Owner and the Design Agent for review or redesign services, including those associated with re-approval by the authorities having jurisdiction.

E. Substitutions will not be considered when they are indicated or implied on the Shop Drawing or Product Data submittals, without a separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure, If Permitted Following Contract Award:
   1. Submit three copies of a request for Substitution for consideration, no later than 20 working days following date of receipt of the Purchase Order for this Contract. Limit each request to one proposed Substitution.
   2. Submit the Shop Drawings, Product Data, and the certified test results attesting to the proposed product equivalence. The burden of proof is on the proposer.
   3. The Design Agent will notify the Contractor in writing of a decision to accept or reject the request. Costs for review time on unsuccessful requests will be included in the next change order.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

01 6010 PRODUCT REQUIREMENTS - Attachment A

A. *"No variations in this section for this Project.".*

END OF ATTACHMENT

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Section 01 6402 Owner Furnished Requirements

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section. This section applies to all specification sections and work of the Contract.

1.1 SECTION INCLUDES: General requirements for "Owner Furnished, Contractor Installed" items.

A. Contractor's Responsibilities for Owner Furnished, Contractor Installed Items:
1. Progress Schedule: Schedule all Owner furnished items.
2. Notify Owner: In writing of dates when Owner furnished items due on site.
3. Advance Notice Requirement: Notify Owner at the earliest possible time.
4. Minimum Notice To Owner: At least 30 days prior to date Owner furnished items due on site.
5. Rough In Information: Obtain directly from vendors to Owner.
    a. Obtain dimensions and clearances including clearances for service access.
    b. Obtain utility requirements including loads and service characteristics.
6. Coordination: Coordinate all rough in, blocking, and related work for Owner furnished items.
7. Receiving: Receive, unload, handle, store on site, and move to installation locations.
8. Inspection: Immediately unpack and inspect items upon receiving.
9. Defective, Missing Items: Immediately notify Owner and deliverer in writing.
10. Damage and Loss By Contractor: Pay for all remedial work, but not defective and missing items originally itemized by Contractor upon receiving.
11. Manufacturer's Requirements: Comply with manufacturer's instructions and recommendations.
12. Assembly: Fully assemble. Comply with manufacturer's recommendations.
13. Installation: Comply with manufacturer's recommendations and Contract specifications.
14. Anchorage: Securely anchor items, but not items intended to be free standing and loose.
    a. Install one fastener for each factory provided fastener hole.
    b. Conceal fasteners to the greatest extent practical.
15. Fasteners: Furnish all fasteners not supplied by manufacturer.
    a. Provide fasteners appropriate for each application.
    b. Provide corrosion resistant fasteners when subject to moisture.
    c. Do not use drywall installation screws.
    d. When visible, provide fasteners finished to match item attached with fastener.
16. Accessories: Fully install all accessories.
17. Utility Connections: Fully connect and make operational.
18. Testing: Test and confirm proper operation and function.
19. Adjusting: Adjust for optimum operation.
20. Touch Up: Touch up and repair minor damage to eliminate evidence of repair.
21. Owner's Manuals, Spare Parts: Package, label, and deliver to Owner.
22. Waste Disposal: Dispose of waste related to Owner furnished items the same as waste related to Contractor furnished items.

B. Owner's Responsibilities for Owner Furnished, Contractor Installed Items:
1. Require vendors to furnish Contractor with rough in and coordination information.
2. Make deliveries by date requested by Contractor.
3. Do not deliver too early. Provide temporary off site storage until Contractor's delivery date.
4. Notify Contractor at least 24 hours in advance of deliveries.
5. Make deliveries during Contractor's normal work hours.
6. Correct all defective and missing items at the earliest possible time.

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C. Contractor's Responsibilities for Reused, Relocated Existing Items:
   1. Coordinate rough in and blocking for items at new installation locations.
   2. Disassemble items as needed for relocation.
   3. Record existing assembly details and conditions to facilitate reassembly.
   4. Provide non-marking, temporary labels to facilitate reassembly.
   5. Salvage, package, and label existing parts, components, and fasteners.
   6. Provide all new components necessary for reassembly and installation.
   7. Provide components equal to original and appropriate for new installation conditions.
   8. Provide all new components needed to replace damaged and missing components.
   9. Provide factory authorized replacement parts to the greatest extent possible.
   10. Reassemble in compliance with manufacturer's original assembly instructions.
   11. Reinstall in compliance with manufacturer's original installation instructions.
   12. Provide complete, fully functional, relocated, and reassembled items.
   13. Fully connect and make operational.
   14. Test and confirm proper operation and function.
   15. Adjust for optimum operation.
   16. Touch up and repair minor damage to eliminate evidence of repair.

D. Owner's Responsibilities for Reused, Relocated Existing Items:
   1. Inspect existing items and record all existing damage and missing components.
   2. Test functional equipment to ensure correct operation.
   3. Provide inspection and test information to the Contractor prior to Contractor's disassembly and relocation.

E. Contractor's Responsibilities for Owner Furnished, Owner Installed Items:
   1. Rough In Information: Obtain directly from vendors to Owner.
      a. Obtain dimensions and clearances including clearances for service access.
      b. Obtain utility requirements including loads and service characteristics.
   2. Coordination: Coordinate all rough in, blocking, and related work for Owner furnished items.

End of Section

SECTION 01 7000 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Examination.

B. Preparation.

C. Field Engineering.

D. Protection of adjacent construction.

E. Cutting and patching.

F. Special procedures.

G. Starting and adjusting of systems.

H. Demonstration and Instructions.

I. Testing, adjusting and balancing.

J. Protecting Installed Construction.

1.02 EXAMINATION

A. Acceptance of Conditions:
   1. Verify that existing applicable site conditions, substrates, or substrate surfaces are acceptable or meet specific requirements of individual specifications Sections, for subsequent Work to proceed.
   2. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
   3. Examine and verify specific conditions described in individual specifications Sections.
   4. Verify that utility services are available, of correct characteristics, and in correct locations.
   5. Beginning of new Work, that relies upon the quality and proper execution of Work of a preceding trade, means acceptance of that preceding Work as appropriate for the proper execution of subsequent Work.
   6. Acceptance of preceding Work that can be shown later to have adversely affected proper performance of new Work may result in removal and repeat performance of all Work involved at no cost to the Owner.

1.03 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 substrate primer, sealer, or conditioner, required or recommended by manufacturer, prior to applying any new material or substance in contact or bond.

D. Prior to the application, installation, or erection of any products and product components, perform any other preparatory operations, or surface or substrate modifications, as may be specified or directed by product manufacturers.

1.04 FIELD ENGINEERING

A. Employ a Land Surveyor registered in the State of Rhode Island and acceptable to Design Agent and the Owner if required by subgrade work.

B. Locate and protect survey control and reference points. Promptly notify Design Agent of any discrepancies discovered.

C. Control Datum for survey is to be agreed to with the Design Agent.

D. Verify setbacks and easements, if any; confirm drawing dimensions and elevations.

E. Provide field-engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

F. Submit a copy of site drawings and certificate signed by the Land Surveyor that the elevations and locations of the Work are in conformance with the Contract Documents.

G. Maintain a complete and accurate log of control and survey work as it progresses.

H. If required by the Owner, on completion of foundation walls and major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

I. Protect survey control points prior to starting site work; preserve permanent reference point during construction.

J. Promptly report to Design Agent the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

K. Replace dislocated survey control point based on original survey control. Make no changes without prior written notice to Design Agent.

1.05 PROTECTION OF ADJACENT CONSTRUCTION

A. Protect existing adjacent properties and provide special protection where specified in individual Specification Sections.

B. Provide protective coverings at wall, projections, jambs, sills, and soffits of existing openings.

C. Protect existing finished floors, stairs, and other existing surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

D. Cover and protect furnishings, materials and equipment within the spaces receiving new work. Move items as necessary to install new work and return them to original locations at the close of construction in that area.

E. Repair adjacent properties damaged by construction operations to original condition to the satisfaction of the Owner.

F. Prohibit unnecessary traffic from existing landscaped areas.

G. Restore grassed landscaped areas damaged by construction operations to full healthy growth, by installing loam and sod to the requirements, and under the supervision of, the University's Associate Director of Lands and Grounds.

1.06 CUTTING AND PATCHING

A. Employ skilled and experienced installers to perform cutting and patching.

B. Submit written request in advance of cutting or altering elements which affect:
   1. Structural integrity of element.
   2. Integrity of weather-exposed or moisture-resistant elements.
   3. Efficiency, maintenance, or safety of element.
   4. Visual qualities of sight-exposed elements.
   5. Existing construction, or Work of separate contractor.

C. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
   1. Fit the several parts together, to integrate with other Work.
   2. Uncover Work to install or correct ill-timed Work.
   3. Remove and replace defective and non-conforming Work.
   4. Remove samples of installed Work for testing.
   5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Execute Work by methods that will avoid damage to other Work, and provide proper surfaces to receive patching and finishing.

E. Cut masonry, concrete, and other rigid materials using masonry saw or core drill.

F. Remove ceiling tiles as necessary to access areas of work. Store and replace carefully to avoid damage. Replace all ceiling tiles damaged during the work with new tiles to match. Repair ACT grid damaged during the work in accordance with this section.

G. Restore Work with new Products in accordance with requirements of Contract Documents.

H. Fit Work tight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.

I. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

J. At penetration of fire rated partitions, ceiling, or floor construction, completely seal voids with fire rated or fire resistant material in accordance with Specifications, to full thickness of the penetrated element.

K. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

L. Identify any hazardous substance or conditions exposed during the Work to the Owner and Design Agent for decision or remedy.

M. See General Conditions for additional requirements.

1.07 SPECIAL PROCEDURES

A. Materials: As specified in product Sections; match existing with new products, or salvaged products as appropriate, for patching and extending work.

B. Employ skilled and experienced installer to perform alteration work.

C. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

D. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

E. Remove debris and abandoned items from area and from concealed spaces.

F. Prepare surface and remove surface finishes to provide installation of new Work and finishes.

G. Close openings in exterior surfaces to protect existing Work from weather and extremes of temperature and humidity.

H. Remove, cut, and patch Work in a manner to minimize damage and to provide means of restoring products and finishes to original or specified condition.

I. Refinish existing visible surfaces to remain in renovated rooms and spaces to specified condition for each material, with a neat transition to adjacent finishes.

J. Where new Work abuts or aligns with existing, provide a smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

K. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and submit recommendation to Design Agent for review.

L. Where a change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition to Design Agent for review.

M. Trim existing doors as necessary to clear new floor finish. Refinish trim as required.

N. Patch or replace portions of existing surfaces which are damaged, or showing other imperfections.

O. Finish surfaces as specified in individual product Sections, or as indicated on the Drawings.

1.08 STARTING AND ADJUSTING OF SYSTEMS

A. Coordinate schedule for starting and adjusting of various equipment and systems.

B. Notify Design Agent and Owner seven days prior to starting and adjusting of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.

D. Verify that tests, meter readings and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Execute starting and adjusting under supervision of responsible Contractor's personnel or manufacturer's representative, in accordance with manufacturer's instructions.

G. Adjust operating Products and equipment to ensure smooth and unhindered operation.

H. When specified in individual specifications Section, require manufacturer to provide authorized representative to be present at the site to inspect, check, and approve equipment or system installation prior to starting, and to supervise placing of equipment or system in operation.

I. Submit a written report in accordance with Section 01400 that equipment or system has been properly installed and is functioning correctly.

1.09 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manuals with Owner's personnel in detail to explain all aspects of operation and maintenance.

D. Demonstrate start-up, operation, control, adjustment, trouble shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled or agreed upon times, at equipment or system location.

E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

1.10 TESTING, ADJUSTING, AND BALANCING

A. Submit, for the Owner's approval, the name of an independent firm to perform testing of fire systems. The independent firm's services will be paid for by the Contractor.

B. The independent firm will perform services specified in individual specifications Sections.

C. Reports will be submitted by the independent firm to the Design Agent and the Owner indicating observations and test results, indicating compliance or non-compliance with specified requirements and with the requirements of the Contract Documents.

1.11 PROTECTING INSTALLED CONSTRUCTION

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

E. Repair or replace installed Work damaged by construction operations, as directed by the Design Agent.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

01 7010 EXECUTION REQUIREMENTS - Attachment A

A. Daily Attendance Form

1. Maintain Daily Attendance Form acceptable to the Department of Labor and Training for all projects with a contract value over $1Million. Submit as requested.

END OF ATTACHMENT

SECTION 01 7320

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: May be used as blocking or furring.
   5. Land clearing debris, including brush, branches, logs, and stumps.
   6. 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.
   7. Glass.
   8. Gypsum drywall and plaster.
   9. Plastic buckets.
   10. Paper, including wrapping, newsprint, and office.

E. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, incineration, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports. Submit in accordance with Section 01 3300.

F. Contractor shall develop and follow a Waste Management Plan designed to implement these requirements.

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.

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 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. Section 01 5000 - Temporary Facilities and Controls: Additional requirements related to trash/waste collection and removal facilities and services.

C. Section 01 6000 - Product Requirements: Waste prevention requirements related to delivery, storage, and handling.

D. Section 01 7000 - Execution Requirements: Trash/waste prevention procedures related to

demolition, cutting and patching, installation, protection, and cleaning.

1.03 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.

1.04 SUBMITTALS

A. See Section 01 3300 for submittal procedures.

B. 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 Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).
   3. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling.
   4. Meetings: Describe regular meetings to be held to address waste prevention, reduction, recycling, salvage, reuse, and disposal.

5. Materials Handling Procedures: Describe the means by which materials to be diverted from landfills will be protected from contamination and prepared for acceptance by designated facilities; include separation procedures for recyclables, storage, and packaging.
6. Transportation: Identify the destination and means of transportation of materials to be recycled; i.e. whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler.

C. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.
1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
2. Submit Report on a form acceptable to Owner.
3. Landfill Disposal: Include the following information:
   a. Identification of material.
   b. Amount, in tons or cubic yards, of trash/waste material from the project disposed of in landfills.
   c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
4. Incinerator Disposal: Include the following information:
   a. Identification of material.
   b. Amount, in tons or cubic yards, of trash/waste material from the project delivered to incinerators.
   c. State the identity of incinerators, total amount of fees paid to incinerator, and total disposal cost.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
5. Recycled and Salvaged Materials: Include the following information for each:
   a. Identification of material, including those retrieved by installer for use on other projects.
   b. Amount, in tons or cubic yards, date removed from the project site, and receiving party.
   c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
   e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
6. Material Reused on Project: Include the following information for each:
   a. Identification of material and how it was used in the project.
   b. Amount, in tons or cubic yards.
   c. Include weight tickets as evidence of quantity.
7. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.

PART 2 PRODUCTS (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, Owner's Recycling and Solid Waste Coordinator, and Design Agent.

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.
1. Pre-bid meeting.
2. Pre-construction meeting.
3. Regular job-site 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. Provide containers as required.
2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
3. 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

01 7330 WASTE MANAGEMENT - Attachment A

A. *"No variations in this section for this Project.".*

END OF ATTACHMENT

SECTION 01 7800 - CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Closeout procedures.

B. Quality assurance.

C. Maintenance service.

D. Operations and maintenance manuals.

E. Materials and finishes manuals.

F. Equipment and systems manuals.

G. Spare parts and maintenance materials.

H. Product warranties and product bonds.

I. Project Record documents.

1.02 CLOSEOUT PROCEDURES

A. Submit a written certification that the Contract Documents have been reviewed, the Work has been inspected, and that the Work is complete in accordance with the Contract Documents and is ready for the Owner's review.

B. Provide submittals to Design Agent that are required by governing or other authorities, including
abatement invoices correctly prepared as proscribed in the abatement plan. Failure to include correctly prepared abatement invoices will delay issuing of final payment.

C. Provide submittals to Design Agent that are required by the governing or other authorities, including
the following closeout documents:
1. AIA Document G706 - Contractor's Affidavit of Payment of Debts and Claims
2. AIA Document G706A - Contractor's Affidavit of Release of Liens
3. AIA Document G707 - Consent of Surety to Final payment

D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

E. The Owner will occupy all portions of the building after Substantial Completion as specified in Section 01 1000.

1.03 QUALITY ASSURANCE

A. Employ personnel assembling submittals experienced in the maintenance and the operation of the described products and systems.

1.04 MAINTENANCE SERVICE

A. Submit a contract for furnishing service and maintenance of the components indicated in the specification Sections for one year from date of Substantial Completion, or during the warranty period, whichever period of time is the longest.

B. Provide for an examination of the system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

C. Include a systematic cleaning, examination, adjustment, and lubrication of the components. Repair or replace the parts whenever required. Use the parts produced by the manufacturer of the original component.

D. Do not assign or transfer the maintenance service to an agent or Subcontractor without the prior written consent of the Owner.

1.05 OWNER'S MANUALS

A. Submit the data for Operations and Maintenance, Materials and Finishes, and Equipment and Systems Manuals bound in 8-1/2 x 11 inch text pages, in minimum 2 inch size three D side ring commercial quality binders with durable cleanable plastic covers.

B. Prepare binder covers with the printed title of the manual, title of the project, and the subject matter of binder. Label each spine with the following: Building, project or facility name, OCP project number, submission date.

C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

D. Drawings: Provide with reinforced punched binder tab. Bind in with the text; fold the larger drawings to the size of the text pages.

E. Submit two copies of a preliminary draft of the proposed formats and outline of the contents before the start of work. The Design Agent and its consultants will review drafts and return one copy with comments.

F. Submit one copy of the completed volumes 15 days prior to final inspection for final review. This copy will be reviewed and returned after final inspection, with the Design Agent's comments. Revise the content of the document sets as required prior to final submission.

G. Submit three sets of revised final volumes plus electronic copy in final form within ten days after final inspection.

1.06 OPERATIONS AND MAINTENANCE MANUALS

A. Contents: Prepare the Table of Contents for each volume, with each product or system description identified, in three parts as follows:
   1. **Part 1:** Directory, listing the names, addresses, and telephone numbers of the Design Agent, its Consultants, Contractor, Subcontractors, and major equipment suppliers.
   2. **Part 2:** Operation and maintenance instructions, arranged by system and subdivided by the specification Section. For each category, identify the names, addresses, and telephone numbers of the 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. Originals of warranties and bonds.
   4. **Part 4:** Scan entire manual and provide 3 copies on disc in electronic PDF format.

1.07 MATERIALS AND FINISHES MANUALS

A. Building Products, Applied Materials, and Finishes: Include product data, with the catalog number, size, composition, and the color and texture designations. Include information for re-ordering custom manufactured products.

B. Instruction for Care and Maintenance: include manufacturer's instructions for cleaning agents and methods, precautions against detrimental agents and methods, and a 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. Include recommendations for inspections, maintenance, and repair.

D. Additional Requirements: As specified in the individual product specification Sections.

E. Include a listing in the Table of Contents for design data, with a tabbed flysheet and a space for the insertion of data.

1.08 EQUIPMENT AND SYSTEMS MANUALS

A. For equipment, or component parts of equipment put into service during construction and operated by the Owner, submit documents within 10 days after acceptance.

B. Each Item of Equipment and Each System: Include a description of the unit or system, and the component parts. Identify the function, normal operating characteristics, and limiting conditions. Include performance curves, with priming data and tests, and complete nomenclature and model number of replaceable parts.

C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

D. Include color-coded wiring diagrams as installed.

E. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and special operating instructions.

F. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

G. Include a servicing and lubricating schedule, and a list of lubricants required.

H. Include the manufacturer's printed operation and maintenance instructions.

I. Include sequence of operation by the controls manufacturer.

J. Include the original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

K. Include control diagrams by the controls manufacturer as installed.

L. Include the Contractor's coordination drawings, with color-coded piping diagrams as installed.

M. Include charts of valve tag numbers, with the location and function of each valve, keyed to the flow and control diagrams.

N. Include a list of the original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

O. Include test and balancing reports as specified in Section 01400.

P. Additional Requirements: As specified in the individual product specification Sections.

1.09 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Furnish spare parts, maintenance, and extra products (attic stock) in the quantities specified in the individual specification Sections.

B. Deliver to the Project site and place in a location as directed by the Owner; obtain a receipt prior to final payment.

1.10 PRODUCT WARRANTIES AND PRODUCT BONDS

A. Obtain warranties and bonds executed in duplicate by the responsible subcontractors, suppliers, and manufacturers, within 10 days after the completion of the applicable item of work.

B. Execute and assemble the transferable warranty documents and bonds from the subcontractors, suppliers, and manufacturers.

C. Verify that the documents are in the proper form, contain full information, and are notarized.

D. Co-execute the submittals when required.

E. Include in the Operations and Maintenance Manuals within the appropriate material specification section.

F. Submit prior to the final Application for Payment. For items of Work for which acceptance is delayed beyond the Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty or bond period.

1.11 PROJECT RECORD DOCUMENTS

A. Maintain on the site one set of the following record documents; record actual revisions of the Work for all trades:
   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 instructions for assembly, installation, and adjusting.

B. Ensure the entries are complete and accurate, enabling future reference by the Owner.

C. Store the record documents separate from the documents used for construction.

D. Record information concurrent with the construction progress, not less than weekly.

E. Specifications: Legibly mark and record at each product Section description of the 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.

F. Record Drawings and Shop Drawings: Legibly mark each item to record the actual construction including:
   1. Measured horizontal and vertical locations of the underground utilities and appurtenances, referenced to permanent surface improvements. Include the locations and description of any existing utility lines and other existing installations of any kind or description encountered during construction. Note all changes in size, material, location, and elevation of all new or abandoned underground utility lines and pertinent work, including site grading. Document topography and drainage changes. Show the location of all valves, manholes, etc. and include dimensions to permanent features such as building corners. Note direction of each new valve opening. Show clearances between new utilities and existing crossed lines. Locate all bends, thrust blocks, and other restraints.
   2. The placement, size, and type of any fire extinguishers.
   3. Measured locations of internal utilities and appurtenances concealed in the construction.
   4. Field changes of dimension and detail.
   5. Details not on the original Contract drawings.

G. Legibly marked Specifications, and legibly marked Record Drawings and Shop Drawings shall constitute the Project Record Documents in paper form.

H. At completion of the Work of the Contract, the Contractor shall retain competent drafting personnel to transfer the information from the Project Record Documents in paper form to editable electronic formats to create “As-Built” Documents on base files provided by the Design Agent. The record construction drawings shall be produced in both AutoCAD format plus a record PDF copy of each drawing. AutoCAD files shall include all XREF, font, image, shape, and plot files. PDF files shall be saved full sheet size. The record Project Manual shall be in Microsoft Word form plus a record PDF of the entire manual. The electronic media containing this information will constitute the Project Record Documents in digital form, sometimes referred to as the “As-Built” Documents. Acceptable media are write-protected CD-R format discs or flash drives. Submit one full size printed set of drawings and specifications on 20 lb. white bond made from the As-Built files in addition to the electronic media.

I. Associated materials including but not limited to the following are also required to be submitted at project close-out: shop drawings and cut sheets, RFIs, correspondence and meeting minutes, LEED scorecards, construction progress photographs, DEM permits including generator permits, certificates including Final Certificate of Occupancy, boiler and elevator certificates, easement rights, National Grid Rebate Applications, test and inspection documentation including fire pump test data, asbestos abatement plans and manifests. These materials may be

submitted in either paper or PDF digital format, organized by specification number, and clearly labeled. If paper copies are submitted, each box must be clearly labeled as to specific contents.

J. If the project required geotechnical, archeological, or other miscellaneous studies or other reports, these shall also be submitted as Record Document in either paper or digital format.

K. Labeling: In all cases, paper or digital submissions must contain the following information: Building, project or facility name, OCP Project number, submission date, and specific content index.

L. No review or receipt of Project Record Documents by the Design Agent or the Owner shall be interpreted as a waiver of any deviation from the Contract Documents or Shop Drawings, or in any way relieve the Contractor from responsibility to perform the Work in accordance with the Contract Documents and the Shop Drawings.

M. Update the on-site Project Record Documents on a regular basis. Monthly payments will not be processed if Project Record Documents are not maintained up to date.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01 7810 CLOSEOUT REQUIREMENTS - Attachment A

A. *Insert any variations or "No variations in this section for this Project.".*

END OF ATTACHMENT

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Section 02 4120 Selective Demolition

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section. This section applies to all specification sections and work of the Contract.

1.1 SECTION INCLUDES:

A. Work Includes: Selective demolition, removal, and disposal of existing construction, materials, products, and systems within the building footprint as indicated including work not indicated, but needed to complete the work of the Contract. Without limitation, work includes:
1. Coordinate utility disconnection, cutting, and capping.
2. Confirm electrically connected items and electrical conductors are deenergized.
3. Salvage items indicated.
4. Cut new openings in existing assemblies.
5. Provide exploratory selective demolition to expose concealed conditions and details.
6. Temporary shoring and bracing.

B. Existing Special Handling and Disposal Materials: Selective demolition includes removal and disposal of existing materials which require special handling and disposal.

C. Contract Document Limitations: The Contract Documents do not itemize all existing elements, existing items, existing conditions, nor the complete scope and limits of selective demolition work.
1. Dispute Resolution: In the absence of a formal “Request for Information”, the Contract shall be interpreted to include and require the disputed selective demolition work at no increased cost to the Owner.

D. Engineer: Comply with Section 01 4400 Engineering By Contractor for all temporary shoring and bracing.

E. Field Verification of Structure: The Contractor’s Engineer shall field verify and certify actual building structural systems prior to selective demolition of any structural elements and any partitions including partitions indicated to be non load bearing and partitions indicated to be wholely or partly demolished.
1. Construction Documents may be based on inaccurate “as built” information.
2. Construction Documents and existing structural systems may not have been verified due to exploratory demolition limitations including, without limitation, access limitations.
3. Provide exploratory demolition of architectural finishes and ceilings to expose structural systems for verification by Contractor’s Engineer.

1.2 SUBMITTALS:

A. Disposition List of Existing Items: Prior to selective demolition and removal of any fixture, furnishing, or equipment, prepare and submit a detailed, itemized list of all loose and attached existing fixtures, furnishings, and equipment in each room identified by room number shown on the Contract Documents. On the list, provide four columns for disposition as follows. In the columns, indicate the Contractor’s understanding of disposition for each item. Obtain Owner’s and Architect’s approval of the disposition list prior to removal of any item. Comply with the Owner’s and Architect’s disposition list revisions, if any. Disposition columns are:
1. Salvage Type 1 - Salvage In Place

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2. Salvage Type 2 - Salvage for Relocation and Reuse On This Project
3. Salvage Type 3 - Salvage for Relocation To Owner's Storage, Not Reused On This Project
4. Salvage Type 4 - Contractor's Salvage, Remove and Dispose.

B. Selective Demolition Techniques for Floors: Provide detailed information on methods to be used to remove existing floor finishes, adhesives, and residue.

1.3 QUALITY ASSURANCE:

A. Special Coordination - Interface of New Work with Existing: Selective demolition work requires extensive coordination with all trades and new work of the Contract. Take field dimensions, verify existing conditions, convene on site conferences with other trades, and review shop drawings and submittals of other work before cutting and demolishing. Execute selective demolition with planning, control, and precision so new work interfaces with existing work.

Part 2 - Products

Part 3 - Execution

3.1 SALVAGE REQUIREMENTS:

A. Salvage Type 1 - Salvage In Place: Cover and effectively protect the salvage items to prevent all damage and deterioration including, without limitation, weather damage, freezing damage, water damage, impact damage, soiling, and theft. If new utilities or services are indicated, disconnect from existing utilities. Seal openings and cap utility connections to prevent intrusion of dust and debris.

B. Salvage Type 2 - Salvage for Relocation and Reuse On This Project:
1. Disconnect and disassemble items to permit removal, handling, and storage.
2. Ensure that all components, parts, and fasteners are saved, packaged, and labeled.
3. Record disassembly to facilitate reassembly.
4. Cover, package, and protect salvage items to prevent all damage and deterioration.
5. Clearly label to identify item, purpose, original location, and final location.
6. Store items in secure, weather protected enclosures until reinstalled.

C. Salvage Type 3 - Salvage for Relocation To Owner's Storage, Items Not Reused On This Project: Comply with Salvage Type 2 except deliver and unload items at Owner's off site storage location within 25 miles of the work limits.
1. Special Crating for Salvaged Items: Not required.

D. Salvage Type 4 - Contractor's Salvage, Remove and Dispose: Items indicated as "Salvage Type 4" on the "Disposition List" shall become the Contractor's property when the Contractor takes possession of the work limits. These items may be salvaged or sold for the Contractor's benefit. No sales or auctions are permitted at the site.

E. Incidental Salvage - Temporary Removal and Reinstallation of Existing Items: Carefully remove existing items including, without limitation: suspended ceiling tiles, cover plates, escutcheons, trims, fixtures, furnishings, equipment, and other items to provide access for all work of the Contract.
1. Store and protect the removed items from all damage, loss, and theft.
2. Reinstall the items after work of the Contract is complete.

3.2 SELECTIVE DEMOLITION GENERAL REQUIREMENTS:

A. Existing Conditions: Investigate and determine conditions of assemblies to be demolished.

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B. Means, Methods, Techniques:
   1. The Contractor is solely responsible for demolition means, methods, and techniques.
   2. Temporary shoring and bracing is “means, methods, and techniques”.
   3. Methods and sequence of demolition is “means, methods, and techniques”.
C. Existing Fire Protection Systems: Maintain existing fire protection, alarm, and suppression systems in operation to the greatest extent practical.
D. Basic Requirements: Comply with requirements of authorities having jurisdiction.
   1. Demolish safely.
   2. Remove existing construction indicated.
   3. Remove existing construction necessary to accommodate new work.
   4. Plan, control, and execute demolition to accommodate interface of new work to existing.
   5. Demolish completely down to bare, broom clean substrates.
   6. Remove residue which interferes with installation of new work.
   7. Remove fasteners, wires, hangers, projecting items, surface items, and abandoned items.
   8. Keep interior areas dry and weather protected during demolition.
   9. Do not cause or allow uncontrolled collapse.
   10. Demolish in small, controlled sections.
   11. Do not overload structures by concentrating debris or with demolition carts or machinery.
E. Cut and Capped Utilities and Systems: When cap would be visible in the completed Contract:
   1. Recess the cap 2 inches below or behind the wall, floor, ceiling, or surface.
   2. Patching is not demolition work and is specified in other Contract Documents.
F. Concrete Reinforcing Steel: Do not expose cut rebar to view in the completed Contract.
   1. Cut the rebar 1.5 inches below the surface of the concrete.
   2. Patching is not demolition work and is specified in other Contract Documents.
G. Disposal: Remove demolition materials from site and dispose of legally.
   1. Burning on site is not permitted.
   2. Burial on site is not permitted.
   3. Comply with Contract requirements for recycling, if any.
H. Regulated Disposal: Comply with requirements of authorities having jurisdiction.
   1. Dismantle existing assemblies to provide access to the regulated material or item.
   2. Segregate and collect regulated disposal materials. Isolate from non regulated waste.
   3. Package, label, and dispose of regulated materials to comply with regulatory requirements.
   4. Provide certified records of legal disposal.

3.3 SELECTIVE DEMOLITION SPECIFIC REQUIREMENTS: If not specifically indicated otherwise on Drawings, the following requirements apply:
A. Interior Partitions: Remove completely and entirely, except where partition is indicated to remain.
B. Ceilings: Remove ceilings and ceiling mounted items and systems in their entirety including all hangers, wires, struts, framing, bracing, supports, adhesives, residue, and traces of previous finishes.
C. Floor Finishes and Subfloors: Remove all finishes, adhesives, residue, curing compounds, films, coatings, sealers, paint, oil, grease, dirt, dust, debris, contamination, and all foreign materials.
   1. Steel shot blast and vacuum subfloors, but not existing resilient flooring and adhesive.
   2. For resilient floor finishes and adhesive, comply with Resilient Floor Covering Institute “Recommended Work Practices for Removal of Resilient Floor Coverings”, January 1998.
   3. Create the following surface profiles:
      a. Areas To Receive Cement Underlayment or Subfloor Treatment: 50 mils to 0.125 inch.
      b. Areas To Receive High Build Coatings: 10 to 40 mils.
      c. Areas To Receive Thin Film Coatings and Finish Floor Adhesive: 6 to 10 mils.
   4. Do not chip, crack, crater, gouge, or damage subfloors.
   5. Do not use solvents. [May affect installation of new floor finishes and new finish warranty.]
   6. Do not water blast or water jet. [May cause subfloor moisture problems and water damage.]

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D. Equipment, Utilities, Systems, and Abandoned Items: Remove in their entirety including pipes, conduits, raceways, fittings, boxes, panels, hangers, clips, holders, anchors, fasteners, and all components and accessories.
   1. "Abandoned" means the item is not operational in the completed Contract.
E. Large Items: Cut apart or disassemble so the item can be removed through available openings.
F. Cut New Openings In Existing Construction: Provide all new openings needed to accommodate work of the Contract. Comply with Section 01 7328 Cutting Requirements.
G. Exploratory Demolition: Provide selective demolition to expose existing concealed conditions.
   1. Obtain Architect's inspection prior to continuing with work.

End of Section

Section 03 3000 Cast In Place Concrete

Part 1 – General

1.0 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. General Notes, Sections, Plans, Typical Details, and other notes indicated on the structural drawings. In cases of conflict, information indicated on the structural drawings shall govern.

1.2 SUMMARY:

A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
   1. Footings.
   2. Foundation walls.
   3. Slabs-on-grade.
   4. Concrete toppings.
   5. Cast in place concrete stairs.

B. Related Sections include the following:
   1. Division 2 Section "Earthwork" for drainage fill under slabs-on-grade.

1.3 DEFINITIONS:

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS:

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
   1. Indicate amounts of mixing water to be withheld for later addition at Project site.

C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

D. Qualification Data: For Installer, manufacturers, and testing agency.

E. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
   1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

F. Material Certificates: For each of the following, signed by manufacturers:
   1. Cementitious materials.
   2. Admixtures.
   3. Form materials and form-release agents.
   4. Steel reinforcement and accessories.
   5. Waterstops.
   6. Curing compounds.
   7. Floor and slab treatments.
   8. Bonding agents.
   9. Adhesives.

10. Vapor retarders.
11. Semi rigid joint filler.
12. Repair materials.

G. Floor surface flatness and levelness measurements to determine compliance with specified tolerances.

H. Field quality-control test and inspection reports.

I. Minutes of preinstallation conference.

1.4 QUALITY ASSURANCE:

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548. Refer to Section 01 4533, “Code Required Special Inspections and Procedures”.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
2 Retain subparagraph below if requiring minimum qualifications for laboratory personnel performing testing and for laboratory supervisor.
3. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.

E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

4. ACI 301, "Specification for Structural Concrete,"Sections 1 through 5 and Section 7, "Lightweight Concrete."
5. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

F. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

G. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

6. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
   a. Contractor's superintendent.
   b. Independent testing agency responsible for concrete design mixtures.
   c. Ready-mix concrete manufacturer.
   d. Concrete subcontractor.
7. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement

installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

Part 2 – Products

2.1 FORM-FACING MATERIALS:

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
   1. Plywood, metal, or other approved panel materials.
   2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
      a. High-density overlay, Class 1 or better.
      b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
      c. Structural 1, B-B or better; mill oiled and edge sealed.
      d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.

E. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
   1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

F. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
   1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
   2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
   3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCEMENT:

A. Delete or revise this Article to suit steel reinforcement requirements.

B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

C. Weldable reinforcing bars: A706/A706M-05a Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement

D. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

2.3 REINFORCEMENT ACCESSORIES:

A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.4 CONCRETE MATERIALS:

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
   1. Portland Cement: ASTM C 150, Type I/II, gray.

B. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
   1. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
   2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Lightweight Aggregate: ASTM C 330, 1/2-inch nominal maximum aggregate size.

D. Water: ASTM C 94/C 94M and potable.

2.5 ADMIXTURES:

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
   1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
   2. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

2.6 WATERSTOPS:

A. Flexible PVC Waterstops: CE CRD-C 572, with factory-installed metal eyelets, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.

2.7 VAPOR RETARDERS:

A. Vapor Retarder: Refer to Section 07 2165 “Underslab Vapor Retarder”.

B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448, Size 57, with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

2.8 CURING MATERIALS:

A. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

B. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.9 RELATED MATERIALS:

A. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 aromatic polyurea with a Type A shore durometer hardness range of 90 to 95 per ASTM D 2240.

B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
   1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.10 REPAIR MATERIALS:

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
   1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
   2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
   3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
   4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
   1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
   2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
   3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
   4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

2.11 CONCRETE MIXTURES, GENERAL:

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
   1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

C. Admixtures: Use admixtures according to manufacturer's written instructions.
   1. Use water-reducing or high-range water-reducing admixture in concrete, as required, for placement and workability.
   2. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS:

A. Composite Slab Concrete: Proportion structural lightweight concrete mixture as follows:
   1. Minimum Compressive Strength: 3000psi at 7 days, 4000psi at 28 days.
   2. Calculated Equilibrium Unit Weight: 110 lb/cu. ft., plus or minus 3 lb/cu. ft. as determined by ASTM C 567.
   3. Slump Limit: 4 inches, plus or minus 1 inch.
   4. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

B. Footings Only: Proportion normal-weight concrete mixture as follows (Unit weight = 145pcf):
   1. Minimum Compressive Strength: 2250psi at 7 days, 3000psi at 28 days.
   2. Maximum Water-Cementitious Materials Ratio: 0.45.
   3. Slump Limit: 4 inches, plus or minus 1 inch.
   4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch nominal maximum aggregate size (applies to footings and foundation walls, and all other concrete exposed to freeze/thaw action).

C. Foundation Walls, Slabs on Grade, and all other concrete: Proportion normal-weight concrete mixture as follows (Unit weight = 145pcf):

1. Minimum Compressive Strength: 3000psi at 7 days, 4000psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45.
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch nominal maximum aggregate size (applies to footings and foundation walls, and all other concrete exposed to freeze/thaw action).

2.13 FABRICATING REINFORCEMENT:

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.14 CONCRETE MIXING:

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
   1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

2.15 CONCRETE MOISTURE VAPOR REDUCTION ADMIXTURE

A. Concrete Moisture Vapor Reduction Admixture (MVRA): Concrete moisture vapor reduction admixture for elevated slabs at Levels 2, 3, and 4 shall be a non-toxic, liquid admixture that is specifically designed to have a natural chemical reaction with pre-existing elements inside the concrete to eliminate the route of moisture vapor emission through the slab by restricting the integral capillary system. The chemical reaction forms a permanent barrier (capillary break) that is integral to the concrete, insoluble and irremovable.

1. Basis-of-Design Product: "Barrier One High Performance Concrete Admixture" manufactured by Barrier One, Inc..; 522 S. Hunt Club Blvd., #303, Apopka, Florida 32703; Contact Manufacturer's representative: P: 877.224.5850, F: 866.594.3490 or Email at: info@barrierone.com .

2. Provide the above named product or, upon approval of the Architect/Structural Engineer, provide a product that meets or exceeds the below project specific performance requirements at the expense of the concrete moisture vapor reduction admixture (MVRA) manufacturer:

a. Project specific quality control process to include but not limited to:
   1) Independent procurement of one cylinder per day of placement of concrete containing MVRA; do not proceed without MVRA representative being present
   2) Independent testing of all cylinders for hydraulic conductivity per ASTM D5084
   3) Assessing each cylinder for maximum flow of 6.0 E-08 cm/sec
   4) Should any cylinder exceed the maximum flow, procure a core from that day's placement
   5) Independently test core for hydraulic conductivity per ASTM D5084
   6) Should any core exceed the maximum flow, provide a topical moisture mitigation system for all areas not meeting the stated limit; moisture mitigation system to include all labor, material and warranty that meets or exceeds the terms of the concrete moisture vapor reduction admixture manufacturer's warranty

b. Warranty requirements: Said product must be installed according to and in compliance with the manufacturer's published data sheet to include but not limited to dosing instructions, onsite representation requirements, and the use of an ASTM E 1745 vapor retarder, installed following ASTM E 1643 and ASTM F 710 guidelines; suspended concrete slabs do not require a vapor retarder.

1) MVRA Manufacturer's warranty shall include:

a) Term: Life of the concrete

b) Repair and/or removal of failed flooring

c) Placement of a topical moisture remediation system

d) Replacement of flooring materials like original installed to include material and labor

2) MVRA Manufacturer shall provide an adhesion warranty to match the term of the adhesive manufacturer's warranty in accordance with the MVRA manufacturer's requirements for conveyance of such.

Part 3 – Execution

3.1 FORMWORK:

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
1. Class A, 1/8 inch for smooth-formed finished surfaces.
2. Class B, 1/4 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS:

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
   1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
   2. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING FORMS:

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
   1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
   2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 VAPOR RETARDERS:

A. Plastic Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.
   1. Lap joints 6 inches and seal with manufacturer's recommended tape.

B. Granular Course: Cover vapor retarder with granular fill, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch or minus 3/4 inch.

3.5 STEEL REINFORCEMENT:

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
   1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.6 JOINTS:

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

D. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

3.7 WATERSTOPS:

A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.

3.8 CONCRETE PLACEMENT:

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.

2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

F. Hot-Weather Placement: Comply with ACI 301 and as follows:
1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.9 FINISHING FORMED SURFACES:

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces exposed to public view,.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS:

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
1. Apply float finish to surfaces indicated by architect.

C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
   1. Apply a trowel finish to surfaces indicated by architect.
   2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
      a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 25.

D. Concrete shall be finished to a smooth, but non-burnished finish, free of trowel ridges. This finish is allowing excess moisture to evaporate at a reasonably steady rate. This surface should be sufficiently flat and provide a small amount of “tooth” for the adhesive to mechanically adhere to.

3.11 MISCELLANEOUS CONCRETE ITEMS:

A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.
D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel-finish concrete surfaces.

3.12 CONCRETE PROTECTING AND CURING:

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
   1. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.13 JOINT FILLING:

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
   1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.
B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.14 CONCRETE SURFACE REPAIRS:

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
   1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete, but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
   2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
   3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
   1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
   2. After concrete has cured at least 14 days, correct high areas by grinding.
   3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
   4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
   5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
   6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
   7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and

loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.15 FIELD QUALITY CONTROL:

A. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports. Refer to Section 01 4533 “Code Required Special Inspections and Procedures”.

B. Inspections:
1. Steel reinforcement placement.
2. Headed bolts and studs.
3. Verification of use of required design mixture.
4. Concrete placement, including conveying and depositing.
5. Curing procedures and maintenance of curing temperature.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
   a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173/C 173M, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
6. Compression Test Specimens: ASTM C 31/C 31M.
   a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
7. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
   a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
9. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design

compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
13. Correct deficiencies in the Work that test reports and inspections indicate dos not comply with the Contract Documents.

D. Measure floor and slab flatness and levelness according to ASTM E 1155 within 24 hours of finishing.

End of Section

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Section 05 0502 Architecturally Exposed Steel

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES: Requirements for architecturally exposed steel.

A. Applications: These specifications are applicable to structural steel fabrications, non structural steel fabrications, “miscellaneous metals” fabrications, and other steel fabrications and assemblies shown to be “architecturally exposed steel”.

1.2 SUBMITTALS:
A. Visible Weld Samples: Comply with Section 05 0505 Welding Metals.
B. Bolted Connection Samples: Submit samples of each connection.

Part 2 - Products

2.1 STEEL MATERIALS: Provide as specified in sections requiring “architecturally exposed steel”.

2.2 SHOP FINISHES: Provide as specified in sections requiring “architecturally exposed steel”.

Part 3 - Execution

3.1 REQUIREMENTS FOR ARCHITECTURALLY EXPOSED STEEL:
A. Standards:
1. Comply with AISC “Code of Standard Practice” Section 10, as amended by this section.
2. “Architecturally Exposed Structural Steel” supplement to Modern Steel Construction, May 2003.
B. Special Care In Processing: Comply with AISC “Code of Standard Practice” Section 10.4.1.
C. Fabrication Tolerances: One half tolerances specified in “Code of Standard Practice” Section 10.
D. Erection Tolerances: Comply with AISC “Code of Standard Practice” Section 10.
E. Visible Welds: Comply with Section 05 0505 Welding Metals, “Visible Welds In Public Areas”.
1. Provide continuous welds for all visible welds.
2. Grind and remove visible weld distortion.
F. Visible Welding Aids: Allowed only if removed with no evidence of use.
G. Visible Welding Access Holes: Prohibited.
H. Joint Gap Tolerance: Provide 0.125 inch wide joints within tolerance of 0.03 inch.
I. Visible Temporary Marks, Shop Marks, Mill Marks: Prohibited.
J. Open Ends of Hollow Members: Prohibited. Provide custom fabricated, welded closure plates.
K. Torch Cutting: Prohibited.
L. Cut, Sheared, and Burned Edges: Grind and finish to match mill rolled edges.
M. Joints and Splices: Provide only where shown or preapproved by Architect.
N. Bolt Heads: Locate consistently and on the same visual side as preapproved by Architect.
O. Unfair Holes: Do not enlarge by burning or drift pins. Refabricate as needed.
P. Touch Up: Restore shop finishes to eliminate evidence of repair.

End of Section

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Section 05 0505 Welding Metals

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES: Requirements for welding architectural metal assemblies.

1.2 SUBMITTALS:
- A. Welder Qualifications: Submit evidence that each welder is currently a "Certified Welder" under "AWS QC7 Standard for AWS Certified Welders" for the types of welds, processes, metals, positions, and thicknesses required by the Contract.
- B. Visible Weld Samples: Submit samples of each type of weld and weld configuration.
  1. Show welding, filling, grinding, contouring, blending, texturing, and final appearance.

Part 2 - Products

2.1 WELDING MATERIALS AND PRODUCTS: Contractor's option except if restricted by other Contract Documents.

2.2 PAINT: Match original shop paint in material, quality, and appearance.
- A. VOC Content: ≤250 grams per liter.
- B. Galvanized Metals: Comply with Section 05 0510 Hot Dip Galvanizing.

Part 3 - Execution

3.1 WELDING METALS - GENERAL:
- A. Standard: "D1.1 Structural Welding Code", American Welding Society, www.aws.org
- B. Weld Strength: Provide structural welds ≥ strength of materials being welded.
- C. Touch Up Painted Metals: Prime paint all welds.
  1. Provide uniform, continuous 1.0 to 1.5 mils dry film paint thickness.
  2. Touch up damaged shop paint coatings.
- D. Touch Up Galvanized Metals: Comply with Section 05 0510 Hot Dip Galvanizing.

3.2 ADDITIONAL REQUIREMENTS FOR VISIBLE WELDS IN PUBLIC AREAS:
- A. Standard: Finish #1, "Guideline 1 Joint Finishes", National Ornamental & Miscellaneous Metals Association,www.nomma.org.
- B. Match Architect approved samples.
- C. Provide continuous welding. Do not spot weld or intermittent weld.
- D. Provide visually uniform welding.
- E. Position weld to minimize the visible weld appearance.
- F. Position weld so the weld can be ground smooth, contoured, and blended without reducing strength.
- G. Fill all voids and holes with additional weld metal.
- H. Grind welds smooth, then contour and blend to adjacent surfaces.
- I. Make welded joints appear seamless with no distinguishable weld.
- J. Texture welds to match texture of adjacent unwelded metal surfaces.
- K. Prevent heat distortion.
  1. Eliminate visible evidence of heat distortion.
- L. Remove all weld splatter and flux residue from visible surfaces.

End of Section

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Section 05 0515 Factory Applied Metal Finishes

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Factory applied metal finishes.

B. Related Sections: Without limitation, related sections include:
Section 05 0510 Hot Dip Galvanizing

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Applicator Qualifications: Submit evidence of applicator qualifications.

1.3 QUALITY ASSURANCE - APPLICATOR QUALIFICATIONS: Licensed by coating manufacturer.

1.4 DELIVERY, STORAGE, HANDLING: Comply with Division 1 - General Requirements and manufacturer's instructions and recommendations.

1.5 WARRANTY:
A. Warranty for High Performance Paint System: Coating manufacturer's standard 20 year warranty.

Part 2 - Products

2.1 FACTORY APPLIED HIGH PERFORMANCE PAINT:
A. Description: Polyvinylidene flouride [PVF], 70 percent "Kynar 500", "Hylar 5000".
B. Performance Standards:
1. "AAMA 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels", American Architectural Manufacturers Association, www.aamanet.org
2. ASCA 96 Voluntary Specification for Superior Performance of Organic Coatings on Architectural Aluminum Curtain wall, Extrusions and Miscellaneous Aluminum Components.
C. Basis of Design: PPG "Duranar Sunstorm", two coat mica metallic, non exotic pigment.
D. Colors: Three to match Architect's sample chips.
E. Field Touch Up Paint: Required, from paint system manufacturer, exactly matching appearance.
1. VOC Content: ≤250 grams per liter.

Part 3 - Execution

3.1 FACTORY APPLIED METAL COATINGS:
A. Painted Finishes: Comply with paint manufacturer's instructions and recommendations for surface preparation and coating application. Provide uniform appearance free of all defects.
B. Temporary Protection: If temporary protection is applied, instruct field installers about maintaining and removing temporary protection.
C. Field Touch Up: Field installers shall touch up damaged finishes to eliminate evidence of repair.

End of Section

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Section 05 4110 Structural Light Gage Metal Framing

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Structural light gage metal framing including stainless steel Z furring outside air barrier.

B. Related Sections: Without limitation, related sections include:
Section 04 2110 Veneer Masonry
Section 05 0505 Welding Metals
Section 06 1053 Miscellaneous Rough Carpentry
Section 06 1643 Gypsum Sheathing
Section 07 2110 Architectural Thermal Insulation
Section 07 2700 Air Barriers
Section 07 4250 Phenolic Resin Panels
Section 07 6400 Flashings Built Into Walls
Section 07 8100 Applied Fireproofing
Section 07 8410 Fire Stopping and Smoke Stopping
Section 07 9200 Joint Sealants
Section 07 9800 Compressible Fillers
Section 08 1110 Steel Doors and Frames
Section 09 2215 Interior Non Structural Metal Framing
Section 09 2225 Interior Suspension Systems

C. Engineering by Contractor: Comply with Section 01 4400 Engineering By Contractor.
1. Scope: Engineer all work of this section including connections to building structure.
2. Submittals: Calculations, shop fabrication drawings, field erection and installation drawings, details of connections.
3. Deflection Limit For Masonry Veneer: L/600.
4. Deflection Limit For Gypsum Board: L/360.
5. Deflection Limit For Non Masonry, Non Gypsum: As shown or, if not shown, L/240.
6. Deflection Limit Based On: Framing only with no benefit from sheathing.

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Shop Drawings: Show all work, member sizes, dimensions, details of connections. Provide:
1. Elevations for each assembly showing every framing member and dimensioned location.
2. Axonometrics of wall corners showing every framing member and dimensioned location.
3. Details of bottom runner tracks and fasteners.
4. Details of top runner tracks and deflection heads.
5. Details of every wall penetration including, without limit, headers, sills, jack studs, cripple studs.
6. Details of windows and other work located within or supported by framed assemblies.
a. Show reactions from loads on these assemblies on the framing.
7. Details of interface between framing and all adjacent construction.
8. Dimensioned sizes, gages, face dimensions, leg dimensions, and return dimensions of every framing member, clip angle, and connection used.
9. Sizes, types, and spacing of every fastener and anchor used within the framing assembly and

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used to connect framing assembly to building structure.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 STRUCTURAL LIGHT GAGE METAL FRAMING - INSIDE AIR BARRIER:
- A. Standard: ASTM C955 Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases.
- B. Steel: Structural Quality, 50 ksi. Comply with:
  1. ASTM A1003 Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members
  2. ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- C. Corrosion Protection for Steel: G-90 galvanized.
  1. Galvanized Touch Up Paint: Comply with ASTM A780 Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings. Provide ≥65 percent zinc dust by weight of the dry film.
- D. Steel Gage: ≥54 mils [16 gage]. Meet specified deflection limits.
- E. Framing Member Sizes: As shown or, if not shown, ≥6 inches.
- F. Accessories: Provide all components and accessories needed for complete, structural assemblies including, without limitation:
  1. Attachment clips for non deflection [non slotted clips, non sliding clips].
  2. Attachment clips for deflection [slotted clips, slide clips].
  3. Gusset plates, reinforcing plates.
  4. Header hangers.
  5. Hold downs, tension ties, foundation clips, hurricane clips.
  6. Joist hangers.
  7. Web stiffeners.
  8. Metal blocking, backing plates.
  9. Tension bracing, bridging.
  10. All other components and accessories needed.

2.2 STRUCTURAL LIGHT GAGE METAL FRAMING - OUTSIDE AIR BARRIER: Same as "Inside Air Barrier" above, except:
- A. Stainless Steel: ASTM A240 Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
  1. Alloy: 304.
- B. Steel Gage: ≥54 mils [16 gage].
- C. Framing Member Sizes: As shown or, if not shown, custom fabricated "Z" shape with dimensions shown or, if not shown:
  1. Flanges: 2.25 inches.
  2. Web: Equal to continuous insulation thickness plus 0.5 inch.

2.3 FASTENERS:
- A Manufacturers:
  1. Elco division Acument, www.elcoconstruction.com
  2. ITW/buildex, Illinois Tool Works, www.itwbuildex.com
  3. SFS Intec, Inc., www.sfsintecusa.com
- B. Metal Framing to Metal Framing - Inside Air Barrier: As shown on approved, engineered drawings.
  1. Basis of Design: "Standard Self Drilling Screws", Elco.

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2. Diameter: ≥#12.
3. Length: Minimum three threads visible through joined materials.
4. Head: Phillips pan head.
5. Finish: Zinc plated.

C. Framing to Framing - Outside Air Barrier: As shown on approved, engineered drawings.
1. Basis of Design: "Bi Flex 300 Series Stainless Steel Self Drilling Fasteners", Elco.
2. Diameter: ≥#12.
3. Length: Minimum three threads visible through joined materials.
4. Head: Hex washer head.
5. Finish: "Stalgard GB" coating.

