PROJECT MANUAL

February 2026

Western Technical College
Kumm Center Student Union Remodel

La Crosse, Wisconsin

Western Technical College

HSR No: 25041

ARCHITECTURE
ENGINEERING
INTERIOR DESIGN

HSR Associates, Inc.
100 Milwaukee Street
La Crosse, WI 54603
608.784.1830 Fax: 608.782.5844
www.hsrassociates.com

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SECTION 00 01 01
PROJECT MANUAL TITLE PAGE

PROJECT: WESTERN TECHNICAL COLLEGE
KUMM CENTER STUDENT UNION REMODEL
400 6TH ST N
LA CROSSE, WISCONSIN 54601
PROJECT NO.: **25041**
DATE OF PROJECT MANUAL: FEBRUARY 2026

OWNER: WESTERN TECHNICAL COLLEGE
PHYSICAL PLANT OFFICE
505 9TH STREET, WISCONSIN 54601

ARCHITECT/ ENGINEER: HSR ASSOCIATES, INC.
100 MILWAUKEE STREET
LA CROSSE, WI 54603
TEL: 608-784-1830

PROJECT MANAGER	DOUG RAMSEY	608-785-4710
PROJECT ARCHITECT	ALYSSA FRANK	608-785-4726
JOB CAPTAIN	KAIT HEGEWALD	608-785-4716
INTERIORS	BRANDY ERNST	608-785-4723
SPECIFICATIONS	TOBIN FAUCHEUX	608-785-4717
PLUMBING	RYAN JOHNSON	608-785-4718
MECHANICAL	JAKE BERAN	608-785-4709

DESIGN CONSULTANTS:

ELECTRICAL:
GALILEO CONSULTING GROUP
LA CROSSE, WISCONSIN
PAT POPOWICH
ppopowich@galileo-group.us
TEL: 608-787-9106

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END OF DOCUMENT 00 01 10

SECTION 00 11 13
ADVERTISEMENT FOR BIDS

Sealed bids for the construction of:

WESTERN TECHNICAL COLLEGE
KUMM CENTER STUDENT UNION REMODEL
400 6TH ST N
LA CROSSE, WISCONSIN 54601

will be received by:

WESTERN TECHNICAL COLLEGE
PHYSICAL PLANT OFFICE
505 9TH STREET NORTH
LA CROSSE, WISCONSIN 54601
GENE McCURDY - DIRECTOR, FACILITIES

until 2:00pm, March 3, 2026, after which they will be opened publicly and read aloud. Bids received after the time set for receipt of bids will not be accepted. Bids will not be accepted via electronic delivery. Bids will not be accepted from prime contractors that are not pre-qualified through the Owner's annual pre-qualification process.

In General the work includes but is not limited to interior renovations to a student center. Work includes wood casework, hollow metal frames with flush wood doors, glass folding partition, acoustic ceiling, tile carpet, resilient flooring, and sound absorbing wall and ceiling units. Plumbing work includes modifications to fixtures and modifications to the fire suppression system. Mechanical work includes modifications to existing systems including VAV units and connecting existing equipment to emergency power. Electric work includes modifications to low-voltage, power, lighting, and fire-alarm.

All Work performed under this Contract shall have a 2 year Contractor obligation as specified in Section 00 73 00 Article 12.

Lump-sum Bids will be received on a SINGLE PRIME CONSTRUCTION CONTRACT FOR THE ENTIRE WORK including plumbing, fire protection, mechanical and electrical work.

The Project Drawings, Project Manual and other Bidding Documents may be examined at the following locations:

AE's Office: HSR ASSOCIATES, INC.
100 MILWAUKEE STREET
LA CROSSE, WI 54603
608-784-1830

Builder's Exchanges: LA CROSSE, WI
NORTHWEST REGIONAL (EAU CLAIRE/CHIPPEWA FALLS)
WAUSAU, WI
BUILDERS EXCHANGE OF WISCONSIN (APPLETON)
MINNEAPOLIS, MN

ROCHESTER, MN
CONSTRUCTCONNECT
DODGE DATA & ANALYTICS (WEST ALLIS, WI)

Electronic Bidding Documents (.pdf) will be available from HSR Associates, Inc. via Sharefile electronic distribution and will be distributed to the listed Builders Exchanges. Electronic versions of addenda will be distributed via the same systems.

Hardcopy Bidding Documents may be picked up at HSR Associates' office. Bidders may request shipment of hardcopies by sending a check made out to HSR Associates in the amount of $20.00. The shipping fee will not be refunded and must be received prior to shipment.

HSR Associates is responsible for distribution of addenda only to those who have requested project documents from HSR in formats described above.

HSR Associates will make AutoCAD files available to the Contractor following award of contract.

HSR Associates maintains a plan holder list at www.hsrassociates.com. This list includes only those who have requested plans from HSR and those who have requested to be added our list.

Bid Security in the amount of five percent (5%) of the maximum amount of the Bid must accompany each Bid as described in the Project Manual, Instructions to Bidders.

The Owner reserves the right to waive irregularities and to reject any or all Bids. Bids may only be withdrawn in accordance with the Project Manual, Instructions to Bidder

A non-mandatory pre-bid meeting will be conducted by the Owner and Architect/Engineer to answer questions and to enable bidders to examine conditions at the Project Site. Pre-Bid meeting will occur at **2:00 pm February 17, 2026** at the WTC Kumm Center.

By: Gene McCurdy Title: Director, Facilities

Publish Date: Weeks of February 9 & 16, 2026, La Crosse Tribune.

END OF DOCUMENT 00 11 13

DOCUMENT 00 11 15
PREQUALIFIED CONTRACTORS

THE FOLLOWING LIST REPRESENTS PRE-QUALIFIED PRIME CONTRACTORS FOR WESTERN TECHNICAL COLLEGE 2026 PROJECTS:

1. Altmann Construction Company, Inc.
   a. 5921 Plover Road, Wisconsin Rapids WI 54494
   b. Contact: Tom Altmann
   c. Phone: 715-421-2550
   d. Email: altmann@altmannconstruction.com
2. B & B Electric, Inc.
   a. 1303 Western Ave, Eau Claire WI 54703
   b. Contact: Eric Fanetti
   c. Phone: 715-832-1676
   d. Email : ef@b-belectric.com
3. Bernie Buchner, Inc.
   a. 224 Causeway Blvd, La Crosse WI 54603
   b. Contact: Ryan Deml
   c. Phone: 608-784-9000
   d. Email: ryandeml@berniebuchnerinc.com
4. BMS CAT
   a. 5515 W Florist Ave., Milwaukee WI 53218
   b. Contact: Lila Kothari
   c. Phone: 866-950-5317
   d. Email: lkothari@bmsmanagement.com
5. Borton Construction, Inc.
   a. 2 Copeland Ave, Suite 201, La Crosse WI 54603
   b. Contact: Caleb Carpenter
   c. Phone: 608-779-0400
   d. Email: calebcarpenter@bortonconstruction.com
6. Brennan Construction of MN, Inc.
   a. 124 Walnut St. Ste 340, Mankato MN 56001
   b. Contact: Brian Barnett
   c. Phone: 507-625-5417
   d. Email: bbarnett@bcofmn.com
7. C.D. Smith Construction, Inc.
   a. 333 Front St N Ste 701, La Crosse WI 54601
   b. Contact: Jasen Anhalt
   c. Phone: 920-924-2900
   d. Email: janhalt@cdsmith.com