D. Metal Framing to Masonry or Concrete - Inside Air Barrier: As shown on approved, engineered drawings.
1. Basis of Design: "Tapcon HW3 Series", Illinois Tool Works, Inc., www.itw-redhead.com
2. Finish: "Climaseal" coated.
3. Length: ≥1.25 inches embedment into masonry or concrete.

E. Metal Framing to Masonry or Concrete - Outside Air Barrier: As shown on approved, engineered drawings.
1. Basis of Design: "Tapcon SHW4 Series", Illinois Tool Works, Inc., www.itw-redhead.com
2. Material: 304 stainless steel.
3. Length: ≥1.25 inches embedment into masonry or concrete.

Part 3 - Execution

3.1 STRUCTURAL LIGHT GAGE METAL FRAMING INSTALLATION:

A. General Requirements: Comply with manufacturer's instructions and recommendations.
1. Comply with approved, engineered shop drawings.
2. Provide fasteners and connections shown on approved, engineered shop drawings.
3. Anchor to building structure as shown on approved, engineered shop drawings.
4. Install plumb, level, and to line within tolerance of 0.125 inch in 20 feet.
5. Frame openings with additional framing members. Provide at least double framing at jambs.
6. Align factory punched holes in framing members to facilitate other work passing through.
7. Do not provide bracing "kickers" perpendicular to plane of framing, unless shown on Drawings.
8. Provide continuous horizontal bridging.
9. Anchor bridging to each framing member with at least two fasteners.
10. Touch up damaged finishes to maintain corrosion resistance.
11. Touch up every fastener penetration through framing.

B. Additional Requirements to Accommodate Building Deflection: Engineer, fabricate, and erect light gage framing to accommodate building structural deflections. If not otherwise indicated or approved:
1. Provide special minimum 2 inches deep and heavy gage top runners.
2. Cut studs 0.75 ±0.05 inch short.
3. Do not fasten studs to top runner.
4. Provide continuous horizontal bridging as specified above within 10 inches of top of studs.
5. Direct sheathing installers to not attach sheathing to top runner.
6. Do not place any fasteners into studs closer than 1 inch from bottom edge of top runner.

C. Additional Requirements to Accommodate Fireproofing:
1. Coordinate work to avoid disturbing fireproofing.
2. Do not remove fireproofing to attach framing.
3. Where framing is attached to fireproofed structure, provide minimum 16 gage steel "Z" stand offs prior to installation of fireproofing.
4. Make "Z" stand offs project the thickness of the fireproofing.
5. Space "Z" stand offs 12 inches on center.
6. Allow the fireproofing to be installed around the "Z" stand offs.

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7. Attach framing to "Z" stand offs penetrating through fireproofing.

3.2 ADDITIONAL REQUIREMENTS FOR EXTERIOR CEILINGS AND SOFFITS: Comply with engineered drawings.

A. Support hangers only from building structure.
B. Resist uplift with compression struts at each hanger. Wire hangers alone are not acceptable.
C. Make each hanger including connection to structure support at least four times actual load.
D. Space hangers maximum 4 feet on center along length of main framing members.
E. Provide hangers within 8 inches of ends of main framing members.
F. Provide at least three turns for each twisted wire connection.
G. Connections shall not disengage through vertical uplift.
H. Level framing within tolerance of 0.125 inch in 12 feet.
I. To the greatest extent possible, install hangers plumb.
   1. Hangers may be diagonal or splayed to avoid minor obstructions.
   2. Where hangers are more than 1:6 from plumb, counter splay to balance horizontal forces.
J. Additional Requirements for Bracing: Cross brace suspension system to resist horizontal forces when ceiling dimension exceeds 12 feet and for smaller dimensions when horizontal forces are not resisted by adjacent construction.
   1. Space cross brace assemblies at not over 12 feet on center in both directions.
   2. Locate cross brace assemblies within 4 feet of perimeter walls or edges of ceiling areas.
   3. Cross brace with four diagonal wires in an inverted pyramid configuration.
   4. Orient the four wires parallel and perpendicular to the main framing members.
   5. Angle cross bracing wires at 45 degrees from ceiling plane.
   6. Anchor cross bracing wires to main framing and to structure as shown on shop drawings.
   7. Where cross bracing wires attach to the main runner, provide a uplift resisting strut.
K. Additional Requirements for Trapeze Suspension To Span Under Obstructions: Comply with engineered drawings.
   1. Provide trapeze beam sizes shown on engineered drawings.
   2. Support trapeze beams with anchors and hangers sized to support the ceiling area supported by the trapeze beam.
   3. Provide compression strut/post at each hanger supporting trapeze beams.

3.3 ADDITIONAL REQUIREMENTS FOR INSTALLING FRAMING OUTSIDE AIR BARRIER:

A. Attach framing to building structure.
B. Shim framing to meet tolerances specified for the exterior cladding supported by the framing.
C. Do not obstruct cavity drainage.
   1. As needed, provide 0.375 inch diameter weep holes at ≤12 inches on center.
D. Seal each fastener penetration through air barrier and flashings with liquid applied sealant.
   1. Make each penetration waterproof and air tight.

3.4 COORDINATE RELATED WORK:

A. Coordinate Structural Light Gage Metal Framing with all related work including, without limitation, all building veneers and skin assemblies.
B. Limitations of related work may govern spacing of structural light gage metal framing.
   1. Gypsum sheathing wind load limits may govern spacing of structural light gage metal framing.

End of Section

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Section 05 5002 Miscellaneous Metal Fabrications

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install:
1. All miscellaneous metal fabrications identified as “by miscellaneous metals”.
2. All miscellaneous metal fabrications not assigned to a specific trade on all drawings, except structural drawings.

B. Related Sections: Without limitation, related sections include:
Section 05 0502 Architecturally Exposed Structural Steel
Section 05 0505 Welding Metals
Section 09 9000 Painting and Coating

C. Engineering by Contractor: Comply with Section 01 4400 Engineering By Contractor.
1. Scope: Engineer all work of this section including connections to building structure.
2. Submittals: Calculations, dimensioned shop fabrication drawings, dimensioned field erection and installation drawings, details of connections.

1.2 SUBMITTALS:
A. Product Data: Manufacturer’s data including instructions, recommendations, and restrictions.
B. Shop Drawings: Show all work, member sizes, dimensions, details of connections.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer’s instructions and recommendations.

Part 2 - Products

2.1 MISCELLANEOUS METAL MATERIALS:
A. Steel Wide Flange and Channel Shapes: ASTM A992 Standard Specification for Structural Steel Shapes; 50ksi.
B. Steel Tubes: ASTM A500 Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; Grade B.
C. Steel Plates and Other Shapes: ASTM A36 Standard Specification for Carbon Structural Steel.

2.2 MISCELLANEOUS METAL FABRICATIONS: Provide custom metal fabrications as shown.
A. Visible Steel: Comply with Section 05 0502 Architecturally Exposed Structural Steel
B. Welding: Comply with Section 05 0505 Welding Metals.
C. Galvanizing: Galvanize as specified in Section 05 0510 Hot Dip Galvanizing.
D. Shop Paint: Shop prime paint all work as specified in Section 09 9000 Painting and Coating.

2.3 INSTALLATION GROUT: ASTM C1107 Standard Specification for Packaged Dry, Hydraulic-Cement Grout, Nonshrink; non staining, non corrosive, non metallic.
A. Minimum Compressive Strength: 5,000 psi.

2.4 STRUCTURAL BOLTS: ASTM A325 Standard Specification for Structural Bolts, Steel, Heat

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Treated, 120/105 ksi Minimum Tensile Strength.

A. Bolt Finish: As shown or, if not shown:
   1. When In Contact With Exterior Envelope Assemblies: Hot dip galvanized.
   2. When Not In Contact With Exterior Envelope Assemblies: Zinc coated.

Part 3 - Execution

3.1 INSTALLATION:

A. Install as shown including on approved shop drawings.
B. Restore damaged finishes to eliminate evidence of repair.

End of Section

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Section 05 5010 Counter Top Supports

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Counter top supports [for counter tops not fully supported by casework].

B. Related Sections: Without limitation, related sections include:
Section 06 1053 Miscellaneous Rough Carpentry
Section 09 9000 Painting and Coating
Section 12 3619 Wood Counter Tops
Section 12 3624 Plastic Laminate Counter Tops
Section 12 3654 Epoxy Counter Tops
Section 12 3662 Solid Surface Fabrications

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 - General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 COUNTER TOP SUPPORT 1 - MANUFACTURED ALUMINUM:
A. Basis of Design: As shown, "EH 1818" and "EH 1824", Rangine Corporation, www.rakks.com.
1. Load Capacity: 450 pounds per bracket.
B. Finish: Manufacturer's standard powder coat paint system.
1. Color: Manufacturer's standard white.

2.2 COUNTER TOP SUPPORT 2 - CUSTOM STEEL: Custom fabricated, welded steel shapes.
A. Material: Steel.
B. Size, Shapes, Configuration: As shown
C. Attachment: Concealed fasteners.
D. Load Capacity: ≥50 pounds per square foot of counter top surface area concurrently.
E. Shop Paint: Shop prime paint all work as specified in Section 09 9000 Painting and Coating.

Part 3 - Execution

3.1 COUNTER TOP SUPPORT INSTALLATION:
A. Manufacturer's Recommendations: For manufactured items, comply with manufacturer's instructions and recommendations.
B. Coordinate: Coordinate installation of supporting blocking and framing.
C. Plumb and Level: Install counter top supports level and plumb.
D. Counter Top Shims: Provide 0.25 inch shim space above counter top supports for final leveling.
E. Load Capacity: Meet specified "Load Capacity" requirements [Part 2 this section].
F. Location and Spacing: As shown or, if not shown, ≤ 36 inches on center.
G. Coordination: Coordinate counter top support spacing to avoid conflict with:

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1. Work counter knee space.
2. Under counter file cabinets, furnishings and equipment.

H. Conceal: Locate counter top supports to conceal from normal view.

I. Maximum Counter Top Cantilever [Counter Top Not Supported]: As shown or, if not shown:
1. Counter Top Front Edge Cantilever: ≤4 inches.
2. Counter Top End Cantilever: ≤8 inches.

J. Touch Up: Restore damaged shop finishes to eliminate evidence of repair.

End of Section

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Section 06 0585 Interior Wood Shop Finish Schedule

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Interior wood shop finishes.

B. Related Sections: Without limitation, related sections include:
Section 06 0622 Interior Wood Type Schedule
Section 06 3010 Architectural Wood Shelving
Section 06 4050 Hardware for Architectural Woodwork
Section 06 4080 Custom Benches
Section 06 4110 Architectural Casework
Section 06 4115 Casework Installation
Section 06 4200 Wood Paneling
Section 06 4610 Interior Wood Trim
Section 08 1400 Wood Doors
Section 12 3555 Laboratory Furniture

1.2 SUBMITTALS:

A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.

B. Finish System Description: Provide a printed step-by-step "recipe" for each finish system listing:
1. All surface preparation steps prior to finishing.
2. Each step in the finishing process and a written description of the finish activity for each step.
3. Each product used for each finishing step with product trade name and product data sheet.
4. Each technique and application method used to create each step.

C. Finish Step Samples: In addition to sample requirements specified in related specification sections:
1. Show each step of the finish system in minimum 3 inch wide bands across the sample.
2. Label each step.
3. Provide minimum 8 x 10 inch samples.
4. Provide surface preparation and sanding identical to the intended finished work.
5. Accurately represent the appearance of the finished work including all defects.

D. Verification Samples: Minimum 8 x 10 inches. Show the full range and extreme limits of appearance variation.

1.3 QUALITY ASSURANCE - SPECIAL COORDINATION: Visually match all work finished under this section. Coordinate all shop finishing work including work finished by all manufacturers and shops and coordinate shop finishing work with field finishing work to ensure that all transparent finished wood surfaces throughout the project match exactly. This is an extremely important Contract Requirement.

Part 2 - Products

2.1 ADDITIONAL REQUIRED FINISHING STEP FOR OPEN GRAIN WOOD: As needed to match Architect approved sample.

A. Apply paste wood filler color matched to the wood.

B. Sand smooth.

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2.2 INTERIOR WOOD SHOP FINISH SYSTEM 1 - SHOP APPLIED TRANSPARENT CONVERSION VARNISH FINISH SYSTEM:

A. Quality Standard: Architectural Woodwork Institute "Premium Grade".
B. Finish System Top Coat: Post catalyzed conversion varnish, water white, non yellowing.
   1. Basis of Design: "Krystal 275 Low VOC, C119124 Satin", M. L. Campbell, www.mlcampbell.com
   2. VOC Content: ≤275 grams per liter.
C. Color, Appearance: Match Architect approved samples.
D. Required Finishing Steps:
   1. Sand smooth.
   2. Non yellowing sealer to control stain/dye absorption.
   3. Stain,dye, or combination of stain and dye.
   4. Non yellowing sealer.
   5. Sand smooth.
   6. Three top coats at 1.0 to 1.2 mils dry film thickness per coat.

Part 3 - Execution

3.1 SHOP FINISHES FOR WOOD: Comply with manufacturer's instructions and recommendations.

A. Quality Standard: Comply with Architectural Woodwork Institute quality standard specified above.
B. Appearance: Match Architect approved verification samples.
C. Defects: Inspect all work before shipment. Repair, restore, or remove and replace work to eliminate fish eyes, orange peel, dust entrapment, blush, milky appearance, sags, runs, over spray, blocking, finger marks, ring marks, handling marks, and other defects.
D. Repair: Restore damaged shop finishes to eliminate evidence of repair.

End of Section

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Section 06 0622 Interior Wood Type Schedule

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Work Included: Specifications for interior wood types used on the Project.

1.2 SUBMITTALS:

A. Verification Samples: ≥1,150 square inches for each wood type and product.

Part 2 - Products

2.1 INTERIOR WOOD APPEARANCE GRADE:

A. Transparent Finished Wood:
   1. Veneer Face Grade: Hardwood Plywood and Veneer Association, Grade AA.
   2. Lumber Grade: Architectural Woodwork Institute, Quality Standards Illustrated, Grade I.

B. Opaque Finished Wood:
   1. Veneer Face Grade: Hardwood Plywood and Veneer Association, Grade B.
   2. Lumber Grade: Architectural Woodwork Institute, Quality Standards Illustrated, Grade III.

2.2 TRANSPARENT WOOD APPEARANCE: Match Architect approved Verification Samples.

A. Uniform Appearance: If not scheduled otherwise, select wood for uniform appearance, grain, figure, and color without burl, curl, birds eye, quilting, fiddleback, blisters, butts, and other highly figured visual characteristics.

2.3 INTERIOR WOOD TYPE SCHEDULE:

Type Key	Species	Cut and Appearance
Wood 1	American White Oak [Quercus alba]	Rift, Uniform
Wood 2	Yellow Poplar [Liriodendron tulipifera]	Plain, Uniform

2.4 CERTIFIED WOOD: Provide wood certified in accordance with the Forest Stewardship Council's principles and criteria for wood building components.

Part 3 - Execution

End of Section

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Section 06 1053 Miscellaneous Rough Carpentry

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install:
1. Concealed lumber blocking.
2. Concealed plywood sheet blocking.
3. Mounting boards for electrical, communications, and data equipment and panels.

B. Extent: See “Blocking Schedule” in this section.
1. All required blocking is not shown on Drawings or scheduled.
2. Provide blocking for all work which requires blocking.
3. Carefully examine the Contract Documents to understand scope of blocking required.

C. Related Sections: Without limitation, related sections include:
Division 7 Roofing, Roof Edges
Section 08 4100 Entrances and Store Fronts
Section 08 4410 Glazed Aluminum Curtain Walls
Section 08 9110 Louvers
Section 09 2215 Interior Non Structural Metal Framing

1.2 SUBMITTALS:
A. Product Data: Manufacturer’s data including instructions, recommendations, and restrictions.
B. Treatment Data: Provide treater's certification of treatment standard, treatment process, treatment materials, chemical retention, and moisture content after treatment.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer’s instructions and recommendations.
A. Store under cover. Protect from moisture and damage.
B. Stack wood materials to promote air circulation.
C. Stack wood to reduce warping and twisting.

Part 2 - Products

2.1 WOOD LUMBER BLOCKING:
A. Standard: Product Standard 20.
B. Grade: No. 2 or Construction Grade.
C. Species: Southern Yellow Pine, Hem-Fir, or Spruce-Pine-Fir.
D. Surfacing: Surfaced smooth, four sides.
E. Maximum Moisture Content Prior To Treatment: 19 percent.
F. Fire Retardant Treatment: Not required for interior blocking.
G. Preservative Treated: Required for non fire retardant treated blocking in contact with roofing, masonry, concrete.
1. Preservative Material: ACQ, alkaline copper quaternary.
2. Standard: “U1”, American Wood Protection Association, www.awpa.com.
3. Use Category: Comply with specified standard “U1” including:
a. Interior, but not Roof Blocking: UC2.
b. Exterior Without Ground Contact, Roof Blocking: UC3B.

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H. Treatment Conflicts: If both fire and preservative treatment indicated, provide fire treatment for all wood, except provide preservative treatment for sill plates in contact with concrete or masonry.
I. Moisture Content After Treatment: Kiln dry after treatment [KDAT] to maximum 19 percent.

2.2 INTERIOR SHEET BLOCKING, MOUNTING BOARDS:
A. Standard: Product Standard 1.
B. Plywood: APA trademarked, C-D, Exposure 2, veneer core.
C. Thickness: As shown or, if not shown, nominal 0.5 inch.
D. Fire Retardant Treatment: Required.
1. Standard: "U1", American Wood Protection Association, www.awpa.com.
2. Use Category: Comply with specified standard "U1" including:
a. Interior, Dry Locations: UCFA.
b. Exterior and Interior Wet Locations: UCFB.
3. Fire Performance: ASTM E84, flame spread 25 or less, 30 minute test.
4. Identification Label: UL "FRS" classification mark required on each mill piece of wood.
5. Identification Stain: Not allowed for visible wood. May be provided for concealed wood.
6. Moisture Content After Treatment: Kiln dry after treatment [KDAT] to maximum 19 percent.
E. Structural Plywood Adhesive Formaldehyde Content: Maximum 0.1 percent unreacted "free" formaldehyde [based on "Technical Report: Structural Wood Panels and Formaldehyde", APA The Engineered Wood Association, www.apawood.org.

2.3 CERTIFIED WOOD: Provide wood certified in accordance with the Forest Stewardship Council's principles and criteria for wood building components.

2.4 FASTENERS FOR MISCELLANEOUS ROUGH CARPENTRY:
A. Manufacturers:
1. Elco division Acument, www.elcoconstruction.com
2. ITW/buildex, Illinois Tool Works, www.itwbuildex.com
3. SFS Intec, Inc., www.sfsintecusa.com
B. Wood To Metal Framing for Interior Dry Locations: Steel screws.
1. Diameter: Minimum #12.
2. Length: Minimum three threads penetration through steel framing.
3. Head: #3 Phillips flat.
4. Point: Self drilling.
5. Finish: "Stalgard" coating with performance:
a. Test: ASTM B117 Standard Practice for Operating Salt Spray (Fog) Apparatus.
b. Hours Until First Appearance of Red Rust: Minimum 800.
C. Wood To Metal Framing for Exterior and Interior Wet Locations:
1. Basis of Design: "304 Stainless Steel and Carbon Tappers", ITW Buildex, www.itwbuildex.com
2. Material: 304 stainless steel with carbon drill point.
3. Finish: Electro zinc with performance:
a. Test: ASTM B117 Standard Practice for Operating Salt Spray (Fog) Apparatus.
b. Hours Until 10 Percent Red Rust: Minimum 40.
4. Diameter: #14.
5. Head: 0.375 inch, hex washer head.
6. Minimum Length: Minimum three threads through structural metal.
7. Minimum Pullout Each Fastener in 16 Gage Steel: 500 pounds.
D. Wood to Masonry or Concrete for Interior Dry Locations:
1. Basis of Design: "Tapcon", ITW Buildex, www.itwbuildex.com
2. Material: Steel.
3. Diameter: 0.25 inch.
4. Head: #3 Phillips flat head.
5. Finish: "ClimaSeal " coating.

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6. Embed Length Into Masonry or Concrete: Minimum 1.5 inches.
7. Minimum Tension Each Fastener in Medium Weight Concrete Masonry: 500 pounds.
8. Minimum Tension Each Fastener in 4,000 psi Concrete: 1,500 pounds.

E. Wood to Masonry or Concrete for Exterior and Interior Wet Locations:
1. Basis of Design: "410 Stainless Steel Tapcon", ITW Buildex, www.itwbuildex.com
2. Material: 410 stainless steel.
3. Diameter: 0.25 inch.
4. Head: #3 Phillips flat head.
5. Finish: "ClimaShield" coating.
6. Minimum Embed Length Into Masonry or Concrete: 1.25 inches.
7. Minimum Pullout Each Fastener in Concrete Masonry: 750 pounds.
8. Minimum Pullout Each Fastener in 3,000 psi Concrete: 1,500 pounds.

F. Additional Requirement for Fasteners in Contact With Preservative Treated Wood: Either:
1. Hot dip galvanized, ASTM A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware. Do not use electrogalvanized [electroplating].
2. 304 or 316 alloy stainless steel.

G. Additional Requirement for Roof Blocking Fasteners: Meet load requirement specified in this section Part 3 Execution.

Part 3 - Execution

3.1 INSTALLATION OF WOOD BLOCKING:
A. Coordinate blocking with all work requiring blocking.
B. Provide blocking sizes shown and as needed to accommodate work attached to blocking.
1. Minimum Wood Blocking Size: As shown or, if not shown, nominal 2 x 6 inches.

C. Select wood to eliminate split, warped, twisted, and damaged wood.
D. Anchor blocking to support all loads imposed on the blocking.
1. Install blocking so it cannot twist or rotate under load.
2. Install fasteners to avoid splitting wood.
3. Loads on blocking may be shown on shop drawings for other specification sections.

E. Additional Requirements for Wood Lumber Blocking Attached To Framed Partitions:
1. Install blocking horizontal, except if vertical is shown.
2. Install blocking flush with face of framing and tight to back of wall board.
3. Do not weaken light gage framing to install blocking.
4. Do not cut, notch, or alter framing flanges or webs.

F. Additional Requirements for Sheet Blocking, Mounting Boards:
1. Provide panel size shown or, if not shown, 4 x 8 feet.
2. Install panel long edges parallel to framing.
3. Locate panel long edges over framing.
4. Screw panel to each supporting framing member.
5. Space panel edge fasteners not over 8 inches on center.
6. Locate panel edge fasteners 0.375 inch from panel edges.
7. Space panel field fasteners not over 12 inches on center.
8. Counter sink fastener heads flush with face of panel.

3.2 INTERIOR WOOD BLOCKING SCHEDULE: All blocking is not shown on Drawings. Provide blocking for:
A. Every item attached to framed partitions including Owner furnished Contractor installed items including, without limitation, furniture.
B. Every item attached to framed partitions and indicated to be furnished and installed by Owner.
C. Every item attached to framed partitions indicated to be installed under "Fixtures, Furnishings, and Equipment" contracts.
D. All wood work and mill work including, standing and running trim, case work, panel work, shelves.

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E. All hand rails attached to framed partitions.
F. All door stops attached to framed partitions.
G. All toilet accessories attached to framed partitions.
H. All Division 10, 11, and 12 items attached to framed partitions.
I. Head and jambs of every door opening.
J. Head, jambs, and sill of every window opening.

3.3 ADDITIONAL REQUIREMENTS FOR PRESERVATIVE TREATED BLOCKING: Comply with treatment manufacturer's instructions and recommendations.
A. Contact Restriction: Isolate uncoated aluminum from direct contact with ACQ preservative treated wood with 60 mil thick EPDM or approved equal.

3.4 ADDITIONAL REQUIREMENTS FOR LOW SLOPE ROOF BLOCKING:
A. Comply with Factory Mutual Loss Prevention Data 1-49.
1. Anchor blocking to building structure to resist 360 pound uplift force at all locations.
B. Comply with roof manufacturer's recommendations and standard details.
C. Locations: Provide blocking at:
1. The entire perimeter of the entire roof assembly.
2. The entire perimeter of each penetration through roof assembly.
3. All locations recommended by the roof system manufacturer.
D. Blocking Width: As shown or, if not shown, nominal 4 inches.
E. Blocking Height: As shown or, if not shown, match height of adjacent roof insulation.
1. Custom mill thicknesses as required to achieve this requirement.
F. Blocking Joints: Stagger and offset joints in stacked blocking at least two feet.
G. Fastener Spacing: Maximum 4 feet on center and within 6 inches of blocking ends.
1. Locate and stagger fasteners to reduce splitting of wood.
H. Fastener Heads: Counter sink flush.

End of Section

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Section 06 1635 Wood Panel Sheathing

Part 1 - General

1.1 SECTION INCLUDES:

A. Furnish and Install: Wood panel sheathing.

B. Related Sections: Without limitation, related sections include:
Section 06 1643 Gypsum Sheathing
Section 07 2110 Architectural Thermal Insulation
Section 07 4113 Metal Roof Panels

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Treatment Data: Provide treater's certification of treatment standard, treatment process, treatment materials, chemical retention, and moisture content after treatment.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.
A. Store under cover. Protect from moisture and damage.
B. Stack wood materials to promote air circulation.
C. Stack wood to reduce warping and twisting.

Part 2 - Products

2.1 WOOD PANEL SHEATHING:
A. Standard: "PS-1 Structural Plywood", US Department of Commerce, www.ts.nist.gov
B. Plywood: APA trademarked and performance rated, veneer core; www.apawood.org.
1. Prohibited: Particleboard, fiberboard, flake board,oriented strand board.
C. Veneer Grades: As shown or, if not shown, C face, D back.
D. Exposure Rating: Exterior.
E. Species: Group 1.
F. Thickness: As shown or, if not shown, 23/32 inch [nominal 0.75 inch].
G. Number of Plies: Comply with "PS-1 Structural Plywood".
H. Edges: As shown or, if not shown, square.
I. Formaldehyde Content: ≤0.1 percent unreacted "free" formaldehyde; "Technical Report: Structural Wood Panels and Formaldehyde", APA The Engineered Wood Association, www.apawood.org.

2.2 FIRE RETARDANT TREATMENT:
A. Locations: Required for all wood panel sheathing.
B. Standard: "U1", American Wood Protection Association, www.awpa.com.
1. Use Category: "UCFB".
C. Fire Performance: ASTM E84, flame spread ≤25.
D Identification Label: UL classification mark required on each panel.
E. Moisture Content After Treatment: Kiln dry after treatment [KDAT] to ≤19 percent.

2.3 FASTENERS - WOOD PANEL SHEATHING TO STRUCTURAL METAL:
A. Manufacturers:
1. Elco division Acument, www.elcoconstruction.com.

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2. ITW/buildex, Illinois Tool Works, www.itwbuildex.com
3. SFS Intec, Inc., www.sfsintecusa.com

B. Basis of Design: "Wood To Metal Self Drilling Screws", Elco, www.elcoconstruction.com
   1. Size: #12-24.
   2. Length: ≥0.5 inch penetration through steel.
   3. Head: Flat or wafer head.
   4. Finish: "Stalgard" coating; 800 hours no red rust, ASTM B117.

Part 3 - Execution

3.1 WOOD PANEL SHEATHING INSTALLATION :

A. Standard: "E30 Engineered Wood Construction Guide", APA The Engineered Wood Association, www. apawood.org.
B. Install wood panel sheathing long edges perpendicular to framing.
C. Stagger wood panel sheathing ends ≥two framing modules.
D. Locate wood panel sheathing ends over center of framing.
E. Maintain wood panel sheathing edge clearances stamped on panel.
   1. Do not butt edges tight together.
F. Fasten wood panel sheathing to each supporting framing member.
G. Locate wood panel sheathing edge fasteners 0.375 inch from panel edges.
H. Drive fasteners flush with wood panel sheathing face. Do not over drive or counter sink.

3.2 ADDITIONAL REQUIREMENTS FOR WALL SHEATHING:

A. Fastener Spacing: 6 inches on center at panel edges and within panel field.

3.3 ADDITIONAL REQUIREMENTS FOR ROOF SHEATHING:

A. Standard: "Roof Sheathing Fastening Schedules for Wind Uplift", APA Form T325B .
   1. Region: "High Wind Uplift".
B. Fastener Spacing: 4 inches on center at panel edges and within panel field.

End of Section

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Section 06 3010 Architectural Wood Shelving

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install:
1. Architectural wood shelving [not inside casework, cabinets].
2. Coat closet hardware.

B. Related Sections: Without limitation, related sections include:
Section 06 0585 Interior Wood Shop Finish Schedule
Section 06 0622 Interior Wood Type Schedule
Section 06 1053 Miscellaneous Rough Carpentry
Section 06 4110 Architectural Casework; bookcases and shelving in casework.
Section 09 2215 Interior Non Structural Metal Framing
Section 09 9000 Painting and Coating
Section 12 3555 Laboratory Furniture; laboratory furniture shelving.

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Shop Drawings: Comply with AWI recommendations. Show dimensioned layout, seam locations, edge details, and connections.
C. Verification Samples: ≥12 x 12 inches, fully finished.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 ARCHITECTURAL WOOD SHELVING TYPE 1 - TRANSPARENT FINISHED WOOD:
A. AWI Quality Standard for Material and Fabrication: Premium Grade.
B. Shelves: Veneered, veneer core plywood.
C. Visible Wood: Wood Type 1, Section 06 0622 Interior Wood Type Schedule.
1. Edgebanding: Required to conceal core; "Visible Wood" specified above.
2. Edgeband Thickness: As shown or, if not shown, 0.125 inch.
D. Core - Veneer Core Hardwood Plywood [VCHP]:
1. Basis of Design: "PureBond Veneer Core, FSC", Columbia Forest Products, www.columbiaforestproducts.com
2. Standard: ANSI/HPVA HP-1 National Standard for Hardwood and Decorative Plywood.
3. Fire Performance: ASTM E84 Class C flame spread.
4. Resin, Adhesive, Components: No added urea formaldehyde.
5. Adhesive Type: Type II water resistant.
6. FSC Certified Wood: Provide Forest Stewardship Council, A.C., www.fsc.org, certified core including "Chain of Custody" certificates.
7. Thickness: As shown or, if not shown, 0.75 inch ±0.005 inch.
8. Number of Plies: 5 ply, except 7 ply for panels over 15 square feet in area.
E. Edgeband Adhesive Basis of Design: "Titebond Polyurethane Glur", Franklin International,

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www.titebond.com
1. VOC: 0 grams per liter.

F. Shop Finish: Finish System 1, Section 06 0585 Interior Wood Shop Finish Schedule.

2.2 ARCHITECTURAL WOOD SHELVING TYPE 2 - FIELD FINISHED PLYWOOD:

A. AWI Quality Standard for Material and Fabrication: Economy Grade.
B. Plywood: APA trademarked and performance rated, veneer core; www.apawood.org.
   1. Standard: "PS-1 Structural Plywood", US Department of Commerce, www.ts.nist.gov
   2. Veneer Grades: A face,C back.
   3. Exposure Rating for Plywood: Exterior Exposure 2
   4. Species: Group 1.
C. Thickness, Minimum Plies: As shown or, if not shown, 23/32 inch [nominal 3/4 inch], 5 ply.
D. Edges: Fully adhered, minimum 0.125 inch thick, solid softwood.
E. Shop Finish: None. Field paint under .

2.3 ADDITIONAL ARCHITECTURAL WOOD SHELVING FABRICATION REQUIREMENTS:

A. Thickness: As shown or, if not shown, minimum 1 inch.
   1. Provide thicker as needed to meet AWI standards for deflection.
B. Shelf Depth: As shown or, if not shown, 12 inches.
C. Shelf Lengths: As shown. Provide seamless shelves up to 8 feet long.
D. Shelf Wear: Fabricate shelves so they can be turned and inverted to equalize wear and sag.
E. Book Ends: Required at ends of shelves not within 1 inch of walls perpendicular to shelf length.
   1. Material and Finish: Match shelves.
   2. Size: As shown or, if not shown: 6 inches high and full shelf depth.

2.4 ARCHITECTURAL WOOD SHELVING HARDWARE TYPE A - HEIGHT ADJUSTABLE:

A. Basis of Design: "82/182", Knape and Vogt Manufacturing Company, www.knapeandvogt.com.
B. Shop Finish: Clear anodized.
C. Wall Mounted Shelf Standard Heights: As shown or, if not shown, 39 and 78 inches.
D. Wall Mounted Shelf Standard Screws: #12 diameter, Phillips head screws.
   1. Length: Minimum 2 inches and minimum 1 inch penetration into wood blocking.
   2. Quantity: One for each factory provided screw hole.
   3. Finish Caps to Conceal Screw Heads: Required, color matched to standards.
E. Bracket Size: As shown or, if not shown, 10.5 inches for nominal 12 inch deep shelves.
F. Bracket Screws: #6 diameter, oval Phillips head
   1. Length: Engage without penetrating shelf.
   2. Quantity: One for each factory provided screw hole.
   3. Finish: Color matched to brackets.
G. Shelf Locator/Joiner: "182 LCTR/JNR", Knape and Vogt.
   1. Quantity: One for each shelf bracket.
   2. Color: Match brackets.
H. Book Ends: "182 BE", Knape and Vogt.
   1. Size: As shown or, if not shown, 10.5 inches for 12 inch deep shelves.
   2. Locations: Each terminal end of each shelf.
I. Hardware Manufacturers:
   1. Closetmaid Corporation, division of Emerson, www.closetmaid.com
   2. Elfa International AB, www.elfa.com [The Container Store Inc., www.containerstore.com]
   3. Knape and Vogt Manufacturing Company, www.knapeandvogt.com
   4. Rubbermaid, Newell Company, www.rubbermaid.com

2.5 ARCHITECTURAL WOOD SHELVING HARDWARE TYPE B - HEIGHT ADJUSTABLE:

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A. Basis of Design: "Rakks", Rangine Corporation, www.rakks.com
   1. Wall Standards: "C Standard".
   2. Shelf Support Brackets: "BR-2".
   3. Book Ends: "BR-2" with length one size smaller than Shelf Support Bracket.
   4. Shelf Rests: "Bumpon". Two required for each Shelf Support Bracket.
   5. Shelf Coupler: Provide two per each Shelf Support Bracket supporting two separate shelves.
B. Shop Finish: Clear anodized.
C. Wall Mounted Shelf Standard Heights: As shown.
D. Wall Mounted Shelf Standard Screws: #6 diameter, Phillips flat head screws.
   1. Length: ≥ 1 inch penetration into wood blocking.
   2. Quantity: One for each factory provided screw hole.
   3. Finished Screw Heads: Required, color matched to standards.
E. Bracket Size: As shown or, if not shown, 11.25 inches for nominal 12 inch deep shelves.

2.6 CLOSET HARDWARE:
A. Basis of Design: John Sterling Corporation, www.johnsterling.com.
B. Rod, Pole: "PB-0022", bright zinc; with matching end caps for visible ends.
C. Rod End Supports, Pole Sockets: "RP-0039-CH25", bright chrome.
D. Rod Bracket, Center Support: "RP-0052-BC", chrome, spaced to meet deflection limit.

Part 3 - Execution

3.1 ARCHITECTURAL WOOD SHELVING INSTALLATION:
A. AWI Quality Standard for Installation: Match specified fabrication grade.
B. Coordinate installation and locations of concealed blocking.
C. Install plumb and level.
D. Restore damaged shop finishes to eliminate evidence of repair.

3.2 ADDITIONAL REQUIREMENTS FOR ADJUSTABLE SHELVES:
A. Vertical Shelf Support Standards:
   1. Space shelf standards as shown or, if not shown, maximum 32 inches on center.
   2. Space standards uniformly and symmetrically about center line of shelves.
   3. Locate standards within 4 inches of shelf ends.
   4. Install plumb.
   5. Anchor to support the manufacturer's published live load capacity.
   6. Provide one fastener for each factory fastener hole.
B. Adjustable Shelf Brackets:
   1. Provide one bracket for each shelf at each vertical shelf support standard.
   2. Provide shelf to shelf spacing shown or, if not shown, equally spaced as far apart as possible.
   3. Install brackets into standards, lightly hammer, and engage hooks.
C. Shelves:
   1. Lay shelves onto brackets.
   2. Locate shelf seams only at standards.
   3. Attach locator/joiner at each shelf and bracket.
   4. Screw shelves to brackets from bottom of shelf.
   5. Predrill pilot holes for screws.

3.3 ADDITIONAL REQUIREMENTS FOR CLOSET HARDWARE:
A. Load Capacity: Install to support 30 pounds per linear foot concurrently.
B. Deflection: Limit spans and locate supports to limit deflection to ≤0.5 inch under specified load.

End of Section

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Section 06 4050 Hardware for Architectural Woodwork

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Hardware for architectural woodwork.

B. Related Sections: Without limitation, related sections include:
Section 06 4110 Architectural Casework
Division 8 Door Hardware
Division 12 Counter Tops

1.2 SUBMITTALS:

A. Product Data: Provide manufacturer's product data for each hardware item including:
1. Dimensions.
2. Load capacity for weight bearing hardware including hinges, pivots, and drawer slides.
3. Installation and connection details.
4. Use and application recommendations and limitations.

B. Verification Samples: Full size, fully finished hardware for each item required.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 HARDWARE FOR ARCHITECTURAL WOODWORK - GENERAL:

A. Size and Quantity: Comply with manufacturer's recommendations and AWI Quality Standards.

B. Hardware Finishes: As shown or, if not shown:
1. Always Visible: Match Division 8 Door Hardware.
2. Visible Only When Doors and Drawers Open: Neutral color approved by Architect.
3. Colors: Selected by Architect from manufacturer's complete range of options.

C. Hardware Fasteners: Furnished or recommended by hardware manufacturer.
1. Use correct fasteners for each substrate. Use fiberboard screws for fiberboard substrates.
2. Finish of visible fasteners and fastener surfaces shall match hardware it connects.
3. Do not use throughbolts unless preapproved by Architect.

2.2 CASEWORK HINGES:

A. Manufacturers:
1. Blum, Inc., www.blum.com
2. Grass America, Inc., www.grassusa.com
3. Hettich America, LLP, www.hettichamerica.com

B. Concealed Hinge: ANSI/BHMA A156.9, Grade 1; self-closing, minimum 120 degree swing.
1. Basis of Design: "Clip Top" with "Blumotion For Doors", Blum, Inc., www.blum.com

C. Continuous Hinge, Piano Hinge:
1. Basis of Design: "Model 1150, Stainless Steel", S & S Hinge Company, www.sandshinge.com.
2. Open Size: As shown or, if not shown, 1.5 Inches.

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D. Hinge Quantity: Comply with hinge manufacturer's recommendations for door size and weight.
E. Additional Requirements for Thick Doors: Reduced ≤95 degree swing is permitted.

2.3 PULLS:
A. Manufacturers:
1. Engineered Products Company, Inc., www.epcohardware.com
2. Hafele America Company, Inc., www.hafele.com
3. The Nanz Company, www.nanz.com
4. Rockwood Manufacturing Company, www.rockwoodmfg.com
5. Sugatsune Corporation, www.sugatsune.com.
B. Basis of Design: "MC401-4", Engineered Products Company, Inc., www.epcohardware.com.
1. Material and Finish: Stainless steel, satin finish.
C. Pull Orientation: As shown or, if not shown:
1. Doors: Vertical.
2. Drawers: Horizontal.

2.4 DRAWER SLIDES:
A. Manufacturers:
1. Accuride International, Inc., www.accuride.com
2. Blum, Inc., www.blum.com
3. Knape & Vogt Manufacturing Company, Inc.,www.knapeandvogt.com
B. Basis of Design - Typical Applications: "7434", Accuride International, Inc.
1. Location: Side mounted.
2. Extension: Full extension plus 1 inch over travel.
3. Load Rating: 100 pounds.
4. Easy and Simple Drawer Disconnect and Removal: Required.
5. Hold In Detent: Required.
6. Dynamic Load Capacity: Minimum 50,000 cycles.
C. Basis of Design - Large Drawer Applications: "3640", Accuride International, Inc.
1. Location: Side mounted.
2. Extension: Full extension plus 1 inch over travel.
3. Load Rating: 200 pounds.
4. Easy and Simple Drawer Disconnect and Removal: Required.
5. Hold In Detent: Required.
6. Dynamic Load Capacity: Minimum 75,000 cycles.
D. Definition of "Large Drawer": As shown or, if not shown:
1. Drawers 33.51 to 42 inches wide.
2. Drawers over 5 inches interior box height.
3. Drawers with load over 100 pounds based on drawer interior volume x 0.17 pounds per cubic inch + dead weight of drawer.

2.5 CASEWORK LOCKS:
A. Manufacturers:
1. Best Access division Stanley Security Solutions, Inc., www.bestaccess.com
2. [National], CompX International, Inc., www.compx.com
3. Olympus Lock, Inc., www.olympus-lock.com
4. [Digilock] Security People, Inc., www.digilock.com
B. Standard: ANSI/BHMA A156.11 American National Standard for Cabinet Locks, Grade 1.
C. Basis of Design - Swing Doors and Drawers: "5L Series Cabinet Lock", Best Access.
D. Basis of Design - Sliding Doors: "3S Series Sliding Panel Lock", Best Access.
E. Keying: Interchangeable cores, master keyed into building master key system.

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1. Provide keying system and structure preapproved by Owner.

F. Function: As shown or, if not shown, key removable locked or unlocked.
G. Lock Locations: As shown or, if not shown, lock 25 percent of all casework doors and drawers.
H. Pair Doors With Locks: As shown or, if not shown, lock active leaf. Prevent inactive leaf from opening with:
   1. Astragal.
   2. Manual catch, latch, or surface bolt inside cabinet.

2.6 CASEWORK SHELF SUPPORTS:
A. Basis of Design - Closed Casework: "3220CL-62", Bainbridge Manufacturing, Inc., www.bainbridgestore.com
B. Basis of Design - Open Casework, Glass Door Casework: "523", EPCO, Engineered Products Company, www.epcohardware.com

2.7 DOOR AND DRAWER SILENCERS: Clear.
A. "Bumpon Quiet Clear" 3M Corporation, www.3m.com.
B. "Quietex Bumpers, 4067", ITW Fastex, www.itw-fastex.com
C. "BS-02SD", Bumper Specialties, Inc., www.bumperspecialties.com

2.8 CABINET LEVELERS:
A. Basis of Design: "450-10-P2" Peter Meier, Inc., www.petermeier.com.
B. Complete Assembly Required: Provide sockets, cover caps, fasteners, and toe kick panel clips.

2.9 WIRE MANAGER:
A. Basis of Design: "WM-2A", Doug Mockett & Company, Inc., www.mockett.com

2.10 COUNTER TOP GROMMETS:
A. Manufacturers:
   1. Bainbridge Manufacturing, Inc., www.bainbridgemfg.com.
   2. Doug Mockett & Company, Inc., www.mockett.com.
   3. Hardware Concepts, Inc., www.hardwareconcepts.com.
B. Basis of Design - Cable Grommet: "EDP3", Doug Mockett & Company, Inc.
C. Basis of Design - Food Waste Recycling Grommet: "TM1B", Doug Mockett & Company, Inc.
D. Basis of Design - Copy Paper Recycling Grommet: "CP2", Doug Mockett & Company, Inc.
E. Material and Finish: Selected by Architect from manufacturer's complete range of options.

2.11 MANUFACTURED ALUMINUM BENCH BRACKETS:
A. Basis of Design: "Rakks EH-1416B Bench Bracket", Rangine Corporation, www.rakks.com.
   1. Load Capacity: 450 pounds per bracket.
   2. Size: Custom cut horizontal leg to coordinate with bench size.
B. Finish: Mill aluminum.

Part 3 - Execution

3.1 HARDWARE INSTALLATION: Comply with manufacturer's instructions and recommendations:
A. Shop install hardware to the greatest extent practical.
   1. Pulls may be field installed.
B. Securely anchor hardware with fasteners in each factory provided hole.
   1. Use correct fastener for each substrate.
   2. Different fasteners are required for particle board, fiber board, and hardwood.
   3. Do not over tighten or strip fasteners.

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4. Fasteners which cannot be tightened or spin in their holes are not acceptable.

C. Adjust hardware including hinges to maintain uniform sightlines, gaps, and reveals.
D. Adjust hardware for optimum operation.
   1. For doors with latches or catches, adjust to latch or catch correctly.

3.2 WIRE MANAGERS: Mechanically attach at not over 8 inches on center or adhere with 100 percent coverage of adhesive.
A. Extent: As shown or, if not shown, continuously under all work station counters and open knee spaces in casework.

3.3 COUNTER TOP GROMMETS:
A. Obtain grommets prior to cutting holes.
B. Obtain Architect's approval of grommet locations prior to cutting holes.
C. Bed grommet flange in continuous, concealed sealant.
D. Install grommet flange with continuous, uniform contact with counter.
E. Install covers onto grommets.
F. Grommet Quantity: As shown or, if not shown, 36 inches on center.

End of Section

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Section 06 4110 Architectural Casework

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Architectural casework including, without limitation, custom casework/cabinets, cubbies, lecterns~~, ***benches/seating***~~.

B. Related Sections: Without limitation, related sections include:
Section 06 0585 Interior Wood Shop Finish Schedule
Section 06 0622 Interior Wood Type Schedule
Section 06 1053 Miscellaneous Rough Carpentry
Section 06 3010 Architectural Wood Shelving
Section 06 4050 Hardware for Architectural Woodwork
Section 06 4115 Casework Installation
Section 06 4200 Wood Paneling
Section 06 4610 Interior Wood Trim
Section 07 2110 Architectural Thermal Insulation
Section 07 9200 Joint Sealants
Section 08 8110 Interior Glass
Section 09 6510 Resilient Base
Section 09 9000 Painting and Coating
Section 11 3100 Residential Appliances
Section 12 3555 Laboratory Furniture; manufactured laboratory casework.
Section 12 3624 Plastic Laminate Counter Tops
Section 12 3662 Solid Surface Counter Tops
Division 22 Plumbing

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Shop Drawings: Comply with recommendations of "Quality Standards", Architectural Woodwork Institute, www.awinet.org, including scale and content including dimensioned: plans, plan details, elevations, cabinet sections, and section details.
C. Sample Cabinet: For each type, showing construction, all hardware, and finish.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Section 06 4115 Casework Installation.

Part 2 - Products

2.1 ARCHITECTURAL CASEWORK MATERIALS - GENERAL:
A. AWI Quality Standard for Materials: Premium.
B. Visible Wood: Wood Type 1, Section 06 0622 Interior Wood Type Schedule.
C. Casework Hardware: Comply with Section 06 4050 Hardware for Architectural Woodwork.
D. Plastic Laminate: ANSI/NEMA LD-3, National Electrical Manufacturers Association, www.nema.org.
1. Quality - Casework Exterior Vertical Surfaces: Grade VGS.
2. Quality - Casework Interior: Grade VGL.
3. Basis of Design: See "Finish Schedule Descriptions".
4. Acceptable Manufacturers: See "Finish Schedule Descriptions".

2.2 ARCHITECTURAL CASEWORK PANELS:

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A. Manufacturers: "Panel Surface Buyers Guide", Composite Panel Association, www.pbmdf.com
B. Medium Density Fiberboard [MDF]:
   1. Standard: ANSI A208.2 American National Standard for Medium Density Fiberboard.
   2. Grade: ANSI 208.2, Grade M2.
   3. Fiber: 100 percent recycled wood.
   4. Resin: No added urea formaldehyde.
   5. Third Party Certification: Required; Scientific Certification Systems [SCS] or Environmentally Preferred Product [EPP].
   6. Density: Minimum 44 pounds per cubic foot.
   7. Fire Performance: ASTM E84 Class C flame spread.
   8. Thickness: As shown or, if not shown, 0.75 inch ±0.005 inch.
   9. Basis of Design:
      a. "Arreis", Sierra Pine, Ltd, www.sierrapine.com
      b. "Vesta", Flakeboard Company, Ltd, www.flakeboard.com
C. Moisture Resistant Medium Density Fiberboard [MR-MDF]:
   1. Standard: ANSI A208.2 American National Standard for Medium Density Fiberboard.
   2. Grade: ANSI 208.2, Grade M2.
   3. Fiber: 100 percent recycled wood.
   4. Resin: No added urea formaldehyde.
   5. Scientific Certification Systems: Certified.
   6. Density: Minimum 48 pounds per cubic foot.
   7. Fire Performance: ASTM E84 Class C flame spread.
   8. Thickness: As shown or, if not shown, 0.75 inch ±0.005 inch.
   9. Basis of Design: "Medex", Sierra Pine, Ltd, www.sierrapine.com.
D. Veneer Core Hardwood Plywood [VCHP]:
   1. Basis of Design: "PureBond Veneer Core, FSC", Columbia Forest Products, www.columbiaforestproducts.com
   2. Standard: ANSI/HPVA HP-1 National Standard for Hardwood and Decorative Plywood.
   3. Fire Performance: ASTM E84 Class C flame spread.
   4. Resin, Adhesive, Components: No added urea formaldehyde.
   5. Adhesive Type: Type II water resistant.
   6. FSC Certified Wood: Provide Forest Stewardship Council, A.C., www.fsc.org, "FSC Pure" certified core and certified face veneers including "Chain of Custody" certificates.
   7. Thickness: As shown or, if not shown, 0.75 inch ±0.005 inch.
   8. Number of Plies: ≥5 ply, except ≥7 ply for panels over 15 square feet in area.

2.3 GLASS IN CASEWORK: Comply with Section 08 8110 Interior Glass.
A. Type: As shown or, if not shown, 6.7 mm thick, clear, transparent, laminated safety glass.

2.4 MANUFACTURED MAIL SORTER BUILT INTO CASEWORK: ***Deleted.***

2.5 ADHESIVES FOR ARCHITECTURAL WOOD WORK:
A. General: Comply with "Quality Standards", Architectural Woodwork Institute, www.awinet.org .
B. Urea Formaldehyde Adhesive: Prohibited.
C. Water Resistant Adhesive Performance: Comply with Type I, ANSI/HPVA HP-1 American National Standard for Hardwood and Decorative Plywood.
D. Water Resistant Adhesive Locations: Required for all architectural wood work:
   1. In wet areas.
   2. In locations subject to wetting, including occasional wetting.
   3. Installed within 0.5 inch of finished floors.
   4. With plumbing pipes, fixtures, sinks.
   5. Other locations shown.
E. Fire Performance: Provide adhesives which do not increase flame spread of the materials adhered.
F. Basis of Design PVA Adhesive: "Titebond II Premium Wood Glue", Franklin International, www.titebond.com

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1. VOC: 5.5 grams per liter.
2. Restrictions: Not permitted for wet, structural, or load bearing applications.

G. Basis of Design PVA Adhesive for Molding: "Titebond Molding and Trim Wood Glue", Franklin International, www.titebond.com
1. VOC: 9.8 grams per liter.
2. Restrictions: Not permitted for wet, structural, or load bearing applications.

H. Basis of Design Waterproof Adhesive: "Titebond III Ultimate Wood Glue", Franklin International, www.titebond.com
1. VOC: 5.6 grams per liter.
2. Restriction: Not permitted for structural or load bearing applications.

I. Basis of Design Contact Cement: "Weldwood Nonflammable Contact Cement", DAP, Inc., www.dap.com
1. VOC Limit: 80 grams per liter.

J. Basis of Design Waterproof, Hot Melt, Polyurethane Adhesive: "Titebond HiPURformer Advanced Bonding System", Franklin International, www.titebond.com
1. VOC: 0 grams per liter.

2.6 ARCHITECTURAL CASEWORK FABRICATION - GENERAL:

A. AWI Quality Standard for Fabrication: Premium.
B. Construction, Style: As shown or, if not shown, flush overlay.
C. Shop Assembly: Fully shop assemble all casework.
D. ADA Dimensions and Heights: As shown or, if not shown, AWI standard ADA dimensions.
E. Thicknesses of Casework Components: AWI standards except:
1. Shelves: Minimum 1 inch thickness.
2. Doors Over 72 Inches High: Minimum 1 inch thickness.
3. Doors Over 30 Inches Wide: Minimum 1 inch thickness.

F. Balanced Panel Construction: Required to control panel warping.
1. Visual grade of concealed surfaces may be reduced. Comply with AWI.

G. Doors and Drawer Heads: Do not use veneer core; not warranted under AWI standards.
H. Doors: As shown or, if not shown, flush.
I. Drawer Heads: As shown or, if not shown, flush with applied drawer front [head].
J. Drawer Construction: AWI standard for specified Grade.
K. Shelf Depth Within Casework: As shown or, if not shown, full interior depth of case.
L. Visible Ends and Backs: Finish to match cabinet faces.

2.7 ADDITIONAL FABRICATION REQUIREMENTS FOR WATER RESISTANT CASEWORK: Provide water resistant casework panels for:

A. Casework with sinks.
B. Casework located in wet areas.
C. All components in contact with floors or subfloors.

2.8 ADDITIONAL FABRICATION REQUIREMENTS FOR TRANSPARENT FINISHED CASEWORK:

A. Species and Quality of AWI Defined "Exposed Parts": All identical. "Compatible" not allowed.
B. Veneer Grain Orientation: As shown or, if not shown, vertical.
C. Veneer Matching of AWI Defined "Exposed Parts" Within Unit: Slip and balance matched.
D. Veneer Matching of Adjacent Casework In Series: Sequence matched.
1. Definition of "Casework in Series": Connected side-by-side or on same wall.

E. End Matching of Stacked Elements, Drawers, Doors, and Panels: Required.
F. Case Interior: Transparent finished wood to match exterior.
G. Visible Edges: Transparent finished, identical wood edge band.
1. Thickness: As shown or, if not shown, 0.125 inch.
2. Attachment: Fully adhered, no visible fasteners, no splines or dowels.

H. Drawer Sides and Backs: 0.5 inch thick, 7 ply, all hardwood veneer core plywood.
I. Drawer Bottoms: Minimum 0.25 inch thick, hardwood veneer core plywood.
J. Shop Finish: Finish System 1, Section 06 0585 Interior Wood Shop Finish Schedule.