8. Fahrner Asphalt Sealers, LLC.
    a. 2800 Mecca Dr. Plover, WI 54467
    b. Contact: Jeff Sheehan
    c. Phone: 800-332-3360
    d. Email: jeff.sheehan@fahrnerasphalt.com
9. Five Star Telecom, Inc.
    a. 5136 Mormon Coulee Rd. La Crosse, WI 54601
    b. Contact: Andy Smith
    c. Phone: 608-796-9088
    d. Email: asmith@5startel.com
10. Fowler & Hammer, Inc.
    a. 313 Monitor Street La Crosse, WI 54603
    b. Contact: Vittoria Storlie
    c. Phone: 608-782-6849
    d. Email: vstorlie@fowlerhammer.com
11. Hoeft Builders, Inc.
    a. 5410 Stevens Prky Ste. 100 Eau Claire, WI 54701
    b. Contact: Luke Rykal
    c. Phone: 715-833-1761
    d. Email: lrykal@hoeftbuilders.com
12. Hooper Corporation
    a. 950 Pederson Crossing Blvd DeForest, WI 53532
    b. Contact:
    c. Phone: 608-249-0451
    d. Email: bidmechanical@hoopercorp.com
13. Immel Construction
    a. 2601 Development Drive Green Bay, WI 54311
    b. Contact: Paul Martzke
    c. Phone: 920-468-8208
    d. Email: paulma@immelconstruction.com
14. Integrity Grading and Excavating, Inc.
    a. 605 Grossman Dr. Schofield, WI 54476
    b. Contact: Ashley Bohman
    c. Phone: 715-359-4042
    d. Email: quotes@integrityge.com
15. Interstate Roofing & WTP, Inc.
    a. N5544 Commerce Rd. Onalaska, WI 54650
    b. Contact: Jon Kloehn
    c. Phone: 608-783-2106
    d. Email: jon@interstate-roofing.com

16. J.F. Ahern Co.
    a. 5315 Freitag Drive Menomonie, WI 54751
    b. Contact: Kaimana Rodgers
    c. Phone: 715-233-1841
    d. Email: krodgers@jfahern.com
17. Jackson & Associates, LLC
    a. 1817 Buerkle Rd. White Bear Lake, MN 55110
    b. Contact: Bo Schulz
    c. Phone: 507-421-4277
    d. Email: bo@jaaroofing.com
18. Knutson Construction Services, Inc.
    a. 300 2nd St. N. La Crosse, WI 54601
    b. Contact: Jordan Cepress
    c. Phone: 507-280-9788
    d. Email: rochbids@knutsonconstruction.com
19. Ledegar Roofing
    a. 1701 Miller St. La Crosse, WI 54601
    b. Contact: Trent Adams
    c. Phone: 608-785-0901
    d. Email: tadams@ledegarroofing.com
20. Long Life Roofing Co.
    a. 808 Business Park Rd. Wisconsin Dells, WI 53965
    b. Contact: Dick Preissel
    c. Phone: 608-254-7948
    d. Email: longlife@longliferoofing.com
21. LVC INC
    a. 3233 Louis Ave. Ste. E Eau Claire, WI 54703
    b. Contact : Tom Christman
    c. Phone : 715-688-4600
    d. Email : tchristman@lvcinc.com
22. Market & Johnson, Inc.
    a. 2350 Galloway Street Eau Claire, WI 54703
    b. Contact: Tyler Schulz
    c. Phone: 715-834-1213
    d. Email: bidding@market-johnson.com
23. Mathy Construction Company
    a. 920 10th Ave North Onalaska, WI 54650
    b. Contact: Kevin Christopherson
    c. Phone: 608-783-6411
    d. Email: kevin.christopherson@mathy.com

24. McCabe Construction, Inc.
    a. 3101 Alpine Drive Eau Claire, WI 54703
    b. Contact: Brady Shepler, Damien Hoernke
    c. Phone: 715-552-1346
    d. Email: bshepler@mccabeconstruction.net, dhoernke@mccabeconstruction.net
25. Olympic Builders
    a. 405 North Star Road Holmen, WI 54636
    b. Contact: Julie Yahnke
    c. Phone: 608-526-4622
    d. Email: office@olympicbuildersgc.com
26. P & T Electric, Inc.
    a. 1122 South Oak Street La Crescent, MN 55947
    b. Contact: Paul Siegersma
    c. Phone: 507-895-8585
    d. Email: paulptelectric@acegroup.cc
27. Pember Companies
    a. N4449 469th St. Menomonie, WI 54751
    b. Contact: Brent Pember
    c. Phone: 715-235-0316
    d. Email: bpember@pembercompanies.com
28. Pioneer Roofing, LLC
    a. 151 Maple St. Johnson Creek, WI 53038
    b. Contact: Anthony Graziano
    c. Phone: 920-699-2731
    d. Email: info@pioneerroofing.net
29. Poellinger Electric, Inc.
    a. 5416 33rd St South La Crosse, WI 54601
    b. Contact: Breanne White
    c. Phone: 608-788-6800
    d. Email: breanne@poellingerelectric.com
30. V & S Construction Services
    a. 2019 - 22 ½ Avenue PO Box 557 Rice Lake, WI 54868
    b. Contact: Todd Schieffer or Kevin Klemme
    c. Phone: 715-234-9174
    d. Email: todds@vscontractors.com, kevink@vscontractors.com
31. Wieser Brothers General Contractor, Inc.
    a. 200 Twilite Street La Crescent, MN 55947
    b. Contact: Jeff Wieser
    c. Phone: 507-895-8903
    d. Email: bids@wieserbrothers.com

32. Winona Heating & Ventilating, Inc.
    a. 374 East Second Street Winona, MN 55987
    b. Contact: Timothy Russell
    c. Phone: 507-452-2064
    d. Email: trussell@whvr.com
33. Winona Nursery, Inc.
    a. 1280 Frontenac Drive Winona, MN 55987
    b. Contact: Mclean Benson
    c. Phone: 507-452-6237
    d. Email: info@winonanursery.com

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SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.01 SECTION INCLUDES:

A. AIA Document A701, 2018 Edition, "Instructions to Bidders": The document is included in this project manual immediately following this coversheet type of section.

1.02 RELATED REQUIREMENTS

A. Section 00 22 13 - Supplementary Instructions to Bidders: Modify Instructions to Bidders with the revisions, additions and deletions presented in the Supplementary Instructions to Bidders.

B. Section 00 41 00 - Bid Form

C. Section 00 43 25 - Substitution Request Form - During Procurement

D. Section 00 45 00 – Procurement Representations and Certifications

E. Section 00 45 13 - Certificate of Organization and Authority

F. Section 00 45 19 - Non-Collusive Affidavit

G. Section 00 45 33 - Certification of Non-Ssegregated Facilities

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AIA® Document A701™ – 2018

Instructions to Bidders

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

See Supplementary Instructions

THE OWNER:
(Name, legal status, address, and other information)

See Supplementary Instructions

THE ARCHITECT:
(Name, legal status, address, and other information)

See Supplementary Instructions

TABLE OF ARTICLES

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.

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™–2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

.1 the Bidder has read and understands the Bidding Documents;

.2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;

.3 the Bid complies with the Bidding Documents;

.4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;

.5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and

.6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

§ 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven days prior to the date for receipt of Bids.
(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

§ 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

§ 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:

(Insert the form and amount of bid security.)

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning days after the opening of Bids, withdraw its Bid and request the return of its bid security.

§ 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:
(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

§ 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:
(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

§ 5.2 Rejection of Bids
Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

§ 5.3 Acceptance of Bid (Award)
§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§ 5.3.2 Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION
§ 6.1 Contractor's Qualification Statement
Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

§ 6.2 Owner's Financial Capability
A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 Submittals
§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

.1 a designation of the Work to be performed with the Bidder's own forces;

.2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and

.3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND
§ 7.1 Bond Requirements
§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.
(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)

§ 7.2 Time of Delivery and Form of Bonds
§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS
§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

.4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013.)

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda:

Number	Date	Pages

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[ ] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017.)

[ ] The Sustainability Plan:

Title	Date	Pages

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents listed below:
(List here any additional documents that are intended to form part of the Proposed Contract Documents.)

Additions and Deletions Report for

AIA® Document A701™ – 2018

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 17:40:02 ET on 01/20/2022.

PAGE 1

See Supplementary Instructions

...

See Supplementary Instructions

...

See Supplementary Instructions

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, Tobin J. Faucheux, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 17:40:02 ET on 01/20/2022 under Order No. 7329489615 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A701™ – 2018, Instructions to Bidders, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

Tobin Faucheux

(Signed)

Specifier

(Title)

01/31/2022

(Dated)

SECTION 00 22 13

SUPPLEMENTARY INSTRUCTIONS

GENERAL

APPLICATION

The following Supplementary Instructions to Bidders modify, change, delete from or add to AIA Document A701-2018 Instructions to Bidders. Where any Article of the AIA Instructions to Bidders is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplementary Instructions to Bidders, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

PAGE 1

PROJECT PROMPT

After the prompt "for the following PROJECT: (Name and location or address)" insert the following:

Western Technical College
Kumm Center Student Union Remodel
400 6th ST N
La Crosse, WI 54601
Project No. 25041

OWNER PROMPT

After the prompt "THE OWNER: (Name, legal status and address)" insert the following:

Western Technical College
Physical Plant Office
505 9th Street North
La Crosse, Wisconsin 54601

ARCHITECT PROMPT

After the prompt "THE ARCHITECT: (Name, legal status and address) insert the following:

HSR Associates, Inc.
100 Milwaukee Street
La Crosse, WI 54603

ARTICLE 3

3.1.1

Delete the text of the existing sub-article including the prompt in parenthesis:

"~~Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein. (Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)~~"

Replace with:

"Bidders shall obtain complete Bidding Documents. Refer to the Advertisement of Bids for sources of bidding documents."

3.1.2

Delete the existing sub-article:

"~~3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.~~"

3.1.3

Delete the existing sub-article:

"~~3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.~~"

3.2.2

After 3.2.2, insert the following:

Contact Alyssa Frank, HSR Associates, Inc., afrank@hsrassociates.com, 608-785-4726.

3.3.2.2

Delete the text of the existing sub-article:

"~~Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents~~."

Replace with:

"Bidders shall submit substitution requests in accordance with Section 01 25 00 Substitution Procedures."

3.3.5

After 3.3.5, insert the following new sub-article:

"**3.3.6** Bidders may use the space on the Bid Form labeled Bidder's Choice Substitution to offer one or more substitutions with their bid. Bidders may provide a price for a substitute product or process that the Bidder deems comparable to that specified. These substitutions may be reviewed by the Architect on behalf of the Owner after the low bid has been accepted, but this application does not imply any obligation on the part of the Architect to review or accept any Bidder's Choice Substitution. Contractor may copy the Bidder's Choice Substitution portion of the Bid Form for multiple entries."

3.4.1

Delete the text of the existing sub-article including the prompt in parenthesis:

"~~Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents. (Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)~~"

Replace with:

"Addenda will be transmitted by email to the Builder's Exchanges listed in the Advertisement for Bids and to Plan Holders on the HSR Plan Holder list."

3.4.2

Delete the existing sub-article:

"~~3.4.2 Addenda will be available where Bidding Documents are on file.~~"

ARTICLE 4

4.1.8

After 4.1.8, insert the following new sub-articles:

"**4.1.9** Prime contractor bidders are required to pre-qualify to bid using the Owner's pre-qualification process prior to submitting a bid.

4.1.10 Each bid shall be accompanied by the following:

.1 A completed 00 45 13 Certificate of Organization and Authority form properly notarized.

.2 A completed 00 45 17 Non-Collusive Affidavit form properly notarized.

.3 A completed 00 45 19 Certification of Non-Segregated Facilities form."

4.1.11 Informational Bids: The Bidder shall state the amount that is included in the Base Bid for all equipment, materials and labor required to complete the work described. Informational bids are amounts requested for accounting purposes and for allocation of funds only. It is not intended to omit any of the work described or related items from this project."

4.2.1

After 4.2.1, insert the following:

"Make Bid Security payable to the Owner in an amount not less than five percent (5%) of the maximum amount of the Bid. Bid Security shall be either a certified check or AIA Document A310; Bid Bond issued by a surety licensed to conduct business in the state with jurisdiction over the project and listed currently in Circular 570 issued by the U.S. Treasury Department."