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K. Shop Sealing of Concealed Wood: Required to reduce moisture intrusion.

2.9 ADDITIONAL FABRICATION REQUIREMENTS FOR PLASTIC LAMINATE CASEWORK:
A. Case Exterior: Plastic laminate.
   1. Visible Panel Edges: Matching high pressure plastic laminate.
B. Case Interior: Plastic laminate.
   1. Visible Panel Edges: Matching high pressure plastic laminate.
C. Shop Sealing of Concealed Wood: Required to reduce moisture intrusion.

2.10 ADDITIONAL FABRICATION REQUIREMENTS FOR BENCHES/SEATING: ***Deleted.***

Part 3 - Execution

3.1 INSTALLATION OF ARCHITECTURAL CASEWORK: See Section 06 4115 Casework Installation.

End of Section

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Section 06 4115 Casework Installation

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Work Includes: Installation of casework

B. Related Sections: Without limitation, related sections include:
Section 06 1053 Miscellaneous Rough Carpentry
Section 06 4110 Architectural Casework
Division 12 Manufactured Casework

1.2 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.
A. Comply with AWI recommendations.
B. Store in a clean, dry, well ventilated, climate controlled area.
C. Protect from direct sunlight and moisture.
D. Maintain relative humidity of storage area between 25 and 55 percent.
E. Cover to keep clean, but permit air circulation.
F. Store on carefully leveled supports. Do not warp or twist work.
G. Use clean cotton gloves when handling. Do not leave finger prints or hand marks.
H. Protect from scratching, impact, distortion, and other damage.

Part 2 - Products

2.1 CASEWORK INSTALLATION MATERIALS:
A. Fasteners: Minimum #10 diameter, minimum 3 inches long screws with point and thread appropriate for wood and metal supports.
1. Fastener Head: Pan Phillips head.
2. Fastener Head Finish: Bright zinc plated.
B. Interlocking Z Clips: Extruded aluminum, nominal 6 mm thick.
C. Shims In Contact With Floors or Subfloors: Plastic, moisture resistant.

2.2 INTERIOR WOOD INSTALLATION ADHESIVE:
A. Basis of Design: "Titebond HiPURformer Advanced Bonding System", Franklin International.
1. VOC: 0 grams per liter.

Part 3 - Execution

3.1 INSTALLATION OF CASEWORK:
A. AWI Quality Standard for Installation: Comply with AWI Quality Standards Illustrated, 8th Edition, Version 1.0, Section 1700 Installation of Wood Work.
1. Grade: Same as specified casework fabrication grade. If fabrication grade is not specified, provide Premium Grade installation.
B. Exclusion Revision: The following "exclusions" specified in AWI QSI Section 1700 are revised:
1. Install "Ornamental Metal Trim for Millwork" when specified.
2. Install grommets and wire managers when specified.
3. Build up and shim installation to accommodate out of level or plane walls and floors regardless of

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depth or thickness of build up or shim required. AWI limit of 12.5 mm is superceded and invalid.

C. Blocking: Coordinate installation of concealed blocking needed to support casework.
D. Preparation: Find high and low points of ceilings and floors.
   1. Provide plumb and level casework installation guide lines.
E. Environment: Confirm environmental conditions, temperature, and humidity are and will be maintained within AWI recommended limits.
F. Acclimate: Allow casework to acclimate and reach equilibrium with installation location environment prior to installation for at least 7 days prior to installation.
G. Installation Method for Floor Supported Casework Without Levelers:
   1. Shim base of cabinets level.
   2. Space shims maximum 16 inches on center.
   3. Anchor or adhere shims to prevent displacement.
   4. Mechanically fasten to wall blocking at maximum 16 inches on center and 2 inches from corners.
   5. Locate fasteners inside case units.
   6. Wicking and Moisture Damage:
      a. Case components in direct contact with floors/subfloors can be damaged by water.
      b. Shim all wood case components and plinths off the floor/subfloor at least 0.12 inch.
      c. Conceal shims and air gaps with toe kick base, molding, or trim.
H. Installation Method for Floor Supported Casework With Levelers:
   1. Adjust levelers and install cabinets level.
   2. Mechanically fasten to wall blocking at maximum 16 inches on center and 2 inches from corners.
   3. Locate fasteners inside case units.
I. Installation Method for Wall Supported Casework:
   1. Install with interlocking Z clips.
   2. Provide at least two Z clip pairs per case unit or provide continuous Z clips.
   3. Attach each mating half of each Z clip with two fasteners.
   4. Shim wall half of Z clips to correct irregular walls.
   5. Live Load Requirement for Installed Wall Casework: Support casework dead load plus live load of 250 pounds acting at location to cause greatest stress without damage.
J. Tolerances: Comply with AWI QSI Section 1700.
K. Casework Base, Toe Kick: Scribe to floor including irregularity greater than 12.5 mm.
L. Filler Strips: Provide matching strips to fill gaps between casework and adjacent construction.
   1. Scribe filler strips to fit precisely.
   2. Create reveals if shown.
   3. Limit each filler strip to 1 inch maximum size.
   4. Maximum of two vertical fillers are permitted for each elevation.
   5. Maximum of one horizontal filler is permitted.
M. Hardware: Complete hardware installation not completed in shop or factory.
N. Accommodate Other Work: Coordinate other work in contact with or penetrating casework.
   1. Only the casework fabricator or installer may cut casework.
   2. Provide accurately located, sized, and shaped holes and cutouts for other work.
   3. Finish field cut wood to match shop finish.
O. Touch-Up: Restore damaged shop finishes to eliminate evidence of damage and repair.
P. Post Installation Environmental Conditions:
   1. Millworker shall advise Contractor-Construction Manager about AWI recommendations.
   2. Contractor-Construction Manager shall maintain AWI recommended environmental conditions.

End of Section

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Section 06 4200 Wood Paneling

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Wood paneling.

B. Related Sections: Without limitation, related sections include:
Section 06 0585 Interior Wood Shop Finish Schedule
Section 06 0622 Interior Wood Type Schedule
Section 06 1053 Miscellaneous Rough Carpentry
Section 06 4610 Interior Wood Trim
Section 08 1400 Wood Doors
Section 09 9000 Painting and Coating; sealing surfaces under paneling.
Section 10 1100 Visual Display Surfaces

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Shop Drawings: Comply with AWI recommendations. Show seam locations and details.
C. Verification Samples: ≥12 x 12 inches.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 WOOD PANELING - SHOP TRANSPARENT FINISHED WOOD VENEER:
A. AWI Quality Standard for Materials: Premium Grade.
B. Visible Wood: As shown. Comply with Section 06 0622 Interior Wood Type Schedule.
1. Maximum Veneer Thickness: 0.035 inch after finishing.
2. Veneer Flitch: One for all work.
C. Panel Core: Fire retardant treated medium Density Fiberboard [MDF].
1. Standard: ANSI A208.2 American National Standard for Medium Density Fiberboard.
2. Grade: ANSI 208.2, Grade M2.
3. Density: Minimum 44 pounds per cubic foot.
4. Fiber: 100 percent recycled wood.
5. Resin: No added urea formaldehyde.
6. Fire Performance: ASTM E84 Class A or 1.
7. Thickness: As shown or, if not shown, 0.75 inch.
8. Basis of Design:
a. "Medite FR", Sierra Pine, Ltd, www.sierrapine.com
b. "Vesta FR MDF", Flakeboard Company, Ltd, www.flakeboard.com
c. "Pyroblock Platinum MDF", Panel Source International, www.panelsource.net.
D. Lamination Adhesive: Formaldehyde free, PVA.
1. VOC Content: ≤80 grams per liter, less water.
E. Fabrication of Transparent Finished Wood Paneling:
1. Wood Grain Orientation: As shown or, if not shown, vertical.

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2. Veneer Matching Within Panels: Slip matched, balanced matched, and center matched.
3. Veneer Matching Among All Panels: Blue print matched including end matching.
4. Visible Edges: As shown or, if not shown, veneered to match panel face.
   a. Reveals: Mortise matching hardwood into core at reveal. Do not expose core.
5. Shop Finish: Finish System 1, Section 06 0585 Interior Wood Shop Finish Schedule.

2.2 ADDITIONAL PANELING FABRICATION REQUIREMENTS:
A. Shop Prefabricate: Fully shop prefabricate panels.
   1. Take field measurements. Make templates for each panel.
B. Face Orientation: As shown.
   1. For uniform light reflectance, orient all panel face material and grain one way for all work.
C. Visible Panel Edges: As shown or, if not shown, match panel face.
D. Concealed Panel Edges: Fully shop seal to reduce moisture penetration into panel core.
E. Concealed Panel Back: Provide balanced construction to reduce panel warping.
   1. Apply continuous, one piece, panel face material equivalent to panel back.
F. Panel Core: Conceal from view in the completed installation.
G. Fasteners: Conceal from view in the completed installation.

2.3 INSTALLATION MATERIALS:
A. Fasteners: Finish nails.
B. Panel Adhesive Basis of Design: "Titebond VOC Compliant Heavy Duty Construction Adhesive", Franklin International, www.titebond.com
   1. VOC: 47 grams per liter.
C. Nail Head Putty/Filler: "DAP Finishing Putty", DAP, Inc., www.dap.com
   1. VOC: ≤50 grams per liter.
   2. Color: Match finished wood as approved by Architect.

2.4 PANEL HANGERS:
A. Basis of Design: "625 Z Clips", Monarch Metal Fabrication, Inc., www.monarchmetal.com.
B. Fasteners: #10 [0.190 inch] diameter, flat head.

2.5 ADDITIONAL REQUIREMENTS FOR WOOD PANEL CONCEALED ACCESS DOORS:
A. Hinges: "Soss Invisible Hinge 208", Universal Industrial Products, Inc., www.soss.com
   1. Spacing: ≤24 inches on center.
B. Touch Latch: "MC 37", Sugatsune America, Inc., www.sugatsune.com
   1. Spacing: Maximum 48 inches on center.
C. Lock: Mortised "5L Series", Best Access Systems, www.bestaccess.com
   1. Keying: Master key into building keying system.
D. Fabrication:
   1. Make operable panels inconspicuous and indistinguishable from adjacent fixed panels.
   2. Provide uniform, minimum dimension gaps at perimeter of operable panels.
   3. Reinforce back of operable panels as needed to maintain panels flat and in alignment.
   4. Conceal hardware, except for lock nose.

2.6 ADDITIONAL REQUIREMENTS FOR WOOD PANEL SLIDING DOORS:
A. Basis of Design: "455 SS Single Track" and "607 ZC Ball Bearing Sheaves", Knape & Vogt, www.knapeandvogt.com

Part 3 - Execution

3.1 PANELING INSTALLATION:
A. AWI Quality Standard for Installation: Premium Grade.

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B. Only the paneling fabricator may install, cut, and fit panels.
   1. Do not allow any other trades to cut or drill panel work.
C. Coordinate installation of concealed blocking.
D. Test substrates for moisture content.
   1. Do not install paneling over wet substrates.
   2. Confirm substrates are prime painted and sealed.
E. Install panels plumb, level, and to line within tolerance of 0.06 inch in 10 feet.
   1. Shim and adjust paneling to accommodate irregular substrates.
F. Make paneling flush across joints within tolerance of 0.01 inch.
G. Keep paneling 0.5 inch above horizontal surfaces to reduce moisture wicking into panels.
H. Locate visible joints and seams only where shown on approved shop drawings.
I. Anchor panels with concealed hangers and fasteners.
J. Anchor panels to resist accidental displacement.
K. Make field work match shop work.
L. Cut and fit paneling to accommodate switches, outlets, thermostats, and other items located on or within panel work.
   1. Seal all field cut edges against moisture intrusion.
   2. Ensure field cut edges are concealed by trim, trim plates, and escutcheons.
M. When panel abuts dissimilar construction without applied trim, provide detail shown or, if not shown, provide 0.75 inch wide finished metal reveal.
N. When panel abuts dissimilar construction with applied trim, provide detail shown or, if not shown, provide 0.5 inch wide expansion space covered by the applied trim.
O. Repair damage and restore shop finish to eliminate evidence of damage and repair.
P. Environmental Conditions: Panel fabricator and installer shall advise General Contractor recommending environmental conditions, temperature, and humidity for installed work.

3.2 ADDITIONAL REQUIREMENTS FOR TRANSPARENT FINISHED WOOD PANELING: Install paneling with veneer matching specified under fabrication.

End of Section

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Section 06 4610 Interior Wood Trim

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Interior wood trim including, without limitation, coat hook strips.

B. Related Sections: Without limitation, related sections include:
Section 06 0585 Interior Wood Shop Finish Schedule
Section 06 0622 Interior Wood Type Schedule
Section 06 1053 Miscellaneous Rough Carpentry
Section 09 9000 Painting and Coating
Section 10 1100 Visual Display Surfaces; custom wood frames, trims, marker trays.

1.2 SUBMITTALS:
A. Verification Samples: ≥12 inches of fabricated elements.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 INTERIOR STANDING AND RUNNING TRIM - TRANSPARENT FINISHED:
A. AWI Quality Standard for Material and Fabrication: Premium Grade.
B. Visible Wood: Wood Type 1, Section 06 0622 Interior Wood Type Schedule.
C. Shop Finish: Finish System 1, Section 06 0585 Interior Wood Shop Finish Schedule.
D. Sizes and Profiles: As shown, custom.

2.2 INTERIOR STANDING AND RUNNING TRIM - OPAQUE FINISHED:
A. AWI Quality Standard for Material and Fabrication: Custom Grade.
B. Visible Wood: Wood Type 2, Section 06 0622 Interior Wood Type Schedule.
C. Shop Finish: Shop prime with first coat specified in Section 09 9000 Painting and Coating.
D. Sizes and Profiles: As shown, custom.

2.3 COAT HOOKS INCLUDING COAT HOOKS FOR HOOK STRIP BOARDS:
A. Basis of Design: "CH23 SSS", Doug Mockett and Company, Inc, www.mockett.com

2.4 INSTALLATION MATERIALS:
A. Fasteners: Finish nails.
B. Adhesive Basis of Design: "Titebond Molding and Trim Wood Glue", Franklin International, www.titebond.com
1. VOC: 9.8 grams per liter.

Part 3 - Execution

3.1 INTERIOR STANDING AND RUNNING TRIM INSTALLATION:
A. AWI Quality Standard for Installation: Match fabrication Grade.

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B. Joints and Seams:
   1. Install in longest practical lengths to minimize joints and seams.
   2. Locate visible joints and seams only where preapproved by Architect.
   3. Scribe and fit work neatly and accurately with hair line tight joints.
   4. Provide long tapered scarf joints in running work.
   5. Miter and cope inside corner joints and seams.
   6. Miter outside corners.
   7. Accurately align wood across seams. Sand flush and smooth.
   8. Painted Work: Make joints nearly indistinguishable after painting.
   9. Transparent Finished Work: Select and match wood to minimize joints and seams.

C. Fasteners:
   1. Coordinate installation of concealed wood blocking.
   2. Nail wood trim to blocking at not over 8 inches on center.
   3. Supplemental adhesive may be used.
   4. Set nails slightly below wood surfaces.
   5. Hammer dimples and nail gun marks are not acceptable.

End of Section

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Section 06 4810 Wood Frames

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Wood frames.

B. Related Sections: Without limitation, related sections include:
Section 06 0585 Interior Wood Shop Finish Schedule
Section 06 0622 Interior Wood Type Schedule
Section 06 1053 Miscellaneous Rough Carpentry
Section 06 4610 Interior Wood Trim; casings and trims.
Section 07 9200 Joint Sealants
Section 07 9220 Acoustical Joint Sealants
Section 08 1400 Wood Doors
Section 08 5280 Custom Wood Windows
Section 08 7100 Door Hardware
Section 08 8110 Interior Glass
Section 09 2215 Interior Non Structural Metal Framing
Section 09 2900 Gypsum Board
Section 09 8100 Acoustic Insulation

1.2 SUBMITTALS:
A. Product Data: Provide manufacturer's product data.
B. Shop Drawings: Comply with AWI recommendations including scale and content including dimensioned: elevations, details, and profiles.
C. Verification Samples: Full size, minimum 12 inches, head to jamb corner segment.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 WOOD FRAMES - TRANSPARENT FINISHED:
A. AWI Quality Standard for Material: Premium Grade.
B. Visible Wood: Wood Type 1, Section 06 0622 Interior Wood Type Schedule.
C. Shop Finish: Finish System 1, Section 06 0585 Interior Wood Shop Finish Schedule.

2.2 WOOD FRAMES - FABRICATION:
A. AWI Quality Standard for Fabrication: Same as specified AWI material grade.
B. Sizes and Profiles: As shown, custom.
1. Jamb Bottom Length: As shown or, if not shown, to subfloor.
C. Thickness:
1. Interior Frames - Thickness Concealed By Casing: As shown or if not shown, 0.75 inch.
2. Interior Frames - Thickness Not Concealed By Casing: As shown or if not shown, 1.5 inches.
D. Finger Jointed Wood: Not permitted.
E. Back Kerfs: Provide minimum four back kerfs to reduce wood warping.

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1. Conceal kerfs in the completed Project.

F. Width: As shown or if not shown, equal to wall thicknesses, wall finish to wall finish.
1. Split Jamb: Not permitted.

G. Type: As shown or if not shown, double rabbet.

H. Stop: Applied wood "T" ploughed into frame.
1. Width: As shown or, if not shown,1.5 inches.
2. Projection from Frame: As shown or, if not shown,nominal 0.5 inch.
3. Cased Openings: Stop not required or permitted.

I. Frame Sizes: See Door Schedule and Window Schedule.
1. Coordinate actual door sizes and clearances.

J. Clearances, Tolerances: Comply with Door and Hardware Institute standards.
1. Fire Door Clearances: Comply with NFPA 80.

K. Machining:
1. Shop machine frames for hardware listed on final, approved hardware submittals.
2. Shop prefit frames to fit actual door sizes from final, approved door submittals.
3. Provide long jamb bottom to allow field cutting to accommodate variable subfloor elevations.

L. Shop Set Up: Shop assemble frames.
1. Provide temporary, removable bottom struts to hold jamb bottoms.
2. Provide one piece jambs and heads.
3. Attach head into jamb dado, then glue and screw.
4. Stop: Cut and fit stop, but ship loose for field installation.

2.4 ADDITIONAL REQUIREMENTS FOR FIRE RATED FRAMES:

A. Rating: As scheduled or, if not scheduled, 20 minutes.

B. Rating Label: Required; UL or Warnock Hersey International.

C. Fire Door Clearances: Comply with NFPA 80.

2.5 ADHESIVES:

A. Basis of Design: "Titebond HiPURformer Advanced Bonding System", Franklin International, www.titebond.com
1. VOC: Zero.

Part 3 - Execution

3.1 WOOD FRAME INSTALLATION:

A. AWI Quality Standard for Installation: Match grade specified above for fabrication.

B. Install jambs plumb and heads level.

C. Install jambs flush with both faces of partitions, unless detailed otherwise.

D. Maximum gap between back of frame and wall stud is 0.3 inch.

E. Shim back of both jambs at hinge locations.

F. Fasteners:
1. Attach frame to framing or blocking with 2.5 inches long, #10 diameter, flat head wood screws.
2. Predrill for all screws to reduce wood splitting.
3. Provide two screws at each hinge height on both jambs.
4. Provide two additional screws at strike location.
5. Conceal screws behind field applied stops.
6. For casings without stops, counter sink screw heads and conceal with matching wood dowels.

G. Stops: Attach with 4d finish nails at 12 inches on center and within 6 inches of ends.
1. Set nails slightly below wood surface.

H. Coordinate installation of casings and trims.

I. Coordinate installation of doors and hardware.

J. Coordinate installation of glass and glazing.

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K. Coordinate installation of field applied finishes and coatings.

End of Section

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Section 07 7233 Roof Hatches

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Roof hatches.

B. Related Sections: Without limitation, related sections include:
Section 05 5133 Metal Ladders
Division 7 Roof System

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS:
A. Acudor Products, Inc., www.acudor.com
B. Babcock-Davis, www.babcockdavis.com
C. The Bilco Company, www.bilco.com
D. Precision Ladders, LLC., www.precisionladders.com

2.2 ROOF ACCESS HATCH:
A. Basis of Design: "Type L-50 Roof Hatch", The Bilco Company, www.bilco.com
B. Size: 30 x 96 inches.
C. Live Load: ≥40 pounds per square foot without damage or deformation.
D. Wind Uplift: ≥20 pounds per square foot without damage or displacement.
E. Cover: Double wall, insulated.
1. Outer Skin: 11 gage aluminum.
2. Insulation: 1 inch rigid mineral fiber, completely encapsulated between skins.
3. Inner Skin: 18 gage aluminum.
4. Gaskets: Manufacturer's standard.
F. Curb:
1. Height: As shown or, if not shown, 12 inches.
2. Material: 11 gage, aluminum.
3. Deck Flange: 3.5 inches wide, with factory provided mounting holes.
4. Insulation: Completely wrap curb exterior with 1 inch rigid mineral fiber.
5. Custom Slope: Keep top of curb level for roof slopes greater than 0.25 inch per foot.
G. Hardware: Heavy-duty hinges, pull close handle on interior, spring lift assist operators, heavy duty shock absorbers, automatic hold open arms, inside and outside manual latches, interior hasp and eye for padlock.
1. Hardware Finish: Corrosion resistant coated.
H. Aluminum Finish: Clear anodized.

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1. This is a Contract required deviation from Basis of Design standard mill finished aluminum.

2.3 ROOF ACCESS HATCH GUARD RAILS:
- A. Basis of Design: "Bil Guard Hatch Railing System", The Bilco Company, www.bilco.com
- B. Extent: Fixed guard rails on two sides of hatch, swing gate at hatch entrance.
- C. Materials:
  1. Yellow, pultruded, fire retardant fiberglass tubing.
  2. Hot dip galvanized steel mounting brackets.
  3. Aluminum hinges and post guides.
  4. Self closing gate stainless steel torsion rod.
  5. 316 alloy stainless steel fasteners.
- D. Performance Requirements:
  1. Meet OSHA 29CFR 1910.23.
  2. Meet Building Code guard rail requirements.

2.4 ROOF ACCESS HATCH SAFETY POST:
- A. Locations: Provide one safety post for each roof hatch without guard rails around the hatch.
- B. Basis of Design:
  1. "SPM Safety Post", Babcock-Davis, www.babcockdavis.com
  2. "Ladder Up Safety Post LU-1", The Bilco Company, www.bilco.com
  3. "ER-1, Extend A Rail Ladder Safety Post", Precision Ladders, LLC., www.precisionladders.com

Part 3 - Execution

3.1 ROOF HATCH INSTALLATION: Comply with manufacturer's instructions and recommendations.
- A. Coordinate roof hatch installation with roof system to form a weather tight assembly.
- B. Securely anchor to structure with one fastener for each factory provided hole.
- C. If factory holes are not provided, anchor at not over 8 inches on center all around deck flange.
- D. Adjust operating parts to work easily, smoothly, and correctly.
- E. Lubricate rubbing, wearing, and bearing surfaces.
- F. Restore damaged coatings and finishes.

End of Section

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Section 07 8100 Applied Fireproofing

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Applied fireproofing.

B. Related Sections: Without limitation, related sections include:
Division 5 Structural Steel
Section 09 9000 Painting and Coating

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Shop Drawings: Plans showing complete extent of each type of fireproofing and UL design number with hourly fire resistance rating for each area and member.
1. Suface Sealer: Show extent of sealer applied over fireproofing.
C. Shop Painted Steel: Certify testing of fireproofing adhesion to shop painted substrates.

1.3 SHOP APPLIED COATINGS: Coordinate shop applied coatings with fireproofing manufacturer.
A. Manufacturer's Restriction: Do not apply fireproofing to painted substrates if the fireproofing manufacturer prohibits or does not recommend application over painted substrates.
B. Restrictions: Do not apply fireproofing to painted substrates except as permitted by ANSI/UL 263, Article II - General, paragraph 8, Coating Materials.
1. Maximum Beam Flange Dimension: 12 inches.
2. Maximum Column Flange Dimension: 16 inches.
C. Project Specific Testing: When fireproofing is allowed to be applied to painted substrates, test painted substrates to confirm adhesion and compliance with UL Designs.
1. Performance Requirement for Painted Substrates: Minimum 80 percent of fireproofing's published bond strength to uncoated steel when tested per ASTM E736.

1.4 QUALITY ASSURANCE - FIELD TESTING: See Section 01 4320 Quality Assurance During Construction.

1.5 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS:
A. Albi Manufacturing, Stanchem, Inc., www.albi.com
B. Carboline Company, www.carboline.com
C. Isolatek International, www.isolatek.com
D. W.R. Grace and Company, Inc., www.na.graceconstruction.com

2.2 APPLIED FIREPROOFING TYPE 1: Gypsum based.
A. Basis of Design: "Monokote MK6", W.R. Grace and Company, Inc., www.na.graceconstruction.com
B. Applications: Interior, dry, non freezing, non condensing, controlled humidity, no impact or contact.

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2.3 APPLIED FIREPROOFING TYPE 2: 100 percent Portland cement based.
A. Basis of Design: "Monokote Z-106", W.R. Grace and Company, Inc., www.na.graceconstruction.com
B. Applications: Interior where manufacturer does not recommend "Applied Fireproofing Type 1".

2.4 APPLIED FIREPROOFING TYPE 3: High density Portland cement based.
A. Basis of Design: "Monokote Z-146", W.R. Grace and Company, Inc., www.na.graceconstruction.com
B. Applications:
1. Interior rapid fire [UL 1709 Rapid Rise Fire Tests of Protection Materials for Structural Steel].
2. Exterior.

2.5 APPLIED FIREPROOFING TYPE 4 - THIN FILM FIREPROOFING FOR INTERIOR APPLICATIONS:
A. Basis of Design: "A/D Firefilm III", Carboline Company, www.carboline.com
1. VOC Content: ≤0.17 pounds per gallon.
B. Definition of "Interior": "Interior" means indoor controlled temperature environment.
C. Color: White.

2.6 ACCESSORY MATERIALS: Provide all materials shown in each UL design used. Provide primer, bonding agent, adhesive, reinforcing mesh, and other accessory materials recommended by fireproofing manufacturer for each type of fireproofing.

2.7 APPLIED FIREPROOFING PERFORMANCE REQUIREMENTS:
A. Fire Resistance Ratings: Meet Building Code for the Construction Classification of the building.
1. Extent: For assemblies required to be fireproofed, also apply fireproofing to bracing, clip angles, support angles, and related members.
B. UL Designs: As shown or, if not shown, selected by Contractor for each condition.
C. "Restrained" and "Unrestrained" Assemblies: As shown or, if not shown:
1. Determine if the assembly meets the UL "Conditions of Acceptance" specified for "Restrained Assembly" or "Unrestrained Assembly".
2. Comply with Table X3.1, ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials.
D. Asbestos Content: None permitted.

2.8 SURFACE SEALER FOR FIREPROOFING:
A. Manufacturers:
1. Fiberlock Technologies Inc., www.fiberlock.com
2. H.B. Fuller Construction Products, Inc., www.fosterproducts.com
3. JMN Specialties, Inc., www.jmnspecialties.com
B. Basis of Design: "Lag Kote", Fiberlock Technologies Inc., www.fiberlock.com
1. VOC Content: ≤162 g/l.
2. Description: 100 percent acrylic encapulation coating.
C. Fire Performance: ASTM E84, flame spread ≤5, smoke developed = zero.
D. Mold Resistantance: ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
1. Performance: 10, no mold growth.
E. Surface Sealer Color: Tint to make easily visible after installation.
1. Surface Sealer Color On Fireproofing Visible In the Completed Project: Selected by Architect.

Part 3 - Execution

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3.1 APPLIED FIREPROOFING INSTALLATION: Comply with manufacturer's instructions and recommendations.

A. Sequence and Coordination: Sequence work and coordinate fireproofing with all related work to:
   1. Protect structure from fire at the earliest practical time.
   2. Minimize exposure of installed fireproofing to weather and damage.
   3. Minimize disturbance of installed fireproofing by work of other trades.
   4. Complete fireproofing installation prior to installation of obstructions such as ductwork.
   5. For metal deck supporting concrete, place concrete prior to fireproofing installation.
   6. For roof decks, complete roof installation and prohibit roof traffic prior to fireproofing installation.

B. Preparation: Clean and prepare substrates. Remove oil, grease, loose mill scale, dirt, coatings which inhibit bond, incompatible coatings, coatings not listed in UL tested assemblies, and all other substances which could impair bond.
   1. Mask, cover, and protect adjacent work from over spray or fall out.
   2. Provide temporary enclosures to control wind and environmental conditions.

C. Fireproofing Application: Match UL designs and assemblies.
   1. Primer, Bonding Agent: Treat substrates if recommended by fireproofing manufacturer.
   2. Adhesive: Apply adhesive if recommended by fireproofing manufacturer.
   3. Reinforcing: Apply reinforcing if recommended by fireproofing manufacturer.
   4. Fireproofing Thickness: Comply with UL designs.
   5. Fireproofing Density: Comply with UL designs.
   6. Curing: Comply with fireproofing manufacturer's recommendations.
   7. Cleaning: Clean up and remove over spray and fall out.
   8. Inspection: Inspect fireproofing for damage immediately before concealing.
   9. Repair: Repair fireproofing to eliminate all damage and to maintain fire resistance.

3.2 ADDITIONAL REQUIREMENTS FOR SURFACE SEALER:

A. Locations: Over Fireproofing Type 1 at the following locations:
   1. Mechanical and equipment rooms and adjacent spaces.
   2. Elevator hoistways and elevator machine rooms
   3. Air movement spaces including plenums and shafts.
   4. All areas and zones subject to vibration and areas adjacent to these vibration areas.
   5. All locations recommended by fireproofing manufacturer.
   6. All locations required by authorities having jurisdiction.
   7. All locations shown on drawings.

B. Coverage: Comply with sealer manufacturer's instructions and recommendations.

C. On Site Dilution: Comply with sealer manufacturer's instructions and recommendations.

D. Application Method: Low pressure spray.
   1. Control over spray.
   2. Do not contaminate adjacent surfaces including floors or subfloors.

3.3 ADDITIONAL REQUIREMENTS FOR THIN FILM FIREPROOFING:

A. Provide SSPC 6 or NACE 3 Commercial Blast Cleaning of substrates.

B. Fireproofing Number of Coats: Comply with fireproofing manufacturer's recommended:
   1. Number of coats.
   2. Film thickness per coat.
   3. Drying time between coats.
   4. First coat hardness prior to application of second coat.

C. Appearance: Uniform, smooth, light texture matching Architect approved samples.

D. Decorative Painting: See Section 09 9000 Painting and Coating.
   1. Decorative painting is required for all installations including concealed locations.

End of Section

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Section 07 8410 Fire Stopping and Smoke Stopping

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Fire stopping, smoke stopping, and identification labels.

B. Extent of Fire Stopping: Stop the passage of flame and products of combustion including smoke:
1. At all penetrations through fire barrier and smoke barrier assemblies including empty openings and openings containing penetrations.
2. At all items interrupting the continuity of fire barrier and smoke barrier assemblies.
3. At the entire perimeter of fire barrier and smoke barrier assemblies.
4. At locations specified in the Building Code.

C. Extent of Smoke Stopping: Stop the passage of products of combustion including smoke:
1. At all penetrations through smoke partition assemblies including empty openings and openings containing penetrations.
2. At all items interrupting the continuity of smoke partition assemblies.
3. At the entire perimeter of smoke partition assemblies.
4. At locations specified in the Building Code.

D. Definition: All of the following are “fire barriers” and “smoke barriers”.
1. Assemblies identified on the drawings as fire rated.
2. Assemblies containing a fire rated door.
3. All assemblies enclosing: mechanical rooms, electric rooms, stairs, elevator machine rooms, elevator hoistways, shafts, chases, and storage rooms.

1.2 SUBMITTALS:

A. Product Data: For each material and product used, submit manufacturer’s product data including instructions, recommendations, and restrictions.
1. Performance Requirements: Highlight product data to show compliance with specified performance requirements.

B. Fire Stopping Shop Drawings and Tested and Listed Assemblies: Provide copies of tested, approved, and listed fire stop systems for each fire stopping condition and application on the Project. Clearly identify UL or equal design “joint system number”.
1. Details: Provide graphic details of each fire stop application and condition. Show mechanical supports and attachments. Show all fire stop materials. Show all opening dimensions and limitations. For through penetration fire stopping systems, show annular space limits [space between opening and penetrating object].
2. Key Plans: Provide Project key plans showing location of each fire stop system and key plan to details and tested and listed assembly system numbers.

C. Installer Qualifications: Submit evidence of installer qualifications.

D. Engineering Judgment: For each fire stop condition for which there are no UL or equal system number, provide a Project specific custom designed fire stop system and a dimensioned drawing prepared, professionally sealed, and signed by a Registered Professional Engineer in compliance with Section 01 4400 Engineering By Contractor.
1. Show all conditions, assemblies, penetrations, annular spaces, if any, and other conditions.
2. Identify all fire stop materials proposed for use including installation locations and thicknesses.

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3. Attach product data sheets for each fire stop material proposed.
4. Include engineer's opinion and judgment of custom designed fire stop system.
5. Obtain approval of authorities having jurisdiction prior to constructing the fire stop system.

1.3 QUALITY ASSURANCE:
A. Installer Qualification: Factory Mutual 4991 Approved Contractor, unless otherwise allowed by Owner.
B. In Place Samples of Visible Work: Comply with Section 01 4337 In Place Samples.
1. Running Work: Provide minimum 8 feet long samples.
2. Localized Work: Provide one sample of each condition and detail.

1.4 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS:
A. Hilti Corporation, www.us.hilti.com
B. Nelson Firestop Products, www.nelsonfirestop.com
C. The RectorSeal Corporation, www.rectorseal.com including brands:
1. Bio Fireshield, www.biofireshield.com
2. Metacaulk, www.metacaulk.com
D. Specified Technologies Inc., www.stifirestop.com
E. 3M Corporation, www.3m.com
F. W. R. Grace & Company, www.na.graceconstruction.com

2.2 FIRE STOPPING AND SMOKE STOPPING PERFORMANCE SPECIFICATIONS:
A. Building Codes: Meet Building Codes and requirements of authorities having jurisdiction.
B. Tested, Listed Fire Stop Systems Required: For each location and condition, provide fire stop systems tested, classified, and listed by nationally recognized independent testing agencies [examples: Underwriters Laboratories, Intertek Warnock Hersey, Factory Mutual, Southwest Research Institute, Omega Point Laboratories].
C. Single Source: For all fire stop systems, provide systems from one manufacturer.
D. Standards: Comply with:
ASTM E 84 [UL 723] Standard Test Method For Surface Burning Characteristics of Building Materials.
ASTM E 119 [UL 263] Methods of Fire Tests of Building Construction and Materials.
ASTM E 814 [UL 1479] Standard Test Method For Fire Tests of Through-Penetration Firestops.
ASTM E 1399 Test Method for Cyclic Movement and Measuring Minimum and Maximum Joint Width.
ASTM E 1966 [UL 2079] Test Method For Resistance of Building Joint Systems.
ASTM E 2307 Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-Story Test Apparatus
E. Material Fire Performance:
1. ASTM E84 Flame Spread: ≤25.
2. ASTM E84 Smoke Developed: ≤50.
F. In Service Temperature: Provide materials with in service temperature range appropriate for installation location.
G. Water Resistance Performance: Provide water resistant systems [after curing] when in contact with:
1. Floors.
2. Exterior assemblies.
3. Water vapor to liquid water condensing surfaces.
H. Acoustical Performance: Equal or greater than STC of the assembly in which the system is installed.

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I. Mold Resistance Performance: Required for material before and after curing.
   1. Standard: ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
   2. Performance: 10, no mold growth.
J. Solvent Restriction: When in contact with plastic, provide materials which do not damage plastic.
K. Environmental Characteristics:
   1. VOC Limit: Maximum 250 grams per liter, less water.
   2. Mineral Fiber Recycled Content: Minimum 70 percent post industrial [Thermafiber, Inc.].
   3. Odors: Provide materials with no objectionable odors.
   4. Regulated Materials: Provide materials free of asbestos, lead, PCBs, and regulated materials.
   5. Regulated Waste: Provide materials which do not require special waste disposal.
L. Maintenance and Renovation Requirements: For locations requiring routine maintenance or renovation, provide either:
   1. Modular, "pillow" systems which can be easily removed and reinstalled without damage.
   2. "Pathway" system which provide performance whether empty or full [example: "EZ-Path", Specified Technologies Inc., www.stifirestop.com].
M. FM Global Approved Materials: Required.

2.3 ADDITIONAL REQUIREMENTS FOR THROUGH PENETRATION FIRE STOPPING SYSTEMS:
A. "F" Rating: Match the rating of the assembly in which the fire stopping system is installed.
B. "T" Rating: For fire rated floor-ceiling and ceiling-roof assemblies:
   1. Match the fire rating of the building assembly in which the fire stopping system is installed.
   2. Make the "T" rating match the "F" rating.
   3. Exceptions allowed by the Building Code are permitted.
C. "L" Rating: Provide ANSI/UL 2079 "L" rated systems which leak maximum of 1 cubic foot of air per minute per linear foot of fire stopped joint at pressure difference of 0.30 inch water gage at both ambient temperature and at 400 degrees F.
D. Movement Class: For all through penetration fire stopping systems, provide fire stopping systems which are classified under UL 2079 as "Class I", "Class II", or "Class III".

2.4 ADDITIONAL REQUIREMENTS FOR PERIMETER FIRE STOPPING SYSTEMS: For fire stopping systems between fire rated floor-ceiling and ceiling-roof assemblies and non fire rated exterior wall assemblies:
A. Integrity Rating: Minimum 2 hours.
B. Insulation Rating: Minimum 0.25 hour.
C. "L" Rating: Provide "L" rated systems which leak ≤1 cubic foot of air per minute per linear foot of fire stopped joint at pressure difference of 0.30 inch water gage at both ambient temperature and at 400 degrees F.
D. Movement Class: For all perimeter containment fire stopping systems, provide fire stopping systems which are classified under UL 2079 as "Class I", "Class II", or "Class III".

2.5 ADDITIONAL REQUIREMENTS FOR FIRE RATED SMOKE BARRIERS: Provide fire stopping systems meeting Contract requirements.

2.6 ADDITIONAL REQUIREMENTS FOR NON FIRE RATED SMOKE PARTITIONS:
A. Material: Provide materials:
   1. Consistent with the Building Code "Construction Classification.
   2. Approved by the local Building Inspector, Fire Inspector, and authorities having jurisdiction.
B. Maximum Air Leakage: 0.1 cubic foot of air per minute per square foot of surface area at pressure difference of 0.30 inch water gage at both ambient temperature and at 400 degrees F.

2.7 ADDITIONAL REQUIREMENTS FOR SYSTEM ACCESSORIES: Provide all materials, products,

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components, and accessories needed including, without limitation: temporary forms, primers, sealants, collars, cover plates, sleeves, anchors, fasteners, masking tape, and other materials and products.

2.8 FIRE STOPPING AND SMOKE STOPPING IDENTIFICATION LABELS:

A. Basic Requirements:
   1. Material: Self adhesive “peel and stick” water resistant label.
   2. Size: Minimum 6 x 6 inches.
   3. Colors: Black copy on yellow or orange label.
   4. Copy Size: Minimum 0.2 inch high capital letters.
   5. Font: Helvetica initial capitals.
   6. Printing: Waterproof ink.

B. Copy: Provide the following information on each label.
   1. “Fire Stop/Smoke Stop - Do Not Disturb”.
   2. “This Is An Important Building Fire Safety System”.
   3. “UL Design Number = [Contractor complete with UL Design Number]”.
   4. “Fire Rating Hours = [Contractor complete with hourly rating]”.
   5. Installation contractor’s name, address, telephone.
   6. Installation date.
   7. Manufacturer’s name of products used.

Part 3 - Execution

3.1 FIRE STOPPING AND SMOKE STOPPING INSTALLATION REQUIREMENTS:

A. Comply with manufacturer’s instructions and recommendations.
B. Meet Contract requirements.
C. Install to match tested and listed systems and designs, or approved engineering judgments.
D. If multiple layers of ceramic or fiber materials are used, offset joints at least 6 inches.
E. If stick clip supports are used, mechanically attach. Adhesive alone is not acceptable.
F. Clean and remove excess and spilled materials.
G. Protect installed materials from contamination, damage, and deterioration.

3.2 COORDINATION AND INSPECTION:

A. Standards:
   ASTM E 2174 Standard Practice for On-Site Inspection of Installed Fire Stops
   ASTM E 2393 Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers
B. Coordinate fire and smoke stop work with other work to minimize disturbance of installed stops.
C. Inspect before inspection by Owner and authorities having jurisdiction.
D. Make corrections, if needed, before inspection by Owner and authorities having jurisdiction.
E. Obtain inspection and approval from Owner and authorities having jurisdiction before concealing.

3.3 WORK VISIBLE IN THE COMPLETED PROJECT: Detail as shown or, if not shown:

A. Provide smooth, flat, planar fire stop and smoke stop surfaces flush with the adjacent surface.
B. Do not expose any mineral fiber, glass fiber, ceramic fiber, or any other fiber in the completed work.
C. Tool visible surface to create uniform architectural appearance matching approved samples.
D. Provide visible color to match adjacent visible finish material.

3.4 INSTALLATION OF FIRE STOP AND SMOKE STOP IDENTIFICATION LABELS:

A. Locations: Adjacent to every installed fire stop and smoke stop on both sides of the assembly.
   1. Labels are not required on inaccessible side of assembly.
B. Location Restriction: Do not install labels at locations normally visible to building occupants such as public accessible spaces without ceilings.

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C. Installation:
   1. Clean substrates and apply labels.
   2. Install labels to be easy to read by maintenance staff.

3.5 ADDITIONAL REQUIREMENT FOR FIRE STOPPING BETWEEN SLAB EDGE AND GLAZED CURTAIN WALL ASSEMBLIES:

A. As shown or, if not shown, provide UL “Perimeter Fire Containment Systems XHDG, CW-D” series.
B. For mineral fiber board which compresses and rebounds greater in one direction than the other direction, install mineral fiber board with greatest compression/rebound direction oriented horizontal between slab edge and back of curtain wall.

End of Section

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Section 07 9200 Joint Sealants

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Joint sealants.

B. Extent: As shown and additionally:
1. At all joints, seams, and intersections between dissimilar materials.
   a. Different types of masonry units are dissimilar materials.
2. At all gaps and voids within or between similar materials.
3. At interior control joints.
4. At vertical concave [inside corner] masonry to masonry joints and tile to tile joints.
5. At visible perimeters of door frames, other frames, and trims
   a. This is in addition to Section 07 9220 Acoustical Joint Sealants.
6. At top of wall base along irregular walls.
7. At joint between acoustical ceiling edge trim and irregular walls.
8. At counter tops and splashes to make counter tops watertight.
9. Completely around all plumbing fixtures, fittings, and trim at counter tops, walls, and floors.
10. At perimeters of all exterior penetrations.
11. At exterior control joints including at pavement and site walls.

C. Related Sections: Without limitation, related sections include:
Section 07 2700 Air Barrier System
Section 07 6400 Flashings Built Into Walls
Section 07 8410 Fire Stopping and Smoke Stopping
Section 07 9220 Acoustical Joint Sealants
Section 07 9800 Compressible Fillers

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
   1. Primers: Submit information on primer to be used for each sealant and substrate.
B. Initial Selection Samples: Minimum 2 inches long.
C. Field Test and Inspection Reports: Submit written reports for tests and inspections.

1.3 FIELD SEALANT TESTS AND INSPECTION: Not In Contract. By Owner.

1.4 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

1.5 WARRANTY: Manufacturer's standard.
A. Manufacturers' Warranty Period for Exterior Sealants: 20 years.

Part 2 - Products

2.1 MANUFACTURERS:
A. Bostik, Inc., www.bostik.com
B. DAP, Inc., www.dap.com

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C. Dow Corning Corporation, www.dowcorning.com
D. Franklin Adhesives, www.franklinadhesives.com
E. GE Sealants, www.geadvancedmaterials.com, Momentive Performance Materials Inc.
F. Henkel Corporation, www.osiproseries.com
G. Pecora Corporation, www.pecora.com
H. Sika Corporation, www.sikaconstruction.com
I. Sonneborn, BASF Chemical Company, www.buildingsystems.basf.com
J. Tremco, Inc. [and Vulkem], RPM Company, www.tremcosealants.com
K. USG Corporation, www.usg.co

2.2 JOINT SEALANTS:

A. Standards:
1. ASTM C834 Standard Specification for Latex-Based Sealing Compounds.
2. ASTM C920 Standard Specification for Elastomeric Joint Sealants
B. VOC Content for Joint Sealant: ≤ 250 grams per liter.
C. Minimum Joint Sealant Movement: Provide movement shown in the Joint Sealer Schedule.
1. Standard: ASTM C719 Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
D. Color - Visible Locations: Selected by Architect from manufacturer's complete range of options including custom colors.
1. Several colors are required.
2. More than one color is required for each sealant.
E. Color - Concealed Locations: Manufacturer's standard.

2.3 JOINT SEALANT SCHEDULE:

Type 1 - Interior, Dry, No Traffic: White, paintable, siliconized acrylic
Minimum Movement: ±6.25 percent.
Basis of Design:
Tremco "Tremflex 834".
Pecora "AC 20".
Sonneborn "Sonolac".
DAP "Alex Plus Acrylic Latex Caulk Plus Silicone".
Bostik "Chem Calk 600".

Type 2 - Interior, Wet, No Traffic: Low odor, mildew resistant, fungus resistant, sanitary silicone.
Minimum Movement: ±25 percent.
Basis of Design:
Dow Corning "786".
General Electric "Sanitary SCS1700".
Pecora "898 Sanitary Sealant".
Tremco "Tremsil 200".

Type 3 - Exterior, No Traffic, Silicone: Neutral cure, medium modulus.
Minimum Movement: ±50 percent.
Basis of Design:
"795 Silicone Building Sealant", Dow Corning, www.dowcorning.com
"SilPruf NB SCS9000", Momentive Performance Materials Inc., www.momentive.com
"Spectrem 2", Tremco, www.tremcosealants.com

Type 4 - Traffic Bearing: Traffic bearing, chemically curing, polyurethane selected for slope.
Minimum Movement: ±25 percent.
Basis of Design:

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Tremco “THC 900/901”.
Pecora “Dynatred”.
Sika “Sikaflex 2c NS TG”.
Sonneborn “Sonolastic SL 2”.

Type 5 - Exterior, No Traffic, Silicone for Stone: Neutral cure, medium modulus with reduced run down and staining of porous surfaces.
Minimum Movement: ±50 percent.
Standard: ASTM C1248 Standard Test Method for Staining of Porous Substrate by Joint Sealants.
Basis of Design: Dow Corning “756 SMS Building Sealant”.

2.4 PRIMER: Recommended by sealant manufacturer for each substrate.
A. VOC Content: ≤250 grams per liter, except ≤775 grams per liter for porous substrates.

2.5 BACKER ROD:
A. Standard: ASTM C1330 Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
B. General Requirements:
1. Provide backer rod furnished by or recommended by sealant manufacturer.
2. Provide size recommended by sealant manufacturer for each joint.
3. Provide nongassing backer rod; ≤1 bubble, ASTM C1253.
C. Water Absorption for Exterior and Wet Locations: ≤0.03 g/cc, ASTM C1016.
D. Manufacturers:
1. Backer Rod Manufacturing, Inc.
2. Construction Foam Products, division of Nomaco, Inc., www.cfoamproducts.com
3. HPI Products Corporation, www.hpiproductscorp.com
4. Industrial Thermo Polymers, Ltd., www.tundrafoam.com

2.6 BOND BREAKER TAPE TO PREVENT THREE SIDE ADHESION: Teflon or polyethylene tape, recommended by sealant manufacturer.
A. “CRL Bond Breaker Tape”, C. R. Laurence Company, www.crlaurence.com
B. “3M Polyethylene Tape 483”, 3M, www.3m.com.
C. “Red Polyethylene Tape”, Demand Products, Inc., www.demandproducts.com

Part 3 - Execution

3.1 JOINT SEALANT INSTALLATION:
A. Comply with manufacturer's instructions and recommendations including, without limitation:
1. Environmental limits and substrate temperature and moisture limits.
B. Standard: ASTM C1193 Standard Guide for Use of Joint Sealants.
C. Joint Sealant Width and Depth: Comply with sealant manufacturer’s recommendations:
1. Joint Width: ≥4 times expected joint movement; minimum 0.25 inch.
2. Joint Depth: One half of joint width, but never over 0.375 inch depth.
D. Preparation:
1. Clean and prepare substrates and sealant contact surfaces.
2. Etch or roughen surfaces to which sealant is adhered to improve bond.
3. Remove loose and friable materials down to sound materials.
4. Remove laitance, soil, grease, oil, and all contamination.
E. Masking: Mask adjacent surfaces to control spillage and to prevent damage to adjacent surfaces.
F. Primer: Prime substrates to comply with manufacturer’s instructions and recommendations.
1. Do not over prime.
2. Allow primer to dry.
3. Apply sealant immediately after primer is sufficiently dry.

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G. Backer Rod:
   1. Install backer rods wherever possible.
   2. Sealant cross section shall be “hour glass” shape with broad adhesion and thin center.
   3. Control depth of backer rod to control sealant shape and sealant depth [thickness].
   4. Control depth of backer rod so compressed sealant does not protrude from joint.
   5. Install backer rods without twisting or distortion.
   6. Do not puncture or damage closed cell back rods to prevent outgassing and sealant bubbles.

H. Bond Breaker Tape To Prevent Three Side Adhesion: Provide bond breaker tape at back of joint where joint depth cannot accommodate backer rod.

I. Joint Sealant Installation:
   1. Provide uniform, continuous sealant without air gaps and voids.
   2. Force sealant into joints. Do not drag sealant into joints.
   3. Tool visible sealants to provide smooth, uniform, continuous, slightly concave sealant surfaces.
   4. Do not wet tool. Do not tool with water, soap solutions, alcohol, or solvents.
   5. Control and manage curing of sealants.
   6. Remove masking and temporary protection.
   7. Remove spilled and excess sealant.

J. Weep Holes: Do not seal over weep holes.
   1. “Seal over, then go back and open weep holes” installation method is not allowed.

3.2 INCOMPATIBLE SEALANTS: Avoid intersections between incompatible sealants.

A. Where intersection between incompatible sealants is unavoidable:
   1. Provide a 0.032 inch thick aluminum septum between the incompatible sealants.
   2. Adhere both sealants to the aluminum septum.
   3. Conceal the aluminum septum in the sealant joint.

3.3 ADDITIONAL REQUIREMENTS FOR SEALANTS IN CONTACT WITH AIR BARRIER: Comply with air barrier manufacturer’s [Section 07 2700 Air Barriers] and joint sealant manufacturer’s compatibility recommendations and curing recommendations.

3.4 ADDITIONAL REQUIREMENTS FOR SEALANTS IN CONTACT WITH FLEXIBLE FLASHING: Comply with flexible flashing manufacturer’s [Section 07 6400 Flashings Built Into Walls] and joint sealant manufacturer’s compatibility recommendations and curing recommendations.

End of Section

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Section 07 9220 Acoustical Joint Sealants

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Acoustical joint sealants.

B. Related Sections: Without limitation, related sections include:
Section 07 8410 Fire Stopping and Smoke Stopping
Section 07 9200 Joint Sealants
Section 07 9800 Compressible Fillers
Section 08 1110 Steel Doors and Frames
Section 09 2215 Interior Non Structural Metal Framing
Section 09 2225 Interior Suspension Systems
Section 09 8100 Acoustic Insulation
Section 09 9000 Painting and Coating

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS:
A. Bostik, Inc., www.bostik.com
B. DAP, Inc., www.dap.com
C. Dow Corning Corporation, www.dowcorning.com
D. Franklin Adhesives, www.franklinadhesives.com
E. GE Sealants, www.geadvancedmaterials.com, Momentive Performance Materials Inc.
F. Henkel Corporation, www.osiproseries.com
G. Pecora Corporation, www.pecora.com
H. Sika Corporation, www.sikaconstruction.com
I. Sonneborn, BASF Chemical Company, www.buildingsystems.basf.com
J. Tremco, Inc. [and Vulkem], RPM Company, www.tremcosealants.com
K. USG Corporation, www.usg.co

2.2 ACOUSTICAL JOINT SEALANTS - GENERAL:
A. VOC Content for Acoustical Sealant and Primer: Maximum 250 grams per liter, except:
1. Primer for Porous Substrates: Maximum 775 grams per liter.
B. Color - Visible Locations: Selected by Architect from manufacturer's complete range of colors.
C. Color - Concealed Locations: Manufacturer's standard.
D. Primer: Recommended by sealant manufacturer for each substrate.

2.3 ACOUSTICAL JOINT SEALANTS - CONCEALED LOCATIONS:
A. Standard: ASTM C834 Standard Specification for Latex-Based Sealing Compounds.
B. Basis of Design: "Titebond Acoustical Sound Sealant", Franklin Adhesives,

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www.franklinadhesives.com
C. VOC Content: Maximum 43 grams per liter less water.
D. ASTM E84 Fire Performance: Zero flame spread, zero smoke developed.

2.4 ACOUSTICAL JOINT SEALANTS - VISIBLE LOCATIONS:
A. Standard: ASTM C834 Standard Specification for Latex-Based Sealing Compounds.
B. Basis of Design: "AC 20+ Silicone", Pecora Corporation, www.pecora.com
C. VOC Content: ≤ 31 grams per liter less water and exempt solvents.
D. Paintable: Required. Provide sealant compatible with paint system specified in Section 09 9000 Painting and Coating.
E. Fire Performance: Not readily combustible, NFPA Flammability Rating = 1.

2.5 ACOUSTICAL INSULATION: Comply with Section 09 8100 Acoustic Insulation.

2.6 GROUT:
A. Standard: ASTM C1107 Standard Specification for Packaged Dry, Hydraulic-Cement Grout.
B. Compressive Strength: ≥2,500 psi; ASTM C1019 Standard Test Method for Sampling and Testing Grout.
C. Slump: Zero; ASTM C143 Standard Test Method for Slump of Hydraulic-Cement Concrete.