4.2.2

In the sub-article change "~~such bonds if required~~" to "bonds as required in Article 7 of this document"

4.2.3

Delete the first sentence of the existing sub-article:

"~~If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents.~~"

Replace with:

"If a surety bond is provided as bid security, it shall be written on AIA Document A310™, Bid Bond."

4.2.4

Insert "30" in the space indicating days after the opening of bids.

4.3.1

After 4.3.1, insert the following:

"See Document 00 11 13 Advertisement for Bids in the Project Manual for instructions."

4.4.3

After 4.4.3, insert the following:

"Bidders may be eligible for return of the bid security for a bid withdrawn pursuant to Section 4.4.3 at the Owner's discretion. Where applicable law expressly sets forth requirements for return of bid security it may be returned in accordance with the applicable law."

ARTICLE 5

5.1

After 5.1, insert the following new sub-article:

"**5.1.1** Bids from prime contractor bidders that are not pre-qualified through the Owner's prequalification process will not be opened nor will they be considered."

5.3.2

After 5.3.2, insert the following new sub-article:

"**5.3.2.1** The lowest bid shall be determined by adding the base bid and all alternates."

ARTICLE 7

7.1.1

In 7.1.1, change "~~If stipulated in the Bidding Documents, the~~" to "The".

Add the following sentence to the end of the modified sub-article:

"Refer to Document 00 73 17 Bond Requirements for additional requirements."

7.1.2

Delete the text of the existing sub-article:

"~~If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.~~"

Replace with:

"The cost of such bonds shall be included in the Bid."

7.1.3

Add the following sentences to the end of the existing sub-article:

"The bonds shall be written with such sureties secured through the Contractor's usual sources as may be agreeable to the parties. The sureties and any re-insuring companies shall be listed in the current Department of the Treasury circular No. 570 with an underwriting limitation equal to or greater than the penal sum of the bonds to be furnished. Bond amounts shall not exceed the single bond limit for the Contractor's bonding company as set forth in the Federal Register current as of the date."

7.1.4

Delete the text of the existing sub-article including the prompt in parenthesis:

"~~Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum. (If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)~~"

Replace with:

"The Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum."

7.2.2

In 7.2.2, change "~~Unless otherwise provided, the~~" to "The".

ARTICLE 8

8.1.1

Delete the following words from the existing sub-article:

"~~, unless otherwise stated below. (Insert the complete AIA Document number, including year, and Document title.)~~"

Replace with:

"."

8.1.2

Delete the existing sub-article:

"~~8.1.2 AIA Document A101-2017, Exhibit A, Insurance and Bonds, unless otherwise stated below. (Insert the complete AIA Document number, including year, and Document title.)~~"

8.1.3

Delete the following words from the existing sub-article:

"~~, unless otherwise stated below. (Insert the complete AIA Document number, including year, and Document Title.)~~"

Replace with:

"."

8.1.4

Delete the existing sub-article:

"~~8.1.4 AIA Document E203-2014, Building Information Modeling and Digital Data Exhibit, dated as indicated below: (Insert the date of the E203-2013.)~~"

8.1.5

Delete the following words:

"~~Number Title Date~~"

Replace with:

"See Index of drawings on sheet A000 Cover Sheet."

8.1.6

Delete the following words:

"~~Section Title Date Pages~~"

Replace with:

"See document 00 01 10 Table of Contents in the Project Manual for a listing of specification sections to be included in the contract documents. Sections not listed in the Table of Contents that are distributed as part of the Project Manual and those that are added and revised via Addenda shall be treated the same as those listed in the Table of Contents. Sections removed via Addenda shall be treated as having been removed from the Table of Contents. Documents and sections identified in this sub-paragraph to be included in the Contract documents will be Contract Documents except for 00 30 00 Information Available to Bidders."

8.1.7

Delete the following words:

"~~Number Date Pages~~"

Replace with:

"The existence of Addenda is not known at the time of the first issuance of this Supplementary Instructions to Bidders."

8.1.8

Place checkmark in the box next to "Supplementary and other Conditions of the Contract:"

Prior to 8.1.9, insert the following new sentence:

"00 73 00 Supplementary Conditions and sections listed therein are included in the Project Manual."

8.1.9

Delete the existing sub-article:

"~~8.1.9 Other documents listed below: (List here any additional documents that are intended to form part of the Proposed Contract Documents.)~~"

END OF SECTION

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DOCUMENT 00 41 00
BID FORM

BIDDER:_____

BID FOR SINGLE PRIME CONTRACT

PROJECT: WESTERN TECHNICAL COLLEGE
KUMM CENTER STUDENT UNION REMODEL
400 6TH ST N
LA CROSSE, WISCONSIN 54601
PROJECT NO. 25041

TO: WESTERN TECHNICAL COLLEGE
PHYSICAL PLANT OFFICE
505 9TH STREET NORTH
LA CROSSE, WISCONSIN 54601

BASE BID

The undersigned, having examined the site where the Work is to be executed and become familiar with local conditions affecting the cost of the Work and carefully examined the Project Manual, the Project Drawings, all other Bidding Documents and Addenda thereto prepared by the AE, HSR Associates, Inc., hereby agrees to provide all labor, materials, equipment and services necessary for the complete and satisfactory execution of the ENTIRE WORK, in the time frame stipulated in these contract documents, for the Base Bid stipulated sum of:

_____

_____Dollars ($_____.00)

ALTERNATE BIDS

The undersigned further agrees to perform the alternative portions of the Work as described in the Project Manual, Section 01 23 00 Alternates, for the following additions to or deductions from the Base Bid sum stipulated above:

Alternate No. 1 (Add boilers and pumps to emergency power)

Add _____ Dollars ($_____.00)

Alternate No. 2 (Add floor outlets to The Space room 104 and Storage room 104E)

Add _____ Dollars ($_____.00)

Alternate No. 3 (Replace panelboard 'S')

Add _____ Dollars ($_____.00)

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BIDDER'S CHOICE SUBSTITUTIONS

The following Bidder's Choice Substitution is proposed for your consideration subject to the requirements set forth in Document 00 22 13 Supplementary Instructions to Bidders, Subparagraph 3.3.4:

Substitution No. S1:

For substituting_____

_____

Type, Brand, Catalog No._____

Manufacturer_____

Deduct from BASE BID _____ Dollars ($_____.00)

Substitution No. S2:

For substituting_____

_____

Type, Brand, Catalog No._____

Manufacturer_____

Deduct from BASE BID _____ Dollars ($_____.00)

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In submitting this Bid, the undersigned agrees to:

1. Hold this Bid open for **30** days.
2. Accept the provisions of Instructions to Bidders regarding disposition of Bid Security.
3. Enter into and execute an Agreement, if awarded on the basis of this Bid, and to furnish Performance and Labor and Material Payment Bonds according to the Supplementary Conditions.
4. Accomplish work according to the Contract Documents.
5. Complete the work by the time stated in Section 01 10 00 Summary of the Work.

Receipt of the following Addenda and inclusion of their provisions in this Bid is hereby acknowledged:

Addendum No._____ Dated_____

Addendum No._____ Dated_____

Addendum No._____ Dated_____

Addendum No._____ Dated_____

Attached hereto are the required:

a. ( ) Bid Security

b. ( ) Certificate of Organization and Authority

c. ( ) Non-Collusive Affidavit: An affidavit in proof that the undersigned has not entered into any collusion with any person in respect to this Bid or any other bid or the submitting of bids for the contract for which this bid is submitted.

d. ( ) Certification of Non-segregated Facilities

Affix Corporate Seal (if corp.)

FIRM NAME:_____

_____

Title: _____

By: _____

Title: _____

Date: _____

Official Address: _____

_____

Telephone: _____

END OF DOCUMENT 00 41 00

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DOCUMENT 00 43 25

SUBSTITUTION REQUEST FORM – DURING PROCUREMENT

Use this form for substitution requests that will be made prior to signed agreement. This form is not strictly mandatory but may be required by the Architect for specific requests. The bidding documents, including those identified below, define the process for requesting a substitution.

Complete the form and provide attachments that document any other information necessary for an evaluation of the substitute items. Provide a complete description of the proposed substitution including the name of the material or equipment proposed, performance and test data, and relevant drawings. Identify reference standards and provide test results that fully explain how the proposed substitution compares to the specified items. Identify any changes to contract documents that are necessary for inclusion of the substitute items into the project.

Send form to Tobin Faucheux, tfaucheux@hsrassociates.com, 608-785-4717.

Reference Documents (AIA A701):
A. Instructions to Bidders Article 3.3.
B. Supplementary Instructions to Bidders Article 3 (if Supplementary Instructions apply).
C. Section 01 25 00 Substitution Procedures.

PROJECT NAME: _____ PROJ. #: _____

REQUESTING COMPANY: _____

CONTACT PERSON: _____ DATE OF REQUEST: _____

CONTACT EMAIL: _____ CONTACT PHONE: _____

SPECIFIED ITEM: _____ SECTION #: _____

PROPOSED SUBSTITUTE ITEM: _____

REASON FOR REQUESTED SUBSTITUTION: _____

_____

ATTACHMENTS:

The undersigned certifies that the following paragraphs, unless modified on attachments, are correct:

1. The proposed substitution does not affect dimensions shown on drawings.
2. The undersigned will pay for changes to the building design, including architectural/engineering design, detailing and construction costs caused by the requested substitution.
3. The proposed substitution will have no adverse affect on other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts will be locally available for the proposed substitution.
5. The function appearance and quality of the Proposed Substitution are equivalent or superior to the Specified Item

SUBMITTER SIGNATURE: _____

HSR Reviewer: _____

☐ Watch for acceptance of the substitution in a future addendum and any associated notes clarifying the acceptance.

☐ This item can be submitted as a bidder's choice substitution if bidder choice substitutions are defined and permitted on the bid form.

☐ Not accepted

☐ Received too late

HSR Reviewer Notes: _____

_____

_____

_____

END OF DOCUMENT

DOCUMENT 00 45 00

PROCUREMENT REPRESENTATIONS AND CERTIFICATIONS

The following representations and certifications are required from the Bidders or the selected Bidder as part of the procurement process. See Document 00 41 00 Bid Form to see which documents must be included with the bid. See Document 00 22 13 Supplementary Instructions Article 6 to see the timeframe for submitting the other documents.

1.01 CERTIFICATE OF ORGANIZATION AND AUTHORITY - DOCUMENT 00 45 13

1.02 NON-COLLUSIVE AFFIDAVIT - DOCUMENT 00 45 19

1.03 CERTIFICATION OF NON-SEGREGATED FACILITIES – DOCUMENT 00 45 33

END OF DOCUMENT 00 45 00

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DOCUMENT 00 45 13
CERTIFICATE OF ORGANIZATION AND AUTHORITY

(State of _____)

(County of _____)

I hereby certify that the Bidder on the attached Bid Form is organized as indicated below and that all statements herein are made on behalf of such Bidder. (Fill out applicable paragraph)

CORPORATION: The Bidder is a corporation organized and existing under the

laws of the State of_____.

President: _____,

Secretary: _____.

PARTNERSHIP: The Bidder is a partnership consisting of the following partners:

_____,

_____,

and _____.

SOLE TRADER: The Bidder is an individual operating under the following trade name:

_____,

ADDRESS: The Bidder's business address is: _____

_____

STATUTORY CERTIFICATE
I hereby further certify that I have examined and carefully prepared this Bid from the Project Drawings, Project Manual and other Bidding Documents, have checked the same in detail before submitting this Bid, and have full authority to make these statements, to submit this Bid on behalf of the above mentioned Bidder, and that the above statements are true and correct.

BIDDER: _____

BY: _____

Subscribed and sworn to before me this _____ day of _____, 20___,

_____ Notary Public.

My commission expires _____, 20_____.

END OF DOCUMENT 00 45 13

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DOCUMENT 00 45 19
NON-COLLUSIVE AFFIDAVIT

(State of_____)

(County of_____)

_____ being duly sworn, deposes and says that:

1. S/He is (owner, partner, officer, representative, or agent) of the Bidder that has submitted the attached Bid;
2. S/He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
3. Such Bid is genuine and is not a collusive or sham Bid;
4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the sum or sums in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid sum or the Bid sum of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against Western Technical College or any person interested in the proposed Contract; and
5. The sum or sums quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

_____
Signed

_____
Title

Subscribed and sworn to before me this

_____day of _____ 20___.

_____Notary Public

_____ County

My commission expires: _____

END OF DOCUMENT 00 45 19

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DOCUMENT 00 45 33
CERTIFICATION OF NONSEGREGATED FACILITIES

The Bidder certifies that he/she does not maintain or provide for his/her employees any segregated facilities at any of his/her establishments and that he/she does not permit his/her employees to perform their services at any location, under his/her control, where segregated facilities are maintained. The Bidder certifies further that he/she will not maintain or provide for his/her employees any segregated facilities at any of his/her establishments and that he/she will not permit his/her employees to perform their services at any location, under his/her control, where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity Clause in any Contract resulting from acceptance of this Bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or natural origin, because of habit, local custom or otherwise. The Bidder agrees that (except where he/she has obtained identical certification from proposed subcontractors for specific time periods) he/she will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause, and that he/she will retain such certifications in his/her files.