Part 3 - Execution

3.1 ACOUSTICAL JOINT SEALANTS INSTALLATION - GENERAL:
A. Comply with manufacturer's instructions and recommendations.
B. Clean and prepare substrates and sealant contact surfaces.
1. Remove loose and friable materials down to sound materials.
2. Remove laitance, soil, grease, oil, and all contamination.
C. Prime substrates to comply with manufacturer's instructions and recommendations.
1. Do not over prime.
2. Allow primer to dry.
3. Apply sealant within same work period as primer application.
D. Provide uniform, continuous sealant without air gaps and voids.
E. Remove spilled and excess sealant.

3.2 ACOUSTICAL JOINT SEALANTS AT INTERIOR FRAMED PARTITIONS - STC LESS THAN 45:
A. Standard: ASTM C919 Standard Practice for Use of Sealants in Acoustical Applications, Figure 3.
B. Scope of Work: Provide one row of continuous liquid sealant on one side of the partition:
1. Horizontally between gypsum board edge and the subfloor or dissimilar material.
2. Vertically between gypsum board edge and all dissimilar materials.

3.3 ACOUSTICAL JOINT SEALANTS AT INTERIOR PARTITIONS - STC 45 TO 49:
A. Standard: ASTM C919 Standard Practice for Use of Sealants in Acoustical Applications, Figure 3.
B. Scope of Work: Provide two rows of continuous liquid sealant, one on each side of the partition:
1. Horizontally between gypsum board edge and the subfloor or dissimilar material.
2. Vertically between gypsum board edge and all dissimilar materials.

3.4 ACOUSTICAL JOINT SEALANTS AT INTERIOR PARTITIONS - STC 50 AND HIGHER:
A. Standard: ASTM C919 Standard Practice for Use of Sealants in Acoustical Applications, Figure 3.
B. Scope of Work: Provide four rows of continuous liquid sealant, two on each side of the partition:
1. Horizontally between gypsum board edge and the subfloor or dissimilar material.
2. Vertically between gypsum board edge and all dissimilar materials.

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3.5 ACOUSTICAL JOINT SEALANTS AT TOP OF INTERIOR PARTITIONS - FIRE RATED:
- A. See Section 07 8410 Fire Stopping and Smoke Stopping.
- B. Additional acoustical joint sealant is not required and is not permitted.

3.6 ACOUSTICAL JOINT SEALANTS AT TOP OF INTERIOR PARTITIONS - NOT FIRE RATED:
- A. Scope of Work:
  1. Fill the space between the top of the partition and the structural deck with acoustical insulation.
  2. Continuously seal both faces of the partition with acoustical joint sealant.
  3. Conceal the acoustical insulation.
- B. Visible Locations: Comply with “Additional Requirements for Visible Acoustical Joint Sealants”.

3.7 ACOUSTICAL JOINT SEALANTS AT INTERIOR FRAMES FOR DOORS, SIDELIGHTS, BORROWLIGHTS, WINDOWS:
- A. Standard: ASTM C919 Standard Practice for Use of Sealants in Acoustical Applications, Figure 2.
- B. Scope of Work - Gypsum Board Partitions: Provide four rows of concealed continuous liquid sealant:
  1. One on each side of partition between partition and frame jamb and frame head.
  2. One on each side of partition between gypsum board edge and frame.
- C. Scope of Work - Masonry Partitions: Provide four rows of concealed continuous liquid sealant:
  1. One on each side of partition between partition and frame jamb and frame head.
  2. One on each side of partition between at visible perimeter of frame.

3.8 ACOUSTICAL JOINT SEALANTS AT INTERIOR CONTROL JOINTS IN INTERIOR PARTITIONS:
- A. Acoustical Insulation: Fill the entire cavity behind the control joint with acoustical insulation.
- B. Acoustical Joint Sealant: Provide concealed continuous acoustical sealant on each side of the partition directly behind the visible control joint.

3.9 ACOUSTICAL JOINT SEALANTS AT PARTITION PENETRATIONS - FIRE RATED:
- A. See Section 07 8410 Fire Stopping and Smoke Stopping.
- B. Additional acoustical joint sealant is not required and is not permitted.

3.10 ACOUSTICAL JOINT SEALANTS AT PARTITION PENETRATIONS - NOT FIRE RATED: Provide sleeved and sealed penetrations.
- A. Sleeves:
  1. Custom fabricate sleeve from 28 gage galvanized sheet steel.
  2. Make sleeve 0.75 to 1.0 inch larger than penetration.
  3. Provide uniform circular or rectangular shape to best accommodate the penetration.
  4. Make sleeve length equal partition thickness.
  5. Make sleeve flush with face of partition on both sides of partition.
  6. Build sleeve into partition prior to installation of penetration.
  7. Anchor sleeves to partition with concealed fasteners.
  8. Grout sleeves into masonry partitions.
- B. Acoustical Insulation:
  1. Hollow Partitions and Framed Partitions: Pack acoustical insulation around sleeve.
  2. Interstitial Space: Pack acoustical insulation between sleeve and penetration.
- C. Acoustical Joint Sealant:
  1. Continuously seal both faces of the partition with acoustical joint sealant.
  2. Conceal the acoustical insulation.
  3. Visible Locations: Comply with “Additional Requirements for Visible Acoustical Joint Sealants”.

3.11 ADDITIONAL REQUIREMENTS FOR VISIBLE ACOUSTICAL JOINT SEALANTS:
- A. Comply with Section 07 9200 Joint Sealants.
- B. Neatly install and tool sealant.

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C. Install visible face of sealant flush with adjacent surfaces or slightly recessed.
D. Provide and remove temporary masking tape to protect adjacent surfaces from sealant spillage.
E. Do not smear sealant onto adjacent surfaces.
F. Provide straight line sealant edges and terminations.

End of Section

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Section 07 9800 Compressible Fillers

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Compressible fillers.

B. Related Sections: Without limitation, related sections include:
Division 3 Concrete
Division 4 Masonry
Section 07 8410 Fire Stopping and Smoke Stopping
Section 07 9200 Joint Sealants
Section 07 9220 Acoustical Joint Sealants
Section 09 2215 Interior Non Structural Metal Framing
Division 32 Exterior Improvements

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.

1.3 QUALITY ASSURANCE: For visible work, comply with Section 01 4337 In Place Samples.
A. Running Work: Provide minimum 8 feet long samples.
B. Localized Work: Provide one sample of each condition and detail.

1.4 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 COMPRESSIBLE FILLER TYPE 1:
A. Application: Non fire rated partition head [between top of partition and structural deck].
B. Basis of Design: "Fluted Deck Pan Insulation", Fibrex Insulations, Inc., www.fibrexinsulations.com
C. Material: ≥3 pound density, ASTM C612 Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
D. Profile: Factory cut to match structural deck profiles.
E. ASTM E84 Fire Performance: Flame Spread ≤5, Smoke Developed= Zero.
F. ASTM C1104 Moisture Absorption: ≤0.1 percent by volume.

2.2 COMPRESSIBLE FILLER TYPE 2:
A. Application: Self expanding cork between interior concrete slab on grade and foundation wall.
B. Standard: ASTM D1752 Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
C. Thickness: As shown or, if not shown, 0.5 inches.
D. Basis of Design:
1. "Foamtastic Self Expanding Cork", Foamtastic Products, Inc., www.foamfiller.com
2. "Self Expanding Cork", Jelinek Cork Group, www.jelinek.com
3. "Sealtight Self Expanding Cork", W. R. Meadows, Inc., www.wrmeadows.com

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2.3 COMPRESSIBLE FILLER TYPE 3:
- A. Applications: Weep baffle to allow air movement, but reduce wind driven water intrusion
- B. Restrictions: Not permitted for:
  1. Visible locations.
  2. Direct exposure to sunlight or weather.
- C. Basis of Design: "Denver Foam", Backer Rod Manufacturing,Inc., www.backerrod.com.
- D. Size: Fill joint with light compression fit.
  1. Prevent displacement.
  2. Do not over compress.
  3. Do not obstruct air movement.
- E. Density: 1.7 pcf, ASTM D1622.
- F. Moisture Absorbtion: ≤0.02 percent, ASTM C509.
- G. Service Temperature Range: Minus 60 degrees F to ≥200 degrees F.
- H. Air Flow: ≥90 percent, ASTM D3574.

2.4 COMPRESSIBLE FILLER TYPE 4:
- A. Applications: Cavity closure to compartmentalize exterior wall cavities for pressure equalization.
- B. Basis of Design 1: "Mile High Foam", Backer Rod Manufacturing,Inc., www.bayindustries.com.
  1. Material: Closed cell polyethylene foam rod.
  2. Thickness, Diameter: 1.25 times the installation location dimension.
  3. Water Absorption: Maximum 1 percent by volume, ASTM C1083 Standard Test Method for Water Absorption of Cellular Elastomeric Gaskets and Sealing Materials.
- C. Basis of Design 2: "EVA-200G Cavity Wall Baffle", Williams Products, Inc., www.williamsproducts.net
  1. Material: Closed cell EVA [ethylene vinyl acetate] foam.
  2. Thickness: 1.0 to 1.25 times the installation location dimension.
  3. Water Absorption: Maximum 5 percent by weight, ASTM D1056 Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber.

2.5 COMPRESSIBLE FILLER TYPE 5:
- A. Applications: Exterior paving to paving joints and paving to foundation wall joints.
- B. Standard: ASTM D1751 Preformed Expansion Joint Filler For Concrete Paving and Structural Concrete Construction [Non-Extruding and Resilient Bituminuous Types].
- C. Thickness: As shown or, if not shown, 0.75 inch.
- D. Basis of Design: "Sealtight Fibre Expansion Joint Filler", W. R. Meadows, Inc., www.wrmeadows.com

Part 3 - Execution

3.1 COMPRESSIBLE FILLER INSTALLATION: Comply with manufacturer's instructions and recommendations.
- A. Clean joint surfaces immediately before installation of joint fillers.
- B. Remove loose substrates, dirt, grease, oil, and foreign substances.
- C. Install compressible filler with tight friction fit.
- D. Do not use adhesives which could increase flammability or VOC emissions.
- E. Install compressible filler in longest practical lengths to minimize seams.
- F. Locate visible seams uniformly and symmetrically.
- G. Provide tight, inconspicuous, accurately aligned seams.
- H. Where visible, provide uniform, accurately aligned installation without distortion or waviness.
- I. Maintain uniform depth and placement.
- J. Install flush with face of adjacent work, except where another seal is installed over the compressible filler.

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3.2 PARTITION HEAD VISIBLE IN THE COMPLETED PROJECT: Detail as shown or, if not shown:

A. Comply with Section 07 9220 Acoustical Joint Sealants, “Additional Requirements for Visible Acoustical Joint Sealants”.

End of Section

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Section 08 1110 Steel Doors and Frames

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Steel doors and frames [“hollow metal”].

B. Related Sections: Without limitation, related sections include:
Section 04 2210 Concrete Unit Masonry
Section 06 1053 Miscellaneous Rough Carpentry
Section 07 9200 Joint Sealants
Section 08 1400 Wood Doors
Section 08 3100 Access Doors and Panels
Division 8 Finish Hardware
Section 09 2215 Interior Non Structural Metal Framing
Section 09 8100 Acoustic Insulation
Section 09 9000 Painting and Coating
Division 26 Electrical
Division 28 Electronic Safety and Security

1.2 SUBMITTALS:
A. Product Data: Manufacturer’s data including instructions, recommendations, and restrictions.
B. Shop Drawings: Provide shop drawings for fabrication and installation including elevations, details of anchors, anchor spacing, reinforcement, connections, and hardware preparation.
C. Schedule: Use the same identifiers used on Contract Documents.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer’s instructions and recommendations. Comply with Steel Door Institute standards and recommendations.

Part 2 - Products

2.1 MANUFACTURERS: Any member of:
A. Hollow Metal Manufacturers Association, www.naamm.org/hmma
B. Steel Door Institute, www.steeldoor.org.

2.2 INTERIOR STEEL DOORS: See Door Elevations on Drawings.
A. Standard: ANSI A250.8.
B. Classification: Level 2, Physical Performance Level B.
C. Model: 2, seamless, fully welded.
1. Non metal seam filler material is not acceptable.
D. Door Face Steel Gage: 18 [minimum 0.042 inch].
E. Additional Requirements for Fire Rated Interior Steel Doors:
1. Fire Door Performance: ANSI/UL 10B and NFPA 252.
2. Fire Resistance Ratings: As shown or, if not shown, equal to partition in which door is located.
3. Temperature Rise: As shown or, if not shown, maximum 250 degrees F after 30 minutes.
4. Labels: Provide Code accepted labels and testing agency. Do not remove or obscure labels.
5. Prefitting: Comply with NFPA 80, NFPA 105, and Building Codes.

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6. Positive Pressure: For all fire rated doors, meet requirements of: UBC 7-2, IBC 2000, NFPA 252, NFPA 5000, UL 10-C, ASTM E2074.

2.3 EXTERIOR STEEL DOORS, DOORS BETWEEN CONDITIONED AND UNCONDITIONED SPACES: See Door Elevations on Drawings.
- A. Standard: ANSI A250.8.
- B. Classification: Level 3, Physical Performance Level A.
- C. Model: 2, seamless, fully welded.
  1. Non-metal seam filler material is not acceptable.
- D. Door Face Steel Gage: 16 [minimum 0.053 inch].
- E. Core: Full thickness polyurethane foam thermal insulation.
- F. U Value of Door: ≤0.09 [based on Steelcraft polyurethane core].
  1. Standard: SDI 113 Standard Practice for Determining the Steady State Thermal Transmittance of Steel Door and Frame Assemblies
  2. Standard: ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
  3. Standard: ASTM E1423 Standard Practice for Determining the Steady State Thermal Transmittance of Fenestration Systems
  4. Standard: ASTM C1199 Standard Test Method for Measuring the Steady-State Thermal Transmittance of Fenestration Systems Using Hot Box Methods.
- G. Door Top Edge: Closed, sealed, waterproof.
- H. Corrosion Resistance: ASTM A653 and ASTM A924, A60 or G60.
- I. "Wipe Coat Galvanized Steel": Prohibited. See Steel Door Institute "Industry Alert".

2.4 STEEL FRAMES: See Frame Elevations on Drawings.
- A. Standard: ANSI A250.8.
- B. Frame Gage: 16 [minimum 0.053 inch].
- C. Type, Construction: Continuously fully welded, seamless. Do not provide "face welded".
  1. Continuously weld entire frame corner including face, rabbet, stop, and soffit.
- D. Terminated Stops: Not required. Not permitted.
- E. Frame Anchors and Base Anchors: ANSI A250.8.

2.5 ADDITIONAL REQUIREMENTS FOR FIRE RATED FRAMES:
- A. "Fire Door Frame" Label: Required for frames supporting fire rated doors.
- B. Additional Requirements for Glazing Stops for Fire Rated Frames: Same as non fire rated except:
  1. Match UL listed and labeled assemblies.

2.6 ADDITIONAL REQUIREMENTS FOR EXTERIOR STEEL FRAMES: Including frames between conditioned and unconditioned spaces.
- A. Thermally Broken Frames: Required.
  1. Basis of Design: "Custom Series Thermal Break Frames [SQT]", Ceco, www.cecodoor.com
- B. Frame Gage: Increase to 14 [minimum 0.067 inch].
- C. Corrosion Resistance Including Anchors: ASTM A653 and ASTM A924, A60 or G60.
  1. "Wipe Coat Galvanized Steel": Prohibited. See Steel Door Institute "Industry Alert".

2.7 HARDWARE PREPARATION:
- A. Preparation: Prepare for hardware shown on final hardware schedules.
- B. Hardware Locations: As shown or, if not shown, comply with:
  1. ANSI/BHMA A156.115 Hardware Preparation in Steel Doors with Steel Frames.
- C. Hardware Reinforcing: Comply with ANSI A250.8.
  1. Hinge Preparation: Comply with SDI 111H for all doors, except maintenance access only.

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D. Silencers: Prepare frames to receive push in silencers: 3 for single doors, 2 for pair doors.

2.8 FACTORY FINISH:
A. Shop Primer Standard: ANSI A250.8 and ANSI A250.10.
B. Scope: All metal including galvanized/galvannealed steel.

2.9 EPOXY FILLER:
A. Basis of Design: “05800 Lightweight Body Filler”, 3M Corporation, www.3M.com.
1. VOC Content: Zero grams per liter less water and exempt solvents.

2.10 FIELD APPLIED ANTI CORROSION COATING:
A. Basis of Design: “118AF Black Asphaltum”, Karnak Corporation, www.karnakcorp.com

Part 3 - Execution

3.1 INSTALLATION OF STEEL DOORS AND FRAMES:
A. Frame Installation: Comply with manufacturer's instructions and recommendations.
1. Comply with SDI-105, SDI-122, ANSI A250.8 and ANSI A250.11.
2. Install plumb, level, square, rigid, and in true alignment.
3. Install all frame anchors and base anchors furnished by the frame manufacturer.
4. Conceal frame anchors with epoxy filler.
5. Level all frame heads throughout each visually continuous area.
a. Do not use subfloor as datum. Subfloors are not level.
6. Acoustical Insulation: See Section 09 8100 Acoustic Insulation.
7. Grout Frames In Masonry Walls: See Section 04 0515 Masonry Mortar and Grout.
B. Additional Requirements for Large Frame Assemblies:
1. Make field joints and seams indistinguishable from shop seams.
2. Weld and fill field seams continuously.
3. Grind welds to make welds indistinguishable after prime painting.
4. Prime paint field joints and work to match shop applied coatings.
5. Make entire frame appear seamless with indistinguishable joints after priming.
C. Door Installation: Comply with manufacturer's instructions and recommendations.
1. Comply with ANSI A250.8.
2. Comply with Division 8 - Door Hardware installation requirements.
3. Install and adjust for optimum operation.
4. Provide uniform 0.125 inch clearance between door and frame head and jambs.
5. Fire-Rated Doors: Provide clearances specified in NFPA 80.
D. Repair: Restore damaged shop finishes and repair minor damage to eliminate all evidence of repair.
E. Thermal Bow: Remove and replace doors with “severe” thermal bow, even if the thermal bow is temporary or intermittent. The following conditions are “severe”:
1. Door does not operate normally.
2. Self closing door does not self latch.
3. Door does not have tight seals at head, jambs, or sill.

3.2 ADDITIONAL REQUIREMENTS FOR FIELD APPLIED ANTI CORROSION COATING:
A. Locations: Interior of door frames to reduce corrosion due to masonry mortar and moisture.
1. Conceal coating from view in the completed installation.
B. Application: Clean substrates and apply coating by brush at 60 square feet per gallon.

End of Section

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Section 08 1400 Wood Doors

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Wood doors.

B. Related Sections: Without limitation, related sections include:
Section 08 1110 Steel Doors and Frames
Division 8 Door Hardware
Section 09 9000 Painting and Coating

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Shop Drawings: Provide shop drawings for fabrication and installation including elevations, details of door construction, concealed blocking within door, and hardware preparation.
C. Schedule: Use the same identifiers used on Contract Documents.
D. Verification Samples: ≥12 x 12 inches, fully finished.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.
A. Factory polywrap and seal doors to protect against moisture and water damage.
B. Comply with door manufacturer's instructions and recommendations for storage and handling.
C. Comply with AWI recommendations.
D. Comply with WDMA "Care and Finishing of Wood Doors".
E. Store doors flat in a clean, dry, well ventilated, climate controlled area.
F. Protect doors from direct sunlight and moisture.
G. Maintain relative humidity of storage area between 25 and 55 percent.
H. Cover doors to keep clean, but permit air circulation.
I. Store doors flat on carefully leveled supports.
J. Provide three wood 2 x 4 supports continuously across the door width.
K. Locate 2 x 4s 12 inches from each door end and at door center.
L. Isolate 2 x 4s from doors with strips of clean, new, heavy cardboard.
M. Do not drag one door across another. Carry doors. Do not drag or slide doors on floors.
N. Use clean cotton gloves when handling doors. Do not leave finger prints or hand marks.

1.4 WARRANTY: Manufacturer's standard.
A. Warranty Period - Flush Doors: Life of Installation.

Part 2 - Products

2.1 MANUFACTURERS:
A. Algoma Hardwoods, Inc., www.algomahardwoods.com
B. Eggers Industries, www.eggersindustries.com
C. Marshfield Door Systems, Inc., www.marshfielddoorsystems.com
D. VT Industries, Inc., www.vtindustries.com

2.2 REQUIRED ENVIRONMENTAL CHARACTERISTICS:
A. No added urea formaldehyde [NAUF] in door core, door crossbands, adhesives.
B. FSC "Chain of Custody" certified manufacturer.

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C. FSC certified core and certified mixed product.
D. Scientific Certification Systems certified.
E. ≥10 percent post consumer recycled content.
F. ≥20 percent post industrial recycled content.
G. UV cured, zero VOC, factory finish system.

2.3 TRANSPARENT FINISHED WOOD DOORS:
A. Visible Wood: Wood Type 1, Section 06 0622 Interior Wood Type Schedule.
B. Veneer Thickness: ≥0.02 inch after sanding.
C. Factory Transparent Finish System: Manufacturer's standard UV cured, zero VOC, finish system.
1. Performance: Equivalent to former AWI "Finish System TR-6, catalyzed polyurethane".
2. Color, Sheen, Appearance: Selected by Architect from manufacturer's complete range of options.
D. Vertical Door Edge Matching: Match species, grade, color, and appearance of door face.
E. Special Door Group Matching: Visually match doors visible concurrently when doors are closed.

2.4 ADDITIONAL REQUIREMENTS FOR TRANSPARENT FINISHED FLUSH WOOD DOORS:
A. Standard: "I.S.1A Industry Standard for Architectural Wood Flush Doors", Window and Door Manufacturers Association, www.wdma.com.
1. Duty Level: "Heavy Duty".
B. AWI Grade: Premium, except Grade A veneers instead of Grade AA veneers.
C. AWI Construction: PC5, hot press assembly.
D. Core: ANSI A208.1, grade 1, particle board. Meet specified "Duty Level".
E. Stiles and Rails: Required, bonded to core. Entire assembly sanded prior to cross band.
F. Blocking: Meet specified "Duty Level".
G. Door Faces: Slip match and balance match and center match.
1. Veneer Orientation: ***Vertical***.
2. Veneer Leaf Widths: Comply with specified Industry Standard.
3. Veneer Grain Slope and Swing Restrictions: Comply with specified Industry Standard.
H. Glass Lites In Flush Wood Doors - Not Fire Rated:
1. Glazing Frame: Match species, grade, color, and appearance of door face veneer.
2. Frame Profile: As shown or, if not shown, selected by Architect from manufacturer's complete range of options.
3. Frame Seams: Only at corners.
4. Frame Corners: Mitered with tight joints.
5. Frame Attachment: Most public side permanently attached, least public side removable.

2.5 ADDITIONAL REQUIREMENTS FOR FIRE DOORS:
A. Appearance: Visually match non fire rated doors on this Project.
B. Fire Resistance Ratings: As shown or, if not shown, equal to partition in which door is located.
C. Temperature Rise: As shown or, if not shown, maximum 250 degrees F after 30 minutes for doors with 60 minutes or higher fire rating.
D. Core: Manufacturer's standard for fire ratings and temperature rise limits specified.
E. Labels: Provide Code accepted labels and testing agency. Do not remove or obscure labels.
F. Prefitting: Comply with NFPA 80, NFPA 105, and Building Codes.
G. Blocking: Provide blocking to meet specified "Duty Level".
1. Through Bolts: Prohibited.
2. Hardware Fasteners: Number 12 constant diameter wood screws with minimum 1.25 inches penetration into door core.
3. Factory Pilot Holes for Hardware Fasteners: Required, 5/32 inch diameter.
H. Fire Door Vertical Edges: Provide minimum 0.625 inch thick, multiply, laminated wood edges with the following characteristics: [based on "Superstile", Algoma Hardwoods, Inc., www.algomahardwoods.com]
1. Vertical Door Edge Matching: Match species, grade, color, and appearance of door face.
2. Warranty: Provide specified door warranty for fully mortised hinges.

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3. Screw Withdrawal: ≥877 pounds per #12 constant diameter and 1.25 inches long wood screw in stile, with stile thickness reduced by mortised hinge thickness [0.134 inch]; ASTM D1037 Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.
4. Stile Splitting: ≥1305 pounds per per #12 constant diameter and 1.25 inches long wood screw in stile, with stile thickness reduced by mortised hinge thickness [0.134 inch]; ASTM D143 Standard Test Methods for Small Clear Specimens of Timber.

I. Glass Lites in Fire Rated Doors: Provide labeled fire rated assemblies to match door fire rating.
1. Frame Material: Veneered composite to match door face veneer.
2. Frame Profile: As shown or, if not shown, selected by Architect from manufacturer's complete range of options.

J. Astragals for Fire Rated Doors: Labeled fire rated assemblies to match door fire rating.
1. Material: Veneered composite to match door face veneer.
2. Profile, Style: As shown or, if not shown, flat.

K. Positive Pressure: Meet requirements of: UBC 7-2, IBC 2000, NFPA 252, NFPA 5000, UL 10-C, ASTM E2074

L. Intumescent Edge Seals: Provide factory installed, concealed, Category A, edge seals.

2.6 ADDITIONAL REQUIREMENTS FOR PAIR DOORS:
A. Face Matching: Pair match door faces.
B. Astragals: Provide for all pair doors, unless specifically noted "no astragal required".
C. Astragal Material and Shop Finish: Solid wood or wood veneered composite to visually match door face.

2.7 ADDITIONAL REQUIREMENTS FOR ADHESIVES:
A. Type 1 waterproof.
B. No added formaldehyde.
C. VOC Limits: Maximum 30 grams per liter.

2.8 ADDITIONAL REQUIREMENTS FOR FACTORY FITTING: Factory prefit doors to frames.

2.9 ADDITIONAL REQUIREMENTS FOR HARDWARE PREPARATION:
A. Premachining: Factory premachine and prepare for hardware shown on final hardware schedules.
B. Hardware Locations: As shown or, if not shown, comply with ANSI/BHMA A156.115W Hardware Preparation in Wood Doors with Wood or Steel Frames.
1. Coordinate steel frame hardware preparation, Section 08 1110 Steel Doors and Frames.

2.10 ADDITIONAL REQUIREMENTS FOR DOOR LOUVERS:
A. Size: As shown.
B. Finish: Grey primer paint
C. Not Fire Rated Basis of Design: "AFDL", Anemostat, www.anemostat.com
D. Fastener Heads: Locate on least public side of door.

Part 3 - Execution

3.1 WOOD DOOR INSTALLATION: Comply with manufacturer's instructions and recommendations.
A. Acclimatize doors to on site conditions for at least 5 days before installing.
B. Verify that frames are properly installed and square, with plumb jambs and level heads.
C. Do not field trim doors for size.
D. Make doors operate freely without binding or rubbing the frame.
E. Install plumb. Non-self-closing doors shall remain motionless when released at any location.
F. Shop Finished Doors: Restore damaged finishes to eliminate evidence of repair.
G. Fire Rated Door Labels and Identifiers: Do not remove, obscure, damage, or deface.

3.2 HARDWARE INSTALLATION: Comply with hardware manufacturer's instructions and listings.
A. Fasteners: No. 12 threaded-to-the-head screws with minimum 1.25 inch penetration into door core.

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1. Through Bolts: Prohibited.
2. Top Hinge Fasteners: Minimum 3 inches long.
3. Fastener Quantity: Provide one fastener for each factory provided fastener hole.
4. Fastener Finish: Match hardware.

B. Factory Pilot Holes for Hardware Fasteners: Required, 9/64 inch diameter.
C. Adhesive: Inject polyester resin adhesive into the pilot hole before inserting screws.
D. Fastener Installation: Install tightly, but do not over drive or strip screws.

3.3 DOOR INSTALLATION CLEARANCES:

A. Non Fire Rated Doors: Uniform 0.125 inch gaps at head, jambs, and pair meeting stiles.
   1. Door Bottom Clearance With Threshold or Saddle: Maximum 0.25 inch.
   2. Door Bottom Clearance Without Threshold or Saddle: Maximum 0.5 inch.
B. Fire Rated Doors: Comply with NFPA 80, NFPA 105, and Building Codes.

End of Section

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Section 08 3100 Access Doors and Panels

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Access doors and panels.
   1. Locations: For every valve, control, and item needing routine maintenance.

B. Related Sections: Without limitation, related sections include:
Division 4 Masonry
Section 06 1053 Miscellaneous Rough Carpentry
Section 07 9200 Joint Sealants
Section 08 1110 Steel Doors and Frames
Division 8 Hardware
Section 09 2215 Interior Non Structural Metal Framing
Section 09 2900 Gypsum Board
Section 09 9000 Painting and Coating
Division 22 Plumbing
Division 23 Heating, Ventilating, and Air Conditioning
Division 26 Electrical
Division 27 Communications
Division 28 Electronic Safety and Security

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Location Drawings: Provide ≥1/4 inch scale floor plans showing dimensioned location, size, style, and type of each proposed access door and panel.

1.3 APPEARANCE COORDINATION: Establish a "Project Standard" appearance and product so all access doors and panels of each type are identical in appearance throughout the Project.

1.4 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS:
A. Acudor Products, Inc., www.acudor.com
B. JL Industries, a division of Activar Construction Products Group, www.jlindustries.com
C. Nystrom Building Products, www.nystrom.com
D. Williams Brothers Corporation of America, www.wbdoors.com

2.2 ACCESS DOORS AND PANELS:
A. Style, Appearance: As shown or, if not shown:
   1. Gypsum Board: Concealed drywall bead frame and flush door face.
   2. Masonry, Ceramic Tile: 1 inch wide frame and flush door face.
B. Material: As shown or, if not shown, steel.
   1. Finish: Shop prime painted with universally compatible primer.

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C. Metal Gages:
   1. Non Fire Rated Door Face: ≥14 gage.
   2. Fire Rated Door Face: ≥20 gage.
   3. Frame: ≥16 gage.
D. Sizes: As shown or, if not shown, provide standard sizes appropriate for the intended use:
   1. Hand and Arm Reach In Only: ≥12 x 12 inches.
   2. Upper Body Reach In: ≥20 x 20 inches.
   3. Body Pass Through: ≥30 x 30 inches.
E. Hinges: Concealed when doors are closed.
F. Latches: Screw driver operated cam latch to hold door in flush, smooth plane when closed.
G. Locks: Required for all public accessible doors and panels.
   1. Lock Type: Low profile, mortised cylinder dead bolt or dead latch.
   2. Keying: Accommodate keyed cylinders furnished and installed under Division 8 Hardware.

2.3 ADDITIONAL REQUIREMENTS FOR FIRE RATED ACCESS DOORS AND PANELS:
A. Fire Rating: As shown or, if not shown, match the fire rating of the wall/ceiling assembly.
B. Temperature Rise Rating: As shown or, if not shown, required for corridors and means of egress.
   1. Temperature Rise: ≤250 degrees in 30 minutes.
C. Fire Perfomance Label: Provide Code acceptable label from independent testing agency.
D. Additional Hardware Requirements: Provide self closing and self latching doors.

2.4 ADDITIONAL REQUIREMENTS FOR THERMALLY INSULATED ACCESS DOORS AND PANELS:
A. Basis of Design: “EXT 1300 Exterior Access Door”, Williams Brothers Corporation of America, www.wbdoors.com
B. Door Face: 16 gage.
C. Thermal Insulation: 2 inches thick [two layers of 1 inch thick], FM approved extruded polystyrene,
   1. R Value: 10.
D. Gaskets: Full perimeter:
   1. Outer Gasket: Open cell polyurethane.
   2. Inner Gasket: Closed cell Neoprene.
E. Hinge: 180 degrees, continuous “piano” hinge, mortised [only barrel visible when door closed].
F. Lock: Three point operating “Tee” handle with key; chrome plated.
   1. Keying: Accommodate cylinders furnished and installed under Division 8 - Finish Hardware.
G. Shop Finish: Zinc dipped with manufacturer’s standard factory paint system.
   1. Color: Grey.

Part 3 - Execution

3.1 INSTALLATION OF ACCESS DOORS AND PANELS: Comply with manufacturer's instructions and recommendations.
A. Coordinate installation with related and adjacent work including framing and blocking.
B. Locate to provide convenient access to valves, controls, and items needing maintenance.
C. Align door edges with adjacent architectural lines and elements, if any.
D. Install plumb and level.
E. Anchor securely.
F. Ensure operation does not damage, tear, wear, or crack adjacent finishes.
G. Set accurately into position and in proper alignment with adjacent finishes.
H. Install door faces in true plane with adjacent frames and surfaces.
I. For visible frames, provide full contact with adjacent surfaces at entire perimeter of frame.
   1. Do not permit any gaps or voids between frames and adjacent construction.
J. For access doors with concealed frames, coordinate adjacent finishes to conceal the frame.
K. Install, test, and adjust lock cylinders furnished under Division 8 section “Hardware”.

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L. Adjust doors so door corners are not out of alignment or plane.
M. Adjust doors for optimum operation.
N. Restore damaged finishes and repair minor damage to eliminate all evidence of repair.

End of Section

Section 08 7100 Door Hardware

Part 1 - General

1.1 WORK INCLUDED

A. Provide Door Hardware for interior doors to provide correct functions for intended use. Provide related items and services as indicated on the Drawings and as Specified. Furnish hardware schedules and templates as required for fabrication of doors and frames under other Sections. Provide hardware that complies with applicable codes and requirements of authorities which have jurisdiction.

1.2 RELATED WORK

A. Carefully examine all of the Contract Documents for requirements which affect the work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to, the following:

1. Section 06 1053, Installation of Hardware
2. Section 08 1100, Steel Doors and Frames.
3. Section 08 1400, Wood Doors
4. Section 08 4010, Aluminum Entrances.
5. Division 26, Electrical: Wiring for electrified hardware.
6. Division 28, Electronic Safety and Security

1.3 REFERENCES

A. Comply with applicable requirements of the following standards. Where these standards conflict with other Specified requirements, the most restrictive requirements shall govern.

1. Americans with Disabilities Act (ADA):

Providing Accessibility and Usability for Physically Handicapped People.

2. Door and Hardware Institute (DHI):

Ref. 1 Recommended Locations for Builders Hardware.

1.4 LEED REQRUIEMENTS:

A.. Provide LEED Documentation specified in Division 1 Section “LEED Requirements” for all Materials and documents/submittals associated with this section.

B. Hardware materials must meet the requirements of the following LEED Credits:

1. MRc4.1 Recycled Content, (post-consumer + 1/2pre-consumer).

1.5 SUBMITTALS

A. Hardware Schedules: Within 10 days after written notice of the award of the Contract is received from the Contractor, prepare and submit to the Architect/**Specifier** for ~~approval six copies of~~ a complete Hardware Schedule. The Schedule shall be in **DHI** vertical format and shall include the manufacturers' numbers, types, sizes, and installation location of all hardware required to complete the job. The Hardware Schedule shall list the Specification Hardware Set Number next to the Schedule Heading Number and shall include a numerical Door Index listing the Schedule Heading Numbers and a condensed list of products, manufacturer's numbers and quantities scheduled therein.

B. Catalogue Cuts: Include with the Schedule two sets of catalogue cuts, together with product data sheets, of all hardware items.

C. Templates: Furnish templates to door and frame manufacturers sufficiently in advance so as not to impede the progress of the work. However, no templates shall be issued or materials ordered until the Hardware Schedule has been approved.

D. Samples: Submit samples as requested by the Architect of any materials Specified herein. Samples shall be clearly marked with the manufacturer's name and number and with the schedule number. Samples shall be returned to the supplier after being reviewed.

E. Shop Drawings: Details of electrified door hardware, indicating the following:

1. Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer-installed and field-installed wiring. Include the following:

a. System schematic.
b. Point-to-point wiring diagram.
c. Riser diagram.
d. Elevation of each door.

2. Detail interface between electrified door hardware and fire alarm access control and building control and security systems.

1.6 QUALITY ASSURANCE

A. Consultant: In order to qualify for work under this Section, supplying firm must employ on a full-time basis a regular member of the Society of Architectural Hardware Consultants, or equal acceptable to the Architect, to prepare detailed hardware and keying schedules, check drawings, and supervise installation.

1.7 WARRANTY/GUARANTEE

A. Attention is directed to the provisions of the Conditions of the Contract regarding warranties for the Work.

B. Manufacturers shall provide their standard warranties/guarantees for work under this Section. However, such warranties/guarantees shall be in addition to, and not in lieu of, all other liabilities which the manufacturers may have by law or by other provisions of the Contract Documents.

1.8 MARKING AND PACKING

A. All packages shall be legibly labeled indicating manufacturers numbers, types, sizes and Hardware Schedule reference number. All hardware shall be wrapped in paper and shall be packed in the same package as all screws, bolts and fastenings necessary for proper installation.

1.9 DELIVERY AND STORAGE

A. The Contractor shall receive, check against invoices, and store all hardware at the job.

B. Delivery of hardware shall be made in accordance with the Contractor's instructions.

C. The Contractor shall furnish the supplier of the hardware with receipts for all hardware received.

D. The Contractor shall provide adequate locked storage Space with shelving for all items of hardware and shall be responsible for such hardware after receipt from the Supplier. He shall replace all lost or damaged hardware at his own expense.

1.10 KEYING AND KEY CONTROL

A. Great Grand Masterkey, Grand Masterkey, Master Key and Construction Masterkey all cylinders to the existing Schlage Everest ~~D124~~ **D120 Series** Keyway System as directed by the Owner ~~and/or Architect~~ **(Schlage to confirm exact Keyway)**.

B. After receipt of an approved Hardware Schedule, and prior to ordering any locking devices, hardware supplier shall arrange through the General Contractor for a meeting with the Architect and/or Owner to discuss keying for this job. A Keying Layout Schedule shall be submitted for review within ten (10) days after such meeting.

C. Furnish the following quantities of keys:

Four (4) Grand Masterkeys
Four (4) Masterkeys.
Three (3) Change Keys each lock or cylinder.

D. Furnish one Key Cabinet, including envelopes, labels, tags with self-locking clips, receipt forms, three-way index, temporary markers, permanent markers, and standard metal hinged-type panel type cabinet for wall mounting. Key Cabinet shall

have a capacity of 150 percent more than the number of cylinders under this Contract.

E. All Cylinders shall be standard type (Non-IC).

1.11 SPECIAL REQUIREMENTS

A. Hardware Supplier shall determine conditions and materials for all the doors and frames for proper application of hardware.

B. Hardware Supplier shall be responsible for the accuracy of the quantities, sizes, finish and proper hardware to be furnished, whether Specifically mentioned or not, and shall be responsible for determining all details, such as hand of doors, bevel of locks, etc.

C. All lever trim for door locks to hazardous areas such as Mechanical Rooms, Electrical Rooms, etc., shall have a tactile surface to comply with requirements of the Authority Having Jurisdiction.

D. Tools for Maintenance: All Special tools packed with hardware items shall be saved and turned over to the Owner upon completion of the work.

E. Lock fronts, flush bolt faces, and strikes shall be beveled in accordance with manufacturers' standards.

F. Handing shall be verified by this supplier.

G. All electrified hardware items are to be interfaced with the Fire Alarm and/or Security System.

CR = Card Reader
DC = Door Contact
PS = Power Supply
RX = Request to Exit

H. Refer to Hollow Metal, Wood and Aluminum Door Sections regarding adequate blocking and reinforcing for surface-applied hardware. The use of thru-bolts is prohibited.

I. Hardware not specifically listed for a particular opening shall be the same as hardware scheduled for similar openings.

Part 2 - Products

2.1 QUALITY OF MATERIALS

A. The numbers used below to set a standard of quality for the major products for this project are taken from the catalogs of those manufacturers whose names appear parentheses. Equivalent products of other manufacturers are acceptable provided said products are equal to the items specified in quality, weight, design, and function, unless otherwise noted. Manufacturers listed in parenthesis are proprietary – no substitutions shall be permitted.

ITEM	MANUFACTURERS
Butt Hinges	(Stanley) McKinney, PBB
Locksets/Latchsets	(Schlage)
Keying	(Schlage)
Exit Devices	(Von Duprin)
Door Closers	(LCN)
~~Handicap~~ **ADA** Power Operators	(~~LCN~~**Dorma**) ~~Dorma, Detex~~
Door Pulls	(Burns) Hager, Rockwood
Floor & Wall Stops	(Burns) Hager, Rockwood
OH Stops & Stays	(Dorma) ABH, Glynn Johnson
Flush Bolts	(Door Controls Intl.) Rockwood
Thresholds	(NGP) Pemko, Zero
Auto. Door Bottoms	(NGP) Pemko, Zero
Astragals	(NGP) Pemko, Zero
Gasketing	(NGP) Pemko, Zero
Electric Strikes	(HES) ~~Von Duprin~~

2.2 HINGES AND PIVOTS

A. Number of hinges or pivots per door: except as noted below, two hinges are to be provided for doors up to and including five feet in height, and an additional hinge for each additional two-and-one-half feet, or fraction thereof, in the height of the door.

B. **Continuous** Hinges for exterior doors shall be ~~Stanley CB1969 Series, NRP, 5 in. x 4-1/2 in. x NRP, (pivot reinforced type) unless noted otherwise.~~ **Select SL11-HD. Furnish EPT preps, where required.**

C. Hinges for interior doors shall be steel, Stanley CB Series, sized as follows:

Door Thickness	Door Width	Hinge Weight	Hinge Height
1-3/4 in.	Under 39 in.	Regular Weight	4-1/2 in.
1-3/4 in.	39-in. and over	Extra Heavy Weight	5 in.

Width of hinges shall be determined by trim conditions.

D. Hinges are to be of Three of Five knuckle Concealed Bearing design, equipped with full radial thrust and lateral bearing assemblies. The bearing assemblies are to be permanently lubricated and sealed. All hinges are to have positive non-rising pins and a hole in the bottom tip for easy pin removal. Pins shall be through-hardened. Hinges shall be guaranteed for the life of the building.

E. Furnish Non-Removable Pins (NRP) at all interior locked doors that are reverse bevel.

F. Conductor Hinges shall be Stanley CB Series x ACSI 1108 modification. Furnish Mortar Boxes.

~~G. Where "PR" is indicated with Butts, furnish Pivot Reinforced Type.~~

2.3 LOCKSETS AND LATCHSETS

A. Unless noted otherwise, locksets and latchsets shall be heavy-duty cylindrical type, Schlage "ND" Series x "Sparta" Lever and Rose Trim, in functions as noted in the Hardware Sets below.

B. All locks shall be furnished with 2-3/4 in. backset and wrought box strikes.

C. Strike lips shall Curved Lip and be detailed to provide clearance for latchbolt at door frames with projecting trim. At Pairs of Doors, strike lips shall be 7/8-in. to center.

D. Furnish Cylinders for all locking devices.

E. Deadlocks shall be Schlage L463.

2.4 EXIT DEVICES – Unless noted otherwise:

A. Exit Devices shall be Von Duprin 98 Series, in applications as noted in the HW Sets below.

B. Lever trim shall match lockset trim. Provide breakaway levers.

C. Furnish cylinder dogging for all non fire rated exit devices. Furnish Fire Rated Devices, as required.

D. Electric Power Transfers shall be Von Duprin EPT-10.

E. Power Supplies shall be Von Duprin PS914 Series. Furnish necessary Interface Cards for proper operation.

F. Mullions shall be Von Duprin Key Removable Type. Furnish Built in Gasketing. Furnish Fire Rated Mullions where required.

2.5 CLOSERS

A. Overhead surface Closers shall be LCN, non-sized, ADA approved, as follows:

Exterior Doors:	4040-H-Spring-Cush
Interior Doors	4040 Series. Furnish "Spring-Cush" feature where noted in the HW Sets.

B. Unless Specified otherwise, closers shall be mounted on that side of the opening least objectionable to the public view. Provide parallel arm type at reverse bevel conditions. Furnish drop plates and accessories as required. Furnish all door closers with back plates (regular and parallel arm mount applications 4040-18 - modified). Plates shall not be visible when closer cover is installed.

C. Coordinating Systems shall be Dorma TS93GSR.

D. For all doors that can swing 180 degrees, template closers as required (unless built in stop is specified in the sets below).

2.6 DOOR PULLS/PROTECTION PLATES

A. Straight Pulls shall be Rockwood 112 x Type 1**HD** Mounting, less Finish Washer. Countersink doors for screw heads – Push Plates shall cover Thrubolt screws.

B. Special Pulls shall be Rockwood ~~RM3312~~ **RM3311-MP** x Full Height x Type 12HD Mounting. **Furnish Midpost 10" below Top Post.**

C. Push Bars shall be Rockwood 47 x full width x Type 12HD Mounting.

D. Push/Pull Bar Assemblies shall be Rockwood 11247 x Type 12HD & 5HD Mounting.

E. Push Plates shall be Rockwood 73F, stile permitting. Otherwise, Push Plates shall be Rockwood 73F.

F. Kick Plates shall be Rockwood K1062, 8" high, except as noted. Width of plate shall be determined by the width of the door: plates shall be 2" LWOD on single doors, and 1" LWOD on pairs of doors. Armor Plates shall be Rockwood A1062, 34" high. Width of Plates shall be determine as Kick Plates above.

2.7 STOPS AND STAYS (INTERIOR DOORS)

A. Wall Stops shall be provided at 90-degree openings. Wall Stops shall be Rockwood 405. Refer to Rough Carpentry for adequate blocking.

B. Where wall stops cannot be used, furnish an Overhead Stop (OH) equal to Dorma 710 Series.

2.8 FLUSH BOLTS/COORDINATORS

A. Flush Bolts shall be Door Controls International as follows:

1. Manual Flush Bolts - 780F.
2. Automatic Flush Bolts – 842/942.
3. Self Latching Flush Bolts – 845/945.

B. Furnish DCI 80 Dustproof Strikes for all Flush Bolts.

2.09 THRESHOLDS

A. Thresholds for exterior outswing doors shall be NGP ~~513HD x #4S Stop Strip.~~**950S**

B. Thresholds for interior doors shall be NGP 513HD. Do not include thresholds at wood frame interior door conditions.

C. All Thresholds shall be cut-in around mullions, frame members, stops, mullions (not butted up against) and shall provide a continuous surface across the full width of the

opening from jamb to jamb. All Thresholds shall be properly sealed, grouted and/or caulked and set in a full bed of mastic

2.10 GASKETING/AUTO. DOOR BOTTOMS

A. Bar Gasketing for exterior doors shall be NGP 700S, applied at head and jambs.

B. Gasketing for interior and exterior doors shall be NGP 5020C, applied at head and jambs.

C. Door Bottoms shall be NGP 320/423 Series~~.~~. If mortise type conflicts with material construction or with other hardware, furnish 520 Series, surface type.

D. Where a Set of Astragals are Specified, furnish NGP 600A (2 pieces) x full height of opening..

E. Sweeps shall be NGP 200SA.

F. Overlapping Astragals shall be NGP 139SP (if not provided By Door Manufacturer). Refer to Lockset Strike Lip dimension. Astragals shall not be notched.

G. Furnish Gasketing as specified herein or as noted on the door schedule.

H. Furnish Gasketing as specified herein or as noted on the door schedule. Gasketing shall meet the requirements for Smoke, Air, Sight, Chemical and Pressure.

2.11 MISCELLANEOUS

A. Silencers: Silencers shall be equal to Rockwood 608/609. Furnish for all interior Hollow Metal and Wood Frames.

B. Furnish (1) Knox Box, Model 3200R. Locate as directed.

C. Coat Hooks shall be Rockwood RM806.

D. Electric Strikes for Cylindrical Locksets shall be HES 8000 x Fail Secure. Electric Strikes for Rim Exit Devices shall be HES 9500 x Fail Secure.

2.12 ~~HANDICAP~~ **ADA** POWER OPERATORS

A. ~~Handicap~~ **ADA** Power Operators shall be equal to ~~LCN 9540 Senior Swing~~ **Dorma ED250** (Low Energy), Surface Mounted and shall be furnished and installed. Furnish (2) Push Plate Switches, ~~LCN 956~~ **AA3-L/R** (locate as directed). ~~Furnish BEA MC-25 Relays for Interface with Electrified Hardware.~~

2.13 FINISHES

A. Unless noted otherwise, finish of hardware shall be as follows:

1. Interior Butts, Locksets & Latchsets, Cylinders, Floor Stops, Flush Bolts, shall be satin chrome finish (US26D).

2. ~~Exterior Butts,~~ Exit Devices, Door Pulls, Protection Plates, etc. shall be satin stainless steel (US32D). Plates shall be B.S. .062 ga.

3. Thresholds, Sweeps and Door Bottoms shall be Aluminum.

4. Closers shall be Sprayed to match other hardware.

5. Adhesive Gasketing shall be Charcoal.

6. Continuous Hinges shall be Custom Finished to match Aluminum Entries. At Hollow Metal conditions, furnish in Clear Anodized Aluminum.

Part 3 - Execution

3.1 MOUNTING POSITIONS

A. Mounting heights given are center line heights from finished floor.

B. Hinges: Position top hinge five inches below head, bottom hinge ten inches above finished floor and intermediate hinge equally Spaced between top and bottom hinges.

C. Locksets and Latchsets/Exit Devices: Unless shown otherwise, locate center of levers 40 inches above finished floor (or per manufacturers standard locations).

D. Overhead Closers:

1. Verify each head condition prior to furnishing door closers.

2. Surface-mounted on Door: Surface shoe application for standard operation and soffit plate application for parallel arms. Provide Special shoe plates and brackets where Specified or where required by job conditions.

3. Set hardware plumb, level and in exact alignment and location. Conceal and countersink fasteners wherever possible.

3.2 ADJUSTING, CLEANING AND PROTECTION

A. Adjust hardware items to work smoothly, easily and correctly.

B. Clean exposed surfaces using non-abrasive materials and methods recommended by the manufacturer of the hardware being cleaned. Remove and replace work which cannot be successfully cleaned, as judged solely by the Architect.

C. Provide temporary protection to ensure work being done without damage or deterioration at time of Final Acceptance. Levers shall be kept covered with heavy cloth, and other hardware shall be protected against damage until Substantial Completion of the Project. Remove protections and reclean as necessary immediately prior to Final Acceptance.

3.3 COMPLETION AND CONTINUED MAINTENANCE

A. Before completion of work of this Section, inspect work with Architect and adjust and correct work to leave operating parts in perfect operating condition, jointing to adjacent material tight, surfaces without blemishes or stains, work properly executed and complete, and defects and damaged work replaced or corrected.

3.4 HARDWARE SETS

A. Each Hardware Set listed below represents the complete hardware require-requirements for one opening (single door or pair of doors). Furnish the quantities required of each set for the work.

B. The numbers used opposite locksets to identify the function are Schlage numbers. Where "TO" is indicated on locksets, outside lever shall be furnished with a tactile surface on inside face. Where “HW” is indicated on butts, furnish extra heavy weight.

C. HW Sets that do not appear on the Door Schedule shall be considered “Not Used” and/or saved for future use.

D. Security items are listed below the individual Hardware Sets for Hardware Set coordination and templating for doors and frames only. Refer to Security Section for details.

HW-1

Butts	HW
1 Lockset	~~80~~ **96** (Storeroom)
1 Electric Strike	
1 Closer	(Cush @ Outswing)
1 Kick Plate	
1 Stop	
Card Reader**, DC, PS & RX**	By Security
24V	

HW-1a

Butts	HW
1 Lockset	~~80~~**96** (Storeroom)
1 Electric Strike	
1 Closer	(Cush @ Outswing)
1 Kick Plate	
1 Stop	
1 Set Gasketing	
1 Automatic Door Bottom	
1 Threshold	
Card Reader**, DC, PS & RX**	By Security
24V	

HW-2

1 Conductor Hinge	HW
Butts	HW
1 Lockset	~~80~~**96** (Storeroom)
1 Electric Strike	
2 Manual Flush Bolts	
1 Closer	Active leaf (Cush @ Outswing)
2 Kick Plates	
1 Stop	
1 Overlapping Astragal	
Card Reader**, DC, PS & RX**	By Security
24V	

HW-3

Butts	HW
1 Lockset	~~80~~**96** (Storeroom)
1 Closer	(S-Cush @ Outswing)
1 Kick Plate	
1 Stop	

HW-4

Butts	
1 Lockset	~~80~~**96** (Storeroom)
1 Closer	(S-Cush @ Outswing)
1 Kick Plate	
1 Stop	
1 Set Gasketing	
1 Automatic Door Bottom	
1 Threshold	

HW-5

Butts	HW
1 Exit Device	98L-F x B/E
1 Closer	
1 Kick Plate	
1 Stop	
1 Set Gasketing	
1 Automatic Door Bottom	
1 Threshold	

HW-5a

1 Conductor Hinge	HW
Butts	HW
1 Electric Exit Device	E-98L-F x Fail Safe
1 Closer	
1 Kick Plate	
1 Stop	
1 Set Gasketing	
1 Automatic Door Bottom	
1 Threshold	
Card Reader**, DC, PS & RX**	By Security
Interface with Building Fire Alarm System	
24V	

HW-6

All Hardware by Integrated Door Manufacturer.

Exit Devices to be Exit Only.

Interface Magnetic Holders (by IDM) with Building Fire Alarm System
24V

HW-6a

All Hardware by Integrated Door Manufacturer.

Exit Devices to have Fail Safe Unlocking Lever handles.

Interface Magnetic Holders (by IDM) and Lever Handles with Building Fire Alarm System
24V

HW-7

Butts	
1 Lockset	~~53~~ **92** (Office)
1 Electric Strike	
1 Stop	
1 Coat Hook	
Card Reader	By Security
24V	

HW-8

Butts	HW
1 Lockset	~~70~~ **94** (Classroom)
1 Closer	(S-Cush @ Outswing)
1 Kick Plate	
1 Stop	

HW-9

Butts	
1 Lockset	53 (Office)
1 Stop	
1 Coat Hook	
1 Set Gasketing	
1 Automatic Door Bottom	
1 Threshold	

HW-9a

Butts	
1 Lockset	~~53~~ **92** (Office)
1 OH Stop	
1 Coat Hook	
1 Set Gasketing	
1 Automatic Door Bottom	
1 Threshold	

HW-10

Butts	
1 Lockset	~~70~~ **94** (Classroom)
2 Manual Flush Bolts	
1 Closer	Active Leaf (S-Cush @ Outswing)
2 Kick Plates	
1 Stop	
1 Overlapping Astragal	

HW-11

Butts	HW
1 Push Plate	
1 Pull	Straight
1 Deadlock	
1 Closer	
1 Kick Plate	
1 Stop	

HW-12

Butts	
1 Lockset	~~70~~ **94** x TO (Classroom)
2 Manual Flush Bolts	
1 Closer	Active Leaf (S-Cush @ Outswing)
2 Kick Plates	
1 Stop	
1 Overlapping Astragal	

HW-13

~~Butts~~	~~PR~~
2 Continuous Hinges	
1 Electric Exit Device	E-98L x (Fail Secure)
1 Electric Power Transfer	
1 Exit Device	98EO
1 Mullion	
2 Closers	
2 Armor Plates	
1 Set Gasketing	Bar
1 Set Gasketing	
2 Sweeps	
1 Threshold	
Card Reader**, DC, PS & RX**	By Security
24V	

HW-14

~~Butts~~	~~PR~~
1 Continuous Hinge	
1 Lockset	~~60~~ **93** (Public Entrance)
1 Closer	
1 Armor Plate	
1 Set Gasketing	Bar
1 Set Gasketing	
1 Sweep	
1 Threshold	

HW-15

Butts	
1 Exit Device	98L-F x 03 Function x TO Lever
1 Closer	S-Cush
1 Kick Plate	

HW-16

Butts	
1 Exit Device	98L-F x 03 Function x TO Lever
1 Exit Device	98EO-F
1 Mullion	
2 Closers	S-Cush
2 Kick Plates	

HW-17

~~Butts~~
1 Continuous Hinge
1 Exit Device 98EO
1 Closer
1 Kick Plate
1 Set Gasketing Bar
1 Set Gasketing
1 Sweep
1 Threshold

HW-17a

~~Butts~~
1 Continuous Hinge
1 Exit Device 98EO
1 Closer
1 Kick Plate
Gasketing By Door Manufacturer
1 Sweep
1 Threshold

HW-18

Butts
1 Lockset ~~80~~**96** (Storeroom)
2 Manual Flush Bolts
1 Closer Active Leaf (S-Cush @ Outswing)
2 Kick Plates
1 Stop
1 Overlapping Astragal

HW-19

Butts
1 Lockset ~~80~~**96** x TO (Storeroom)
2 Manual Flush Bolts
1 Closer Active Leaf (S-Cush @ Outswing)
2 Kick Plates
1 Stop
1 Overlapping Astragal

HW-20

Butts	
1 Lockset	~~80~~**96** x TO (Storeroom)
2 Manual Flush Bolts	
1 Closer	Active Leaf (S-Cush @ Outswing)
2 Kick Plates	
1 Stop	
1 Set Gasketing	
2 Automatic Door Bottoms	
1 Threshold	
1 Overlapping Astragal	

HW-21

Butts	
1 Lockset	~~80~~**96** x TO (Storeroom)
1 Closer	(S-Cush @ Outswing)
1 Kick Plate	
1 Stop	
1 Set Gasketing	
1 Automatic Door Bottom	
1 Threshold	

HW-22

Butts	
1 Lockset	~~70~~ **94** (Classroom)
1 OH Stop	

HW-22a

Butts	
1 Lockset	~~70~~ **94** (Classroom)
1 OH Stop	
1 Set Gasketing	
1 Automatic Door Bottom	
1 Threshold	

HW-23

Butts	HW
1 Lockset	~~70~~ **94** (Classroom)
1 Closer	(S-Cush @ Outswing)
1 Kick Plate	
1 Stop	

HW-24

~~Butts~~	
2 Continuous Hinges	
~~2~~ **1** Electric Exit Device	QEL-LC-~~9847TL/NL x 370 Control~~**98NL-OP**
1 Electric Exit Device	**QEL-LC-98EO**
2 Electric Power Transfers	
1 Power Supply	
2 Pulls	Special
1 ADA Power Operator	
~~2~~ **1** Closer~~s~~	
Gasketing	By Door Manufacturer
1 Threshold	
Card Reader**, DC & RX**	By Security
Fixed Mullion	**By Door Manufacturer**
120V	

~~HW-24a~~
~~(Add Alternate)~~

~~Butts~~	
~~2 Electric Exit Device~~	~~QEL-LC-9847TL/NL x 370 Control~~
~~2 Electric Power Transfers~~	
~~1 Power Supply~~	
~~2 Pulls~~	~~Special~~
~~1 Handicap Power Operator~~	
~~1 Closer~~	
~~Gasketing~~	~~By Door Manufacturer~~
~~1 Threshold~~	
~~Card Reader~~	~~By Security~~
~~120V~~	

HW-25

~~Butts~~	~~PR~~
2 Continuous Hinges	
2 Push Bars	
2 Pulls	Special
1 ADA Power Operator	
~~2~~ **1** Closer~~s~~	H-S-Cush
Gasketing	By Door Manufacturer
120V	

~~HW-25a~~
~~(Add Alternate)~~

~~Butts~~	~~PR~~
~~2 Push Bars~~	
~~2 Pulls~~	~~Special~~
~~1 Handicap Power Operator~~	
~~1 Closer~~	~~H-S-Cush~~
~~Gasketing~~	~~By Door Manufacturer~~
~~120V~~	

HW-26

Butts	HW
2 Push Plates	
2 Pulls	Special
2 Closers	H-S-Cush
2 Kick Plates	

HW-27

~~Butts~~	
1 Continuous Hinge	
1 Exit Device	98NL-OP (less pull)
1 Electric Strike	
1 Pull	Special
1 Closer	
Gasketing	By Door Manufacturer
1 Threshold	
Card Reader**, DC, PS & RX**	By Security
24V	

HW-27a

~~Butts~~	
1 Continuous Hinge	
1 Exit Device	98NL-OP (less pull)
1 Electric Strike	
1 Pull	Special
1 ~~Handicap~~ **ADA** Power Operator	
Gasketing	By Door Manufacturer
1 Threshold	
Card Reader**, DC, PS & RX**	By Security
24V/120V	

HW-28

~~Butts~~	
1 Continuous Hinge	
1 Exit Device	98NL-OP (less pull)
1 Electric Strike	

1 Pull	Special
1 Closer	
Gasketing	By Door Manufacturer
1 Threshold	
Interface with Access Control System	By Security (No Card Reader)
24V	

HW-29

All Hardware By Revolving Door Manufacturer, except:

Cylinders	As Required
Magnetic Locking required	
Interface with Access Control System	By Security
24V	

HW-30

Butts	HW
~~2~~ Electric Exit Device~~s~~	QEL-LC-~~9847TL/NL x 370 Control~~**98NL-OP**
1 Electric Exit Device	**QEL-LC-98EO**
1 Mullion	
2 Electric Power Transfers	
1 Power Supply	
2 Pulls	Special
2 Closers	H-S-Cush
2 Kick Plates	
Card Reader**, DC & RX**	By Security
120V	

HW-31

Butts	HW
2 Push Plates	
2 Pulls	Special
2 Closers	H-S-Cush
2 Kick Plates	

HW-32

Butts	HW
1 Exit Device	98L x 08 Function
1 Closer	H-S-Cush
1 Kick Plate	

HW-33

Butts	HW
1 Lockset	~~80~~**96** x TO (Storeroom)
1 Electric Strike	

1 Closer	
1 Kick Plate	
1 Stop	
1 Set Gasketing	
1 Automatic Door Bottom	
1 Threshold	
Card Reader**, DC, PS &RX**	By Security
24V	

HW-34

Butts	
1 Lockset (Mortise)	L9466 (Utility)
1 Closer	S-Cush only
1 Kick Plate	
1 Set Gasketing	
1 Sweep	
1 Threshold	

HW-35

Butts	
1 Lockset	~~80~~**96** (Storeroom)
1 Closer	(S-Cush @ Outswing)
1 Kick Plate	
1 Stop	

HW-36

Butts	
1 Latchset	10 (Passage)
1 Closer	
1 Kick Plate	
1 Stop	

HW-37

2 Conductor Hinges	HW
Butts	HW
2 Electric Exit Devices	E-~~9847L~~**9849L**-F x Fail Safe
2 Closers	
1 Set Gasketing	
2 Sweeps	
Card Reader**, DC, PS & RX**	By Security
Interface with Building Fire Alarm System	
24V	

HW-38

Butts	CB1961
1 Privacy Set (Mortise)	L9496 (Indicator)

1 Closer	
1 Kick Plate	(Cush at Outswing)
1 Stop	
1 Set Gasketing	
1 Automatic Door Bottom	
1 Threshold	

HW-39

1 Set Pocket Hardware	KN Crowder Type C
1 Pocket Lock	~~Accurate 2002-CPDL-3~~**KN Crowder C90L-C/T**

HW-40

Butts	
1 Lockset (Mortise)	9456 (Corridor)
1 Closer	H-S-Cush
1 Kick Plate	

HW-41

Butts	CB1961
1 Lockset	~~80~~**96** x TO + Key Inside (Storeroom)
1 Closer	
1 Kick Plate	
1 Set Gasketing	
1 Sweep	
1 Threshold	

HW-41a

~~Butts~~	~~CB1961~~
2 Continuous Hinges	
1 Lockset	~~80~~**96** x TO + Key Inside (Storeroom)
2 Manual Flush Bolts	
2 Closers	
2 Kick Plates	
1 Set Gasketing	
2 Sweeps	
1 Threshold	
1 Overlapping Astragal	

HW-41b

~~Butts~~	~~CB1960~~
1 Continuous Hinge	
1 Lockset	~~80~~**96** x TO + Key Inside (Storeroom)
1 Set Gasketing	
1 Sweep	
1 Threshold	

HW-42

~~Butts~~

1 Continuous Hinge

1 Exit Device	98L-F x 03 Function x TO Lever
1 Closer	
1 Kick Plate	
1 Set Gasketing	
1 Sweep	
1 Threshold	

HW-43

Butts	HW
1 Lockset	~~80~~**96** (Storeroom)
2 Manual Flush Bolts	
1 Closer	Active leaf (Cush @ Outswing)
2 Kick Plates	
1 Stop	
1 Overlapping Astragal	

HW-44
Mesh Gate

2 Spring Hinges	2060R x US32D
1 Butt	CB1961
1 Deadlatch	Adams Rite 4900-4560

- END OF SECTION -

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Section 08 8110 Interior Glass

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Interior glass.

B. Related Sections: Without limitation, related sections include:
Section 08 1110 Steel Doors and Frames
Section 08 1400 Wood Doors

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Verification Samples: ≥12 x 12 inches.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 - General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 INTERIOR GLASS SCHEDULE:
Interior Glass Type 1: 6 mm thick, clear, float glass.
Interior Glass Type 2: 6 mm thick, clear, tempered safety glass.
Interior Glass Type 3: 6.7 mm thick, clear, laminated safety glass.
Interior Glass Type 4: 6.7 mm thick, translucent, laminated safety glass.
Interior Glass Type 5: 8 mm thick, clear, non wire, fire rated, safety glass.

2.2 FLOAT GLASS: ASTM C1036, Type I - transparent, flat; Quality q3 glazing select.

2.3 ADDITIONAL REQUIREMENTS FOR TEMPERED GLASS:
A. Standard: ASTM C1048 Standard Specification for Heat-Treated Flat Glass; Condition A, Type I, Quality q3, Kind FT.
B. Safety Standards: ANSI Z97.1 and CPSC 16 CFR Part 1201, Category I and II.
1. Permanent Safety Labels: Required on each piece of safety glass.
C. Objectionable Visible Quench Patterns: Prohibited, as judged by the Owner and Architect.
D. Distortion Limits:
1. Roller Wave: ≤0.003 inch peak to valley within the main body of the sheet and maximum 0.008 inch within 10.5 inches of a leading or trailing edge.
2. Localized Warp: ≤0.03 inch over any 12 inch span.
E. Fabricator Quality Control: Test heat treated glass for distortion.
1. Test Method: GANA "TD 04-03-26 Standard Test Method for In Plant Measurement of Roll Wave in Heat Treated Architectural Glass".

2.4 ADDITIONAL REQUIREMENTS FOR LAMINATED GLASS:
A. Standard: ASTM C1172 Standard Specification for Laminated Architectural Flat Glass.
B. Safety Standards: ANSI Z97.1 and CPSC 16 CFR Part 1201, Category I and II.
1. Permanent Safety Labels: Required on each piece of safety glass.

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C. Interlayer Material: Polyvinyl butaryl.
D. Interlayer Thickness: As shown or, if not shown, 0.7 mm.
E. Appearance - Typical: Uniform, clear, colorless.
F. Translucent: Selected by Architect from "Vanceva System", Solutia, Inc., vanceva.com.

2.5 FIRE RATED NON WIRE GLASS:
A. Products:
1. "FireLite Plus", Nippon Electric Glass Company, Ltd., www.fireglass.com
2. "SGG Keralite FR-L", Vetrotech, Saint Gobain, www.vetrotech.com.
B. Thickness: 8 mm.
C. Fire Rating: Match partition assembly in which glass is located.
D. Hose Stream Test: Required.
E. Human Impact Rated Safety Glass: Required, CPSC 16 CFR Part 1201, Category I and II.
1. Permanent Safety Labels: Required on each piece of glass.
F. Transparent: Required, premium polished finish for optimum visual transmittance.

2.6 VISIBLE GLASS EDGES: Flat polished and smooth.

2.7 GLAZING MATERIALS:
A. Manufacturers:
1. Dow Corning Corporation, www.dowcorning.com
2. GE Sealants, www.geadvancedmaterials.com, Momentive Performance Materials Inc.
3. Tremco, Inc. [and Vulkem], RPM Company, www.tremcosealants.com
B. Colors for Visible Materials: Selected by Architect from manufacturer's complete range of options.
C. Glazing Sealant: ASTM C920 Standard Specification for Elastomeric Joint Sealants.
1. Type: Neutral cure, single component [one part].
2. Basis of Design: Tremco "Proglaze SSG Silicone Glazing Sealant".
3. VOC: ≤50 grams per liter.
D. Cleaners: Recommended by sealant manufacturer for each substrate and condition.
E. Primers: Recommended by sealant manufacturer for each substrate and condition.
F. Backer Rod: Recommended by sealant manufacturer for each sealant and location.
G. Glazing Gaskets: Silicone compatible rubber coordinated with gasket retainer grooves and races.
1. Basis of Design: Tremco "SCR 900 Silicone Compatible Rubber".
H. Setting Blocks: ASTM E2203 Standard Specification for Dense Thermoplastic Elastomers Used for Compression Seals, Gaskets, Setting Blocks, Spacers and Accessories
1. Material: Silicone or silicone compatible rubber.
2. Shore A Durometer: 80 to 90.
3. Width: Match glass thickness.
4. Length: Minimum 4 inches.
5. Shims: If used, provide material identical to setting blocks.
I. Side Blocks, Edge Blocks: ASTM E2203 Standard Specification for Dense Thermoplastic Elastomers Used for Compression Seals, Gaskets, Setting Blocks, Spacers and Accessories
1. Material: Silicone or silicone compatible rubber.
2. Shore A Durometer: 65 to 75.
3. Width: Match glass thickness.
4. Length: Minimum 4 inches.
5. Quantity: Two at each jamb.
6. Clearance: Minimum 0.125 inch gap between side block and glass edge.
J. Glazing Tape: ASTM C1281 Standard Specification for Preformed Tape Sealants for Glazing Applications.
1. Basis of Design Up To 75 United Inches: Tremco "440 Tape".

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2. Basis of Design 75 United Inches and Larger: Tremco “Polyshim II Tape”.

K. Glazing Materials for Fire Rated Assemblies: Identical to fire tested listed and labeled assemblies.

Part 3 - Execution

3.1 INSTALLATION OF INTERIOR GLASS: Comply with manufacturer’s instructions and recommendations.

A. Comply with GANA "Glazing Manual" and "Sealant Manual".
B. Protect glass from all damage including edge damage.
C. Check size, squareness, and tolerance of framing and glass.
D. Clean glazing pockets and remove all foreign materials.
E. Center glass in openings.
F. Provide at least 0.5 inch bite on glass edges.
G. Provide setting blocks at quarter points of bottom edge.
H. Provide two side blocks at upper half of each side.
I. Never permit direct glass to frame contact.
J. Adhere setting blocks and side blocks to prevent displacement.
K. Place glass with uniform pattern, draw, bow, and distortion.
L. Cut and fit glazing tape accurately and slightly long to accommodate shrinkage.
M. Do not stretch glazing tape into place. Do not leave gaps at corners.
N. Seal tape corners and make air tight.
O. Cleaning: Comply with GANA 01-0300 and glass manufacturer’s recommendations.
   1. Employ experience, trained glass cleaning personnel.
   2. Do not use razor blades or metal scrapers.
   3. Do not scratch or etch glass.
   4. Remove all cleaning solutions.
   5. Dry glazing gaskets, sealants, and frames.
P. Heat Treated Glass: Install roller waves parallel to sill.

3.2 ADDITIONAL REQUIREMENTS FOR SAFETY GLASS LOCATIONS: Comply with 16 CFR 1201.

3.3 ADDITIONAL REQUIREMENTS FOR FIRE RATED GLASS ASSEMBLIES: Match tested, labeled, and listed assemblies including, without limitation, glass, frame, stop types, stop sizes, glass bite, glazing, setting blocks, and all other assembly components and characteristics.

End of Section

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Section 09 0199 Repainting

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES: Requirements for surface preparation for refinishing existing surfaces.

A. These requirements supplement Section 09 9000 Painting and Coating.

B. Existing Lead Paint: Assume all existing coatings contain lead.

Part 2 - Products

Part 3 - Execution

3.1 ADDITIONAL PREPARATION FOR REPAINTING:

A. Comply With Regulations: Comply with OSHA regulation 2207, Construction Industry Standards 29CFR 1926.10 and all other requirements of authorities having jurisdiction.

B. Basic Surface Preparation - Patching and Repair: Spackle, fill, patch, sand, and prepare surfaces prior to repainting and refinishing to eliminate all holes, cracks, defects, and damage.
   1. Cut-out and remove all loose and friable materials down to sound materials.
   2. Material removed to expose sound material shall not affect the hole and crack size limits.
   3. Fill holes and make sound, solid, durable, well bonded patches.
   4. Patch deep defects in multiple layers to build-out the patch and accommodate shrinkage.
   5. Make patches and repairs flush with adjacent surfaces.
   6. If patches shrink during drying or curing, repatch until flush.
   7. Make the surface of the patch match the texture and appearance of adjacent surfaces.
   8. Make patches inconspicuous and indistinguishable after painting and finishing.
   9. Spot prime patches prior to repainting and refinishing.

C. Basic Surface Preparation - Existing Coatings and Finishes:
   1. Remove all blistered, peeling, and scaling paint down to bare, clean, sound substrates.
   2. Heavily sand and feather edge all transitions between paint thicknesses.
   3. Fill, spackle, and patch substrates to eliminate all variation in substrate paint thicknesses.
   4. Visual evidence of substrate paint thickness variation after priming is not acceptable.
   5. Spot prime bare areas with primer.
   6. After spot priming, apply overall primer coat to 100 percent of surfaces.

D. Basic Surface Preparation - Existing Caulk, Joint Sealants, Putty, and Fillers:
   1. Remove all loose and deteriorated caulk, sealants, putty, and fillers.
   2. Clean and prepare substrates.
   3. Provide new caulk, sealants, putty, and fillers.
   4. Tool caulk, sealants, putty, and fillers to provide smooth, dense, well filled joints.

E. Basic Surface Preparation - Washing:
   1. Remove all chalk deposits by scrubbing and rinsing with clean water.
   2. Remove mold, mildew, and biological growth with bleach solution and manufactured biocide.
   3. Wash all surfaces to be repainted with mild cleaner solution and clean water.
   4. Allow surfaces to dry prior to repainting and refinishing.

F. Additional Requirements for Existing High Gloss Coatings:
   1. Sand and prepare surfaces to create substrates suitable for repainting and refinishing.
   2. Provide “tooth” on existing high gloss surfaces to which new finishes can easily adhere.

G. Additional Requirements for Existing Interior Transparent Finished Wood Surfaces:
   1. Mechanically or chemically remove all existing finishes, soiling, stains, and wax.

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2. Provide clean, bare wood.
3. Create substrates suitable for new finishes indicated.
4. Do not change wood profiles, shapes, or details.
5. Seal knots to prevent knot bleed.
6. Set nails and fasteners.
7. Fill all holes, cracks, and imperfections with putty or wood filler tinted to match the wood.
8. Sand smooth with at least 220 grit paper.
9. Make refinished existing wood match similar new wood surfaces on this Project.

H. Additional Requirements for Existing Surfaces Previously Covered With Wall Covering:
1. Remove wall covering and adhesive residue.
2. Sand and wash surfaces to remove all traces of wall covering adhesive.
3. Spackel and skim coat surfaces to provide smooth, uniform surfaces ready to receive paint.

I. Additional Requirements for Existing Interior Steel:
1. Comply with SSPC SP3 “Power Tool Cleaning”.
2. Where power tools are inaccessible, provide SSPC SP2 “Hand Tool Cleaning”.
3. Provide SSPC SP1 “Solvent Cleaning”.

J. Additional Requirements for Existing Exterior Steel: In addition to basic surface preparation:
1. Sandblast all accessible surfaces. Comply with SSPC SP6 “Commercial Blast Cleaning”.
2. Where sandblasting is not possible, provide SSPC SP11 “Power Tool Cleaning to Bare Metal”.
3. Control and collect all sand and debris.
4. Provide SSPC SP1 “Solvent Cleaning”.

K. Additional Requirements for Existing Surfaces with Mastic, Dampproofing, or Other Contamination:
1. Prepare existing concealed surfaces which are newly exposed to view.
2. Prepare existing visible surfaces which are in areas to receive new paint finishes.
3. Remove all traces of mastics, dampproofing, and other contamination.
4. Sandblast to clean, bare substrate.
5. Provide a uniform, light texture matching approved samples.
6. Do not gouge or damage friable substrates.

L. Additional Requirements for Existing Painted Exterior Concrete and Concrete Masonry:
1. Remove existing coatings.
2. Means, methods, and techniques are Contractor’s option, except:
   a. Do not abrasive blast.
   b. Do not damage substrate including masonry mortar.
3. Maximum 2 mils thickness of existing coating may remain in cracks and crevices.

End of Section

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Section 09 0510 Requirements for Subfloors

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Work Included: Requirements for subfloors.

B. Related Sections: Without limitation, related sections include:
Division 3 Concrete
Division 9 Floor Finishes

C. Unit Price: Provide a unit price per square foot for fully installed Subfloor Moisture and Vapor Remediation System.

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Test Reports: Specified below.

1.3 QUALITY ASSURANCE:
A. Testing: Provide and pay for all tests and inspections required in this section.
B. Testing Agency: An independent testing agency approved by the Owner.
C. Test Reports By Testing Agency:
1. Prepare and submit log of all tests and inspections made.
2. Provide a unique identifier [name] for each test.
3. Scaled floor plans showing location of each test dimensioned from building structure.
4. Detail of test procedures including test instruments used.
5. Raw data obtained for each test location.
6. Determination of whether subfloors are acceptable or not acceptable at each test location.
7. Itemize subfloor deficiencies at each test location.
8. Scaled floor plans showing location of each moving, unstable crack and joint.
9. Scaled floor plans showing location of each nonmoving, stable crack and joint.
D. Preinstallation Meetings: Comply with Section 01 3000 Administrative Requirements before installation of each floor finish system.

Part 2 - Products

2.1 SUBFLOOR PATCHING AND UNDERLAYMENT MATERIAL REQUIREMENTS:
A. Manufactured, supplied, or approved by each finish floor manufacturer
B. Warranted as part of each finish floor manufacturer's warranty.
C. Moisture resistant, non-shrinking, Portland cement based.
D. Certified by its manufacturer for "on grade" and "below grade" applications.
E. Maximum pH of 10 at time of installation.
F. Unaffected by subfloor pH higher than 10.
G. Application range from feather edge to thickness required.
H. Compressive Strength: ≥5,000 psi at 28 days.

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2.2 SUBFLOOR MOISTURE AND VAPOR REMEDIATION PRODUCTS: ***This is not part of the Contract. This specification may be used for Remedial Work under a Construction Change Directive.***

A. Basic Requirement: Provide subfloor moisture and vapor products which are approved by each new floor finish manufacturer, each adhesive manufacturer, and each underlayment manufacturer.
B. Performance Requirements: "Subfloor Moisture and Vapor", Part 3 Execution, this Section.

C. Products:
1. "Vapor Green FC", Advanced Moisture Control, Inc., www.vaporsafe.com
2. "Ardex MC Series", Ardex Americas, www.ardex.com
3. "Vaportight Coat Series", Aquafin, Inc., www.aquafin.net
4. "Koster Vap 1 2000", Koster American Corporation, www.kosterusa.com
5. "Permaseal System", Madewell Products Corporation, www.madewell.net
6. "MoistureBloc Series", Vexcon Chemicals, Inc, www.vexcon.com

Part 3 - Execution

3.1 REQUIREMENTS FOR SUBFLOORS - GENERAL: Provide subfloors which comply with each floor finish manufacturer's requirements and recommendations including, without limitation, recommendations for subfloor structural adequacy, flatness, tolerance, texture, cleanliness, moisture, vapor, and alkalinity.

3.2 REQUIREMENTS FOR SUBFLOORS: Comply with the finish floor manufacturer's requirements and recommendations. In absence of requirements or recommendations from finish floor manufacturer, the Contract requirements shall be:

A. Structural Adequacy: Confirm subfloor is structurally stable and adequate by visual inspection.
1. Record concrete subfloor joint and crack locations, sizes, and conditions.
2. Determine if joints and cracks are moving or nonmoving.

B. Concrete Subfloor Surface Texture:
1. Areas To Receive Thin Film Coatings and Finish Floor Adhesive: 6 to 10 mils.
2. Areas To Receive High Build Coatings: 10 to 40 mils.
3. Areas To Receive Subfloor Patching and Underlayment Material: 50 mils to 0.125 inch.

C. Concrete Subfloor Levelness and Flatness:
1. Specified Overall Values [SOV]: FF35/FL25; determined by ASTM E1155 Standard Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers.
2. Minimum Local Value [MLV]: 67 percent of "Specified Overall Values [SOV]".
3. Surface Waviness Index: 0.10 inches determined by ASTM E1486 Standard Test Method for Determining Floor Tolerance Using Waviness, Wheel Path, and Levelness Criteria.
4. Structured Decks: Flatness requirement applies. Levelness requirement does not.

D. Subfloor Cleaning:
1. Remove: Curing compounds, sealers, hardeners, films, coatings, paint, drywall joint compound, plaster, oil, grease, solvents, dirt, dust, debris, laitence, mold, mildew, and all foreign materials.
2. Cleaning Method for Concrete: ASTM D4259 Standard Practice for Abrading Concrete.
3. Carbonated Concrete Surface: Cleaning may remove the carbonated concrete surface and may expose "fresh" concrete with high pH. Confirm subfloor alkalinity prior to installation of finished floor installation.

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E. Alkalinity Testing and Requirements:
1. Test: ASTM D4262 Test Method for pH for Chemically Cleaned or Etched Concrete Surfaces.
2. Number of Tests Required: One for each 1,000 square feet of finished floor area.
3. Test Locations: Uniformly spaced, representative [typical] subfloor conditions, and at least one test for each subfloor type and condition.
4. Cleaning: Test after subfloor cleaning and after allowing the subfloor to recarbonate.
5. Test Temperature: Minimum 50 degrees F, both ambient and subfloor temperature.
6. Acceptable pH: Comply with the finish floor manufacturer's requirements and recommendations. In the absence of requirements or recommendations from the finish floor manufacturer, the Contract limit shall be pH 8.5.

F. Subfloor Moisture and Vapor: Comply with ASTM E1907 Standard Practices for Determining Moisture Related Acceptability of Concrete Floors to Receive Moisture Sensitive Finishes.
1. Test Procedure 1: ASTM F2170 Standard Test Method For Determining Relative Humidity In Concrete Floor Slabs Using in situ Probes.
2. Test Procedure 2: ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
3. Test Temperatures: Minimum 50 degrees F, both ambient and subfloor temperature.
4. Number of Tests: Provide one Test Procedure 1 for each 2,000 square feet of finished floor area. Provide one Test Procedure 2 for each 2,000 square feet of finished floor area.
5. Test Locations: Uniformly spaced, representative [typical] subfloor conditions, and at least one test for each subfloor type and condition.
6. Test Preparation: Clean subfloors as specified prior to testing.
7. Acceptable Moisture and Vapor: Comply with the finish floor manufacturer's requirements and recommendations. In the absence of requirements or recommendations from the finish floor manufacturer, the Contract limit shall be:
Test Procedure 1: Maximum relative humidity of 75 percent.
Test Procedure 2: Maximum of 3.0 pounds of moisture per 1,000 square feet per 24 hours.

3.3 ADDITIONAL REQUIREMENTS FOR CONCRETE SUBFLOOR CONSTRUCTION:

A. Concrete Water Cement Ratio: Less than 0.5 [weight of water including water added when placing concrete divided by weight of cement].
1. Additional water may significantly affect subfloor drying time.

B. Concrete Curing: Cure with moisture retaining curing covers only.
1. Do not wet cure by adding water or moisture. [May increase drying time and delay floor finishes.]
2. Do not use curing compounds or film forming coatings. [May inhibit bond of floor finishes.]

C. Subfloor Wetting: Enclose the building at the earliest practical time.
1. Protect subfloors from rain, snow, ice, and wetting from all sources.

D. Drying: After curing concrete with impermeable plastic sheeting for three to seven days, actively manage subfloor drying:
1. Building Enclosed, Permanent HVAC System Operational: Operate the system continuously and maintain permanent building interior environmental conditions.
2. Building Enclosed, Permanent HVAC System Not Operational: Provide portable, trailer mounted, forced hot air equipment and temporary ductwork to create conditions which promote drying. Do not use portable combustion heaters or other temporary heating devices which increase interior humidity or increase carbonization of concrete.

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3.4 ADDITIONAL REQUIREMENTS FOR SUBFLOOR MOISTURE AND VAPOR REMEDIATION INSTALLATION:

A. Scope of Work: ***This is not part of the Contract. This may be used for Remedial Work under a Construction Change Directive.***

B. Installation: Comply with subfloor moisture and vapor remediation product manufacturer's instructions and recommendations including, without limitation, surface preparation, environmental conditions, mixing, application methods, coverage rate, curing.

C. Performance Requirements: "Subfloor Moisture and Vapor", Part 3 Execution, this Section.

3.5 REMEDIAL WORK:

A. The Contract requires providing subfloors which meet specified requirements.
B. Provide and pay for remedial work.
C. Each subfloor remediation procedure is subject to the Owner's and Architect's preapproval.
D. Each subfloor remediation procedure must be acceptable to the floor finish system manufacturer.

End of Section

LEGEND:

Flooring		Base		Walls & Surface Materials	
CON	Concrete Sealed	**INT-B**	Integral Base	**FAB**	Fabric at Fabric Wrapped Panel, Lecture Chairs
CPT-T	Carpet Tile	**PRC-B**	Porcelain Tile Base	**PRC-W**	Porcelain Wall Tile
CPT-S	Sheet Carpet	**RC-B**	Rubber Cove Base	**PT**	Paint
HDWD	Wood Flooring	**WD-B**	Wood Base	**PT-EP**	Epoxy Paint
PRC	Porcelain Floor Tile			**TCK**	Tackable Bulletin Board
RES	Resinous Seamless Flooring			**P-LAM**	Plastic Laminate
RT	Rubber Tile Flooring			**SS**	Solid Surface
RUB-ST	Sheet Rubber Stairs: Landings, Treads & Risers				
PRC-S	Porcelain Tile Stair Treads and Risers				
RS	Rubber Sheet Flooring				

FLOOR & BASE FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
PRC-S	**09 3000 - Tiling**	**Porcelain Tile Stair Tread & Riser**	

Basis of Design #1: (B.O.D.) **Keope In&Out, PERCORSI STYLE; Pietra Cimbra; Pezzi Specialii. Select from standard risers and treads. R11 A+B+C; 3/8" thick; textured finish.**

Code:	**Product Name:**	**Product Color:**	**Additional Note:**	**Generic Description:**
PRC-S	**Percorsi Style**	**PIETRA CIMBRA**		**mottled gray**

Equivalent Product #2: **Casalgrande Padana; AMAZZONIA; Naturel Matt; 3/8" thick; textured finish; PRC-1: Color - Dragon Green; Texture - Naturel Matt. PRC-2: Color - Dragon Green; Texture - Grip. Select from standard risers and treads.**

Equivalent Product #3: **Stone Source; Floor Gres; FLOORTECH/6.0; R11; 3/8" thick; textured finish; PRC-1: Color - 6.0; Texture - Slate. PRC-2: Color: 6.0; Texture - Cannete. Select from standard risers and treads.**

Typical Locations: **Main Stair 1.**

Installation Notes: **See architectural drawings.**

Color Selections: ***The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.***

FLOOR & BASE FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
PRC	**09 3000 - Tiling**	**Porcelain Floor Tile**	**Multiple sized tiles**

Basis of Design #1: (B.O.D.) **Keope In&Out, PERCORSI STYLE; R11 A+B+C; Based on coursed ashlar pattern as shown in drawings, use and/or cut tile to include mix of (nominal sizes) 12"x24", 12"x18", 12"x12" and 6"x24". 3/8" thick; textured finish.**

Code:	Product Name:	Product Color:	Additional Note:	Generic Description:
PRC-1	Percorsi Style	PIETRA CIMBRA		mottled gray
PRC-2	Percorsi Style	PIETRA LAVICA	Cut to 6"x12" (nominal size)	streaked gray

Equivalent Product #2: **Casalgrande Padana; AMAZZONIA; Naturel Matt; same dimensions as noted with BOD above; 3/8" thick; textured finish; PRC-1: Color - Dragon Green; Texture - Naturel Matt. PRC-2: Color - Dragon Green; Texture - Grip. Select from standard risers and treads.**

Equivalent Product #3: **Stone Source; Floor Gres; FLOORTECH/6.0; R11; 3/8" thick; textured finish; same dimensions as noted with BOD above. PRC-1: Color - 6.0; Texture - Slate. PRC-2: Color: 6.0; Texture - Cannete.**

Typical Locations: **First & Second Floor Lobby; Mezzanine; main elevator; and toilets rooms.**

Installation Notes: **Tile installation to be thin set installation. Use medium mud bed to properly set tiles. Tile has rectified edges - grout lines shall be 1/8" thick maximum. Staggered running bond installation.**

LEED Notes: **Meets or exceeds ADA recommended coefficient of friction of >0.6.**

LEED Notes: **Adhesives shall comply with VOC limits set by SCAQMD for LEED EQ-c4.1 Low Emitting Materials: Adhesives and Sealants.**

Typical Base: **Varies - see drawings. Include coved and corner bases as required.**

Color Selections: ***The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.***

FLOOR & BASE FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
HDWD	**09 6400 - Wood Flooring**	**Wood Flooring**	**Tongue & groove planks**

Basis of Design #1: (B.O.D.) **Hardwood, tongue & groove plank flooring; Species: White oak, rift cut with clear matte finish or similar.**

Code:	**Product Number:**	**Product Color:**	**Additional Note:**	**Generic Description:**
HDWD	See Specification 09 6400			

Typical Locations: At front of Classrooms/Lecture Halls.

LEED Notes: Adhesives shall comply with VOC limits set by SCAQMD for LEED EQ-c4.1 Low Emitting Materials: Adhesives and Sealants.

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

FLOOR & BASE FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
RS	**09 6500 - Resilient Flooring**	**Rubber Sheet Flooring**	**39.3'x48" Sheet**

Basis of Design #1: (B.O.D.) **Noraplan ENVIRONCARE; RESILIENT SHEET FLOORING; Smooth finish; 2mm thick; 48" sheet; 10 year warranty; pvc free.**

Code:	**Product Name:**	**Product Color:**	**Additional Note:**	**Generic Description:**
RS	Environcare	2930 - WINDFLOWER		*Grey*

Equivalent Product #2: Roppe Rubber Sheet Flooring; Smooth finish with Speckles. Designer shall select from manufacturer's standard color line. Submit sample line at time of procurement.

Equivalent Product #3: Johnsonite Rubber Sheet Flooring; Smooth finish with Speckles. Designer shall select from manufacturer's standard color line. Submit sample line at time of procurement.

Typical Locations: In Classroom lecture halls at seats and adjacent storage rooms.

Installation Notes: Submit seaming diagrams.

LEED Notes: Adhesives shall comply with VOC limits set by SCAQMD for LEED EQ-c4.1 Low Emitting Materials: Adhesives and Sealants.

ADA Note: Meets or exceeds ADA recommended coefficient of friction of >0.6.

Typical Base: **RC-B.6**

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

RT	09 6500 - Resilient Flooring	Rubber Tile Flooring	24" x 24" Tile

NORA

Basis of Design #1: (B.O.D.) **Noraplan ECO for field tiles (majority tile) and ENVIRONCARE for accent tiles; RESILIENT TILE FLOORING; Smooth finish; 2mm thick; 24" x 24" tile; pvc free; 10 year warranty. DESIGN INCLUDES 7 COLORS IN LIMITED PATTERNS. APPROXIMATELY 5% OF THE TILES ARE CUT INTO MODULES OF 12"X24" AND 6"X12".**

Code:	Product Number:	Product Color:	Additional Note:	Generic Description:
RT-1	***Noraplan ECO***	***6620 Tuna***	***corridors & labs***	***light gray***
RT-2	***Noraplan ECO***	***6621 Catfish***	***corridors & labs***	***med light gray***
RT-3	***Noraplan ECO***	***6622 Hammerhead***	***corridors & labs***	***med gray***
RT-4	***Noraplan Environcare***	***2932 Nigella***	***corridors & labs***	***med dark gray***
RT-5	Noraplan Environcare	2962 cinnamon bark	corridors & labs - 1st flr	red
RT-6	***Noraplan Environcare***	***2959 Yarrow***	***corridors & labs - 2nd flr***	***yellow***
RT-7	Noraplan Environcare	2949 sage	corridors & labs - 3rd flr	green

ROPPEE

Equivalent Product #3: **Roppe FIESTA and HEALTH & LEARNING Rubber Tile; Fleck Design; Smooth Design Profile; 1/8" thick; 24" x 24" tile; pvc free; 10 Year Limited Warranty; DESIGN INCLUDES 7 COLORS IN LIMITED PATTERNS. APPROXIMATELY 5% OF THE TILES ARE CUT INTO MODULES OF 12"X24" AND 6"X12".**

Code:	Product Number:	Product Color:	Additional Note:	Generic Description:
RT-1	Health & Learning Rubber Tile	HL08 Simple salt	corridors & labs	light gray
RT-2	**Health & Learning Rubber Tile**	**HL03 Cool Breeze**	**corridors & labs**	**med light gray**
RT-3	**Health & Learning Rubber Tile**	**404 NIEBLA; 174 Smoke**	**corridors & labs**	**med gray**
RT-4	Health & Learning Rubber Tile	HL01 River Stone	corridors & labs	med dark gray
RT-5	**Health & Learning Rubber Tile**	**use RT-4 (HL01 River Stone) in lieu of RT-4 on all dwgs**	**corridors & labs - 1st flr**	**med dark gray**
RT-6	**Health & Learning Rubber Tile**	**HL06 Blonde Bee**	**corridors & labs - 2nd flr**	**yellow**
RT-7	Health & Learning Rubber Tile	HL10 Sweet Dill	corridors & labs - 3rd flr	green

RUB-ST	**09 6500 - Resilient Flooring**	**Sheet Rubber Stair Landings, Treads & Risers**

Basis of Design #1: (B.O.D.) **Norament STAIR TREADS; Hammered Finish; One Piece Riser and Treads; Speckled Rubber.**

Code:	Product Number:	Product Color:	Additional Note:	Generic Description:
RUB-ST	TBA	**4879 Dalmation Jasper**		*Light gray w/Speckles*

Equivalent Product #2: Johnsonite; Rubber Stair Treads with Integrated Riser; Roundel Speckled Rubber; Hammered Finish.

Equivalent Product #3: Roppe; Rubber Stair Treads; Hammered Finish; One Piece Tread & Riser; Speckled Rubber.

Typical Locations: In Stairways except for Stair 2 (which shall be concrete sealed.)

Installation Notes: Install with Visually Impaired Strips at nosing and landing locations.

LEED Notes: Adhesives shall comply with VOC limits set by SCAQMD for LEED EQ-c4.1 Low Emitting Materials: Adhesives and Sealants.

ADA Note: Meets or exceeds ADA recommended coefficient of friction of >0.6.

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

RC-B.4	09 6510 - Resilient Base		Rubber Cove Base	
Basis of Design #1: (B.O.D.)	**Johnsonite; RUBBER COVE BASE; 4" high; 1/8" thick**			
Code:	**Product Number:**	**Product Color:**	**Additional Note:**	**Generic Description:**
RC-B.4		**29 Moonrock WG**		***dark warm gray***

Equivalent Product #2:	Roppe; Equivalent product must match specification of the material listed in the B.O.D. above.
Equivalent Product #3:	Mannington; Equivalent product must match specification of the material listed in the B.O.D. above.
Typical Locations:	Labs, offices and conference rooms at carpet and resilient flooring.
Installation Notes:	Use cove base at resilient floors; use flat base at carpeted floors.
LEED Notes:	Adhesives shall comply with VOC limits set by SCAQMD for LEED EQ-c4.1 Low Emitting Materials: Adhesives and Sealants.
Color Selections:	*The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

RC-B.6	09 6510 - Resilient Base		Rubber Cove Base	
Basis of Design #1: (B.O.D.)	**Johnsonite; RUBBER COVE BASE; 6" high; 1/8" thick**			
Code:	**Product Number:**	**Product Color:**	**Additional Note:**	**Generic Description:**
RC-B.6		**29 Moonrock WG**		***dark warm gray***

Equivalent Product #2:	Roppe; Equivalent product must match specification of the material listed in the B.O.D. above.
Equivalent Product #3:	Mannington; Equivalent product must match specification of the material listed in the B.O.D. above.
Typical Locations:	Main corridors, lobbies, lounges at ends of corridors, and lecture halls at carpet and resilient flooring.
Installation Notes:	Use cove base at resilient floors; use flat base at carpeted floors.
LEED Notes:	Adhesives shall comply with VOC limits set by SCAQMD for LEED EQ-c4.1 Low Emitting Materials: Adhesives and Sealants.
Color Selections:	*The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

FLOOR & BASE FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
RES	**09 6700 - Fluid Applied Flooring**	**Resinous Seamless Flooring**	**with Flake Aggregates**

Basis of Design #1: (B.O.D.) **Tnemec Company; 245 SERIES; Flake Broadcast and Micro Texture Finish. Architect to select colored flakes. See specifications.**

Code:	**Product Number:**	**Product Color:**	**Additional Note:**	**Generic Description:**
RES	TBA	TBA		

Equivalent Product #2: Dudick; Equivalent product must match specification of the material listed in the B.O.D. above.

Equivalent Product #3: Stonehard; Equivalent product must match specification of the material listed in the B.O.D. above.

Typical Locations: High Performance Labs, Penthouse.

Typical Base: Integral 4" high cove base **(INT).**

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

FLOOR & BASE FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
CPT-T1	**09 6800 - Carpeting**	**Carpet Tile**	**18" x 36" Tile**

Basis of Design #1: (B.O.D.) **Shaw Carpet Tile; 18X36; combination of styles: BLUR & OVERLAY; Multi-level pattern loop; Eco Solution Q Nylon; 100% Solution Dyed; Ecoworx tile backing; 40% recycled content; SSP Shaw Soil Protection; Lifetime commercial limited warranty.**

Code:	Product Name:	Product Color:	Additional Note:	Generic Description:
CPT-T1-Y	Blur & Overlay	BLUR-59596 and OVERLAY-59598; accent = OCHRE-95210		18" x 36" tile; striated grays with yellow accent
CPT-T1-G	Blur & Overlay	BLUR-59596 and OVERLAY-59598; accent = SHAW TRUE COLORS: 68370 CACTUS		18" x 36" tile; striated grays with green accent
CPT-T1-R	Blur & Overlay	BLUR-59596 and OVERLAY-59598; accent = SUNDRIED 95870		18" x 36" tile; striated grays with red accent

Equivalent Product #2: NOTE! Refer to the Basis of Design carpet tile by Shaw and note the accent color “stripes” (three different colors) that are integrated into each carpet tile. The bid for this Equivalent Product #2 shall be based on Bentley Prince Street Carpet Tile;18X36; ILLUMINAIRE 4IU30; Tufted Tip-Sheared; Antron Brilliance cf nylon; Piece Dyed; Protekt Soil/Stain Protection; Antimicrobial; color: Screen Siren 403677, but WITH added accent color stripes that imitate the B.O.D. carpet tile. Refer to finish drawings in series A11 to confirm that carpet tile pattern and effect can be achieved.

Equivalent Product #3: NOTE! Refer to the Basis of Design carpet tile by Shaw and note two factors: 1) the accent color “stripes” (three different colors) that are integrated into each carpet tile and 2) the 18”x36” dimension. The bid for this Equivalent Product #3 shall be based on Karastan Carpet Tile; COMPLETELY CHARMED KT162; Tufted Level Patterned Cut & Loop; Ultron Nylon; Skein Dyed/Space Dyed; Sentry Plus Protective Treatment; EcoFlex ICT Backing; Lifetime Limited Warranty; color: Irresistible 945, but WITH added accent color stripes that imitate the B.O.D. carpet tile AND created in either an 18”x36” tile OR a 12”x24” tile. Refer to finish drawings in series A11 to confirm that carpet tile pattern and effect can be achieved.

Bidding Note: Equivalent Products #2 and #3 shall be altered/customized to match the Basis of Design.

Typical Locations: Offices and Conference rooms - see drawings.

Installation Notes: Brick Ashlar installation method; therefore seams are staggered - see manufacturers diagrams. Include about 50% each of Blur and Overlay - combined randomly to create pattern.

LEED Notes: CRI Green Label Plus Certified for VOC emissions for CR 4.3 Low Emitting Materials - Carpet

Typical Base: Rubber Cove Base (**RC-B**)

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

FLOOR & BASE FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
CPT-T2	**09 6800 - Carpeting**	**Carpet Tile**	**24" x 24" Tile**

Basis of Design #1: (B.O.D.) **Shaw Carpet Tile; ADORN; Multi-Level Pattern Loop; Eco Solution Q Nylon; Ecoworx Backing; 66% Yarn Dyed, 34% Solution Dyed; Lifetime Limited Commercial Warranty; Brick Installation; color: Char 59555.**

Code:	**Product Name:**	**Product Color:**	**Additional Note:**	**Generic Description:**
CPT-T2	Adorn	Char 59555		24" x 24" tile

Equivalent Product #2: Atlas Carpet Tile; ARNHEM T111; Antron Legacy Nylon; Interloop; Polyurethane Cushion Backing; Duratech Soil Treatment; 24% Post Industrial Recycled Content; Ashlar Monolithic Installation; color: Etching 60AH.

Equivalent Product #3: Karastan Modular Tile; LOOK AT ME DT159; Colorstrand Nylon/Ultron Nylon; Textured Pattern Cut and Loop; Ultraset-Fiberglass reinforced thermoplastic composite tile backing; Sentry Plus Protective Treatment; Solution Dyed/Space Dyed; Monolithic Installation. Designer to select from standard color options.

Typical Locations: Entry vestibules into lecture halls.

LEED Notes: CRI Green Label Plus Certified for VOC emissions for CR 4.3 Low Emitting Materials - Carpet

FLOOR & BASE FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
CPT-S1	**09 6800 - Carpeting**	**Sheet Carpet (Broadloom)**	**12' Wide**

Basis of Design #1: (B.O.D.) **Shaw Sheet Carpet; LANA 5A159; Multi-Level Pattern Cut/Loop; Eco Solution Q Nylon; Ecoworx Broadloom Backing; 73% Yarn Dyed / 27% Solution Dyed; SSP Shaw Soil Protection; Lifetime Commercial Limited Warranty; color: Char 59555.**

Code:	**Product Name:**	**Product Color:**	**Additional Note:**	**Generic Description:**
CPT-S1	Lana	Char 59555		dark warm gray-green

Equivalent Product #2: Atlas Sheet Carpet; KENT; Antron Legacy Nylon; Interloop; Duratech Soil Retardant; 10% Post Consumer Recycled Content; color: Antiquity KE02.

Equivalent Product #3: Karastan, Select from Woven Back Lines.

Typical Locations: Classrooms/Lecture Halls.

Installation Notes: Submit seaming diagrams; add rubber nosings at riser steps.

LEED Notes: CRI Green Label Plus Certified for VOC emissions for CR 4.3 Low Emitting Materials - Carpet

Typical Base: Rubber Cove Base (**RC-B)**

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

FLOOR & BASE FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
CPT-S2	**09 6800 - Carpeting**	**Sheet Carpet (Broadloom)**	**12' Wide**

Basis of Design #1: (B.O.D.) **Atlas Sheet Carpet; INCANTARE; Interloop; Antron Lumena solution dyed nylon type 6,6; Polyurethane cushion backing; Duratech Soil Retardant; 24% Post Industrial Recycled Content; Limited Lifetime Warranty.**

Code:	**Product Name:**	**Product Color:**	**Additional Note:**	**Generic Description:**
CPT-T3	Incantare	Greylock		

Equivalent Product #2: Shaw Sheet Carpet; LANA 5A159; Multi-Level Pattern Cut/Loop; Eco Solution Q Nylon; Ecoworx Broadloom Backing; 73% Yarn Dyed / 27% Solution Dyed; SSP Shaw Soil Protection; Lifetime Commercial Limited Warranty; color: Char 59555.

Equivalent Product #3: Karastan Sheet Carpet; EUPHORIC KC170; Woven Textured Patterned Cut & Loop; Fortis Nylon; Space Dyed / Yarn Dyed; Sentry Plus Protective Treatment; Woven Backing; Lifetime Limited Warranty; color: Irresistible 00945.

Typical Locations: Lobby - Inset Carpet at first and second levels.

Installation Notes: Submit seaming diagrams.

LEED Notes: CRI Green Label Plus Certified for VOC emissions for CR 4.3 Low Emitting Materials - Carpet

Typical Base: Rubber Cove Base (**RC-B)**

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

WALL FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
PRC-W	**09 3000 - Tiling**	**Porcelain Wall Tile**	**12" x 12" Tile**

Basis of Design #1: (B.O.D.) **Floor Gres CHROMTECH/1.0; 12x12" nominal tile, 3/8" thick; matte finish.**

Code:	**Product Number:**	**Product Color:**	**Additional Note:**	**Generic Description:**
PRC-W	Chromtech 1.0	Warm 4.0	Matte Finish	*12"x12" Wall Tile*

Equivalent Product #2: Flor Gres; ARCHITECH; 12x12" nominal tile, 3/8" thick; matte finish; color: Mineral.

Equivalent Product #3: Crossvile; COLOR BLOX EC; 12x12" nominal tile, 7/16" thick; color: I See The Moon.

Typical Locations: Toilets Rooms.

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

WALL FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
FAB-1	**09 8410 - Acoustic Panels**	**Fabric at Fabric Wrapped Panel**	

Basis of Design #1: (B.O.D.) **Maharam; REPLY 90188; Panel Fabric; 100% Polyester; 66" Wide; Repeat 1/4" V, 4 3/4"H; Class A Fire Rated; Clean with a water or solvent based cleaning agent.**

Code:	**Product Name:**	**Product Color:**	**Additional Note:**	**Generic Description:**
FAB-1	REPLY	001 Canvas		*Beige*

Equivalent Product #2: Knoll; DRISTI K872/3; Panel Fabric; 87% Polyester, 7% Rayon, 6% Nylon; 54" Wide; Class A Fire Rated; Clean with water-based cleaning agents or solvents; color: Sea Salt.

Equivalent Product #3: Designtex; CLEW 4207-801; Panel Fabric; 100% Recycled Polyester; 66" Wide; Class A Fire Rated; Clean with a water or solvent based cleaning agent; color: Tatami.

Typical Locations: In Large Lecture Hall at Fabric Wrapped Panels as shown on Elevations.

Installation Note: NOT to be railroaded!

LEED Notes: Greenguard Children & Schools certified.

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

WALL FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
FAB-3	**09 8410 - Acoustic Panels**	**Fabric at Fabric Wrapped Panel**	

Basis of Design #1: (B.O.D.) **Maharam; GLIMMER 901876; 100% Polyester; 66" Wide; Class A Fire Rated; Clean with a water based cleanser or mild, water free dry cleaning agent.**

Code:	**Product Name:**	**Product Color:**	**Additional Note:**	**Generic Description:**
FAB-3	GLIMMER	Reply		*Dark Gray*

Equivalent Product #2: Knoll Textiles; VERSATILITY W432/8; 100% Polyester; 66" Wide; Class A Fire Rated; Clean with a water based cleaning agent; color: Graphite.

Equivalent Product #3: Guilford of Maine; SPRITE 2671; 95% Pre-consumer Recycled Polyester, 5% Post-consumer Recycled Polyester; 66" Wide; Class A Fired Rated; Clean with a water based cleanser or a mild solvent; color: Sky 033.

Typical Locations: In Small Lecture Hall at Fabric Wrapped Panels as shown on Elevations.

Installation Note: NOT to be railroaded!