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. Section 1001.

Date: _____, 20_____.

_____
(Name of Bidder)

By: _____

Title: _____

Official Address (Including Zip Code):

_____

_____

_____

_____

END OF DOCUMENT 00 45 33

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DOCUMENT 00 52 13
AGREEMENT FORMS

The following agreement form will be provided by the Owner and shall be reviewed and completed by the successful Contractor and submitted to the Owner at the Owner's direction following notification.

1. "Standard Form of Agreement Between Owner and Contractor - Stipulated Sum", AIA Document A101, 2017 Edition.

END OF DOCUMENT 00 52 13

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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 and other information)

and the Contractor:
(Name, legal status, address and other information)

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

The Architect:
(Name, legal status, address and other information)

The Owner and Contractor agree as follows.

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.

TABLE OF ARTICLES

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, 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.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

☐ The date of this Agreement.

☐ A date set forth in a notice to proceed issued by the Owner.

☐ Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 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.

☐ 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. The Contract Sum shall be ($), subject to additions and deductions as provided in the Contract Documents.

§ 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, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.4 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

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

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, 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, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than ( ) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor 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 Architect 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™–2017, General Conditions of the Contract for Construction, 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 Architect determines, in the Architect'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 Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and

.5 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:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

§ 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:
(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 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 A201–2017.

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

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, 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 A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

_____ % _____

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

☐ Arbitration pursuant to Section 15.4 of AIA Document A201–2017

☐ Litigation in a court of competent jurisdiction

☐ Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

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 A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten 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 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

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

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction

.4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

☐ AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

☐ The Sustainability Plan:

Title	Date	Pages

☐ Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
(Printed name and title)	*(Printed name and title)*

DOCUMENT 00 60 00
PROJECT FORMS

The following is a partial list of forms used during the project.

1.01 BOND FORMS REQUIRED OF THE CONTRACTOR

A. Document 00 61 13.13 Performance Bond Form
B. Document 00 61 13.16 Payment Bond Form

1.02 CLARIFICATION AND MODIFICATION FORMS

A. Document 00 63 25 Substitution Request Form – During Construction

1.03 OWNER FORMS

A. Document 00 64 00 Sales and Use Tax Form: A completed version of this form will be provided by the Owner following award of the contract.

1.04 CLOSEOUT FORMS

A. Document 00 65 19.19 Consent of Surety to Final Payment

END OF DOCUMENT 00 60 00

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AIA® Document A312™ – 2010

Performance Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		SURETY	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

End of Document 00 61 13.13

AIA® Document A312™ – 2010

Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 18

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

.2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

.1 the name of the Claimant;
.2 the name of the person for whom the labor was done, or materials or equipment furnished;
.3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
.4 a brief description of the labor, materials or equipment furnished;
.5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
.6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
.7 the total amount of previous payments received by the Claimant; and
.8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

Init.

/

End of Document 00 61 13.16

DOCUMENT 00 63 25

SUBSTITUTION REQUEST FORM – DURING CONSTRUCTION

Use this form for substitution requests following signed agreement. This form is not strictly mandatory but may be required by the Architect for specific requests. The contract documents, including those identified below, define the process for requesting a substitution or getting approval of an item.

Complete the form and provide attachments that document any other information necessary for an evaluation of the substitute items. Provide a complete description of the proposed substitution including the name of the material or equipment proposed, performance and test data, and relevant drawings. Identify reference standards and provide point by point comparison that documents how the proposed substitute item compares to the specified item. Identify any changes to contract documents that are necessary for inclusion of the substitute items into the project.

Send form to Tobin Faucheux, tfaucheux@hsrassociates.com, 608-785-4717.

Reference Documents (AIA A201):
A. General Conditions Articles 3.4.2 & 3.5.
B. Section 01 25 00 Substitution Procedures.

PROJECT NAME: _____ PROJ. #: _____

REQUESTING COMPANY: _____

CONTACT PERSON: _____ DATE OF REQUEST: _____

CONTACT EMAIL: _____ CONTACT PHONE: _____

SPECIFIED ITEM: _____ SECTION #: _____

PROPOSED SUBSTITUTE ITEM: _____

REASON FOR NOT PROVIDING THE SPECIFIED ITEM: _____

_____

COST SAVINGS TO OWNER FOR SUBSTITUTION: $ _____

SCHEDULE IMPACT DUE TO SUBSTITUTION: _____

DAYS ADD:_____ DAYS DEDUCT: _____ NEW SUB. COMP. DATE:_____

ATTACHMENTS:

The undersigned certifies that the following paragraphs, unless modified on attachments, are correct:

1. The proposed substitution does not affect dimensions shown on drawings.
2. The undersigned will pay for changes to the building design, including architectural/engineering design, detailing and construction costs caused by the requested substitution.
3. The proposed substitution will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts will be locally available for the proposed substitution.
5. The function appearance and quality of the Proposed Substitution are equivalent or superior to the Specified Item.
6. Cost and schedule information provided are complete. Any additional costs or schedule delays associated with this substitution will paid for and remediated by the requestor without claim to the Owner or Architect.

Submitter Signature: _____

HSR Reviewer: _____

HSR Reviewer Notes: _____

_____

_____

_____

Disposition of submittal request:

☐ Watch for acceptance of the substitution in a future change order or change directive including any associated notes clarifying the acceptance.

☐ Not accepted – Use specified item

Date of Disposition: _____

END OF DOCUMENT

Document 00 64 00
Sales and Use Tax Exemption Certificate (Sample)

WISCONSIN SALES AND USE TAX EXEMPTION CERTIFICATE

Check One ► ☐ Single Purchase ☐ Continuous

Purchaser's Business Name	Purchaser's Address

The above purchaser, whose signature appears on the reverse side of this form, claims exemption from Wisconsin state, county, baseball or football stadium, local exposition, and premier resort sales or use tax on the purchase, lease, license, or rental of tangible personal property, property under sec. 77.52(1)(b), items under sec. 77.52(1)(c), goods under sec. 77.52(1)(d), or taxable services, as indicated by the box(es) checked below.

I hereby certify that I am engaged in the business of selling, leasing, licensing, or renting: _____

_____

(Purchaser's description of property, items, goods, or services sold by purchaser.)

Purchaser's description of property or services purchased (itemize property, items, or goods purchased if "single purchase"):

_____

_____

Seller's Name	Seller's Address

REASON FOR EXEMPTION

☐ **Resale** (Enter purchaser's seller's permit or use tax certificate number) _____

Manufacturing and Biotechnology

☐ Tangible personal property (TPP) or item under s.77.52(1)(b) that is used exclusively and directly by a manufacturer in manufacturing an article of TPP or items or property under s.77.52(1)(b) or (c) that is destined for sale and that becomes an ingredient or component part of the article of TPP or items or property under s.77.52(1)(b) or (c) destined for sale or is consumed or destroyed or loses its identity in manufacturing the article of TPP or items or property under s.77.52(1)(b) or (c) destined for sale.

☐ Machines and specific processing equipment and repair parts or replacements thereof, exclusively and directly used by a manufacturer in manufacturing tangible personal property or items or property under s.77.52(1)(b) or (c) and safety attachments for those machines and equipment.

☐ The repair, service, alteration, fitting, cleaning, painting, coating, towing, inspection, and maintenance of machines and specific processing equipment, that the above purchaser would be authorized to purchase without sales or use tax, at the time the service is performed. Tools used to repair exempt machines are not exempt.

☐ Fuel and electricity consumed in manufacturing tangible personal property or items or property under s.77.52(1)(b) or (c) in this state. Percent of fuel exempt _____ % Percent of electricity exempt _____ %

☐ Portion of the amount of fuel converted to steam for purposes of resale. Percent of fuel exempt: _____ %

☐ Property used exclusively and directly in qualified research, by persons engaged in manufacturing at a building assessed under s. 70.995, by persons engaged primarily in biotechnology in Wisconsin, or a combined group member conducting qualified research for another combined group member that meets these requirements.

Farming

(To qualify for this exemption, the purchaser must use item(s) exclusively and directly in the business of farming, including dairy farming, agriculture, horticulture, floriculture, silviculture, or custom farming services.)

☐ Tractors (except lawn and garden tractors), all-terrain vehicles (ATV) and farm machines, including accessories, attachments, and parts, lubricants, nonpowered equipment, and other tangible personal property or items or property under s.77.52(1)(b) or (c) that are used exclusively and directly, or are consumed or lose their identities in the business of farming. This includes services to the property and items above.

☐ Feed, seeds for planting, plants, fertilizer, soil conditioners, sprays, pesticides, and fungicides.

☐ Breeding and other livestock, poultry, and farm work stock.

☐ Containers for fruits, vegetables, grain, hay, and silage (including containers used to transfer merchandise to customers), and plastic bags, sleeves, and sheeting used to store or cover hay and silage. Baling twine and baling wire.

☐ Animal waste containers or component parts thereof (may only mark certificate as "Single Purchase").

☐ Animal bedding, medicine for farm livestock, and milk house supplies.

Governmental Units and Other Exempt Entities

Enter CES No., if applicable

- ☐ The United States and its unincorporated agencies and instrumentalities.
- ☐ Any federally recognized American Indian tribe or band in this state.
- ☐ Wisconsin state and local governmental units, including the State of Wisconsin or any agency thereof, Wisconsin counties, cities, villages, or towns, and Wisconsin public schools, school districts, universities, or technical college districts.
- ☐ Organizations organized and operated exclusively for religious, charitable, scientific, or educational purposes, or for the prevention of cruelty to children or animals. CES Number _____ (Required for Wisconsin organizations).

Other

- ☐ Containers and other packaging, packing, and shipping materials, used to transfer merchandise to customers of the purchaser.
- ☐ Trailers and accessories, attachments, parts, supplies, materials, and service for motor trucks, tractors, and trailers which are used exclusively in common or contract carriage under LC, IC, or MC No. (if applicable) _____.
- ☐ Machines and specific processing equipment used exclusively and directly in a fertilizer blending, feed milling, or grain drying operation, including repair parts, replacements, and safety attachments.
- ☐ Building materials acquired solely for and used solely in the construction or repair of holding structures used for weighing and dropping feed or fertilizer ingredients into a mixer or for storage of such grain, if such structures are used in a fertilizer blending, feed milling, or grain drying operation.
- ☐ Tangible personal property purchased by a person who is licensed to operate a commercial radio or television station in Wisconsin, if the property is used exclusively and directly in the origination or integration of various sources of program material for commercial radio or television transmissions that are generally available to the public free of charge without a subscription or service agreement.
- ☐ Fuel and electricity consumed in the origination or integration of various sources of program material for commercial radio or television transmissions that are generally available to the public free of charge without a subscription or service agreement.

  Percent of fuel exempt: _____ % Percent of electricity exempt: _____ %
- ☐ Tangible personal property and items, property and goods under s.77.52(1)(b), (c), and (d) to be resold by _____ on my behalf where _____ is registered to collect and remit sales tax to the Department of Revenue on such sales.
- ☐ Tangible personal property, property, items and goods under s.77.52(1)(b), (c), and (d), or services purchased by a Native American with enrollment # _____, who is enrolled with and resides on the _____ Reservation, where buyer will take possession of such property, items, goods, or services.
- ☐ Tangible personal property and items and property under s.77.52(1)(b) and (c) becoming a component of an industrial or municipal waste treatment facility, including replacement parts, chemicals, and supplies used or consumed in operating the facility. Caution: Do not check the "continuous" box at the top of page 1.
- ☐ Portion of the amount of electricity or natural gas used or consumed in an industrial waste treatment facility. (Percent of electricity or natural gas exempt _____ %)
- ☐ Electricity, natural gas, fuel oil, propane, coal, steam, corn, and wood (including wood pellets which are 100% wood) used for fuel for **residential** or **farm** use.

	% of Electricity Exempt	% of Natural Gas Exempt	% of Fuel Exempt
☐ Residential	_____ %	_____ %	_____ %
☐ Farm	_____ %	_____ %	_____ %

  Address Delivered: _____
- ☐ Percent of printed advertising material solely for out-of-state use. _____ %
- ☐ Catalogs, and the envelopes in which the catalogs are mailed, that are designed to advertise and promote the sale of merchandise or to advertise the services of individual business firms.
- ☐ Computers and servers used primarily to store copies of the product that are sent to a digital printer, a plate-making machine, or a printing press or are used primarily in prepress or postpress activities, by persons whose NAICS code is 323111, 323117, or 323120.
- ☐ Purchases from out-of-state sellers of tangible personal property that are temporarily stored, remain idle, and not used in this state and that are then delivered and used solely outside this state, by persons whose NAICS code is 323111, 323117, or 323120.
- ☐ Other purchases exempted by law. (State items and exemption). _____

_____

I hereby certify that if the item(s) being purchased are not used in an exempt manner, I will remit use tax on the purchase price at the time of first taxable use. I understand that failure to remit the use tax may result in a future liability that may include tax, interest, and penalty.

Signature of Purchaser	Print or Type Name	Title	Date

(DETACH AND PRESENT TO SELLER)

INSTRUCTIONS

This certificate may be used to claim exemption from Wisconsin state, county, baseball and football stadium, local exposition, and premier resort sales or use taxes.