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

WALL FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
FAB-6	**09 8410 - Acoustic Panels**	**Fabric at Fabric Wrapped Ceiling Panel**	

Basis of Design #1: (B.O.D.) **Maharam; Tek-Wall Measure Unbacked 399505; Panel Fabric; 61% Polyolefin, 39% Post-Consumer Recycled Polyester; 54" Wide; Repeat 1/4"H; Class A Fire Rated; Clean with water or solvent based cleaning agent.**

Code:	**Product Name:**	**Product Color:**	**Additional Note:**	**Generic Description:**
FAB-6	TEK-WALL	001 Vanilla		*Beige*

Equivalent Product #2: Knoll Textiles; DRISTI W872/3; Panel Fabric; 87% Polyester, 7% Rayon, 6% Nylon; 54" Wide; Class A Fire Rated; Clean with a water based cleaning agent or solvents; color: Sea Salt.

Equivalent Product #3: Designtex; CLEW 4207-801; Panel Fabric; 100% Recycled Polyester; 66" Wide; Class A Fired Rated; Clean with a water or solvent based cleaning agent; color: Tatami.

Typical Locations: In Classrooms 100 and 150 at acoustical ceiling panels.

Installation Note: NOT to be railroaded!

LEED Notes: Greenguard Children & Schools certified.

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

WALL FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
PT	**09 9000 - Painting & Coating**	**Paint**	

Basis of Design #1: (B.O.D.) **Benjamin Moore Paints; ECO SPEC Low VOC Coating.**

Code:	**Product Number:**	**Product Color:**	**Additional Note:**	**Generic Description:**
PT-1	BM - white dove	white dove	EGGSHELL - on all painted surfaces Unless Otherwise Noted	*white*
PT-2	BM - 1546	gargoyle	SEMI-GLOSS - all painted Hollow Metal Frames, Trim, Painted Doors, Handrailing & stair assemblies at Fire Stairs, U.O.N.	*dark gray*
PT-3	BM - 1555	winter orchard	see drawings	*light white*
PT-4	BM - AF-685	thunder	see drawings	*light gray*
PT-5	BM - 1552	river reflections	see drawings	*med gray*
PT-6	BM - 1308	red parrot	see drawings	*red*
PT-7	BM - 545	buckingham gardens	see drawings	*green*
PT-8	BM 214-4	yukon gold	see drawings	*yellow*
PT-9	BM - 1434	in the twilight	stairs	*periwinkle*

Equivalent Product #2: Equivalent Paint Line must match Benjamin Moore colors listed above precisely and VOC levels.

Equivalent Product #3: Equivalent Paint Line must match Benjamin Moore colors listed above precisely and VOC levels.

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

WALL FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
PT-EP	**09 9000 - Painting & Coating**	**Epoxy Paint**	
Basis of Design #1: (B.O.D.)	**Tnemec Company. See specifications for details.**		
Equivalent Product #2:	Equivalent Epoxy Paint must match Benjamin Moore colors listed above precisely and VOC levels.		
Equivalent Product #3:	Equivalent Epoxy Paint must match Benjamin Moore colors listed above precisely and VOC levels.		
Typical Locations:	Labs (see drawings).		
Color Selections:	*The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*		

WALL FINISH

Code	*Specifications Section*	*Item*	*Major Characteristic*
TCK	**10 1100 - Visual Display Surfaces**	**Tackable Bulletin Board**	

Basis of Design #1: (B.O.D.) **Forbo; Uni-colored Linoleum; Natural Homogeneous Resilient Tackable Surface Material in Sheets. 48" or 72" Wide, 1/4" Gauge; Jute Backing; Class B Fire Rated; Can be cleaned with any common pH neutral cleaning method. Dimensionally Stable; Self-Healing Material; Resistant to Bacteria.**

Code:	**Product Number:**	**Product Color:**	**Additional Note:**	**Generic Description:**
TCK	2182			*gray*

Equivalent Product #2: Equivalent Product Line must match specification of the material listed in the B.O.D. above.

Equivalent Product #3: Equivalent Product Line must match specification of the material listed in the B.O.D. above.

Typical Locations: Recycle Stations, Drinking Fountains, Lobby Areas.

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

SURFACE MATERIALS

Code	*Specifications Section*	*Specifications Category*	*Item*	*Major Characteristic*
P-LAM	**06 4110 - Architectural Casework**		**Plastic Laminate**	

Basis of Design #1: (B.O.D.) **Wilsonart Decorative Laminate; Graded for vertical and horizontal surfaces.**

Code:	**Product Number:**	**Product Color:**	**Additional Note:**	**Generic Description:**
P-LAM	4654-60	Olive Legacy		

Equivalent Product #2: Arborite Decorative Laminate; Graded for vertical and horizontal surfaces; P334-CA; Sahara Storm.

Equivalent Product #3: Pionite Decorative Laminate; Graded for vertical and horizontal surfaces; AV931 Suede; Verde Sandstone.

Typical Locations: At Millwork as required and noted in drawings.

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

SURFACE MATERIALS

Code	*Specifications Section*	*Specifications Category*	*Item*	*Major Characteristic*
SS	**06 4110 - Architectural Casework**		**Solid Surface**	

Basis of Design #1: (B.O.D.) **DuPont CORIAN; Durable, Low Maintenance; Non Porous Stain Resistant Solid Surface. No Sealant, Polish, or Reconditioning necessary. Does not promote the growth of mold or mildew. Heat Resistant. Class A Fire Rated. 10 Year Warranty.**

Code:	**Product Number:**	**Product Color:**	**Additional Note:**	**Generic Description:**
SS		Medea		*dark gray*

Equivalent Product #2: Hi-Macs; Acrylic Solid Surface; Classic; Armadillo GT909.

Equivalent Product #3: Avonite Surfaces; Foundations Advanced Acrylic Surfacing; Bronze F1-7830.

Typical Locations: At sink counters in toilet rooms.

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

SURFACE MATERIALS

Code	*Specifications Section*	*Specifications Category*	*Item*	*Major Characteristic*
FAB-2	**12 6100 - Fixed Audience Seating (OWNER FURNISHED) Contractor Installed**		**Fabric at Lecture Chairs**	
Basis of Design #1: (B.O.D.)	**Maharam; METRIC 466014; 51% Post-Industrial Recycled Polyester, 49% Polyester; Stain Resistant; 54" Wide; 100,000+ double rubs.**			
Code:	**Product Name:**	**Product Color:**	**Additional Note:**	**Generic Description:**
FAB-2	METRIC	**Cardinal**		*Red*
Equivalent Product #2:	Knoll Textiles; RANSOM K1298/9; 100% Recycled Polyester; Soil and Stain Repellant; 54" Wide; 100,000+ double rubs; Water or solvent based cleaning agent; color: Suspense.			
Equivalent Product #3:	Designtex; AT EASE 3309-301; 57% Cotton, 36% Polyester, 6% Post Industrial Recycled Polyester, 1% Post Consumer Recycled Polyester; Stain Repellant; 57" Wide; 60,000 double rubs; Solvent based cleaning agent; color: Adobe. This fabric to be railroaded.			
Typical Locations:	In Large Lecture Hall at lecture seats.			
Bidders Note:	Any fabric substitute or alternate shall meet or exceed the performance of this product. If this fabric is not already treated with NANO-TEX or CRYPTON finish “as is”; then include soil resistant treatment as an additional part of this specification. NANO-TEX is the preferred treatment when possible; and CRYPTON is the second choice.			
LEED Notes:	Greenguard Children & Schools certified.			
Color Selections:	*The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*			

SURFACE MATERIALS

Code	*Specifications Section*	*Specifications Category*	*Item*	*Major Characteristic*
FAB-4	**12 6100 - Fixed Audience Seating (OWNER FURNISHED) Contractor Installed**		**Fabric at Lecture Chairs**	
Basis of Design #1: (B.O.D.)	**Maharam; CRUSH 464780; 88% solution dyed nylon; 6% nylon; 6% polyolefin; 54" Wide; 90,000 double rubs; stain resistant.**			
Code:	**Product Name:**	**Product Color:**	**Additional Note:**	**Generic Description:**
FAB-4	CRUSH	007 VIOLET		*Eggplant*
Equivalent Product #2:	Knoll Textiles; SPENCER; Ground: 100% Cotton, Pile: 100% Wool; 55" Wide; 80,000+ double rubs; Solvent based cleaning agent; color: Berry			
Equivalent Product #3:	Momentum Textiles; SENSE; color: Grape; 59% Post Industrial Recycled Polyester, 30% Polyester, 11% Post Consumer Recycled Content; 54" Wide; 363,000 double rubs; Teflon fabric protection.			

Typical Locations: In Small Lecture Hall at lecture seats.

Installation Note: Any fabric substitute or alternate shall meet or exceed the performance of this product. If this fabric is not treated with NANO-TEX or CRYPTON finish “as is”; then include soil resistant treatment as an additional part of this specification. NANO-TEX is the preferred treatment when possible; and CRYPTON is the second choice.

Color Selections: *The colors of all interior finishes are precisely coordinated BETWEEN and WITHIN finish types based on the colors of the B.O.D.'s listed here. In the likely event of discontinued colors in any of the B.O.D.'s and/or the possible procurement of any Equivalent Products – ALL finish color selections are subject to be re-visited and modified as necessary.*

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Section 09 2215 Interior Non Structural Metal Framing

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Interior, non structural, metal framing.

B. Related Sections: Without limitation, related sections include:
Section 06 1053 Miscellaneous Rough Carpentry
Section 07 8410 Fire Stopping and Smoke Stopping
Section 08 1110 Steel Doors and Frames
Section 08 3100 Access Doors and Panels
Section 09 2225 Interior Suspension Systems
Section 09 2900 Gypsum Board
Division 14 Elevators
Division 22 Plumbing
Division 23 Heating, Ventilating, and Air Conditioning
Division 26 Electrical
Division 27 Communications
Division 28 Electronic Safety and Security

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Load Tables: Manufacturer's load tables marked up to show compliance with deflection limits.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 INTERIOR NON STRUCTURAL METAL FRAMING:
A. Standards:
1. ASTM C645 Standard Specification for Nonstructural Steel Framing Members.
2. ASTM A1003 Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
3. "Product Technical Information", Steel Stud Manufacturers Association [SSMA].
B. Steel Yield Stress: ≥33 ksi.
C. Framing Corrosion Resistance: G40 galvanized, ASTM C645.
D. Framing Sizes: As shown.
E. Framing Gages: As shown or, if not shown, ≥30 mils [≥20 gage] except:
1. Non Deflection Tracks: ≥18 mils [≥25 gage].
F. Framing Deflection Limit: L/240 [L is the span], except L/360 for cement board, plaster, wood panels.
1. Deflection Limit Based On: Framing only. Non composite. No gypsum board.
2. Deflection Load: As shown or, if not shown, 5 pounds per square foot.
3. Deflection Load - Elevator Shaftwall: As shown or, if not shown, 10 pounds per square foot.
G. Partition Deflection Head: As shown or, if not shown,single deep leg track with bridging.
1. Deep Leg Track Dimension: As shown or, if not shown, 2.0 inches for 0.75 inches design gap.

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H. Bridging: SSMA 150U50-54 attached with 54 mils thick, 1.5 x 1.5 inches clip angles.
I. Furring Channel - Walls: As shown or, if not shown, SSMA 087F125-30.
J. Furring Channel - Ceiling: As shown or, if not shown, SSMA 150F125-43.
K. Furring Channel - Resilient: As shown or, if not shown, "RC1", single leg, 18 mils thick.
L. Shaftwall Framing: As shown or, if not shown, "CT", "CH", and "J Track"; ≥30 mils [≥20 gage].
M. Backing Plate: As shown or, if not shown, ≥30 mils [≥20 gage].
    1. Size: As shown or, if not shown, 6 inches.
N. Cold Rolled Channel: As shown or, if not shown, SSMA 150U50-54.
    1. Factory Finish: Painted.

2.2 FASTENERS - INTERIOR STEEL FRAMING TO INTERIOR STEEL FRAMING AND METAL DECK:
A. Standard: 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.
B. Type: S.
C. Diameter: As shown or, if not shown, ≥0.160 inch [#8].
    1. Provide diameter recommended by fastener manufacturer for steel gage.
D. Length: ≥3 threads visible through connected metals.
E. Head: Phillips pan head or Phillips low profile head.
F. Finish: Zinc coated or "Stalgard" coated.
    1. No rust ≥1000 hours, ASTM B117 Standard Practice for Operating Salt Spray (Fog) Apparatus.

2.3 FASTENERS - INTERIOR STEEL FRAMING TO STRUCTURAL CONCRETE:
A. Basis of Design:
    1. "UltraCon Masonry Fastening System", Elco, www.elcoconstruction.com
    2. "Tapcon", Illinois Tool Works, Inc., www.itw-redhead.com
B. Material: Carbon steel.
C. Diameter: As shown or, if not shown, ≥0.24 inch.
D. Length: ≥1.0 inch penetration into concrete.
E. Head: Hex head or Phillips flat head.
F. Finish: "Stalgard" or "Blue Climaseal" coating.
G. Predrill Concrete: Predrill concrete and clean hole as recommended by fastener manufacturer.

Part 3 - Execution

3.1 INSTALLATION OF INTERIOR LIGHT GAGE STEEL FRAMING: Comply with manufacturer's instructions and recommendations.
A. Standards:
    1. ASTM C754 Standard Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Panel Products
    2. "Gypsum Construction Handbook", USG Corporation.
B. Provide all framing needed to accommodate finishes and construction supported by framing.
C. Meet specified deflection requirements.
D. Tolerance for Plumb, Level, and Aligned: Within 0.125 inch in 20 feet.
E. Partition Framing: Match partition types indicated.
    1. Partition Height: As shown or, if not shown, to structural deck above.
    2. Acoustical Sealing: Comply with Section 07 9220 Acoustical Joint Sealants.
    3. Framing Spacing: Maximum 16 inches on center. Meet specified deflection requirements.
    4. Stud Installation: Erect plumb. Orient studs all the same direction.
    5. Stud Isolation: Isolate partition studs from exterior walls by 0.25 to 0.375 inch.
    6. Stud Splices: Do not splice studs. Provide longest manufactured lengths.
    7. Framed Openings: Provide runner tracks above and, where applicable, below opening.

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8. Door Openings: Provide double studs on each side of opening.
9. Pipes, Conduit, EMT Within Partitions: Use factory provided holes where practical.
10. Limit for Holes Cut Into Framing Members: Limit hole to one-half member depth.
11. Reinforce Holes Cut Into Framing: 18 gage, 12 inches long, maximum width steel straps on both sides of hole and screwed to framing at not over 2 inches on center.
12. Control Joints: Break all framing at control joints. Do not continue framing through joint.

F. Partition Deflection Head: Isolate partitions from building structural deflection.
1. Provide deep leg track at top of partitions.
2. Attach track to overhead deck with fasteners installed in pairs.
3. Space paired fasteners 0.5 inch apart and ≥0.5 inch from runner edges.
4. Space paired fasteners ≤24 inches on center and ≤2 inches from track ends and joints.
5. Cut studs short to provide design gap shown or, if not shown ,0.75 inches.
6. Do not fasten studs to top runner track.

G. Horizontal Bridging Locations:
1. Provide bridging 12 inches below top of partition deflection head.
2. Provide bridging for partitions without continuous gypsum board on both faces.

H. Horizontal Bridging Installation:
1. Provide continuous horizontal bridging.
2. Space bridging in horizontal rows ≤5 feet on center vertically.
3. Attach bridging to each stud with specified clip angle.
4. Provide clip angle length = stud depth minus 0.5 inch.
5. Attach clip angle to stud with two fasteners.
6. Attach clip angle to bridging with two fasteners.
7. Space paired fasteners ≥0.5 inch apart and ≥0.5 inch from clip angle edges.

3.2 ADDITIONAL REQUIREMENTS FOR FIRE RATED ASSEMBLIES:
A. Achieve fire resistance ratings shown.
B. Match UL design assemblies in all characteristics.

3.3 ADDITIONAL REQUIREMENTS FOR PARTITION TOP BRIDGE PLATES FOR METAL DECKING:
A. Bridge Plate Locations: Above interior partitions oriented parallel to deck flutes.
B. Bridge Plate Material: As shown or, if not shown, 20 gage, G40 galvanized sheet steel.
C. Bridge Plate Width: As shown or, if not shown, from deck flute to deck flute.
1. Lap bridge plate at least 2 inches over each deck flute.
D. Bridge Plate Length: ≥8 inches at each partition top runner to metal deck connection.
E. Bridge Plate Fastener Locations: At each plate corner and ≥0.5 inch from bridge plate edges.

3.4 ADDITIONAL REQUIREMENTS FOR PLUMBING CHASE WALLS:
A. As shown or, if not shown, provide two parallel partitions spaced apart to accommodate pipe chase.
B. Align framing of the parallel partitions across the pipe chase.
C. Brace the two parallel partitions to each other at each stud with horizontal segments of 2.5 inch stud.
D. Brace each vertical stud in the parallel partitions.
E. Space the horizontal braces not over 4 feet vertically.
F. Anchor each brace to each stud with two screws.

3.5 ADDITIONAL REQUIREMENTS TO ACCOMMODATE APPLIED FIREPROOFING:
A. Coordinate work to avoid disturbing fireproofing.
1 Do not remove fireproofing.
B. Provide minimum 20 gage steel “Z” stand offs prior to installation of fireproofing.
C. Make “Z” stand offs project the thickness of the fireproofing.
D. Space “Z” stand offs 12 inches on center.
E. Allow the fireproofing to be installed around the “Z” stand offs.
F. Attach framing to “Z” stand offs penetrating through fireproofing.

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3.6 ADDITIONAL REQUIREMENTS FOR BLOCKING:

A. Blocking General Requirements:
   1. Provide appropriate blocking for each condition and loads.
   2. Use safety factor of at least 2 times actual loads.
   3. Conceal blocking in the completed installation.
   4. Blocking shall not "telegraph" or read through gypsum board or other finish materials.
   5. Blocking shall not interfere with other work.
   6. Fastener manufacturer's load limits supersede specified requirements.

B. Restriction For Resilient Furring Channels: Blocking shall not bridge resilient furring channel.

C. Wood Blocking: Comply with Section 06 1053 Miscellaneous Rough Carpentry.

D. Metal Blocking Schedule: Comply with "Fixture Attachment Load Data, The Gypsum Construction Handbook, Centennial Edition", USG Corporation
   1. Metal Blocking Type 1: Specified backing plate spanning over at least three studs.
      a. Withdrawal Resistance of S12 Screw: 85 pounds.
      b. Shear Resistance of S12 Screw: 135 pounds.
   2. Metal Blocking Type 2: Partition studs spaced ≤8 inches outside edge to outside edge. Cold rolled channel spanning between and overlapping partition stud flanges. Notch channel to accommodate partition stud flange returns. Weld 0.25 inch diameter steel bolt at center of steel channel.
      a. Withdrawal Resistance: 200 pounds.
      b. Shear Resistance: 250 pounds.

3.7 ADDITIONAL REQUIREMENT FOR INTERIOR PARTITIONS INTERSECTING EXTERIOR WALLS:

A. Interior partition framing shall not interrupt exterior thermal insulation.

3.8 ADDITIONAL REQUIREMENTS FOR SHAFTWALL ASSEMBLIES:

A. UL Design Assemblies: Match UL Design Assemblies in all characteristics.

B. Assembly Thickness: As shown or, if not shown.

C. Work Within Shaftwall: Accommodate conduits, pipes, and other work located within shaftwalls.

D. Sound Transmission Performance: As shown or, if not shown, ≥STC 47 tested per ASTM E90.

E. Visible Surfaces Outside Shaft: As shown or, if not shown, provide finish layer of gypsum board.

F. Continuity of Fire Rating: Provide continuously sealed, smoke tight, fire rated assemblies.
   1. Extend shaftwall assemblies from floor to floor and from floor to roof deck.
   2. Coordinate fire stopping and smoke stopping at penetrations and joints.

G. Horizontal Assemblies: Provide continuous, fire rated, horizontal shaftwall assemblies as shown or, if not shown, at vertical shaft terminations other than fire rated floor/roof assemblies.

H. Additional Requirements for Elevator Shaftwalls:
   1. Shaftwall Thickness: Accommodate fully recessed elevator call button and signal back boxes.
   2. Recessed Boxes, Penetrations, Interruptions: Maintain and restore shaftwall fire rating with additional shafwall liner panel. Match UL Design Assemblies.
   3. Hoistway Entrances: Allow entrances to be installed prior to shafwall. Match UL Designs.
   4. Hoistway Obstructions: Do not obstruct hoistway.
   5. Hoistway Cants: Provide 1 inch thick gypsum board cants at 15 degrees from vertical for all hoistway ledges ≥2 inches wide.

End of Section

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Section 09 2225 Interior Suspension Systems

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Interior suspension systems [for gypsum board ceilings].

B. Related Sections: Without limitation, related sections include:
Section 09 2900 Gypsum Board
Section 09 9000 Painting and Coating
Division 21 Fire Suppression
Division 22 Plumbing
Division 23 Heating, Ventilating, and Air Conditioning
Division 26 Electrical
Division 27 Communications
Division 28 Electronic Safety and Security

C. Engineering by Contractor: Comply with Section 01 4400 Engineering By Contractor.
1. Scope: Engineer all work of this section including connections to building structure and provide Code required “Quality Assurance Plan”, and “Statement of Special Inspection”.
2. Submittals: Calculations, field erection and installation drawings, details of connections to building structure.
3. International Building Code [IBC] - Professional Engineering Required: Code Evaluation Report “ESR-1289”, ICC Evaluation Service division of International Code Council, www.icc-es.org requires engineering to comply with ASCE 7 Section 13.5.6.
4. International Building Code [IBC] - Quality Assurance Plan Required for Seismic Design Categories C, D, E, and F: Code Evaluation Report “ESR-1289”, ICC Evaluation Service division of International Code Council, www.icc-es.org requires a “Quality Assurance Plan” complying with ASCE 7 Section 11A.
5. International Building Code [IBC] - Periodic Special Inspections Required: Code Evaluation Report “ESR-1289”, ICC Evaluation Service division of International Code Council, www.icc-es.org requires “Periodic Special Inspections” complying with ASCE 7 Section 11A, 1.3.9 and Section 13.5.6.2.2 including “Statement of Special Inspection” required by IBC Section 1705.3, Item 4.3.

1.2 SUBMITTALS:
A. Product Data: Manufacturer’s data including instructions, recommendations, and restrictions.
B. Load Tables: Manufacturer’s load tables marked up to show compliance with deflection limits.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer’s instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS:
A. Armstrong World Industries, Inc., www.armstrong.com
B. Chicago Metallic Corporation, www.chicago-metallic.com
C. USG Corporation [Donn Brand], www.usg.com.

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2.2 INTERIOR SUSPENSION SYSTEMS:
- A. Basis of Design:
  1. "Flat Drywall Grid System", Armstrong World Industries, Inc., www.armstrong.com
  2. "Quik Stix Soffits System", Armstrong World Industries, Inc., www.armstrong.com.
  3. "ShortSpan Drywall Framing System", Armstrong World Industries, Inc., www.armstrong.com
- B. Main Beam Classification: "Heavy Duty" defined in ASTM C635 Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
- C. Material: G40 hot dip galvanized steel, except G90 for wet and humid areas [≥50% RH].
- D. Finish: Manufacturer's standard. System is concealed from view in completed ceiling.

2.3 TRAPEZE FRAMING: Based on "Technical Guide Drywall Grid Systems, Hanging and Framing Flat Ceilings", Armstrong World Industries, Inc., www.armstrong.com
- A. Span Under 4 Feet: 1.5 inches, 16 gage, cold rolled steel channel.
- B. Span 4 Feet To 12 Feet: 6.0 inches, 20 gage, cold rolled steel joist with bridging mid span.
- C. Span 4 Feet To 16 Feet: 1.625 inches, 16 gage, "P 2000" Unistrut.
- D. Trapeze Supports: ≥ 0.375 inch diameter steel rods.
- E. Finish: Manufacturer's standard paint, except G90 galvanized when supporting G90 framing materials.

2.4 HANGER WIRE:
- A. Standard: ASTM A641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
- B. Temper: Soft, 70 ksi tensile strength.
- C. Type: Prestretched.
- D. Finish: Class 1 galvanized.
- E. Wire Gage: 9 American Wire Gage [0.148 inch diameter].
- F. Specified Wire Gage Working Strength: 185 pounds [breaking strength = 740 pounds].

2.5 HANGER WIRE TO BUILDING STRUCTURE ANCHORS:
- A. Basis of Design: "Red Head Dynabolt TW-1614", Illinois Tool Works, Inc., www.dynabolt.com
- B. Material: Zinc plated carbon steel.
- C. Anchor Diameter: 5/16 inch.
- D. Embedment Into Structure: ≥1.5 inches.
- E. Tension Strength 3000 psi Concrete: ≥1,900 pounds.

Part 3 - Execution

3.1 INSTALLATION OF INTERIOR SUSPENSION SYSTEMS:
- A. Standard: ASTM C754 Standard Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Panel Products
- B. Ceiling Heights: As shown or, if not shown, maximum height which does not conflict with construction above the ceiling.
- C. Complete System Required: Provide complete, fully functional, framing to support complete ceiling assemblies including all ceiling mounted items which are not independently attached to building structure.
- D. Tolerances: Erect level and to line within 0.125 inch in 20 feet.
- E. Additional Requirements for Fire Rated Assemblies: Match UL designs in all characteristics.
  1. Achieve the indicated fire resistance ratings.

3.2 ADDITIONAL REQUIREMENTS FOR MANUFACTURED CEILING FRAMING SYSTEM: Comply with manufacturer's instructions and recommendations, .
- A. Support hanger wires only from building structure.

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B. Anchor each hanger wire to support the full hanger wire working strength capacity.
C. Space hangers maximum 4 feet on center.
   1. Single Layer Gypsum Board: Each hanger may support maximum 16 square feet of ceiling.
   2. Double Layer Gypsum Board: Each hanger may support maximum 16 square feet of ceiling.
   3. Triple Layer Gypsum Board: Each hanger may support maximum 12 square feet of ceiling.
D. Provide hangers within 8 inches of ends of main runners.
E. Provide at least three turns for each twisted wire connection.
F. Suspension system connections shall not disengage through vertical lifting.
G. Level main runners within tolerance of 0.125 inch in 12 feet.
H. Provide framing grid at not over 24 inches on center in both directions.
I. Maintain bottom of framing grid in one plane for each ceiling area.
J. Restore damaged factory finishes to eliminate evidence of repair.

3.3 OBSTRUCTIONS TO VERTICAL HANGERS, TRAPEZE FRAMING:
A. To the greatest extent possible, install hangers plumb.
B. Hangers may be diagonal or splayed to avoid minor obstructions.
C. Where hangers are more than 1:6 from plumb, counter splay to balance horizontal forces.
D. Provide trapeze suspension assembly to span underneath obstructions.
E. Support trapeze members with anchors and hangers sized to support the ceiling area supported by the trapeze.

3.4 ADDITIONAL REQUIREMENTS FOR INTERIOR SOFFITS:
A. Provide complete steel framing including framing for vertical soffit elements.
B. Do not use gypsum board in tension as a hanger or structural member.
C. Space framing maximum 24 inches on center.
D. Provide rigid, structural connections between all framing members.

3.5 ADDITIONAL REQUIREMENTS FOR SEISMIC ENGINEERING AND INSTALLATION:
A. Code Evaluation Report: “ESR-1289”, ICC Evaluation Service division of International Code Council, www.icc-es.org.
B. International Building Code [IBC]: Comply with IBC Section 1613, references ASCE 7 Section 13.5.6.
   1. Exemption: Gypsum board suspended ceiling on one level extending from wall to wall are exempt from lateral load requirements of UBC Standard 25-2 and CISCA 3-4.
C. Uniform Building Code [UBC]: Comply with UBC Section 25-2, Part III, and Table 16-0.

End of Section

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Section 09 2900 Gypsum Board

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Interior gypsum board.

B. Install Only: Access doors and panels located in gypsum board.

C. Related Sections: Without limitation, related sections include:
Section 06 1053 Miscellaneous Rough Carpentry
Section 06 1643 Gypsum Sheathing
Section 07 9200 Joint Sealants
Section 07 9220 Acoustical Joint Sealants
Section 07 9800 Compressible Fillers
Section 08 1110 Steel Doors and Frames
Section 08 3100 Access Doors and Panels
Section 09 2215 Interior Non Structural Metal Framing
Section 09 2225 Interior Suspension Systems
Section 09 8100 Acoustic Insulation
Section 09 9000 Painting and Coating

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.

1.3 QUALITY ASSURANCE - IN PLACE SAMPLE: Comply with Section 01 4337 In Place Samples.

1.4 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 STANDARD PERFORMANCE GYPSUM BOARDS:
A. Standard: ASTM C1396 Standard Specification for Gypsum Board.
B. Board Thickness: As shown or, if not shown, 0.625 inch.
C. Visible Board Long Edges: Tapered.
D. Fire Rated Assemblies: Type X.
E. Synthetic Gypsum: Provide gypsum board manufactured with synthetic gypsum.
1. Acceptable: Flue gas desulfurization gypsum, fluorogypsum, citrogypsum, or titanogypsum.
2. Prohibited: Phosphogypsum [due to radon and radio nuclides].

2.2 HIGH PERFORMANCE GYPSUM BOARDS:
A. Basis of Design: "Fiberock Interior Panel Aqua Tough", USG.
B. Mold Resistance: ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
1. Performance: 10, no mold growth.
C. Paper Face: None. Not permitted.
D. Use Restrictions: Do not use at standing water, gang showers, saunas, hot tubs.
E. Abuse Resistance of 0.625 Inch Thick Board and Joint Treatment Only:
1. Surface Abrasion: 30 cycles, ASTM D4977 with 25 pounds added weight..

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2. Surface Indentation: 0.11 inch, ASTM D5420, 0.625 inch die, 72 inch-pounds drop energy.
3. Hard Body Penetration: 85 foot/pounds, ASTM E695.
4. Soft Body Penetration: 180 foot/pounds, ASTM E695.

F. ASTM E84 Fire Performance: Flame spread ≤15, smoke developed ≤5.
G. Minimum Framing Gage for Fire Performance and Abuse Resistance: 20 gage.
H. Recycled Content: 95 percent, Scientific Certification Systems certified.

2.3 GYPSUM BOARD SHAFT WALL PANEL:
A. Basis of Design: "Sheetrock Glass-Mat Liner Panels", USG, www.usg.com.
B. Board Thickness: 1.0 inch.
C. Mold Resistance: ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
1. Performance: 10, no mold growth.
D. Visible Board Long Edges: Double bevel.
E. Fire Rated Assemblies: Type SLX.

2.4 JOINT COMPOUND AND TAPE:
A. Standard: ASTM C475 Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
B. Joint Compound for Standard Performance Board: Ready mixed, all purpose, vinyl compound.
C. Joint Compound for High Performance Board: Chemically setting.
D. Adhesive for Laminating Multiple Layers and for Back Blocking: Joint compound.
E. Joint Tape: Perforated paper or fiberglass mesh, unless restricted by board manufacturer.

2.5 STANDARD BEADS AND TRIMS: Paper faced metal "tape on" type.
A. Control Joint Basis of Design: "Zinc Control Joint No. 093", USG Corporation.

2.6 SPECIAL TRIMS AND SHAPES: Extruded aluminum.
A. Manufacturers:
1. Fry Reglet Corporation, www.fryreglet.com
2. Gordon, Inc., www.gordongrid.com
3. Pittcon Industries, www.pittconindustries.com
B. Shapes and Styles: As shown.
C. Fittings: Provide factory fabricated intersections, corners, terminations, end caps, and all components and accessories needed for a complete, trimmed out installation.
D. Shop Finish: Factory prime painted.

2.7 FASTENERS: #6 diameter, bugle head, minimum 0.5 inch penetration through framing, corrosion resistant coated.
A. Standards:
1. 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
2. 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

2.8 ACOUSTIC INSULATION: Section 09 8100 Acoustic Insulation.

2.9 JOINT SEALANTS: Comply with:
A. Section 07 9200 Joint Sealants
B. Section 07 9220 Acoustical Joint Sealants

Part 3 - Execution

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3.1 GYPSUM BOARD INSTALLATION: Comply with manufacturer's instructions and recommendations.

A. Standards: Comply with:
ASTM C840 Standard Specification for Application and Finishing of Gypsum Board.
Gypsum Association GA-216 Application and Finishing of Gypsum Panel Products
Gypsum Association GA-220 Gypsum Board Winter Related Installation Recommendations
Gypsum Association GA-225 Repair of Fire-Rated Gypsum Board Systems
Gypsum Association GA-231Assessing Water Damage To Gypsum Board
Gypsum Association GA-234 Control Joints for Fire-Resistance Rated Systems
Gypsum Association GA-238 Guidelines for Prevention of Mold Growth on Gypsum Board
Gypsum Association GA-618 Building and Inspecting Smoke Barriers

B. Gypsum Board Installation:
1. Install ceilings prior to walls.
2. Locate joints as far from center of walls and ceilings as possible.
3. Install board face side out.
4. Install board joints and edges over framing members.
5. Stagger vertical joints on opposite sides of walls and in multiple layer work.
6. Do not butt dissimilar board edges.
7. Do not locate a tapered board edge at a framed opening or at wall base.
8. Provide one piece boards around penetrations, except where control joints are provided.
9. Continuously cover and protect framing, vapor retarders, and interior insulation.
10. Maintain continuity of fire rated assemblies at recessed items and penetrations.
11. Provide additional gypsum board layers behind and around items recessed into partitions.
12. Maintain acoustical performance of assemblies at recessed items and penetrations.

C. Fasteners: Counter sink fastener heads flush without damaging board paper face.
1. Non Fire Rated Assemblies: Space fasteners 12 inches on center at edges and within field.
2. Edge Fasteners: Locate fasteners 0.375 inch from panel edges.

D. Beads, Trim, and Reinforcing Tape:
1. Install beads and trims plumb, level, and accurately aligned.
2. Provide continuous beads and trims. Minimize seams.
3. Provide accurately fitted, hair line tight seams in running work.
4. Provide accurately fitted, hair line tight mitered joints at intersections.
5. Fill seams with paintable acrylic sealant.
6. Provide continuous corner bead at outside, convex corners and changes of plane.
7. Provide continuous reinforcing tape at inside, concave corners and changes of plane.
8. Provide additional reinforcing tape at corners of penetrations to help reduce stress cracks.
9. Provide continuous trim for all visible board edges, reveals, and sealant joints.

3.2 ADDITIONAL REQUIREMENTS FOR CONTROL JOINTS:

A. Control Joint Locations: Obtain Architect’s approval of each control joint location prior to installation. Control joints are required where shown and:
1. To isolate gypsum assemblies from structural elements.
2. At changes of framing type, framing direction, and substrate construction.
3. Over control joints in substrates.
4. In continuous walls at not over 30 feet on center at door frame heads.
5. At not over 50 feet on center in ceilings.
6. To separate wings of L, T, and U shaped ceiling areas.

B. Control Joint Construction:
1. Ensure framing is discontinuous and does not run through control joints.
2. Ensure framing is installed on both sides of control joints.
3. Attach control joint trims with fasteners spaced 6 inches on center in each flange.
4. Interrupt all gypsum board layers at control joints.

C. Control Joints In Fire Rated Assemblies:
1. Comply with Gypsum Association GA-234 Control Joints for Fire-Resistance Rated Systems.
2. Detail as shown or, if not shown, match WHI 647-3024.

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3. Provide multiple layers of 0.625 inch thick Type X gypsum board back blocking.
4. Do not allow back blocking to obstruct control joint movement.

3.3 ADDITIONAL REQUIREMENTS FOR PARTITION DEFLECTION HEAD:

A. Deflection Head Framing Requirement: See Section 09 2215 Interior Non Structural Metal Framing.
B. Gypsum Board Attachment:
   1. Do not fasten gypsum board to partition top track.
   2. Fasten gypsum board to studs 0.75 inch from partition top track.
   3. Provide uniform, 0.75 inch space between gypsum board and structure above.
C. Spaces Without Ceilings: Custom scribe cut top of gypsum board to deck profile.
D. Fire Stopping and Smoke Stopping: Coordinate with Section 07 8410 Fire Stopping and Smoke Stopping.

3.4 ADDITIONAL REQUIREMENTS FOR FIRE RATED ASSEMBLIES:

A. Match Tested Assemblies: Match materials and construction of UL tested assemblies.
   1. Fasteners: Space fasteners to match the UL listed assembly.
B. Continuous Assemblies Required: Provide continuous fire rated assemblies.
   1. Provide continuous fire rated partition assemblies from fire rated deck to fire rated deck.
   2. Provide continuous fire rated partition assemblies from other interior fire rated assemblies to interior of exterior wall assembly.
C. Fire Stopping and Smoke Stopping: Coordinate with Section 07 8410 Fire Stopping and Smoke Stopping.
D. Reveals and Discontinuities In Fire Rated Assemblies: At each discontinuity:
   1. Maintain the assembly fire rating.
   2. Comply with Gypsum Association GA-234 Control Joints for Fire-Resistance Rated Systems.
   3. Detail as shown or, if not shown, match WHI 647-3024.
   4. Provide multiple layers of 0.625 inch thick Type X gypsum board back blocking.

3.5 ADDITIONAL REQUIREMENTS FOR ACOUSTICAL INSULATION:

A. Locations: As shown [including Partition Types] or, if not shown, continuous in all partitions.
B. Comply with manufacturer's instructions and recommendations.
C. Install continuously throughout assemblies indicated.
D. Conceal from view in the completed work.
E. Do not leave exposed to plenums and air movement spaces.
   1. To control fibers, install contained and encapsulated within assemblies.
F. Hold in place with tight, friction fit. Eliminate gaps and voids. Do not over compress.
G. Where cutting to fit is required, cut oversize for tight friction fit.
H. Do not use adhesives [adhesives could increase flammability or affect air quality].
I. Interior Door/Window Frames: Fill concealed interior of frame with acoustical insulation.

3.6 ADDITIONAL REQUIREMENTS FOR ACOUSTICAL SEALING:

A. Acoustical Sealing: Coordinate with Section 07 9220 Acoustical Joint Sealants.

3.7 ADDITIONAL REQUIREMENTS FOR FINISHING:

A. Finish Levels: Comply with GA-214 “Recommended Levels of Gypsum Board Finish”.
   1. Level 0 for concealed surfaces which are not fire rated, smoke barriers, or plenums.
   2. Level 1 for concealed surfaces which are fire rated, smoke barriers, or plenums.
   3. Level 2 under ceramic tile finish.
   4. Level 3 within mechanical rooms, machine rooms, electrical rooms, and non occupied areas.
   5. Level 4 finish for surfaces indicated to receive flat sheen paint, textured paint, or wall covering ***and for surfaces not scheduled to receive another Finish Level.***
   6. ***Level 5 finish for all surfaces in Lobby 101, Lounge 101A, and Lobby 200.***
B. Joint Compound: Comply with manufacturer’s recommendations including, without limitation:
   1. Joint compound thickness for each coat.

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2. Drying time between coats.
3. Sanding between coats.

C. Extent of Finish:
1. Finish behind movable furnishings and equipment.
2. Finish to base of partitions behind wall base.

D. Paper Faced Gypsum Board: Do not roughen or damage paper face during finishing and sanding.

End of Section

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Section 09 5100 Acoustical Ceilings

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Acoustical ceilings.

B. Related Sections: Without limitation, related sections include:
Section 09 5430 Wood Panel Ceiling
Section 09 5443 Stretched Fabric Ceiling System
Section 12 2400 Window Shades
Division 21 Fire Suppression
Division 22 Plumbing
Division 23 Heating, Ventilating, and Air Conditioning
Division 26 Electrical
Division 27 Communications
Division 28 Electronic Safety and Security

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Verification Samples: ≥6 x 6 inches.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

1.4 MAINTENANCE STOCK: Required.
A. Material: Each type and color of ceiling panel used.
B. Quantity: Ten percent of actual installation quantity from the same manufactured lots.
C. Packaging: Factory sealed packages.
D. Labeling: Date, vendor, installer, product name, manufacturer, and installation location.

1.5 WARRANTY: Manufacturer's standard 30 year performance guarantee and warranty including, without limitation: [based on Armstrong World Industries, Inc.]
A. Ceiling panels and suspension systems manufacturing defects.
B. Ceiling panel sagging and warping.
C. Ceiling panel mold, mildew, and gram positive/negative odor and stain causing bacteria.
D. Suspension system free from ≥50 percent red rust [defined by ASTM D610].

Part 2 - Products

2.1 ACOUSTICAL CEILING MANUFACTURERS:
A. Ceilings:
1. Armstrong World Industries, Inc., www.armstrong.com
2. Certainteed Corporation [Decoustics, Ecophon, Saint Gobain], www.certainteed.com
3. Owens Corning [Wall Technology], www.owenscorning.com
4. USG Corporation, www.usg.com.
B. Suspensions and Trims:
1. Armstrong World Industries, Inc., www.armstrong.com
2. Chicago Metallic Corporation, www.chicago-metallic.com
3. Gordon, Inc., www.gordongrid.com

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4. USG Corporation [Donn Brand], www.usg.com.

2.2 ACOUSTICAL CEILING SCHEDULE:

A1:
Basis of Design: "Ultima 1912 HRC, White", Armstrong World Industries, Inc.
ASTM E84 Fire Performance: Flame Spread ≤25, Smoke Developed Index ≤50.
Suspension System: "9/16 Inch Suprafine, White", Armstrong World Industries, Inc.
Edge Trim: "***Axiom 2 Inches Trim Channel, White***", Armstrong World Industries, Inc.

A2:
Basis of Design: "Ultima 1915 HRC, White", Armstrong World Industries, Inc.
ASTM E84 Fire Performance: Flame Spread ≤25, Smoke Developed Index ≤50.
Suspension System: "9/16 Inch Suprafine, White", Armstrong World Industries, Inc.

A3: ***Deleted***.

W:
Basis of Design: "Metalworks, Tegular, 6463", Armstrong World Industries, Inc.
Finish: Selected by Architect from manufacturer's complete range including "Effects".
Perforations: "M2".
Acoustical Backing: "5823 BioAcoustic Infill Panels, Black".
Suspension System: "15/16 Inch Prelude XL", Armstrong World Industries, Inc.
Color: Selected by Architect
Edge Trim: "Axiom 2 Inches Trim Channel", Armstrong World Industries, Inc.
Color: Selected by Architect

2.3 SUSPENSION SYSTEMS: See "Acoustical Ceiling Schedule".
A. Duty Class: ASTM C635 intermediate.
B. Corrosion Resistance: Hot dip galvanized steel.
C. Finish System for Visible Surfaces: Manufacturer's standard paint.
1. Color: Match ceiling color.
D. Anchors: Appropriate for structural system with minimum 200 pounds live load capacity each.
E. Hanger Wire: ASTM A641Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; Class 1 galvanized steel wire, soft temper, prestretched.
1. Hanger Wire Gage: Minimum 12 gage.
F. Steel Channels: ≥1.5 inch, 16 gage, cold rolled, black paint finish.
G. Moldings and Trim: Match suspension system material, quality, finish, and color.
1. Trim entire perimeter of ceiling and around each penetration and obstruction.
2. Maintain bottom face of moldings in same plane and at same elevation as main suspension.
3. Size, Shape: As shown or, if not shown, Armstrong 7874 shadow step molding.
H. Seismic Compression Strut:
1. "7872", Armstrong.
2. "VSA Seismic Compression Post", USG.

2.4 CEILING MARKERS: Self adhesive, 0.25 inch diameter, color coded "dots".
A. Basis of Design: 298182, Staples, www.staples.com.
B. Colors: Provide color coded system directed by Owner and Architect.

2.5 WINDOW TREATMENT CEILING POCKET: See Section 12 2400 Window Shades.

2.6 HOLD DOWN CLIPS:
A. Basis of Design:
1. "414 Retention Clip", Armstrong.
2. "V15 Variable Hold Down Clip", USG.

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B. Quantity: Two per 24 inch long ceiling panel edge. Three per 48 inch long ceiling panel edge.
C. Locations: Required where scheduled and, even if not scheduled, for:
   1. Washable ceilings.
   2. Ceilings in vestibules.
   3. Ceilings within 8 feet of exterior doors without vestibules.
   4. Ceilings in spaces with waterless [pressurized gas] fire suppression systems.

Part 3 - Execution

3.1 ACOUSTICAL CEILING INSTALLATION: Comply with manufacturer's instructions and recommendations.
A. Standard: ASTM C636 Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
B. Coordination:
   1. Install only when environmental conditions are within the ceiling manufacturer's limits.
   2. Coordinate all related work including electrical and mechanical in contact with ceiling.
   3. Measure each area. Layout work to equalize panel widths at each opposite edge.
   4. Do not install ceiling panels less than 6 inches in size.
   5. Confirm ceiling heights.
C. Suspension Installation:
   1. Support hangers only from building structure.
   2. Make each hanger to building structure connection anchor support the Part 2 specified load.
   3. Space hangers not over 4 feet on center along length of main runners.
   4. Provide hangers within 8 inches of ends of main runners.
   5. Provide at least three turns for each twisted wire connection.
   6. Suspension connections shall not disengage through vertical lifting.
   7. Level main runners within tolerance of 0.125 inch in 12 feet.
   8. To the greatest extent possible, install hangers plumb.
   9. Hangers may be diagonal or splayed to avoid minor obstructions.
   10. Where hangers are more than 1:6 from plumb, counter splay to balance horizontal forces.
   11. Provide trapeze suspension assembly where obstructions prevent direct vertical suspension.
   12. Provide trapeze suspension assembly to span underneath obstructions.
   13. Make trapeze suspension assemblies from two back-to-back cold rolled steel channels.
   14. Anchor back-to-back steel channels together to form a single, composite structural member.
   15. Support trapeze members with anchors and hangers sized to comply with ceiling area per anchor and hanger limits.
   16. Touch up damaged factory finishes to eliminate evidence of repair.
D. Edge Moldings and Trim:
   1. Provide moldings at the entire perimeter of the ceiling assembly.
   2. Provide moldings between the ceiling assembly and all columns and penetrations.
   3. Provide moldings to conceal all ceiling panel edges.
   4. Keep bottom of moldings and trim at the same elevation as the bottom of main runners.
   5. Miter corners of moldings and trims with hairline tight joints.
   6. Do not expose fasteners including pop rivets.
   7. Provide continuous tooled joint sealer between moldings and irregular walls.
   8. Provide continuous tooled joint sealer to close all visible gaps and voids.
   9. Touch-up damaged finishes to eliminate evidence of repair.
E. Ceiling Panel Installation:
   1. Install ceiling panels in coordination with suspension system.
   2. Install ceiling panels in one plane with all panel edges in contact with suspension system.
   3. Cut, fit, and scribe ceiling panels to fit accurately.
   4. Cut and fit ceiling panels to accommodate all penetrations and ceiling mounted items.
   5. Only the ceiling installer may cut ceiling to accommodate penetrations.
   6. Conceal all ceiling panel edges with suspension system, moldings, and trims.
   7. Lay panels with grain, if any, in one direction throughout the Project.

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8. Machine, rout, and paint field cut edges to exactly match factory edges. Do not hand cut.
9. Paint field cut edges to exactly match color and sheen of factory edges.
10. Touch up damaged finishes to eliminate evidence of repair.

F. Ceiling Markers:
1. Identify location of each valve, control, and equipment located above ceilings.
2. Provide one marker directly below each item needing access.
3. Locate marker at the center nearest suspension grid member.
4. Color code markers for each system above ceiling.
5. Indicate color coded ceiling markers on Record Drawings.

3.2 ADDITIONAL SEISMIC REQUIREMENTS - INTERNATIONAL BUILDING CODE: Comply with IBC "Category C" including, without limitation:

A. Provide ≥0.375 inch clearance between ceiling suspension end and partitions.
B. Provide ≥0.375 inch clearance between ceiling and sprinkler heads.
C. Provide ≥0.375 inch clearance between ceiling and penetrations.
D. Provide ≥0.875 inch wide perimeter molding at partitions.
E. Do not attach ceiling suspension to two adjacent partitions.
F. Attach ceiling suspension perimeter ends together.
G. Coordinate installation of and independent support of ceiling items including,without limitation, light fixtures, air terminals, and other items.

End of Section

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Section 09 6500 Resilient Flooring

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Resilient flooring.

B. Related Sections: Without limitation, related sections include:
Division 3 Concrete
Section 05 5100 Metal Stairs
Section 09 0510 Requirements for Subfloors
Section 09 6510 Resilient Base

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Verification Samples: ≥12 x 12 inches.
C. Adhesion Test Report: Submit report for adhesion tests required in Part 3 - Execution. Identify each test location uniquely. Report test results for each test location. Report all deficiencies.
D. Manufacturer's Maintenance Instructions: Submit including recommended cleaners, equipment, techniques, and cleaning frequency.

1.3 QUALITY ASSURANCE:
A. In Place Samples: Comply with Section 01 4337 In Place Samples.
B. Heat-Welding Craftsmanship: For each heat welded seam installer, provide minimum 10 linear feet of heat welded seam sample including at least one 90 degree seam intersection and at least one seamed integrally coved base.
1. Obtain approval of Architect before allowing installer to perform heat welding on this Project.
2. Only installers preapproved by the Architect are permitted to provide heat welded seams.
3. All heat welded seams installed by the approved installer shall match the approved sample.
4. Remove and replace flooring with seams which do not match the approved sample in the judgment of the Architect.

1.4 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

1.5 MAINTENANCE STOCK: Required.
A. Material: Each type and color of visible finish material.
B. Quantity: Ten percent of actual installation quantity from the same manufactured lots.
C. Packaging: Factory sealed packages.
D. Labeling: Date, vendor, installer, product name, manufacturer, and installation location.

Part 2 - Products

2.1 MANUFACTURERS: See "Finish Schedule Descriptions".

2.2 RESILIENT FLOORING - RUBBER TILE AND SHEET:
A. Basis of Design: See "Finish Schedule Descriptions".

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B. Slip Resistance: ASTM D 2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
   1. Coefficient of Friction: ≥ 0.6

2.3 RESILIENT FLOORING - STAIR AND LANDING FINISH:
A. Basis of Design: See “Finish Schedule Descriptions”.
B. Risers: Provide one piece integrated nosing, tread, and riser.
C. Matching Landing Finish: Required.
D. Matching Stringer Finish: Not required.
E. Slip Resistance: ASTM D 2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
   1. Coefficient of Friction: ≥ 0.8
F. ASTM E 648/NFPA 253 Fire Performance:
   1. Critical Radiant Flux: Class 1
   2. Smoke Density: ≤450
G. Lengths: One piece for full stair width up to 6 feet.
H. Barrier-Free Visually Impaired Stripes: 2 inch wide abrasive grit strip continuous along nosing.
   1. Barrier-Free Visually Impaired Stripe Color: High contrast, selected by Architect.
   2. Barrier-Free Visually Impaired Stripe Locations: At each landing.
I. Nosing Caulk: Two part chemically setting epoxy, if recommended by stair finish manufacturer.

2.4 INSTALLATION MATERIALS:
A. Subfloor Treatment Material: Comply with Section 09 0510 Requirements for Subfloors.
B. Edge Trim Basis of Design: As shown or, if not shown, “SSR-XX-B”, Johnsonite, Tarkett, www.johnsonite.com
   1. Color: Selected by Architect from manufacturer’s complete range of options.
C. Adhesive: Supplied or approved by and warranted by the floor manufacturer.
   1. VOC Limit: 50 grams per liter.
D. Cleaner: Supplied or approved by the floor manufacturer.
   1. VOC Limit: ≤250 grams per liter.

Part 3 - Execution

3.1 INSTALL RESILIENT FLOORING: Comply with manufacturer’s instructions and recommendations.
A. Preparation:
   1. Comply with Section 09 0510 Requirements for Subfloors.
   2. Comply with ASTM F710 Preparing Concrete Floors To Receive Resilient Flooring.
   3. Confirm acceptability of ambient and substrate conditions.
   4. Clean substrates.
   5. Remove all foreign materials and curing compounds which inhibit adhesion and installation.
   6. Fill subfloor holes, cracks, and depressions with subfloor treatment material.
   7. Grind subfloor protrusions down to flush.
   8. Provide smooth subfloors which will not telegraph defects through the new floor finish.
   9. Provide one, minimum 3 x 3 feet adhesion test sample for each 2,500 square feet of floor.
   10. Make adhesion tests at locations where failures or problems appear most likely.
   11. Install test samples using same adhesive and techniques to be used for actual installation.
   12. Tape edges of test samples to minimize unusual adhesive drying.
   13. Inspect test samples for adhesion after 72 hours. Make test reports as specified.
   14. Ensure satisfactory adhesion prior to beginning production installation.
B. Installation General Requirements:
   1. Maintain uniformity of color and appearance.
   2. Use one manufactured lot for each visually continuous area.

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3. Use materials in sequence manufactured, if shown on flooring or flooring package.
4. Layout and plan work prior to beginning adhesive installation.
5. Apply primer before adhesive, if recommended by flooring or adhesive manufacturers.
6. Provide 100 percent coverage of adhesive.
7. Install adhesive with correctly calibrated notched trowel. Trowels wear down with use.
8. Comply with adhesive manufacturer's coverage rate and open time.
9. Install precisely to layout guidelines.
10. Accurately align edges.
11. Cut and fit flooring tightly, neatly, and accurately around fixtures and obstructions.
12. Install floor over covers, access panels, and other floor elements intended to receive floor.
13. Stop floor at center line of doors so only one floor finish is visible when door is closed.
14. Roll installed flooring at least twice in two directions with 100 pound floor roller.
15. Remove excess adhesive before it dries.
16. Prohibit all traffic during adhesive manufacturer's recommended curing time.
17. Do not damp mop or clean floors during the adhesive curing time.

C. Patterns: Where patterns are shown, match the patterns shown.
D. Finish Floor Transitions: Comply with Section 09 6010 Flooring Transitions.
   1. Provide edge trim for all floor edges not covered by wall base.

3.2 ADDITIONAL REQUIREMENTS FOR RESILIENT TILE FLOORING:
A. Layout: Plan layout prior to beginning installation. Avoid less than one half tile pieces.
B. Bond Pattern, Visual Grain: See "Finish Schedule Descriptions".

3.3 ADDITIONAL REQUIREMENTS FOR RESILIENT STAIR FINISH INSTALLATION:
A. Adhesion Test: Provide one adhesion test for each 30 treads.
B. Hand roll installed stair finish to promote excellent adhesion.
C. Install nosing tight to substrate to prevent flexing.
   1. If recommended by tread manufacturer, continuously seal between nosing and substrate.

3.4 CLEAN AND POLISH RESILIENT FLOORING - RUBBER:
A. Comply with floor manufacturer's instructions and recommendations.
B. Do not use black, green, or blue pads.
C. Do not use abrasive cleaners.
D. Wait 72 hours after installation before cleaning to allow adhesive to set.
E. Use low speed, maximum 300 rpm, buffing machines.
F. Use cleaning materials with pH less than 12.
G. Vacuum and remove dirt and grit.
H. Apply dilute cleaner uniformly over floor.
I. Allow cleaner to dwell and work for about 5 minutes.
J. Do not allow cleaner to dry on floor.
K. Scrub with soft nylon brush or pad approved by floor manufacturer.
L. Wet vacuum cleaner and residue.
M. Rinse with clean water and wet vacuum.
N. Allow floor to dry.
O. Buff with soft nylon brush or white pad.
P. Do not allow cleaning machine to scar or mechanically damage the floor.

End of Section

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Section 09 6510 Resilient Base

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Resilient wall base.

B. Related Sections: Without limitation, related sections include:
Division 4 Masonry
Section 09 2900 Gypsum Board

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Verification Samples: Minimum 12 inches long.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 - General Requirements and manufacturer's instructions and recommendations.

1.4 MAINTENANCE STOCK: Required.
A. Material: Each type and color of visible finish material.
B. Quantity: Ten percent of actual installation quantity from the same manufactured lots.
C. Packaging: Factory sealed packages.
D. Labeling: Date, vendor, installer, product name, manufacturer, and installation location.

Part 2 - Products

2.1 RESILIENT BASE:
A. Basis of Design: See "Finish Schedule Descriptions".
B. Standard: ASTM F1861Standard Specification for Resilient Wall Base.
1. Rubber Base: Type TS thermoset vulcanized rubber, Group 1 solid.
C. Colors: See "Finish Schedule Descriptions".
D. Heights: See "Finish Schedule Descriptions". Fully conceal casework toe kick.
E. Thickness: See "Finish Schedule Descriptions".
F. Styles, Profiles: As shown or, if not shown, "standard toe base", except "no toe base" at carpet.
G. Corners and Ends: Precisely color matched, factory fabricated.
H. Length: Rolls to minimize seams.
I. Adhesive: Manufactured, supplied, or approved by the base manufacturer; warranted as part of the manufacturer's "guaranteed installation system".
1. VOC Limit: 50 grams per liter, less water.

Part 3 - Execution

3.1 RESILIENT BASE INSTALLATION: Comply with manufacturer's instructions and recommendations.
A. Ensure substrate is smooth and planar prior to base installation.
B. Clean substrate prior to base installation.
C. Maintain uniformity of color and appearance.

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D. Use one manufactured lot for each visually continuous area.
E. Install top of base level.
F. Make toe of base in direct contact with floor.
G. Install base with 100 percent coverage of adhesive applied with notched trowel.
H. Do not stretch base material during installation. Do not stretch into place.
I. Hand roll base to wall to promote full contact and adhesion.
    1. Roll toward the last installed piece to avoid “shrinkage” and open joint problems.
J. Cut and fit base neatly, accurately, and tightly around penetrations and obstructions.
K. Cut and cope base at inside corners. Do not round inside corners with continuous base.
L. Where factory outside corners are not specified, groove back of base and form sharp corner.
M. Locate seams at least 16 inches from outside corner, where space allows.
N. Remove visible adhesive.
O. Clean and polish base to a uniform luster.

End of Section

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Section 09 6800 Carpeting

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Carpeting.

B. Related Sections: Without limitation, related sections include:
Division 3 Concrete
Section 09 0510 Requirements for Subfloors
Section 09 6510 Resilient Base

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Shop Drawings: Floor plans showing seam locations and changes of dye lot. If more than one carpet fiber is used, indicate locations of each fiber type on floor plans.
C. Verification Samples: Minimum 12 x 12 inches.
D. Indoor Air Quality - Carpet: Submit label and evidence of compliance with Carpet and Rug Institute "Indoor Air Quality Carpet Testing Program".
E. Indoor Air Quality - Adhesive: Submit label and evidence of compliance with Carpet and Rug Institute "Indoor Air Quality Adhesive Testing Program".
F. Carpet Recycling: Provide information on carpet manufacturer's recycling program.
1. Provide information on carpet fiber recycling and carpet backing recycling.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

1.4 WARRANTIES:
A. Carpet Manufacturer's Warranty: Provide 10 year warranty including:
1. Wear and texture retention; maximum 10 perent face fiber loss.
2. No edge ravel under normal use.
3. No backing delamination under normal use.
4. Color retention.
B. Carpet Fiber Manufacturer's Warranty: Provide 10 year warranty including:
1. Fiber loss due to abrasive wear; maximum 10 perent face fiber loss.
2. Colorfastness to light under normal use.
3. Colorfastness to atmospheric contaminants.
C. Carpet Fiber Manufacturer's Anti Static Warranty: "Life of Carpet" warranty.
D. Installer's Warranty: One year covering installation and workmanship defects.

1.5 MAINTENANCE STOCK: Required.
A. Material: Each type and color of visible finish material.
B. Quantity: Ten percent of actual installation quantity from the same manufactured lots.
C. Packaging: Factory sealed packages.
D. Labeling: Date, vendor, installer, product name, manufacturer, and installation location.

Part 2 - Products

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2.1 MANUFACTURERS: See “Finish Schedule Descriptions”.

2.2 CARPET TILE AND BROADLOOM [SHEET] CARPET: See “Finish Schedule Descriptions”.

2.3 CARPET INSTALLATION MATERIALS:
- A. Adhesives, Primer: Supplied or approved, and warranted by the carpet manufacturer.
  1. VOC Limit: 50 grams per liter.
- B. Subfloor Treatment Material: Comply with Section 09 0510 Requirements for Subfloors.
- C. Edge Trim Basis of Design: As shown or, if not shown, “SSR-XX-B”, Johnsonite, Tarkett, www.johnsonite.com
  1. Color: Selected by Architect from manufacturer’s complete range of options.

Part 3 - Execution

3.1 CARPET INSTALLATION - GENERAL: Comply with manufacturer’s instructions and recommendations and Carpet and Rug Institute standards CRI 104 and CRI 105.
- A. Preparation:
  1. Comply with Section 09 0510 Requirements for Subfloors.
  2. Confirm concrete subfloor alkalinity is less than pH 8 and pH range is 5 to 8.
  3. Check subfloor alkalinity at least once every 1,000 square feet.
  4. Confirm acceptability of ambient and substrate conditions.
  5. Confirm HVAC systems are and will be operational during and after installation.
  6. Maintain ambient temperature between 65 and 95 degrees Fahrenheit.
  7. Maintain indoor relative humidity between 10 and 65 percent.
  8. Maintain subfloor surface temperature of at least 65 degrees Fahrenheit.
  9. Maintain specified temperature and humidity for at least 48 hours before and during installation.
  10. Clean substrates. Vacuum immediately prior to installation.
  11. Remove all foreign materials and curing compounds which inhibit adhesion and installation.
  12. Fill subfloor holes and cracks over 0.125 inch wide with subfloor treatment material.
  13. Fill subfloor depressions over 0.125 inch deep with subfloor treatment material.
  14. Grind subfloor protrusions over 0.03 inch high down to flush.
  15. Provide smooth subfloors which will not telegraph defects through the new floor finish.
  16. Acclimatize carpet in installation areas for at least 24 hours before installation.
- B. Control Carpet Fibers: Do not contaminate ducts, acoustical materials, fabrics, and other materials.
  1. Vacuum: Vacuum after installation to remove debris and loose fibers.
- C. Temperature and Humidity After Installation: Maintain temperature and humidity conditions specified under “Preparation” for at least 48 hours after installation.
- D. Additional Requirements for Finish Floor Transitions: Comply with Section 09 6010 Flooring Transitions.
  1. Provide edge trim for all floor edges not covered by wall base.
- E. Carpet Protection: Protect carpet from wear, soiling, and staining.

3.2 ADDITIONAL INSTALLATION REQUIREMENTS FOR BROAD LOOM CARPET:
- A. Seams: Fit seams tightly. Apply seam adhesive.
- B. Edges: Trim mill edges to be seamed with very sharp tools.
- C. Sealer: Seal all cut edges with seam sealer.
- D. Cutting: Cut seams along a single row of carpet tufting.
- E. Double Cut Seams: Do not double cut graphics patterned nor “Enhancer” backed carpets.
- F. Bumps and Wrinkles: Not permitted.

3.3 ADDITIONAL INSTALLATION REQUIREMENTS FOR ADHERED BROAD LOOM CARPET:

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A. Fitting: Fit carpet to spaces and obstructions before applying adhesive.
B. Adhesive Primer: Prime 100 percent of all areas. Allow primer to dry prior to installation of adhesive.
C. Adhesive: Provide 100 percent coverage of adhesive.
D. Notched Trowels: Trowels wear with use. Use recently calibrated trowels.
E. Carpet Laying: Lay carpet into wet adhesive.
F. Rolling: Roll entire carpet area slowly and thoroughly in both directions with 100 pound roller.
G. Adhesive Protection: Protect carpet from traffic until adhesive cures.

3.4 ADDITIONAL INSTALLATION REQUIREMENTS FOR CARPET TILE:
A. Layout: See “Finish Schedule Descriptions”.
B. Dye Lots: Confirm dye lots. Use only one dye lot for all carpet tile.
C. Doors: Terminate carpet directly under closed door leaf.
D. Extent: Extend carpet under movable items and into closets and knee spaces.
E. Patterns and Color Changes: As shown.
F. Walls: Layout carpet patterns parallel and perpendicular to walls.
G. Fitting: Fit carpet to spaces and obstructions before applying adhesive.
H. Adhesive: Provide full spread adhesive installation method with 100 percent coverage of adhesive.
    1. Apply with calibrated trowels at manufacturer’s recommended coverage rate.
I. Seams: Fit seams tightly.
J. Rolling: Roll entire carpet area slowly and thoroughly in both directions with 100 pound roller.
K. Adhesive Protection: Protect carpet from traffic until adhesive cures.

End of Section

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Section 09 8100 Acoustic Insulation

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Acoustical insulation [concealed within partitions].

B. Related Sections: Without limitation, related sections include:
Section 07 2110 Architectural Thermal Insulation
Section 07 9220 Acoustical Joint Sealants
Section 08 1110 Steel Doors and Frames
Section 09 2215 Interior Non Structural Metal Framing
Section 09 2900 Gypsum Board

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations

Part 2 - Products

2.1 ACOUSTICAL INSULATION:
A. Basis of Design: "Sound Control Batts, Formaldehyde Free", Johns Manville, www.specjm.com.
1. Recycled Content: ≥25 percent including ≥20 percent post consumer.
B. Thickness: As shown or, if not shown, ≥3.5 inches.
C. Size: Coordinate with framing spacing for tight friction fit.
D. Facing: None, unfaced.
E. Flammability: Noncombustible, ASTM E136, NFPA 220.
1. ASTM E84 Flame Spread: Maximum 25.
2. ASTM E84 Smoke Developed: Maximum 50.

Part 3 - Execution

3.1 INSTALLATION OF ACOUSTICAL INSULATION: Comply with manufacturer's instructions and recommendations.
A. Install continuously throughout assemblies indicated.
B. Conceal from view in the completed work.
C. Do not leave exposed to plenums and air movement spaces.
1. To control fibers, install contained and encapsulated within assemblies.
D. Install with tight, friction fit. Eliminate gaps and voids.
E. Where cutting to fit is required, cut oversize for tight friction fit.
F. Do not use adhesives [adhesives could increase flammability or affect air quality].

3.2 ADDITIONAL REQUIREMENTS FOR INTERIOR HOLLOW METAL FRAMES: Fill concealed interior of frame with acoustical insulation.

End of Section

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Section 09 9000 Painting and Coating

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Painting and coating.

B. Extent: Paint all surfaces throughout the Work Limits, except "No Paint" surfaces.

C. "No Paint" Surfaces: Do not paint:
1. HVAC diffusers and grilles.
2. Sprinkler heads.
3. Electrical switches, power outlets, covers.
4. Light fixtures and lamps.
5. Fire alarm detectors, pull stations, and alarm signals.
6. Fully factory finished items.
7. Finished metal surfaces: stainless steel, copper, brass, bronze, and color anodized aluminum.
8. Finish plated metal surfaces such as finish hardware.
9. Code required labels and equipment data plates.
10. Finished floors and base.
11. Architectural glass.
12. Interior of shafts.
13. Above continuous ceilings.
14. Roof coverings.
15. Pavement outside the building.
16. Veneer masonry.
17. Sheet metal panels .
18. Corrugated metal panels.
19. Composite metal panels .
20. Phenolic resin panels.
21. Fireproofing, except field paint over thin film fireproofing.
22. Section 10 2213 Wire Mesh Partitions.

D. "Yes Paint" Clarifications: Paint:
1. Factory prime painted surfaces.
2. Behind movable items.
3. Roof mounted ferrous metals, but not stainless steel, galvanized steel.
4. Exterior wood ceilings/soffits.

E. Inside Surfaces: Paint all visible surfaces and materials "flat sheen black" at these locations:
1. Inside duct work.
2. Inside vents, grilles, louvers, grates.
3. Inside reveals, slots, openings.

F. Building Systems Painted Color Coding: Required.

1.2 SUBMITTALS:

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A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Quality Certification: Manufacturer's Project specific certification that each product submitted is its highest quality product for the generic system specified.
C. Verification Samples: Minimum 8.5 x 11 inches.
D. Color Formulas: Provide clear, precise color formulas so colors can be accurately duplicated.

1.3 QUALITY ASSURANCE:
A. In Place Sample: Comply with Section 01 4337 In Place Samples.
   1. Sample Size: Minimum 100 square feet of each paint system and each color.
B. Special Coordination With Shop Finished Wood: Visually match field transparent finished wood to shop transparent finished wood in color, sheen, and appearance. The intent is for all transparent finished wood surfaces throughout the project to visually match exactly. This is an extremely important Contract Requirement.

1.4 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.
A. Fire Prevention: Take every precaution to prevent fire. Remove flammable materials from the Project site or, if approved by Owner's insurance carrier, store on site in UL approved fire-resistive cabinet. Remove all flammable waste and soiled rags from the Project site immediately and daily.

1.5 MAINTENANCE STOCK: Required.
A. Material: Each type and color of painting and coating material used.
B. Quantity: 1 gallon.
C. Packaging: Factory sealed container.
D. Labeling: Date, vendor, installer, product name, sheen, color formula, and installation location.

Part 2 - Products

2.1 MANUFACTURERS:
A. Akzo Nobel Paints LLC, www.akzonobel.com
B. Behr Process Corporation, www.behr.com [division of Masco Corporation]
C. Benjamin Moore and Company, Inc., www.benjaminmoore.com
D. Masterchem Industries, LLC, www.masterchem.com [division of Masco Corporation]
E. Sherwin Williams Company, www.sherwin-williams.com,
F. PPG Industries, www.ppg.com
G. Tnemec Inc., www.tnemec.com
H. Valspar Corporation, www.valspar.com

2.2 COLORS:
A. Primers: Provide primer color which can be effectively covered by one coat of the finish coat color, even when more than one finish coat is specified.
   1. Provide tinted primers for all finish colors other than white.
   2. Provide deep base primers for deep, bright, and accent colors.
B. Finish Coat Colors: See "Finish Schedule Descriptions".
C. Pipe and Systems Paint Color Coding: Comply with ASME A13.1 Scheme for the Identification of Piping Systems, American Society of Mechanical Engineers, as preapproved by Owner.

2.3 BASIC REQUIREMENTS FOR PAINTING AND FINISHING MATERIAL:
A. Quality: The highest quality product produced by the manufacturer.
B. Primers: Provide primer recommended by finish coat manufacturer for each substrate.
C. Secondary Materials: Provide materials approved by the paint system manufacturer.

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1. "Secondary materials" include thinners, admixtures, tints, pigments, preparation materials.

D. Surface Preparation Materials: Provide materials approved by the paint system manufacturer.
1. Provide materials manufactured for painting preparation work.
2. Provide materials appropriate for each type of substrate.
3. Provide materials recommended by their manufacturers for the intended use and exposure.
4. Provide substrate patching materials to provide substrates ready for painting and finishing.
5. Provide interior materials for interior work.
6. Provide exterior materials for exterior work.
   a. All work within garage and unconditioned space is "exterior work".

E. Coating Gloss and Sheen:
1. Test Method: ASTM D523 Standard Test Method for Specular Gloss.
2. Gloss Levels: Based on Master Painters Institute, Inc.:
   Gloss Level 1: Flat, maximum 5 at 60 degrees and maximum 10 at 85 degrees.
   Gloss Level 2: Velvet, maximum 10 at 60 degrees and 10 to 35 at 85 degrees.
   Gloss Level 3: Eggshell, 10 to 25 at 60 degrees and 10 to 35 at 85 degrees.
   Gloss Level 4: Satin, 10 to 25 at 60 degrees and minimum 35 at 85 degrees.
   Gloss Level 5: Semi Gloss, 35 to 70 at 60 degrees.
   Gloss Level 6: Gloss, 70 to 85 at 60 degrees.
   Gloss Level 7: High Gloss, greater than 85 at 60 degrees.

2.4 PAINTING AND COATING SYSTEMS SCHEDULE: This is schedule of systems not paint colors.

Interior Paint System C1: Concrete Wall and Ceiling, High Performance, Gloss Level 5
Coat 1: Moore "Acrylic Masonry Sealer 066", 0.7 mils dry; VOC ≤165 g/l
Coat 2: Moore "Super Spec Acrylic Epoxy 256" at 1.5 mils dry; VOC = 133 grams per liter.
Coat 3: Same as above.

Interior Paint System C2: Concrete Wall and Ceiling, Standard Performance, Gloss Level 5
Coat 1: Moore "Acrylic Masonry Sealer 066", 0.7 mils dry; VOC ≤165 g/l
Coat 2: Moore "Natura Semi Gloss 514" at 1.5 mils dry; VOC = zero grams per liter.
Coat 3: Same as above.

Interior Paint System C3: Interior Concrete Floors Painted Including "Egress Path" [A4.51A]
Preparation 1: Sand blast to provide clean substrate with surface profile for paint adhesion.
Preparation 2: Remove oil/grease with one part Benjamin Moore "M83" mixed with six parts clean water applied at 100 square feet per gallon of solution. Rinse with clean water. Wet vacuum dry.
Coat 1: Moore's "SuperSpec HP Epoxy Floor Sealer/Finish P41" at 1.5 mils dry; VOC ≤97 g/l.
Coat 2: Moore's "100 Percent Solids Epoxy Floor Coating CM40" at 8 mils dry; VOC = zero.
Anti Slip: Moore's "Anti Slip Aggregate M67" broadcast into wet Coat 2 uniformly to provide a non slip floor finish.
Coat 3: Same as Coat 2 without anti slip broadcast.

Exterior Paint System E1: Exterior Ferrous and Galvanized Metal, But Not Steel Doors and Frames
Coat 1: Moore "M42-70/M42-84 Waterborne Epoxy Primer" at 1.5 to 2.5 mils dry; VOC ≤136 g/l.
Shop Primer: Coat 1 is shop applied where specified.
Coat 2: Moore "M73S Waterborne Urethane Semi-Gloss" at 1.5 to 2.5 mils dry; VOC ≤213 g/l.
Coat 3: Same as above.

Exterior Paint System E2: Exterior Steel Doors and Frames
Coat 1: Shop primer.
Coat 2: Moore "DTM Alkyd Enamel Semi Gloss Z24", 1.5 to 2.5 mils dry; VOC ≤397 g/l.
Coat 3: Same as above.

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Exterior Paint System E3: Exterior and and Loading Dock Concrete Masonry
Coat 1: Moore "Acrylic Masonry Sealer 066", 0.7 mils dry; VOC ≤165 g/l
Coat 2: Moore "Moorlastic Acrylic Elastomeric, Low Lustre 055", 7.7 mils dry; VOC ≤89 g/l
Vapor Transmission: ≥183 grams/square meter/24 hours; ASTM D1653, method B.

Exterior Paint System E4: Exterior Wood Ceilings/Soffits, Gloss Level 1
Coat 1: Prefinish prior to installation. See Section 06 2013 Exterior Finish Carpentry.
Coat 2: Moore "Exterior Clear Wood Finish N076", minimal mils dry; ≤345 g/l

Interior Paint System F1: Interior Ferrous Metal, Standard Performance, Gloss Level 5
Coat 1: Shop primer certified compatible with field applied coats.
Coat 2: Moore "Natura Semi Gloss 514" at 1.5 mils dry; VOC = zero grams per liter.
Coat 3: Same as above.

Interior Paint System F2: Interior Ferrous Metal Railings, High Performance, Gloss Level 5
Preparation: Steel Structures Painting Council SP-6 commercial blast cleaning.
Coat 1: Moore "M42-70/M42-84 Waterborne Epoxy Primer" at 1.5 to 2.5 mils dry; VOC = 136 g/l.
Coat 2: Moore "M73S Waterborne Urethane Semi-Gloss" at 1.5 to 2.5 mils dry; VOC = 213 g/l.
Coat 3: Same as above.

Interior Paint System F3: Overhead Steel Structure, Fireproofing, Ducts, Metal Foil Insulation Facing, Metal Pipes, Conduits, Cable Trays, Hangers, and Other Items, Gloss Level 2
Either of the following:
Coat 1: Moore's "M53 Sweep Up Spray Latex Flat", 1.5 to 2.5 mils dry; VOC ≤37 g/l
Coat 1: Moore's "M29 DTM Acrylic Semi Gloss", 1.5 to 2.5 mils dry; VOC ≤207 g/l
Coat 2 for Non Ferrous Metal Only: Same as above.

Interior Paint System G1: Interior Gypsum Board, Gloss Level 3
Coat 1: Moore "Natura Primer 511" at 1.2 mils dry; VOC = zero grams per liter.
Coat 2: Moore "Natura Eggshell 513" at 1.8 mils dry; VOC = zero grams per liter.
Coat 3: Same as above.

Interior Paint System G2: Interior Gypsum Board Ceilings, Gloss Level 1
Coat 1: Moore "Natura Primer 511" at 1.2 mils dry; VOC = zero grams per liter.
Coat 2: Moore "Natura Flat 512" at 1.8 mils dry; VOC = zero grams per liter.

Interior Paint System G3: Interior Gypsum Board, High Performance, Gloss Level 7
Coat 1: Moore "Super Spec Epoxy Enamel P42" at 2 to 3 mils dry; VOC = 173 grams per liter.
Coat 2: Moore "Super Spec Acrylic Epoxy 256" at 1.5 mils dry; VOC = 133 grams per liter.
Coat 3: Same as above.

Interior Paint System T1: Decorative Paint Over Thin Film Fireproofing
This is decorative paint system over intumescent fireproofing.
Basis of Design Fireproofing: See Section 07 8100 Applied Fireproofing.
Basis of Design Decorative Paint Coat 1: Carboline "Carbocrylic 3350" at 2 mils dry; VOC ≤250 g/l.
Confirm Decorative Paint is approved by fireproofing manufacturer.
Decorative Coat 2: Same as above.

Interior Paint System M1: Interior Concrete Masonry, Standard Performance, Gloss Level 5
Coat 1: Moore "Super Spec Latex Block Filler 160" at 6.2 to 8.1 mils dry; VOC = 13 grams per liter.
Coat 2: Moore "Natura Semi Gloss 514" at 1.5 mils dry; VOC = zero grams per liter.

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Coat 3: Same as above.

Interior Paint System M2: Interior Concrete Masonry Substrate, High Performance, Gloss Level 5
Coat 1: Moore "M31/M32 Waterborne Epoxy Block Filler" at 8 to 12 mils dry; VOC = 93 g/l.
Coat 2: Moore "M43/M44 Acrylic Epoxy Coating" at 2 mils dry; VOC = 208 grams per liter.
Coat 3: Same as above.

Part 3 - Execution

3.1 PAINTING: Comply with manufacturers' instructions and recommendations.
A. Responsibility: The Installer is solely responsible for the work of this Section.
1. Prepare substrates and apply coatings as necessary to provide the highest quality finishes.
B. Lighting: Lighting can change the appearance of the work. Work only:
1. When permanent lighting is in use.
2. When temporary lighting equivalent to permanent lighting is in use.
a. "Equivalent" means color, intensity, and direction.
3. Subcontracting Coordination: Painting subcontractor provides temporary lighting.
C. Removal and Reinstallation: Remove finish hardware, fixtures, accessories, and similar items.
1. Store and protect these items.
2. Reinstall after finishing work is completed and accepted.
D. Shop Primers: Coordinate shop primers to ensure compatibility.
1. Remove 100 percent of incompatible primers.
2. Provide 100 percent coverage of compatible primer.
E. Cleaning: Clean substrates and remove dirt, rust, grease, oil, moisture, mold, mildew, asphalt, and all foreign substances and conditions detrimental to formation of a durable finish.
F. Substrate Moisture Content: Confirm all substrates are sufficiently dry and comply with coating manufacturer's recommendations.
G. Joint Sealant and Painting Coordination: Some interior sealants are intended to be painted.
1. Coordinate sealant work and painting work so sealant is cured prior to painting.
2. Many one part sealants need exposure to air to properly cure.
3. Painting these sealants too soon can prevent sealant curing and lead to sealant failure.
4. Painting uncured sealant can cause paint to crack, bubble, debond, discolor, or fail.

3.2 SURFACE PREPARATION FOR NEW SUBSTRATES:
A. Drywall: Clean surfaces. Remove dust and all foreign substances.
B. Masonry, Concrete: Allow substrates to cure for at least 30 days.
1. Remove efflorescence, surface glaze, loose particles, laitance, form release agents.
2. Test substrate alkalinity. Comply with coating manufacturer's limits for substrate alkalinity.
C. Aluminum: "SP-1", Society for Protective Coatings, www.sspc.org.
D. Shop Prime Painted Metal: Lightly sand all surfaces.
1. Remove surface rust.
2. Solvent wipe.
3. Touch up and spot prime damaged shop primer.
E. Non Galvanized Ferrous Metal: "SP-6", Society for Protective Coatings, www.sspc.org.
1. Remove rust, welding flux, splatter, burrs, surface defects, and foreign substances.
2. Clean surfaces by washing with water followed by phosphate rinsing.
3. Apply prime coats immediately after completion of cleaning and preparation.
F. Galvanized Metal:
1. Standard: ASTM D6386 Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting.
2. Freshly Galvanized Substrates: Apply primer within 24 hours after galvanizing.
3. Galvanized Substrates Older Than 24 Hours:

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a. Remove zinc oxide and hydroxides.
b. Solvent clean, “SP-1”, Society for Protective Coatings, www.sspc.org.
c. Do not spread contamination.
d. Rinse with hot water.

4. Profiling: Minimize removal of galvanizing [zinc coating].
   a. Power sand to remove roughness >5 mils thick.
   b. Sweep blast, “SP-7”, Society for Protective Coatings, www.sspc.org.
   c. Blow with clean compressed air.
5. Touch Up: Comply with ASTM A780 Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
   a. Zinc Content: ≥ 65 percent zinc dust by weight of the dry film.
   b. VOC Content: ≤250 grams per liter.

3.3 SURFACE PREPARATION FOR EXISTING SUBSTRATES - CHAFEE HALL: Comply with Section 09 0199 Repainting.

3.4 COATING APPLICATION:

A. Paint Systems: Provide each field applied paint system from only one manufacturer
B. Material Preparation: Mix, prepare, and thin materials in compliance with coating manufacturer's recommendations.
   1. Do not use admixtures or additives, unless recommended by coating manufacturer.
   2. Keep coatings free from contamination.
C. Primers: Apply primers immediately after surface preparation.
D. Tint Each Coat: Make each coat visually distinguishable by scratch test.
E. Dry Film Thickness: Comply with coating manufacturer’s recommended range.
F. Sanding: Sand before first coat and between coats when specified or if recommended by manufacturer.
G. Recoat Time: Comply with manufacturer's recommended drying time between coats.
H. Application Methods: Apply by technique recommended by manufacturer, except:
   1. Spray application of overhead dry fall coatings is permitted.
   2. Spray apply gypsum board “Level 5” primer.
   3. Spray application of other coatings is permitted only if installer makes written request and obtains Architect’s approval of control of overspray and control of number of coats.
   4. Back roll spray applied coatings on planar surfaces, but not doors and frames.
I. Extent of Door Finish: Finish tops, bottoms, and edges to match door faces.
   1. Shop Finished Wood Doors: Field paint vision lite frames, louvers, astragals, and other surfaces not fully factory finished.
J. Epoxy Paint and Resilient Wall Base Coordination: Resilient base may not adhere to epoxy paint.
   1. Do not apply epoxy paint on walls at resilient base installation areas.
   2. Trim and mask paint 0.125 to 0.1875 below top of resilient wall base.

3.5 COLOR CHANGES: As shown or, if not shown, as field directed by Architect.

3.6 ACCEPTABLE APPEARANCE: Match approved In Place Samples.

A. Provide visually uniform finishes, free of runs, sags, wrinkles, streaks, shiners, pin holes, holidays, application marks, color variations, show through, bleed through, and other visual imperfections and deviations.
B. Number of Coats: The number of coats specified is the minimum number of coats required.
   1. Provide additional coats to eliminate defects, imperfections, and visual deviations.

3.7 COMPLETION:

A. Cleaning: Remove every visible trace of splatters, drips, and over spray.

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B. Protection: Provide “wet paint” signs.
   1. Protect work from dust and damage.
C. Repair: Touch up and repair damaged work to eliminate all evidence of repair.

End of Section

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Section 10 1100 Visual Display Surfaces

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Visual display surfaces including:
   1. Writing boards.
   2. Tack boards.
   3. Tack surface wall covering.

B. Related Sections: Without limitation, related sections include:
   Section 06 0585 Interior Wood Shop Finish Schedule
   Section 06 0622 Interior Wood Type Schedule
   Section 06 1053 Miscellaneous Rough Carpentry
   Section 06 4110 Architectural Casework
   Section 06 4610 Interior Wood Trim
   Section 07 9200 Joint Sealants
   Section 08 8110 Interior Glass
   Section 09 2900 Gypsum Board
   Section 09 9000 Painting and Coating

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Shop Drawings: Show fabrication, installation, elevations, edge details.
C. Verification Samples: ≥12 x 12 inches showing construction and edge details.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

1.4 WARRANTY: Manufacturer's standard.
A. Writing Board Warranty Period: ≥25 years.

Part 2 - Products

2.1 MANUFACTURERS:
A. Aarco Products Inc., www.aarcoproducts.com
B. Claridge Products and Equipment, Inc., www.claridgeproducts.com
C. PolyVision Corporation, division of Steelcase, www.polyvision.com

2.2 WRITING BOARDS - PORCELAIN STEEL
A. Construction: Laminated 3 ply: writing surface + core + backing sheet.
B. Writing Surface Material: 24 gage enameling grade steel with porcelain enamel finish.
   1. Basis of Design: "LCS II", Claridge Products and Equipment, Inc., www.claridgeproducts.com
   2. Color, Gloss, Texture: "#75 Low Gloss White", Claridge; for markers and projection.
   3. Steel Substrate: Cold rolled, minimum 30 percent post consumer and post industrial content.
   4. Porcelain Enamel Standard: "PEI-1002 Material and Performance Specifications for Porcelain Enamel Writing Surfaces", Porcelain Enamel Institute, Inc., www.porcelainenamel.com
   5. Porcelain Enamel Finish System: Three coats, oven fused to steel:

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Coat 1 - Bottom Ground Coat: 1.5 to 2.2 mils.
Coat 2 - Top Ground Coat: 2.0 to 2.8 mils.
Coat 3 - Finish Color Coat: 3.0 to 4.0 mils.

C. Core: Medium density fiberboard.
   1. Basis of Design: "Arreis", Sierra Pine, Ltd, www.sierrapine.com
   2. Standard: ANSI 208.2.
   3. Thickness: As shown or, if not shown, 0.4375 inch.
   4. Fiber: 100 percent post industrial recycled wood.
   5. Resin, Adhesive: No added formaldehyde.
   6. Density: Minimum 48 pounds per cubic foot.
   7. Fire Performance: ASTM E84 Class C.
   8. Forest Stewardship Certified: Required.
   9. SCS Scientific Certification Systems Certified: Required.
   10. EPP Environmentally Preferable Product Certified: Required.
   11. CHPS Compliant: Required.
D. Backing Sheet: 0.015 inch thick aluminum sheet.
E. Fabrication of Writing Boards: Shop fabricate.
   1. Seams: Seamless up to 5 feet by 16 feet.
   2. Board Corners: As shown or, if not shown, square.
F. Third Party Environmental Validation: Provide writing boards certified for both:
   1. "Greenguard Indoor Air Quality".
   2. "Greenguard Children & Schools".
G. Additional Requirements for Writing Surface Graphics: Not required.
H. Additional Requirements for Hinged Writing Boards:
   1. Hinge Basis of Design: "Model 1150, Stainless Steel, 1.5 Inches Open", S & S Hinge Company, www.sandshinge.com.
   2. Catch Basis of Design: "97653PT", Amerock, www.amerock.com

2.3 ADDITIONAL REQUIREMENTS FOR SLIDING WRITING BOARDS:
A. Basis of Design: "Sliding Units", Claridge Products and Equipment, Inc., www.claridgeproducts.com
B. Operation: Manual.
C. Fixed Writing Board At Wall: Required, as specified above, continuous for full width.
D. Sliding Writing Boards: Honeycomb core, balanced construction, writing surface specified above
E. Number of Sliding Panels: As shown.
F. Sliding Panel Edge Trim: Manufacturer's standard extruded aluminum.
G. Columns: Extruded aluminum
   1. Provide all framing to support column top from available building structure.
H. Sliding Panel Slides: Silent, wear resistant.
I. Counter Weights: Required, with separate weight track in columns.
   1. Balance properly. Provide field adjustable weights.
   2. Panels shall remain motionless when released at any position throughout the range of travel.
   3. Provide silient glides for counter weights.
J. Hardware: Silent operating, ball bearing sheaves, steel cables, and cable atttachments.
K. Visible Metal Finish: Factory painted.
   1. Performance Standard: AAMA 2603.
   2. Color/Sheen: Match writing board color/sheen.
   3. Field Touch Up Paint: Required, from paint system manufacturer, exactly matching appearance.

2.4 TACK BOARDS - CORK COMPOSITION:
A. Construction: Laminated 2 ply: cork surface + core.

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B. Cork Surface Material: Composition cork.
   1. Basis of Design: See "Finish Schedule Descriptions".
   2. Thickness: 6 mm.
   3. Backing: Jute/burlap scrim.
   4. Colors: See "Finish Schedule Descriptions".
   5. Tack Surface Fire Performance: ASTM E84, Class B.

C. Core: Thin medium density fiberboard.
   1. Basis of Design: "Thin MDF", Sierra Pine, Ltd, www.sierrapine.com
   2. Standard: ANSI 208.2.
   3. Thickness: As shown or, if not shown, 0.25 inch.
   4. Fiber: Post industrial recycled wood.
   5. Formaldehyde: ≤0.21 ppm [based on 3 mm thickness]; ASTM E1333Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber.
   6. Density: Minimum 48 pounds per cubic foot.
   7. Fire Performance: ASTM E84 Class C.
   8. Forest Stewardship Certified: Required.
   9. SCS Scientific Certification Systems Certified: Required.
   10. EPP Environmentally Preferable Product Certified: Required.

D. Fabrication of Tack Boards: Shop fabricate.
   1. Seams: Seamless up to 5 feet by 10 feet.
   2. Board Corners: As shown or, if not shown, square.

2.5 TACK SURFACE WALL COVERING:

A. Basis of Design: See "Finish Schedule Descriptions".
   1. Thickness: 6 mm.
   2. Width: 48 inches.
   3. ASTM E84 Fire Performance: Class B.
   4. Colors: See "Finish Schedule Descriptions".

B. Adhesive Basis of Design: "L910", Forbo, www.forboflooringna.com
   1. VOC Content: ≤ 1 gram per liter.

2.6 ADDITIONAL COMPONENTS FOR TACK BOARD DOORS OVER ELECTRICAL PANELS:

A. Continuous Hinge Basis of Design: "Model 1150, Stainless Steel", S & S Hinge Company, www.sandshinge.com.
   1. Open Size: As shown or, if not shown, 1.5 Inches.

B. Catches Basis of Design: "MC-159 Ultra Thin", Sugatsune America, Inc., www.sugatsune.com
   1. Quantity: As shown or, if not shown, two per door.

2.7 FRAME AND TRIM - CUSTOM WOOD:

A. Scope: As shown or, if not shown:
   1. Perimeter of each writing board and each tack board.
   2. Trim to conceal sliding writing board columns and major metal elements.

B. Visible Wood: Wood Type 1, Section 06 0622 Interior Wood Type Schedule.

C. Shop Finish: Finish System 1, Section 06 0585 Interior Wood Shop Finish Schedule.

D. Sizes and Profiles: As shown.

E. Seams: Only at corners.

F. Corners: Mitered, hair line tight, and flush across seam.

Part 3 - Execution

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3.1 INSTALLATION OF VISUAL DISPLAY BOARDS: Comply with manufacturer's instructions and recommendations.

A. Coordinate installation of concealed blocking.
B. Install plumb and level.
C. Install work with concealed anchors including metal Z clips.
D. Locate at heights shown or, if not shown, as field directed by Architect.
E. If not otherwise indicated, install all work at one elevation throughout each visually continuous area.
F. Locate seams where shown on approved shop drawings.
G. Align faces of boards across seams within tolerance of 0.03 inch.
H. Make field work match shop work in quality, detail, and appearance.
I. Provide complete, fully trimmed installations.
J. Restore damaged finishes to eliminate evidence of repair.
K. Break in writing boards as recommended by manufacturer.

3.2 TACK SURFACE WALL COVERING INSTALLATION: Comply with manufacturer's instructions and recommendations.

A. Preparation:
1. Clean substrates.
2. Confirm substrates are smooth and prime painted.
3. Ensure substrate joints and imperfections will not be visible through tack surface.
4. Confirm ambient and substrate conditions, humidity, moisture, and temperature are within limits specified by tack surface and adhesive manufacturers.
5. Acclimatize tack surface material to installation environment for at least 48 hours.

B. Installation:
1. Layout guidelines.
2. Install tack surface vertically with edges plumb.
3. Horizontal seams are not permitted.
4. Locate seams uniformly and symmetrically.
5. Locate vertical seams at least 24 inches from outside corners.
6. Avoid use of tack surface strips less than 24 inches wide.
7. Provide tight tack surface to tack surface seams.
8. Provide uniform 0.25 inch wide joints between tack surface and dissimilar materials.
9. Provide 100 percent coverage of adhesive.
10. Roll and press tack surface tight to substrate until adhesive holds.
11. Eliminate air bubbles and unbonded areas.
12. Remove visible adhesive before it dries.

C. Repairs:
1. Repair bubbles and loose areas by injecting adhesive with needle and compression or other technique.
2. Remove and replace entire strip with damage.
3. "Patch" repairs are not acceptable.

3.3 OWNER TRAINING: Instruct Owner how to clean marker boards and which markers to use.

End of Section

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Section 10 1405 Fire Safety Partition Signs

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Fire safety partition signs.
1. Locations: Both faces of fire partitions, fire barriers, fire walls, smoke barriers, and smoke partitions above all types of ceilings.

B. Related Sections: Without limitation, related sections include:
Division 4 Masonry
Section 09 2900 Gypsum Board
Division 9 Ceilings
Section 09 9000 Painting and Coating

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Samples: Full size showing colors, copy, letterforms, spacing.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 FIRE SAFETY PARTITION SIGNS:
A. Contractor's Option: Contractor may provide:
1. Painted in place and stencil painted signs.
2. Preprinted continuous tape signs.
B. Sign Requirements - Painted In Place Signs:
1. Paint: Acrylic, semi gloss.
2. Paint VOC Limit: Maximum 150 grams per liter.
3. Paint Color: Bright red.
4. Continuous Stripe Height: 2 inches.
5. Letter Style: 2 inches high, Helvetica regular, upper and lower case.
C. Sign Requirements - Preprinted Continuous Tape Signs:
1. Basis of Design: "Custom Printed Shipping Tape 89628", Seton Identification Products, Tricor Direct Company, www.seton.com.
2. Tape Adhesive: Permanent bond, self adhesive.
3. Tape Height: 2 inches.
4. Tape [Background] Color: Red.
5. Copy Color: White.
6. Letter Style: 1.75 inches high, Helvetica regular, upper and lower case.
D. Copy: Coordinate with each wall, barrier, and partition type:
"1 Hour Fire Rated. Protect All Openings and Penetrations."
"2 Hour Fire Rated. Protect All Openings and Penetrations."
"3 Hour Fire Rated. Protect All Openings and Penetrations."
"Smoke Tight. Not Fire Rated. Protect All Openings and Penetrations."

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Part 3 - Execution

3.1 INSTALLATION OF FIRE SAFETY PARTITION SIGNS: Comply with manufacturer's instructions and recommendations.

A. Confirm sign locations and height prior to installation.
   1. Locate signs above ceilings at locations easily visible to maintenance workers only.
B. Install signs continuously, uniformly, and consistently.
C. Install signs level.
D. Clean and prepare substrates prior to installation of signs.

3.2 ADDITIONAL INSTALLATION REQUIREMENTS FOR PAINTED IN PLACE SIGNS:

A. Provide temporary masking. Remove masking after completion.
B. Interrupt continuous stripe for copy.
C. Locate copy at least once on each plane.
D. Space copy not over 30 feet on center.

3.3 ADDITIONAL INSTALLATION REQUIREMENTS FOR PREPRINTED CONTINUOUS TAPE SIGNS:

A. Install securely. Burnish or hand roll after initial placement.
B. Test and confirm permanent adhesion.

End of Section

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Section 10 2600 Wall and Door Protection

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Wall and door protection including wall protection at house keeping closets.

B. Related Sections: Without limitation, related sections include:
Section 06 1053 Miscellaneous Rough Carpentry
Section 09 2215 Interior Non Structural Metal Framing
Section 09 2900 Gypsum Board

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Verification Samples: Minimum 12 inches.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS:
A. Arden Architectural Specialties, Inc., www.ardenarch.com
B. Construction Specialties, Inc., www.c-sgroup.com
C. InPro Corporation, www.inprocorp.com
D. Koroseal/Korogard, division of RJF International Corporation, www.korogard.com
E. Life Science Products, Inc., www.lspinc.com

2.2 WALL PROTECTION TYPE A: Stainless steel corner guards.
A. Basis of Design: "CO-8 Series", Construction Specialties, Inc., www.c-sgroup.com.
B. Material: 304 stainless steel.
C. Gage: 16.
D. Size and Shape: 2 x 2 inches angle with 0.125 inch radius corner.
E. Height: As shown or, if not shown, from top of wall base to 48 inches above finished floor.
F. Finish: NAAMM #4 satin.
G. Adhesive Basis of Design: "M1 Structural Adhesive", Chem Link, Inc. [required by Construction Specialties, Inc. for warranty].
1. VOC Content: 100 percent solids, solvent free, meets California SCAQMD.

2.3 WALL PROTECTION TYPE B: Stainless steel wall sheet.
A. Material: 304 stainless steel.
B. Gage: 22 [0.03 inch].
C. Height: As shown [48 inches above finished floor].
D. Finish: Mill.
E. Edges: Smooth. Not sharp or dangerous.
F. Adhesive Basis of Design: "M1 Structural Adhesive", Chem Link, Inc.
1. VOC Content: 100 percent solids, solvent free, meets California SCAQMD.

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Part 3 - Execution

3.1 INSTALLATION OF WALL AND DOOR PROTECTION:

A. Comply with manufacturer's instructions and recommendations.
B. Coordinate installation of framing, blocking, and supports.
C. Coordinate installation with wall base, ceilings, door frames, and related work.
E. Acclimate resilient components to installation environment as recommended by manufacturer.
F. For vertical installation, provide one piece seamless units.
G. For horizontal running installation, minimize joints and seams.
H. Locate visible joints and seams uniformly and symmetrically.
I. Provide uniform, tight joints and seams.
J. Close visible open ends with visually matching end caps.
K. Clean and polish visible surfaces to a uniform, bright luster.
L. Restore damage to eliminate evidence of repair.

3.2 ADDITIONAL REQUIREMENTS FOR ADHERED PRODUCTS:

A. Clean substrates and items to be adhered.
B. Provide continuous adhesive.
C. Conceal adhesive in the completed installation.
D. Press and hold in place until bond is established.
E. Provide continuous tight contact between adhered product and substrate.

End of Section

SECTION 104400

INTERIOR SIGN SYSTEM

PART 1 GENERAL

1.1 SIGN SYSTEM DOCUMENTS

A. The sign system documents include these Specifications, Sign Message Schedule, Sign Location Plans and Sign Construction Drawings.
B. Purpose: These Master Specifications and drawings are for design intent and do not relieve the contractor of mechanical and engineering required for signs described or specified in these Specifications or on the Sign Construction Drawings (Design Intent Specifications). The drawings are to be used as a guide for finish engineering. Reproduction of the drawing specifications may not be substituted for the sign contractor's engineered shop drawings.

1.2 SUMMARY

A. The work in this section consists of interior building identification (interior changeable modular signs, mounted on a perforated chassis), ADA permanent room signs, directional signs, and regulatory signs.
B. Manufacturer Qualifications: Work under this section from manufacturers regularly engaged in work of this magnitude and scope for minimum of seven years.

1. **Provide sample prototype panel with photopolymer and panel construction as defined in this package for one sign type (OFF) with interchangeable locking tab mechanisms and submit along with bid documents.**
2. The university is interested in the support capability of a web based ordering system to enable individual sign components to be purchased. Although, not necessary to implement signage for the Chemistry Building, sign contractors bidding for this work are encouraged to provide their capabilities with producing an integrated product with web based ordering of individual sign components that can be purchased on an as needed basis to manage the naming components for this building and potentially a wider campus interior signage systems. This system would be used for this and other buildings utilizing common interchangeable components based on the system defined in this sign package.

C. Pre-installation Conference: Review requirements for construction and installation of signs specified in the sign package, schedule and procedures stipulated by the General Contractor.

1.3 CONTRACTOR PRICING

A. The sign contractor to price the construction and installation of the sign system as defined in these Master Specifications and the Sign Package including; Sign Message Schedule, sign Construction Drawings and Sign Location Plans. The sign system is comprised of interchangeable parts as defined in the drawings.
B. The Contractor to provide pricing to include the following:

1. Provide pricing for construction of all signs described in this sign package.
2. Provide separate pricing for installation of all signs described in this sign package.
3. Unit prices: Provide installed unit prices for each sign type unit in the system for extra possible required signage.

4. Provide fixed unit pricing for installed signs for a period of two years after the initial installation.
5. Provide temporary signage to meet with requirements for occupancy based of information and general layouts provided in the sign program documents.

1.4 REGULATORY REQUIREMENTS

A. Comply with all federal and state municipal codes, laws and regulations regarding signs for identifying rooms, including American with Disabilities Act. Notify the designer if any signage in this package is not in conformance prior to beginning the work.

1.5 REFERENCES

A. Standards of the following as referenced:

1. American National Standards Institute (ANSI).

B. Industry standards:

1. Department of Justice, Office of the Attorney General, "Americans with Disabilities Act", Public Law 101-336, (ADA).
2. ANSI A 117.1: Providing Accessibility and Usability for Physically Handicap People, 1986 edition.
3. Federal Register Part III, Department of Justice, Office of the Attorney General, 28 CFR Part 36: Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities, Final Rule, July 26, 1991.
4. Federal Register Part II, Architectural and Transportation Barriers Compliance Board, 36 CFR Part 1191: Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Amendment to Final Guidelines, September 6, 1991.

1.6 DEFINITIONS

A. Terms:

1. Braille: Grade 2 Braille including 189 part-word or whole word contractions in additional to Grade 1 Braille 63 characters. Tactile is required whenever Braille is required; see SYSTEM DESCRIPTION Article below.
2. Non-tactile: Letters and numbers on signs with width-to-height ratio between 3:5 and 1:1 and stroke width ratio between 1:5 and 1:10 using upper case "X" to calculate ratios. Use typestyles with medium weight; upper and lower case lettering is permitted; See SYSTEM DESCRIPTION Article below.
3. Symbols: Symbol itself is not required to be tactile, however tactile symbols are specified for this program.
4. Tactile: 1/32" raised capital letters without serifs at least 5/8" height and not more than 2" height based on upper case "X". Braille is required whenever tactile is required; See SYSTEM DESCRIPTION Article below.

1.7 SYSTEM DESCRIPTION

A. Signage under this section is intended to include items for identification, direction, regulatory and information for the building.
B. ADA Design Requirements:

1. Signage requiring tactile graphics:

a. Wall mounted signs designating permanent rooms and spaces such as, room numbers, restroom, stairs, and office identification.

2. Signage not requiring tactile graphics but require compliance to other ADA requirements: All other signs providing direction to or information about function of space such as, directional signs (signs with arrow), informational signs (operating hours, policies, etc.), regulatory signs (no smoking, do not enter), and ceiling and projected wall mount signs.
3. Excluded signage:

a. Exterior signs.
b. Building directories.
c. Menus.
d. Temporary signs include personnel signs and tenant identification; suite numbers are not considered temporary.

C. ADA Performance Requirements:

1. Tactile graphics signs mounting requirements:

a. Single doors: Mount 60" to sign centerline above finish floor and on wall adjacent to latch side of door. Refer to drawings for exact location.
b. Openings: Mount 60" to sign centerline above finish floor adjacent opening. Refer to drawings for exact location.
c. No wall space adjacent latch side of door, opening, or double doors: Mount 60" to sign centerline above finish floor on nearest adjacent wall. Align with locations as shown in the drawings.

1.8 SUBMITTALS

A. Product Data:

1. Manufacturer’s signed statement of Warrantee.
2. Data and cleaning requirements for interior surfaces.

B. Shop Drawings:

1. Indicate materials, sizes, configurations, applicable substrate mountings, and location of connections provided in other sections. Specifically indicate tolerances between butting panels as defined in drawings.
2. Typography sample for copy.
3. Artwork and graphics showing layouts for each sign type.
4. The manufacturer shall furnish to the Owner and Designer and Architect, prior to fabrication, copies of shop drawings (including layout, profiles, product components, details (including dimensions, anchorage, and accessories), sizes, and dimensions of each sign type, product description, and manufacturer’s data).
5. Shop drawings to be submitted in PDF file format to the Architect, the General Contractor and the Owner. Hard copies may be requested by the General Contractor or any of the entities above. The Contractor will be notified if required.
6. A copy of the shop drawings shall be returned as a marked up PDF file to the manufacturer with the client’s comments if any, and bearing the Architect’s approval or indicating action taken.
7. Work shall be executed in accordance with “No Exceptions Taken” or “Make Corrections Noted” drawings only.

8. The Architect's review of shop drawings shall constitute checking for general arrangement only, and shall not relieve the manufacturer of responsibility for complete compliance with the drawings and specifications.
9. Material, color and paint samples, as called for hereinafter, shall be submitted to the Architect. Two copies of each sample are required and shall be exact reproductions of each requested material. Samples shall bear a label giving the name of the manufacturer, the trade name of the material, and all other information necessary to identify the material. Labels shall have 4"x4" blank area (on back side).

1.9 SAMPLE SUBMITTALS

A. Listed are the sample materials required (2 sets of each of the following):
B. Paint and Materials

1. 4"x4" inch portion of the same material which is to receive the paint for each color indicated on the construction drawings and in the paint schedule.
2. 4"x4" aluminum (M1) as defined in drawings with satin etched and clear anodized finish.

C. Sign Samples (2 sets of each of the following):

1. Minor Space sign type (A308 MULTIPURPOSE ROOM) comprised of Sign Type MNS and -V complete sample with painted and aluminum components in place with graphics and text, include backer plate as shown in sign package.
2. Office sign type OFF (021 Cary Peterson) complete with text and name plates and aluminum components, use name as shown on drawing package, include "infinity" chassis and backer plate as specified on drawings.
3. Office sign type OFF-1 (021) complete with header and name insert plate and aluminum components, include "infinity" chassis and backer plate as specified on drawings.
4. Mechanical Room sign type MEC (A327 ELECTRICAL CLOSET).

1.10 DELIVERY, STORAGE, AND HANDLING

A. Acceptance at Site: Coordinate delivery of work to Project site under this section for immediate installation.
B. Handling materials and equipment: Handle signage in careful manner in order not to damage or mar surfaces of signs or adjacent finish surfaces as applicable.

1.11 SEQUENCING AND SCHEDULING

A. Coordinate: Installation with adjacent finish materials in manner not to destroy adjacent surfaces.

1.12 WARRANTY

A. Special Warranty: Manufacturer's standard seven year limited warranty covering coating degradation, chalking and fading.

PART 2 PRODUCTS

2.1 BASIS OF DESIGN

A. ASI Sign Systems, Inc.; interior changeable modular signs, mounted on a perforated chassis; Infinity Series.

2.2 MATERIALS

A. Interior signs consisting of sign panels with integrated photopolymer raised lettering and Braille, painted panels mounted on a power coated perforated steel chassis. Raster tactile text is not acceptable. Non-tactile signs shall have screened printed text.

1. Photopolymer: Signs with raised tactile graphics shall be produced utilizing a 1/32" thick synthetic light-sensitive photo emulsion as one rigid phenolic piece of material. Laminated polymer materials not acceptable. Photopolymer manufactured by Jet USA Corp., Collingdale, PA, or approved equal. Photopolymer shall be an appropriate thickness to achieve 3/16" thick finish panel coplanar with non-raised adjacent panels.
2. Braille: All room numbers and room names, where required on the sign schedule, shall have Grade 2 Braille translations.
3. Paint: All sign plaques shall receive one coat of filling primer and two coats of satin acrylic catalyzed polyurethane paint. Catalyzed polyurethane paint shall be MAP, as manufactured by Matthews Paint Company, Kenosha, WI, or approved equal. Custom color matches will be required as specified in the construction drawings. Exact colors will be determined during the submittal phase.
4. Screen-printing: All screen-printed graphics, including raised lettering of plaques, except Braille, shall be screen-printed in a contrasting color so as to meet the color contrast requirements of Americans with Disabilities Act. All non-tactile text shall be screen-printed. No vinyl lettering on plaques will be accepted except where specified. Screen-printing ink shall be ER Series, catalyzed epoxy ink as manufactured by Naz Dar Corp., Chicago, IL, or approved equal.
5. Letter Style: Shall be fonts, as specified in the construction drawings.
6. Graphics: All text, symbols and graphics shall be reproduced utilizing computer generated digital art. Match pictogram symbols as shown in the drawings.
7. **Acrylic/Phenolic (CNC) computer numeric controlled precision cut panels**: Provide acrylic/phenolic materials for room signs specified to have painted finishes. Sign types that are specified to use metals with finishes such as; satin anodized, brushed, etched or engraved metals to be produced from aluminum. Chem-metals or other laminate type materials are not acceptable.
8. Chassis Cold rolled, low carbon steel, die perforated 18 ga. Sheet with high temperature cured power coating.
9. Parts specified as (M1) to be fabricated aluminum with satin etched surfaces, clear anodize each component, finish consistently for directory bases and sign panel base plates.

2.3 QUALITY ASSURANCE

A. Room Sign Construction: All sign plates that attach to chassis and that position along side, above or beneath adjacent plates to have precise fit (1/32" gap ± .007") with consistent space tolerances between plates as defined in the construction drawings.
B. All sign panel plates and parts to be manufactured as consistent interchangeable components and will allow for the replacement of identically sized part components as needed to upgrade and change message plates, donor plates, or note bar as shown in drawings after the system has been installed.

2.4 INSERT SIGNS

A. A contractor to obtain from the Owner the names of office personnel, faculty and graduate students and produce the laser printed cards that will insert into the Sign types; (OFF)

as specified in the program and install with initial program of signs. Refer to the construction documents for layout specifications.

B. The sign contractor to supply Microsoft Word templates for replacement of name inserts for sign types (OFF-1) to the University, for use when replacing inserts after the initial installation. The type fonts and layout format for templates to follow the specifications provided for within the construction documents.
C. The contractor to supply the University with 8-1/2" x 11" perforated insert stock to print name templates as defined above in (note 2). The stock to be provided with perforated positions for 2 inserts panels as specified in the construction drawings to fit into insert holders. Provide stock as follows:
D. Stock: White Bristol
E. Quantity: 1000 Sheets (2 reams of 500 each)
F. The University shall supply, print and install their own life safety 8-1/2" x 11" color laser printed cards into card insert holders (Type CHK-V and CHK-H). The sign contractor to supply and install the insert holder.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of conditions:

1. Examine areas to receive signs; verify for correct location all anchors and internal mounting plates required to install signs.
2. Notify General Contractor in writing of unacceptable substrate or improper location of anchors.
3. Beginning work indicates acceptance of substrate. Subsequent modifications to substrate becomes the Contractor's complete responsibility.

3.2 INSTALLATION

A. Install signs in locations indicated in accord with reviewed shop drawings. Square, plumb, and level units.
B. Notify the Architect if conditions in the field vary from those shown in these documents.

3.3 CLEANING

A. Clean exposed surfaces not more than 48 hours prior to Date of Substantial Completion in accord with manufacturers written cleaning instructions.

3.4 SCHEDULE

A. Coordinate with General Contractor.

END OF SECTION

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Section 10 4415 Fire Extinguishers and Cabinets

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install:
   1. Portable fire extinguishers.
   2. Fire extinguisher cabinets.
   3. Bracket mounted fire extinguishers without cabinets.

B. Quantity and Locations: As shown or, if not shown, comply with NFPA 10 Portable Fire Extinguishers.

C. Related Sections: Without limitation, related sections include:
   Section 06 1053 Miscellaneous Rough Carpentry
   Division 21 Fire Suppression

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS:
A. JL Industries, division of Activar Construction Products Group, www.jlindustries.com
B. Larsen's Manufacturing Company, www.larsensmfg.com
C. Potter Roemer, division of Acorn Engineering Company, www.potterroemer.com

2.2 FIRE EXTINGUISHERS: Filled,charged, pressurized, tagged, dated, and rechargeable.
A. Listing: Underwriters Laboratories and FM approved.
B. Extinguishers - Basis of Design: "419", Amerex Corporation, www.amerex-fire.com

2.3 CABINETS:
A. Basis of Design: "Architectural Series", Larsen's Manufacturing Company.
B. Size: As shown or, if not shown, smallest necessary to accommodate contents.
   1. Make all cabinets the same size for the same contents.
C. Mounting: As shown or, if not shown, fully recessed.
D. Door Material, Finish: Stainless steel, NAAMM #4 satin finish.
E. Door Style: Vertical duo panel, safety glass.
F. Latch: Roller catch.
G. Pull: Satin chrome or zinc plated, "staple" pull.
H. Door Lettering: Black, vinyl die cut, vertical, all capitals.
I. Fire Rated Walls: Provide UL listed, fire rated cabinets which maintain wall rating.

2.4 BRACKET: For Mechanical Rooms, Electrical Rooms.

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A. Basis of Design: Recommended by extinguisher manufacturer for extinguisher size, shape, weight.
B. Finish: Black painted steel, satin stainless steel, or satin chrome plated steel.

2.5 FLAT SIGNAGE FOR BRACKET MOUNTED FIRE EXTINGUISHERS:
A. Basis of Design: “BL-108”, Larsen's Manufacturing Company, www.larsensmfg.com

Part 3 - Execution

3.1 CABINET INSTALLATION: Comply with manufacturer's instructions and recommendations.
A. Coordinate rough in and concealed blocking.
B. Install at height shown or, if not shown, barrier free Code complying and approved by Architect.
C. Install plumb and level.
D. Anchor securely.
1. Provide one fastener for each factory provided fastener hole.
2. Conceal fasteners within cabinet.
E. If not factory applied, apply signage plumb and level and aligned with door edge.
F. Restore damaged finishes to eliminate evidence of repair.
G. Place items inside cabinets.

3.2 ADDITIONAL REQUIREMENTS FOR FIRE RATED WALLS: Provide complete cabinet assembly which maintains the assembly fire rating.

3.3 INSTALLATION OF BRACKET MOUNTED EXTINGUISHERS WITHOUT CABINETS:
A. Coordinate concealed blocking.
B. Install bracket plumb.
C. Anchor bracket to support at least twice filled extinguisher weight.
D. Hang entinguisher on bracket.
E. Install wall signage directly above extinguisher at height shown or field approved.

End of Section

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Section 10 5619 Plastic Storage Shelving

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Plastic storage shelving.

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Verification Samples: Minimum 12 x 12 inches.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 PLASTIC STORAGE SHELVING:
A. Basis of Design: "Dura-Shelf", Structural Plastics Corporation, www.spcindustrial.com
   1. Description: Fixed, non adjustable shelves, all plastic, polyethylene, industrial grade.
B. Sizes, Number of Shelves: As shown including:
   1. Type A: 66 x 16 inches, part number S6616X4.
   2. Type B: 48 x 24 inches, part number S4824X4.
   3. Type C: 36 x 24 inches, part number S3624X4.
C. Containment Trays: Not required.

Part 3 - Execution

3.1 PLASTIC STORAGE SHELVING INSTALLATION:
A. Comply with manufacturer's instructions and recommendations.
B. Install plumb and level.
C. Do not anchor to floor or walls.

End of Section

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Section 11 5070 Fume Snorkels

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Fume snorkels.

B. Related Sections: Without limitation, related sections include:
Division 9 Finishes
Section 12 3555 Laboratory Furniture
Division 22 Plumbing
Division 23 Heating, Ventilating, and Air Conditioning
Division 26 Electrical
Division 27 Communications
Division 28 Electronic Safety and Security

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS:
A. Alsident, www.alsident.com
B. EnviroFlex, www.enviroflex.com
C. Movex, Inc., www.fumex.se
D. Nederman, www.nedermanusa.com
E. Plymovent, www.plymovent.com

2.2 FUME SNORKEL [EXTRACTOR]:
A. Basis of Design: ""Terfu MT-2000-75 PP", Movex, Inc., www.fumex.se
B. Inlet Hood: "MK 350-75 PP".
C. Ceiling Column: "MTI" with lengths shown.
D. Accessories: Provide all brackets, fasteners, components, and accessories needed to provide a complete, fully functional assembly.
E. Color: White.

Part 3 - Execution

3.1 FUME SNORKEL INSTALLATION: Comply with manufacturer's instructions and recommendations.
A. Coordinate installation with all related work including blocking, HVAC duct work, and controls.
B. Install assembly to accommodate heavy, institutional use.
C. Adjust assembly to work easily, smoothly, and correctly.
D. Restore damaged finishes to eliminate evidence of repair.

End of Section

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Section 11 5213 Projection Screens

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Projection screens.

B. Related Sections: Without limitation, related sections include:
Section 06 1053 Miscellaneous Rough Carpentry
Division 9 Ceilings
Division 26 Electrical

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS:
A. Bretford, Inc., www.bretford.com
B. Da-Lite Screen Company, Inc., www.da-lite.com
C. Draper, Inc., www.draperinc.com
D. Stewart Filmscreen Corporation, www.stewartfilmscreen.com

2.2 PROJECTION SCREEN TYPE 1 - LECTURE HALLS:
A. Basis of Design: "Tensioned Advantage Electrol", Da-Lite Screen Company, Inc., www.da-lite.com
B. Screen Viewing Surface Sizes: As shown or, if not shown:
1. 250 Person Classroom: 9 x 16 feet.
2. 100 Person Classroom: 5 x 9 feet.
3. 35 Person Classroom: 4 feet 10 inches x 8 feet 8 inches.
C. Screen Viewing Surface Material: "Da-Mat", Da-Lite Screen Company, Inc., www.da-lite.com.
D. Screen Viewing Surface Seams: Not permitted.
E. Black Borders: Yes.
F. Black Drop: Manufacturers standard 12 inches.
G. Case Color: White.
H. Motor: Silent operating.
I. Controls: "Low Voltage Control, LVC", Da-Lite Screen Company, Inc., www.da-lite.com
1. Switch: Three button with "Decora" cover.
J. Framing: Provide all framing to support screen assembly from building structure.

2.3 PROJECTION SCREEN TYPE 2 - CONFERENCE ROOMS:
A. Basis of Design: "Advantage Manual With Controlled Screen Return", Da-Lite.
B. Screen Viewing Surface Size: As shown or, if not shown, 60 x 96 inches.
C. Screen Viewing Surface Material: "Da-Mat", Da-Lite Screen Company, Inc., www.da-lite.com.
D. Screen Viewing Surface Seams: Not permitted.

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E. Black Borders: Yes.
F. Black Drop: Manufacturers standard 12 inches.
G. Case Color: White.
H. Framing: Provide all framing to support screen assembly from building structure.
I. Reach Pole: Required, one per screen.

Part 3 - Execution

3.1 PROJECTION SCREEN INSTALLATION: Comply with manufacturer's instructions and recommendations.
A. Coordinate installation of blocking and all related and adjacent work.
B. Attach screen to solid blocking or building structure.
C. Install case level.
C. Provide all hangers, brackets, and framing needed to attach screen from building structure.
1. No work is “miscellaneous metals” or “by others”.
D. Test and adjust for optimum operation.

3.2 ADDITIONAL REQUIREMENTS FOR MOTORIZED PROJECTION SCREENS:
A. Coordinate electrical rough in, power and control wiring and connections.
B. Adjust limit switches, if necessary.

End of Section

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Section 11 5300 Laboratory Equipment

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Laboratory equipment.

C. Related Sections: Without limitation, related sections include:
Section 11 5313 Laboratory Fume Hoods
Section 12 3555 Laboratory Furniture
Division 22 Plumbing
Division 23 Heating, Ventilating, and Air Conditioning
Division 26 Electrical
Division 27 Communications
Division 28 Electronic Safety and Security

1.2 QUALITY ASSURANCE - INSTALLER QUALIFICATIONS: The manufacturer or its certified, factory trained installer.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 LABORATORY EQUIPMENT: See "Laboratory Equipment Schedule".

2.2 FASTENERS TO BUILDING STRUCTURE: Provide seismic rated fasteners engineered by equipment manufacturer.
A. Material: 316 stainless steel.

Part 3 - Execution

3.1 LABORATORY EQUIPMENT INSTALLATION: Comply with manufacturer's instructions and recommendations.
A. Coordinate concealed blocking, utilities and services, and all related work.
B. Install plumb and level.
C. Anchor to building structure, framing, or blocking.
D. Complete assembly of components shipped knocked down.
E. Do not obstruct access panels.
F. Install to permit convenient maintenance.
G. Restore damaged finishes to eliminate evidence of repair.

3.2 ACCESSORIES: For all accessories scheduled and specified:
A. Unpack and install within equipment.
B. Obtain receipt from Owner acknowledging all accessories were received.

3.3 START UP, TESTING:
A. Start up and test each item of equipment.

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B. Confirm each item of equipment operates correctly and performs to manufacturer's specifications.
C. Correct all deficiencies.
D. Provide written test reports for each item of equipment including all deficiencies discovered and corrections made.

3.4 TRAINING:
A. Provide operator's manuals and maintenance manuals for each item of equipment.
B. Train Owner's personnel for:
1. Optimum operation.
2. Special features.
3. Routine maintenance.
4. Basic trouble shooting.

3.5 SERVICE AGENCY: At location preapproved by Owner and Architect, display name and telephone number of service agency to be contacted for warranty or other service.

3.6 LABORATORY EQUIPMENT SCHEDULE - CONTRACTOR FURNISHED, CONTRACTOR INSTALLED:

A. WA 000 Under Counter Washer:
1. Basis of Design: "LXiC, Bleach Sanitation", Hobart Corporation, www.hobartcorp.com. https://my.hobartcorp.com/resourcecenter/ProductDocumentation/F-8193.pdf
2. Other Acceptable Products: None.
3. Quantity and Locations: Two. Shown on Drawing.
4. Dimensions, Utility Loads, Utility Rough In: See manufacturer's product data sheet.
a. Voltage: Manufacturer's standard.
5. Required Options and Accessories:
a. Power cord kit.
b. Detergent pump.
6. Required Customization: None.

B. WA 001 Ice Machine:
1. Basis of Design: "KM 600M AH", Hoshizaki America, Inc., www.hoshizakiamerica.com http://www.hoshizakiamerica.com/Cubermachine.asp?series=KM-600M&itemClass=Cuber
2. Other Acceptable Products: None.
3. Quantity and Locations: Four. Shown on Drawing.
4. Dimensions, Utility Loads, Utility Rough In: See manufacturer's product data sheet.
a. Voltage: Manufacturer's standard.
5. Required Options and Accessories:
a. B-300 Storage Bin.
6. Required Customization: None.

End of Section

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Section 12 2400 Window Shades

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Window shades.

B. Related Sections: Without limitation, related sections include:
Section 06 1053 Miscellaneous Rough Carpentry
Section 09 5100 Acoustical Ceilings
Division 26 Electrical

C. Subcontract Coordination for Motorized Window Treatment: As shown or, if not shown:
1. One recessed wall switch control for each room elevation and one for skylights.
2. Power and control wiring rough in, wiring, and final connection by electrical contractor.
3. Control switch and cover furnished by window treatment contractor.
4. Control switch back box by electrical contractor.
5. Conduit and recessed junction box for each window treatment motor by electrical contractor.
6. Voltage transformers, if required, furnished by window treatment contractor.
7. Voltage transformers installation and electrical connections by electrical contractor.
8. Number of Motors: As shown or, if not shown, one motor for each shade.

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
1. Electrical: Show rough in locations and power characteristics.
B. Verification Samples: ≥12 x 12 inches of each type of shade fabric and 12 inches for each type of visible valance, trim, and accessory.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

1.4 WARRANTY: Manufacturer's standard.
A. Motorized Shade Motor Warranty Period: 5 years.

Part 2 - Products

2.1 MANUFACTURERS:
A. Draper Shade and Screen Company, Inc., www.draperinc.com
B. Hunter Douglas Contract, www.hunterdouglascontract.com
1. Nysan Shading Systems Ltd., [division of Hunter Douglas], www.nysan.com
C. Lutron Electronics Company, Inc., www.lutron.com
D. Mecho Shade Systems, Inc., www.mechoshade.com

2.2 MOTORIZED WINDOW SHADES:
A. Basis of Design: "Electro 3", Mecho Shade Systems, Inc., www.mechoshade.com.
B. Shade Control for Motorized Shades:
1. Basis of Design: "MLC Low Voltage Control System", Mecho Shade Systems, Inc.
2. Integrate: Shade control and lighting, HVAC, A/V, and building management control systems.

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3. Manual Switches: "ESDX 0739 IN WH, Digital Key Pad", Mecho Shade Systems, Inc.
4. Switch Colors: Selected by Architect from Leviton "Decora" standard colors.
5. Concurrent Control: Provide simultaneous control of all shades in each room on each elevation.
6. Limit Switches: Required, field adjustable for both ends of range of travel.

2.3 MANUAL WINDOW SHADES:
A. Basis of Design: "Mecho 5", Mecho Shade Systems, Inc., www.mechoshade.com.
B. Manual Shade Operator: Geared drive with #10 beaded chain wheel.
C. Additional Requirement for Shades Over 15 Pounds: Provide "Lift Assist Mechanism", Mecho.

2.4 SHADE FABRICS:
A. Shade Fabric Sources:
1. Hunter Douglas Contract, www.hunterdouglascontract.com
2. Phifer Incorporated, www.phifer.com
3. Mecho Shade Systems, Inc., www.mechoshade.com
4. 3G Mermet Corporation, www.3gmermet.com
B. Colors: Selected by Architect from manufacturer's complete range of options.
C. Fire Performance: Pass NFPA 701.
D. Basis of Design Fabric - Light Filtering: "EcoVeil 1350 Series", Mecho Shade Systems, Inc.
E. Basis of Design Fabric - Light Blocking: "Equinox 0100 Series", Mecho Shade Systems, Inc.

2.5 ADDITIONAL REQUIREMENTS FOR SHADE COMPONENTS AND FABRICATION:
A. Sizes: Custom fabricate each shade for each location.
1. Locate shade vertical edges at window jambs or curtain wall mullions.
B. Shade Roller Tube: Extruded aluminum.
1. Deflection When Loaded With Shade Fabric: ≤0.3 inch.
C. Shade Support Brackets: Coordinate shade sizes, operators, pockets, valances, and components.
D. Mounting Location: As shown or, if not shown, ceiling recessed with:
1. "No Cost Pocket" detail, Mecho Shade Systems, Inc., www.mechoshade.com.
2. 3 inches wide, removable, extruded aluminum ceiling closure and mounting extrusion.
3. 1 inch thick rigid fiberglass "sound stop" at shade brackets above room demising partitions.
E. Metal Pocket: As shown.
1. Material: Extruded aluminum with end caps.
2. Size: Smallest practical to accommodate shade with rolled fabric.
3. Bottom Closure: As shown or, if not shown, 3 inches wide.
F. Valance: Required for shades not recessed into ceilings.
1. Material: Extruded aluminum with end caps.
2. Shape: As shown or, if not shown, "L" shape.
3. Vertical Height: As shown or, if not shown, minimum 3.75 inches and as needed to conceal shades, brackets, and hardware.
4. Size Uniformity: Make all valances in each space the same size.
5. Attachment: Snap-on to shade brackets with no visible fasteners.
G. Shade Hem Bar: 2 inches sealed pocket hem bar with aluminum bar in pocket.

2.6 ADDITIONAL REQUIREMENTS FOR DUAL SHADES: Not required.

2.7 ADDITIONAL REQUIREMENTS FOR BLACK OUT SHADES: Not required.

2.8 SHOP FINISH FOR METAL: Manufacturer's standard paint system.
A. Color and Sheen: Custom to match Architect's sample.
B. Scope: Factory paint all visible metal.

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Part 3 - Execution

3.1 INSTALLATION OF WINDOW TREATMENT: Comply with manufacturer's instructions and recommendations.

A. Coordinate installation of concealed blocking.
B. Install level and parallel to glass.
C. Install all brackets furnished by manufacturer.
D. Test and adjust each window treatment item for optimum operation.
E. Restore damaged finishes to eliminate evidence of repair.

3.2 ADDITIONAL REQUIREMENTS FOR MOTORIZED SHADES:

A. Coordinate electrical rough in, wiring, and final connections.
B. Field adjust limit switches.

End of Section

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Section 12 3555 Laboratory Furniture

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Laboratory furniture including, without limitation:
1. Lab furniture support assemblies
2. Cabinets including vented cabinets and cabinets supported by mobile carts
3. Shelf not inside cabinets
4. Tables and mobile carts
5. Table tops, counter tops, and counter tops including integral sinks
6. Laboratory fixtures
7. Horizontal over head service carriers
8. Vertical service chases, umbilcal assemblies.
9. Drying racks, peg boards
10. Compressed gas cylinder restraints

B. Related Sections: Without limitation, related sections include:
Section 06 0585 Interior Wood Shop Finish Schedule
Section 06 0622 Interior Wood Type Schedule
Section 06 1053 Miscellaneous Rough Carpentry
Section 06 3010 Architectural Wood Shelving
Section 06 4050 Hardware for Architectural Woodwork
Section 06 4110 Architectural Casework
Section 06 4115 Casework Installation
Section 07 9200 Joint Sealants
Division 09 Finishes
Section 09 6510 Resilient Base
Section 10 1100 Visual Display Surfaces
Section 10 2813 Toilet Accessories
Section 11 5300 Laboratory Equipment
Section 11 5313 Laboratory Fume Hoods; metal base cabinets under fume hoods.
Section 12 3624 Plastic Laminate Counter Tops
Section 12 3654 Epoxy Counter Tops
Division 22 Plumbing; laboratory service fixtures.
Division 23 Heating, Ventilating, and Air Conditioning
Division 26 Electrical
Division 27 Communications
Division 28 Electronic Safety and Security

C. Engineering by Contractor: Comply with Section 01 4400 Engineering By Contractor.
1. Scope: Engineer support assemblies including connections to building structure.
2. Submittals: Calculations, shop fabrication drawings, field erection and installation drawings, details of connections.

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Shop Drawings: Dimensioned plans, plan details, elevations, cabinet sections, and section details.

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C. Sample Cabinet: One of each type, showing construction, doors, drawers, all hardware, and finish.
D. Sample Lab Furniture Support Assemblies: ≥2 x 2 feet showing construction, punched verticals, adjustable shelf hardware, shelves, with specified finishes.

1.3 QUALITY ASSURANCE - SEFA PRODUCT CERTIFICATION: Provide "SEFA 8 Product Certification" for all products including custom fabrications.
A. Testing Agency: SEFA 8 Casework approved independent third party lab. [See www.sefalabs.com].

1.4 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS:
A. A.T. Villa USA Inc., www.atvilla.com
B. Bedcolab, Ltd., www.bedcolab.com
C. Kewaunee Scientific Corporation, www.kewaunee.com
D. New England Laboratory Casework Company, Inc., www.newenglandlab.com including:
1. Mott Manufacturing, www.mott.ca

2.2 SEFA 8 TEST REQUIREMENTS: Meet SEFA 8 test requirements including, without limitation:
A. Cabinet Load: 2,000 pounds uniformly on top of each cabinet.
B. Cabinet Concentrated Load: 200 pounds centered on top of each cabinet.
C. Door Hinges: 200 pounds on door while door is cycled through full hinge arc.
D. Door Impact: 240 inch-pound impact force on door.
E. Door Cycles: 90 degree arc for 100,000 cycles.
F. Drawer Load: 150 pounds hung on front of open drawer.
G. Drawer Cycles: 100 pounds static uniform over drawer bottom, 50,000 full extension cycles.
H. Drawer Impact: 10 pounds dropped into open drawer.
I. Door and Drawer Pulls: 50 pounds.

2.3 LABORATORY FURNITURE - SUPPORT ASSEMBLIES:
A. Structure: Provide self supporting, seismic braced support assemblies.
B. Dimensions: As shown.
C. Vertical Adjustment for Shelves: 1 inch on center. Coordinated with adjustable shelf brackets.
D. Closure Panels, Filler Panels, End Panels: Required as shown and as needed to conceal bench cores and all services and utilities.
1. Material: Match adjacent cabinets.
2. Attachment: As shown or, if not shown, visible Phillips pan head screws with finishing washers.
E. Anchors and Fasteners: As shown on approved shop drawings.
F. Seismic Anchors To Building: Required: acceleration = 0.245 g, importance factor = 1.25.

2.4 LABORATORY FURNITURE - CABINETS:
A. Basis of Design - Drawing Identifier W - Steel With Wood Front: "Ensemble Overlay Style 16", Kewaunee Scientific Corporation, www.kewaunee.com.
B. Basis of Design - Drawing Identifier M - Steel With Steel From: "Trademark Overlay Style 11", Kewaunee Scientific Corporation, www.kewaunee.com.
C. Cabinets Under Fume Hoods: See Section 11 5313 Laboratory Fume Hoods.
D. Additional Vented Cabinet Requirements: As shown or, if not shown:
1. Liner and Shelves: Polyresin with 1 inch high spill containment.
2. Vents: ≥20 gage, alloy 304 stainless steel, size shown, shape to coordinate with building duct.

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E. Visible Wood Species and Cut: Wood Type 1, Section 06 0622 Interior Wood Type Schedule.
   1. FSC Certified Wood: Required.
   2. Wood Matching: Slip matched, center balance matched, end matched, sequence matched.
F. Cabinet Elevations and Dimensions: As shown. ["Casework Menu"].
G. Cabinet Style: Flush overlay.
   1. Visible Door to Door, Door To Drawer, Drawer To Drawer Joints: Uniform 3 mm wide.
H. Cabinet Basic Characteristics: As published for specified Basis of Design.
I. Visible Steel: Smooth. Do not provide textured.
J. Removable Cabinet Back: Required as shown and at locations where service access needed.
K. Shelves Inside Cabinets:
   1. Material: As shown or, if not shown, match cabinet box, not door.
   2. Depth: As shown or, if not shown, full depth.
   3. Split Shelves: Not permitted. Provide one piece.
   4. Height Adjustable Shelf: Required. Adjustable 1 inch on center.
   5. Interior Shelf Clips: Seismic rated.
L. Drawers:
   1. Drawer Height: Manufacturer's standard for specified Basis of Design.
   2. Drawer Construction: Manufacturer's standard for specified Basis of Design.
   3. Drawer Slides: "Option T",Kewaunee; 100 pounds, full extension, epoxy coated.
   4. Drawer Dividers: Not required.
M. Glass: As shown or, if not shown, 3 mm thick, tempered safety glass.
N. Label Holders Basis of Design: "Option H, F-0260-00", Kewaunee Scientific Corporation.
O. Visible Hardware Material and Finish: Stainless steel, satin finish.
P. Hinges: Manufacturer's standard for specified Basis of Design, 5 knuckle, hospital tips.
   1. Do not weld hinges to cabinet.
Q. Door Catches: Manufacturer's standard for specified Basis of Design, silent roller.
R. Door and Drawer Pulls: 4 inches wire pulls.
   1. Door Pull Orientation: As shown or, if not shown, vertical.
   2. Drawer Pull Orientation: As shown or, if not shown, horizontal.
   3. Drawers Over 36 Inches Wide: Provide two pulls.
S. Security Panels Between Locked Cabinet Sections: Required.
T. Locks Basis of Design: "D8030/D8031 DualAxess", CompX International, Inc., www.compx.com
   1. Lock Quantity and Locations: As shown.
   2. Pair Doors With Locks: Lock one leaf. Provide interior manual catchfor other leaf.
U. Custom Closure Panels Between Cabinets and Adjacent Construction: Required.
   1. Custom fabricate for each installation location.
   2. Fully enclose space between cabinet and adjacent construction including ceilings.
   3. Match cabinet exterior material and finish.
   4. Make closure panels easily intentionally removable for maintenance access.
   5. Make closure panels resist accidental displacement.
   6. Locate seams only where shown or, if not shown, at locations preapproved by Architect.
   7. Fabricated panel flatness to within 0.5 percent of maximum panel length.
   8. Provide concealed framing and stiffeners as needed to meet fabricated panel flatness.

2.5 LABORATORY FURNITURE - SHELF NOT INSIDE CABINETS:
A. Shelf Types, Depths, Lengths: As shown. ["Casework Menu"].
B. Shelf Material: Wood veneer over veneer core plywood.
   1. Visible Wood Species and Cut: Wood Type 1, Section 06 0622 Interior Wood Type Schedule.
   2. FSC Certified Wood: Required.
   3. Edgeband: 0.125 inch thick, solid wood, all shelf edges and ends.
C. Shelf Hardware Basis of Design: "Alpha System Wall Hanging System", Kewaunee Scientific

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Corporation, www.kewaunee.com.
1. Vertical Uprights: As shown or, if not shown, 42 inches high.
2. Shelf Brackets: Provide 11 gage steel brackets to accommodate specified wood shelves.
3. Book Ends: Integral with specified shelf brackets.
4. Shelf Locking Tabs: Required for each shelf bracket to prevent accidental movement.
5. Shop Finish: Manufacturer's standard paint system.
6. Color: Custom to match Architect's color chips.

D. Shelf Lips, Retainer Rails, Bar Rails: Not required.

2.6 LABORATORY FURNITURE - TABLES AND MOBILE CARTS:

A Basis of Design: "Alpha System Cart", Kewaunee Scientific Corporation, www.kewaunee.com
B. Elevations and Dimensions: As shown. ["Casework Menu" and "Typical Carts"].
C. Frame Material: Factory painted steel.
D. Cabinets: "Laboratory Furniture - Cabinets" specified above.
E. Casters: 4 inches, swivel, locking, silent non marking tires.

2.7 LABORATORY FURNITURE - WORK SURFACES, TABLE/CART TOPS, COUNTER TOPS:

A. Epoxy: Comply with Section 12 3654 Epoxy Counter Tops.
B. Sinks: As shown.
C. Drains, Strainers, Tail Pieces: Provide as part of the sink. All other work is Division 22 Plumbing.

2.8 LABORATORY SERVICE FIXTURES:

A. Manufacturers:
1. Broen Lab, division of Broen, Inc., www.broen.com
2. Chicago Faucet, Geberit Company, www.chicagofaucets.com
3. T & S Brass and Bronze Works, Inc., www.tsbrass.com
4. Water Saver Faucet Company, www.wsflab.com

B. Basis of Design and Model Numbers: See "Laboratory Services Fixtures Schedule" on Drawings.
C. Quality Standard: ANSI/ASME A112.18.1M.
D. Required Characteristics:
1. Barrier Free: Provide wrist blade handles for ADA accessible fixtures.
2. Material for Fixture, Handle, Escutcheons, Trims: Cast or forged brass.
3. Water Fixtures: Provide renewable barrels containing all wearing parts and renewable discs.
4. Vacuum Breakers: Required for water fixtures with hoses or serrated hose tips.
5. Deionized Water: Provide polypropylene lined.
6. Fixture Outlet Tips: Removable serrated hose tips.
7. Press and Turn Safety Handles for Fuel Gas Fixtures: Required.
8. Gas Fixture Valves: Needle valves required.
9. Special Cleaning: Equivalent to WaterSaver "OxyClean" required for high purity gas fixtures.
10. Factory Assembly: Furnish fully factory assembled and pressure tested.

E. Handle Indexing: Required, color coded [based on Water Saver standard color index]:
1. Gas = blue.
2. Air = orange.
3. Vacuum = yellow.
4. Cold Water = green.
5. Hot Water = red.
6. Deionized Water = white.
7. Others = as scheduled.

F. Laboratory Fixture Finish: Polished chrome.

2.9 LABORATORY FURNITURE - OVER HEAD SERVICE CARRIERS:

A. Over Head Service Carrier Types, Dimensions: As shown. Custom fabrication.

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B. Over Head Service Carrier Materials: Factory painted steel tube framing, perforated steel sheet.
C. Over Head Service Carrier Dimensions: As shown.
D. Over Head Service Carrier Service Outlets: Factory furnish and install.
   1. Provide color coded, quick connects.
   2. Provide color code system preapproved by Owner.
   3. Provide different quick connects for each service to prevent accidental misconnection.
   4. Provide twist lock electrical outlets.
   5. Provide quick connect fittings preapproved by Owner.
E. Over Head Service Carrier Factory Work Termination: Fully factory plumb and wire.
   1. Terminate pipes and conduits 6 inches above ceilings.
   2. Terminate wiring 10 feet above ceiling.
   3. Provide temporary caps for pipe and empty conduit terminations.

2.10 LABORATORY FURNITURE - SERVICE CHASES, UMBILICAL ASSEMBLIES, CEILING TRANSITION PLATES:
A. Types, Sizes, Shapes, Profiles, Dimensions: As shown. Custom fabrication.
B. Materials: As shown including:
   1. Factory finished wood panels to match cabinet fronts.
   2. Factory painted steel, 18 gage.
   3. Factory painted steel, 18 gage, perforated, 0.125 inch holes at 60 degree staggered centers.
   4. Acoustical fleece, “SoundTex, Black”, Freudenberg Group, www.soundtex.com
      a. ASTM E84 Fire Performance: Class A.
C. Visible Seams: As shown or, if not shown, uniform 0.5 mm at locations preapproved by Architect.
D. Attachment - Panels To Frame: “Ball & Catch Panel Mount”, ITW Fastex, www.itw-fastex.com
   1. Do not exceed manufacturer’s load recommendations.

2.11 VERTICAL DRYING RACK [PEG BOARD] - CUSTOM: Custom fabricate:
A. Board Sizes: As shown.
B. Back Panel Material: Comply with Section 12 3654 Epoxy Counter Tops.
   1. Back Panel Material Color: As shown or, if not shown, selected by Architect.
   2. Back Panel Thickness: As shown or, if not shown, 1.0 inch.
C. Pegs: Solid polyethylene.
   1. Peg Diameter: 0.375 inch.
   2. Peg Length: As shown or, if not shown, 4.5 inches.
   3. Number of Pegs: As shown or, if not shown, 1 for each 18 square inches of back panel area.
   4. Peg Color: As shown or, if not shown, selected by Architect.
D. Drip Tray: Required for the full width of the back panel.
   1. Tray Material: 300 series stainless steel.
   2. Tray Attachment: Removable, key hole slot over round stainless steel screw heads.
   3. Tray Drain: Required as shown. Provide barbed outlet to coordinate with tubing.
   4. Tray Drain Tubing: 0.375 inch interior diameter, clear polypropylene with length to nearest sink plus 18 inches.
E. Assembly Mounting: Face fasten through back panel with stainless steel flat head screws and finishing washers.

2.12 COMPRESSED GAS CYLINDER RESTRAINTS - CUSTOM:
A. Metal Bar: ASTM A276Standard Specification for Stainless Steel Bars and Shapes.
   1. Alloy: 304.
   2. Size: As shown or, if not shown, 0.25 x 3.0 inches.
B. Pipe Rail: ASTM A249 Standard Specification for Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes.
   1. Alloy: 304.

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2. Outside Diameter: 1.25 inches.
3. Wall Thickness: 0.065 inch.

C. Restraint Chain: 7 mm, proof coil, Grade 30, hot dip galvanized; 1300 pounds working load limit.
1. Hooks: "939 Heat Treated, Zinc Coated, 5000 Pounds Break Strength", Peerless-Acco, www.peerlesschain.com

D. Welding: Comply with Section 05 0505 Welding Metals.

2.13 LABORATORY FURNITURE - MANUFACTURED VENTED STORAGE CABINETS:

A Basis of Design: "Sure Grip EX 891220", Justrite Manufacturing Company, www.justritemfg.com

B. Elevations and Dimensions: As shown [A5.14].

C. Vents: Manufacturer's standard with flame arrestors.

D. Factory Finish: Manufacturer's standard paint system.
1. Color: Selected by Architect from manufacturer's complete range of options.

2.14 LABORATORY FURNITURE - FACTORY FINISHES:

A. Painted Metal: Manufacturer's standard, chemical resistant, SEFA 8 finish system.
1. Colors: Match Architect's color chips.

B. Stainless Steel: NAAMM #4 satin, non directional.

C. Wood: Manufacturer's standard, chemical resistant, SEFA 8 finish system.
1. Color, Sheen, Appearance: Custom to match Finish System 1, Section 06 0585 Interior Wood Shop Finish Schedule.

Part 3 - Execution

3.1 INSTALLATION OF LABORATORY FURNITURE:

A. Comply with manufacturer's instructions and recommendations.

B. Comply with approved, engineered drawings.

C. Coordinate concealed blocking, utilities and services, and all related work.

D. Find high and low points of ceilings and floors.
1. Layout plumb and level guide lines before beginning installation.

E. Install within tolerances specified in Section 01 7302 Execution Requirements.

F. Anchor to building as shown on approved, engineered shop drawings.
1. Finish visible fasteners to match adjacent furniture.
2. Do not use drywall screws.

G. Complete hardware installation not completed in shop or factory.

H. Adjust hardware for optimum operation.

I. Accurately cut cabinet to accommodate mechanical, electrical, and other work.
1. Trim all cut surfaces with finished escutcheons.

J. Restore damaged finishes to eliminate evidence of repair.

3.2 CASEWORK INSTALLATION: Comply with Section 06 4115 Casework Installation.

End of Section

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Section 12 3624 Plastic Laminate Counter Tops

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Plastic laminate counter tops.

B. Related Sections: Without limitation, related sections include:
Section 05 5010 Counter Top Supports
Section 06 4115 Casework Installation
Section 07 9200 Joint Sealants
Section 11 3100 Residential Appliances
Section 12 3662 Solid Surface Counter Tops
Division 22 Plumbing

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Shop Drawings: Comply with recommendations of "Quality Standards", Architectural Woodwork Institute, www.awinet.org.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 PLASTIC LAMINATE COUNTER TOP MATERIALS:
A. AWI Quality Standard for Materials: Custom Grade.
B. Plastic Laminate: ANSI/NEMA LD-3, National Electrical Manufacturers Association, www.nema.org.
1. Quality - Visible Laminate: Grade HGS or HGP.
2. Quality - Concealed Backer Laminate: Grade BKH.
3. Basis of Design: See "Finish Schedule Descriptions".
4. Acceptable Manufacturers: See "Finish Schedule Descriptions".
C. Core: Moisture resistant medium density fiberboard [MR-MDF].
1. Standard: ANSI A208.2 American National Standard for Medium Density Fiberboard.
2. Grade: ANSI 208.2, Grade M2.
3. Fiber: 100 percent recycled wood.
4. Resin: No added urea formaldehyde.
5. Scientific Certification Systems: Certified.
6. Density: Minimum 48 pounds per cubic foot.
7. Fire Performance: ASTM E84 Class C flame spread.
8. Basis of Design: "Medex", Sierra Pine, Ltd, www.sierrapine.com.
D. Plastic Laminate to Core Adhesive Basis of Design: "Titebond Neoprene Plus Contact Cement", Franklin International, www.titebond.com
1. VOC Limit: ≤80 grams per liter, less water.
E. Joint Sealant: Comply with Section 07 9200 Joint Sealants.

2.2 PLASTIC LAMINATE COUNTER TOP FABRICATION:

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A. AWI Quality Standard for Fabrication: Custom Grade.
B. Counter Top Thickness: As shown or, if not shown:
   1. Fully Supported Counter Top: 0.75 inch thick core.
   2. Not Fully Supported Counter Top: 1.5 inches; laminated two layers of 0.75 inch thick core.
C. Visible Counter Top Edges: As shown or, if not shown, wood specified below.
D. Water Resistance: Fabricate all work for maximum possible water resistance.
   1. Shop Sealing: Fully shop seal all edges and core not covered with laminate.
E. Seams: As shown or, if not shown, where preapproved by Architect.
F. Visible Fasteners: Prohibited.

2.3 ADDITIONAL REQUIREMENTS FOR SPLASHES:
A. Locations: As shown or, if not shown, where counter touches a wall or fixed object.
   1. Exception: Splashes are not required for work stations.
B. Height: As shown or, if not shown, 4 inches.
C. Thickness: As shown or, if not shown, 0.75 inch.
D. Visible Splash Surfaces: Plastic laminate to match counter top.
E. Splash To Counter Joint: Uniform width sealant joint.
F. Splash To Wall Joint: Uniform width sealant joint.

2.4 ADDITIONAL REQUIREMENTS FOR WOOD EDGES:
A. AWI Quality Standard for Material and Fabrication: Premium Grade.
B. Wood Edge Material: Wood Type 1, Section 06 0622 Interior Wood Type Schedule.
C. Wood Edge Profile: As shown or, if not shown, square with eased edges.
D. Shop Finish: Comply with Section 06 0585 Interior Wood Shop Finish Schedule.
E. Wood Edge Attachment: Biscuit spline to counter top core at not over 12 inches on center.
F. Wood End Grain: Never expose to view.

2.5 COUNTER TOP GROMMETS:
A. Manufacturers:
   1. Bainbridge Manufacturing, Inc., www.bainbridgemfg.com.
   2. Doug Mockett & Company, Inc., www.mockett.com.
   3. Hardware Concepts, Inc., www.hardwareconcepts.com.
B. Basis of Design - Cable Grommet: “EDP3”, Doug Mockett & Company, Inc.
C. Basis of Design - Recycling Grommet: “TM1B”, Doug Mockett & Company, Inc.
D. Color, Texture: Selected by Architect from manufacturer’s complete range of options.

2.6 COUNTER TOP JOINT FASTENERS:
A. Basis of Design: “516 Tite Joint Fastener”, Knape and Vogt Manufacturing Company, Inc., www.knapeandvogt.com
B. Basis of Design: “26-E Lok Level Joint Clamp”, The Engineered Products Company, www.epcohardware.com

Part 3 - Execution

3.1 COUNTER TOP INSTALLATION:
A. AWI Quality Standard for Installation: Comply with AWI Quality Standards Illustrated, 8th Edition, Version 1.0, Section 1700 Installation of Wood Work.
   1. Grade: Same as specified casework fabrication grade.
B. Make field work match shop work.
C. Never expose counter top core to view.
D. Seal field cut edges to reduce moisture absorption.

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E. Anchor with concealed fasteners.
F. Install level.
G. Scribe cut to fit irregular walls, obstructions, and penetrations.
   1. Only the millworker may cut counter tops for penetrations and items mounted on counter.
H. Provide uniform, tight seams between counter top segments.
   1. Provide concealed compression bolts on underside of counter top.
   2. Provide at least two compression bolts for each seam.

3.2 ADDITIONAL REQUIREMENTS FOR SPLASHES:
A. Install with waterproof, concealed adhesive.
B. Continuously seal splash to counter top seams.
C. Continuously seal splash to adjacent construction.

3.3 ADDITIONAL REQUIREMENTS FOR LIVE LOADS: Fabricate and install counter tops to support:
A. Live Load: 150 pound concentrated load acting downward at mid span at outer edge of counter.
B. Deflection Limit: 0.5 inch.
C. Deformation and Damage: Not permitted.

3.4 ADDITIONAL REQUIREMENTS FOR COUNTER TOP GROMMETS:
A. Obtain grommets prior to cutting holes.
B. Obtain Architect's approval of grommet locations prior to cutting holes.
C. Bed grommet flange in continuous, concealed sealant.
D. Install grommet flange with continuous, uniform contact with counter.
E. Install covers onto grommets.
F. Grommet Quantity: As shown or, if not shown, 36 inches on center.

End of Section

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Section 12 3654 Epoxy Counter Tops

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Epoxy counter tops including sinks.

B. Related Sections: Without limitation, related sections include:
Section 05 5010 Counter Top Supports
Section 06 4115 Casework Installation
Section 07 9200 Joint Sealants
Section 12 3555 Laboratory Furniture
Division 22 Plumbing

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Shop Drawings or Templates: Dimensioned drawings for fabrication, installation, and preparation for related work located in and on stone counter tops. Show locations of joints, details of anchoring and trims.
C. Verification Samples: ≥12 x 12 inches including surface sealer.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS:
A. Durcon, Inc., www.durcon.com
B. Epoxyn Products, [Hamilton, Thermo Fisher Scientific], www.epoxyn.com
C. Kewaunee Scientific Corporation, www.kewaunee.com

2.2 EPOXY RESIN COUNTER TOPS: Molded, oven cured and tempered, epoxy resin.
A. Basis of Design Color: "Gray", Durcon, Inc., www.durcon.com
B. Sheen: Uniform, matte, low sheen.
C. Thickness: As shown or, if not shown, 1 inch.
D. Edge Profile: As shown or, if not shown, 0.25 inch machined chamfer.
1. Corners: Match edge profile.
E. Drip Groove: As shown or, if not shown:
1. Locations: Continuous at bottom of counter edge.
2. Size: 0.125 x 0.125 inch groove.
3. Position: 0.5 inch from edge.
F. Splashes, Curbs:
1. Locations: Required where counter top touches a wall, fixed equipment, or fixed object.
2. Splash Material, Color, and Thickness: Match counter top at splash.
3. Splash Type: Loose, field applied, waterproof bonded to counter top.
4. Splash Height: As shown or, if not shown, 4 inches.
5. Seams: As shown or, if not shown, align with seams in counter top.

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G. Marine Tops: As shown or, if not shown:
   1. Locations: Counter tops with sinks.
   2. Thickness: As shown or, if not shown, inch.
   3. Dish Depth: 0.25 inch.
   4. Edge Profile: As shown or, if not shown, 0.25 inch machined radius.
   5. Splash, Coved Curb: Provide seamless molded in splash/curbs.
   6. Splash, Coved Curb Height: Match standard splash height used on this Project.
   7. Splash, Coved Curb Thickness: Match standard splash thickness used on this Project.

H. Seam Filler: Two part epoxy grout, visually matching counter top color, sheen, and appearance.
   1. VOC Content: Maximum 250 grams per liter.

I. Adhesive for Setting: Two part epoxy grout or structural silicone approved by epoxy resin manufacturer.
   1. Restriction: Do not use silicone for visible locations or any location exposed to lab chemicals.
   2. VOC Content: Maximum 250 grams per liter.

J. Fasteners: 300 series stainless steel.
   1. Screws: #10 size.
   2. Threaded Rod: 0.25 inch diameter, epoxy set into holes.

K. Epoxy Resin Sinks:
   1. Mounting: As shown or, if not shown, rimless under mount, except flush mount for cupsinks.
   2. Sink Material and Color: Match epoxy counter top in which sink is mounted.
   3. Fabrication: Molded, seamless.
   4. Wall Thickness: 0.5 inch.
   5. Sizes: As shown.
   6. Depth: As shown.
   7. Interior Corners: Rounded, 1.5 inches radius.
   8. Sink Bottom: Slope to drain.
   9. Drain Location: As shown or, if not shown, center.
   10. Drain Outlet: By sink fabricator, epoxy, 1.42 inch outlet opening, 1.5 inch NPSM threads.
   11. Over Flow Protection: By sink fabricator, epoxy, 1.42 inch outlet opening, 2 inches below rim.
   12. Sink Support Trapeze: Epoxy coated steel “Unistrut”, 16 gage, 1.625 x 1.625 inches, supported by 0.375 inch threaded rod, rod hangers, nuts, washers, and fasteners.

L. Drain Tops, Drain Board, Drainage Grooves At Sinks: Not required .

Part 3 - Execution

3.1 INSTALLATION OF EPOXY RESIN COUNTER TOPS:

A. Craftsmanship: Make field work indistinguishable from factory and shop work.

B. Related Work: Shop prepare epoxy fabrications to accommodate all related work and penetrations.
   1. Penetrations: Accurately mold or cut and fit to accommodate penetrations.
   2. Penetration Location Tolerance: Within 0.06 inch of intended location.
   3. Penetration Size Tolerance: Within 0.06 inch of intended size.

C. Cutting: Only the epoxy fabricator-installer may cut or drill epoxy fabrications.
   1. Scribe: Scribe and fit precisely to penetrations and adjacent work including irregular work.

D. Visible Surfaces and Edges: Finish to exactly match the counter top surface.

E. Level: Install level within 0.06 inch in 10 feet, except “flush across seams tolerance” governs.

F. Warp: Maximum 0.06 inch 10 feet, except “flush across seams tolerance” governs.

G. Seams:
   1. Locations: Locate only where shown or preapproved by Architect.
   2. Seam Width: Minimum practical.
   3. Epoxy To Epoxy Seam Width Tolerance: Uniform within 0.01 inch tolerance.
   4. Epoxy To Dissimilar Seam Width Tolerance: Uniform within 0.03 inch tolerance.

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5. Cleaning: Clean surfaces prior to application of seam filler to remove contamination.
6. Seam Filler: Fill seams fully and flush to adjacent visible surfaces.
7. Flush Across Seams Tolerance: Maximum 0.01 inch deviation from true flush across seams.
8. Sanding: Do not use sand paper to make seams flush or smooth.
9. Waterproof: Make all seams waterproof.

H. Temporary Clamps:
1. Use temporary woodworking clamps to control seams and tolerances.
2. Maintain clamps in place for at least 24 hours after installation of adhesive and seam filler.
3. Ensure clamps do not damage or scratch surfaces.

I. Dry Fit: Dry fit all work and confirm tolerances before final installation.

J. Attachment To Casework: Adhere to top rails of casework at maximum 12 inches on center.

K. Attachment to Metal Supports: Mechanically fasten.
1. Conceal fasteners from normal view.
2. Provide pilot holes for screws. Without pilot holes, epoxy can crack.

L. Additional Requirements for Loose Splashes:
1. Adhere to counter tops with seam filler as specified for “seams” above.
2. Adhere to wall and supporting substrate with minimum 25 percent coverage of adhesive.
3. Seal splash to wall joints with silicone. Make waterproof.
4. Remove visible adhesive and excess seam filler and sealant.

M. Repair: Repair damage to eliminate all evidence of repair.
1. Do not attempt to fix scratches with sand paper.
2. Remove spilled and excess seam filler immediately and before it sets.

N. Cleaning: Comply with epoxy manufacturer’s instructions and recommendations.
1. Do not use abrasive cleaners or cleaning pads.
2. Remove stains immediately.
3. Do not apply wax or polish.

3.2 ADDITIONAL REQUIREMENTS FOR EPOXY RESIN SINKS:

A. Accurately cut and prepare counter for sink.

B. Fully adhere sink to counter top with seam filler.

C. Make seams waterproof.

D. Support sinks with steel framing trapeze. Do not obstruct plumbing work.

E. Make sink bottom drain completely. Standing water in sink is not acceptable.

F. Coordinate installation of plumbing drainage.

End of Section

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Section 12 3662 Solid Surface Fabrications

Part 1 - General

1.0 RELATED DOCUMENTS: This section is only a portion of the Contract Documents. All of the Contract Documents, including Conditions of the Contract and Division 1 General Requirements, apply to this section.

1.1 SECTION INCLUDES:

A. Furnish and Install: Solid surfacing fabrications including, without limitation, counter tops.

B. Related Sections: Without limitation, related sections include:
Section 05 5010 Counter Top Supports
Section 06 4110 Architectural Casework
Section 06 4115 Casework Installation
Section 07 9200 Joint Sealants
Division 22 Plumbing

1.2 SUBMITTALS:
A. Product Data: Manufacturer's data including instructions, recommendations, and restrictions.
B. Shop Drawings: Comply with AWI recommendations.
C. Verification Samples: ≥12 inches showing edges, seams, corners, and splashes.

1.3 DELIVERY, STORAGE, HANDLING: Comply with Division 1 General Requirements and manufacturer's instructions and recommendations.

Part 2 - Products

2.1 MANUFACTURERS: See "Finish Schedule Descriptions".

2.2 SOLID SURFACING FABRICATIONS:
A. Basis of Design, Color, Texture, Sheen: See "Finish Schedule Descriptions".
B. Manufactured Thickness: As shown or, if not shown, 0.5 inch.
C. Visible Edge Thickness: As shown or, if not shown, 1.5 inches.
D. Visible Edge Profile: As shown or, if not shown, square with slight radius.
E. Seams: Minimize seams. Locate seams where preapproved by Architect.
1. Seams In Continuous Surfaces: Filled, polished, and visually indistinguishable.
F. Fasteners: Prohibited.
G. Installation Adhesive: Supplied or approved by and warranted by the solid surface manufacturer.
1. VOC Limit: 50 grams per liter.
H. Joint Sealant: Comply with Section 07 9200 Joint Sealants.

2.3 ADDITIONAL REQUIREMENTS FOR SPLASHES:
A. Material: Match counter top.
B. Locations: As shown or, if not shown, where counter touches a wall or fixed object.
C. Height: As shown or, if not shown, 4 inches.
D. Thickness: As shown or, if not shown, 0.5 inch.
E. Visible Edges: As shown or, if not shown, fully finished and routed with slight radius.
F. Splash To Counter Joint: Uniform width sealant joint.
G. Splash To Wall Joint: Uniform width sealant joint.

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2.4 ADDITIONAL REQUIREMENTS FOR SINKS FURNISHED UNDER PLUMBING: Shop fabricate counter tops to accommodate plumbing fixture sinks.

Part 3 - Execution

3.1 INSTALLATION OF SOLID SURFACING FABRICATIONS: Comply with manufacturer's instructions and recommendations.

A. Coordinate installation of all work in contact with solid surfacing.
B. Only the solid surface fabricator/installer may cut or drill solid surfacing.
C. Make field work match shop work.
D. Make visible cut edges match shop edges.
E. Anchor with concealed adhesive.
F. Remove visible adhesive.
G. Install level and plumb.
H. Provide visually indistinguishable filled and polished seams in counter tops and running work.
I. Seal seams between counter and splash and between solid surfacing and dissimilar materials.

End of Section