Under the sales and use tax law, all receipts from sales of tangible personal property, property, items and goods under sec. 77.52(1)(b), (c), and (d), or taxable services are subject to the tax until the contrary is established. However, a seller who receives a fully completed exemption certificate no later than 90 days after the date of sale is relieved of any responsibility for collection or payment of the tax upon transactions covered by the certificate. A fully completed certificate is one which is completely filled in and indicates the reason for exemption.

RESALE: A purchaser using the resale exemption is attesting that the tangible personal property, property, items, or goods under sec. 77.52(1)(b), (c), or (d), or taxable services being purchased will be resold, leased, licensed, or rented. However, in the event any such property, items, or goods is used for any purpose other than retention, demonstration, or display while holding it for sale, lease, license, or rental in the regular course of business, the purchaser is required to report and pay the tax on the purchase of the property, item, or good.

The following purchasers may make purchases for resale even though they do not hold a Wisconsin seller's permit or use tax certificate: (a) A wholesaler who only sells to other sellers for resale may insert "Wholesale only" in the space for the seller's permit number; (b) A person who only sells or repairs exempt property, such as to a manufacturer or farmer, may insert "Exempt sales only"; (c) A nonprofit organization may insert "Exempt sales only" if its subsequent sales of the tangible personal property, property, items, or goods under sec. 77.52(1)(b), (c), or (d), or taxable services are exempt as occasional sales.

A seller is allowed to accept an exemption certificate from an out-of-state retailer claiming the resale exemption for tangible personal property and items, property, and goods under sec. 77.52(1)(b), (c) and (d), Wis. Stats., drop shipped to a Wisconsin location, regardless of whether or not the out-of-state retailer holds a Wisconsin seller's permit. The out-of-state retailer's permit number, if the other state issues one, and state should be listed on the exemption certificate. If the exemption certificate does not list the Wisconsin seller's permit number or the out-of-state retailer's permit number and state, to be fully complete and valid the exemption certificate must contain a statement indicating the out-of-state retailer is a seller that is not required to hold a permit.

A resale exemption may be granted if the purchaser is unable to ascertain at the time of purchase whether the property will be sold or will be used for some other purpose. If the buyer purchases an item without tax for resale, but uses the item, the buyer owes use tax on its purchase of the item.

MANUFACTURING: "Manufacturing" means the production by machinery of a new article of tangible personal property or items or property under sec. 77.52(1)(b) or (c) with a different form, use, and name from existing materials, by a process popularly regarded as manufacturing, and that begins with the conveying raw materials and supplies from plant inventory to the place where work is performed in the same plant and ends with conveying finished units of tangible personal property or items or property under sec. 77.52(1)(b) or (c) to the point of first storage in the same plant.

FARMING: This certificate may not be used by farmers to claim exemption for the purchase of motor vehicles or trailers for highway use, lawn or garden tractors, snowmobiles, or for items used for the personal convenience of the farmer. When claiming an exemption for an ATV which is also registered for public use, a written description including the percentages of time for personal and farm use, must be submitted with the ATV Registration Application.

The sales price from the sale of electricity, natural gas, and other fuels for use in farming are exempt all 12 months of the year. Farmers claiming this exemption should check the box for electricity and fuel located in the "Other" section.

This certificate cannot be used as an exemption for paying Wisconsin motor vehicle fuel tax.

GOVERNMENTAL UNITS AND OTHER EXEMPT ENTITIES: A seller may accept exemption certificates from federal and Wisconsin governmental units and federally recognized American Indian tribes or bands in Wisconsin. Instead of obtaining an exemption certificate, a seller may (1) accept a purchase order from the governmental unit or tribe or band, or (2) record the governmental unit or tribe or band's Certificate of Exempt Status (CES) number on its invoices. Governmental units of other countries and states are not exempt from Wisconsin sales tax.

The exemption for the United States and its unincorporated agencies and instrumentalities may also be claimed by any incorporated agency or instrumentality of the United States wholly owned by the United States or by a corporation wholly owned by the United States.

The exemption for Wisconsin governmental units and other exempt entities may be claimed by: Local Exposition District, Professional Baseball Park District, Professional Football Stadium District, UW Hospitals and Clinics Authority, Wisconsin Aerospace Authority, Health Insurance Risk-Sharing Plan Authority, Wisconsin Economic Development Authority, Fox River Navigational System Authority, public inland lake protection and rehabilitation districts, municipal public housing authorities, uptown business improvement districts, local cultural arts districts, county-city hospitals, sewerage commissions, metropolitan sewerage districts, or joint local water authorities.

Organizations holding a Certificate of Exempt Status (CES) number: Wisconsin organizations organized and operated exclusively for religious, charitable, scientific, or educational purposes, or for the prevention of cruelty to children or animals, may purchase products or services exempt from Wisconsin sales tax if the organization holds a CES number issued by the Wisconsin Department of Revenue. Wisconsin and federal governmental units, and any federally recognized American Indian tribe or band in Wisconsin, will also qualify for a CES.

A similar out-of-state organization, generally organized under sec. 501(c)(3) of the Internal Revenue Code, may purchase products or services exempt from Wisconsin sales tax even though it has not been issued a CES number. This exemption does *not* apply to out-of-state public schools, including public colleges and universities, and governmental units from other states.

Purchases (for lodging, meals, auto rental, etc.) by employees/representatives of exempt organizations performing organization business, are exempt from sales tax, provided 1) the retailer issues the billing or invoice in the name of the exempt organization, 2) the CES number is entered on the billing or invoice, and 3) the retailer retains a copy of that document.

OTHER:

Containers: This exemption applies regardless of whether or not the containers are returnable. Containers used by the purchaser only for storage or to transfer merchandise owned by the purchaser from one location to another do not qualify for the exemption.

Common or contract carriers: The exemption available to common or contract carriers for certain vehicles and repairs listed on this certificate applies only to those units used "exclusively" in such common or contract carriage. A carrier may qualify for the common or contract carriage exemption even if it does not hold a LC or IC number. The fact that a carrier holds a LC or IC number is not in itself a reason for exemption. A carrier may qualify for the common or contract carrier exemption even if it does not hold an LC or IC number.

Waste treatment facilities: The exemption applies to the sale of tangible personal property and items and property under sec. 77.52(1)(b) and (c) to a contractor for incorporation into real property which is part of an industrial or commercial waste treatment facility that qualifies for property tax exemption or a Wisconsin or federal governmental waste treatment facility.

Electricity, natural gas, fuel oil, coal, steam, corn, and wood (including wood pellets which are 100% wood) used for fuel:

- The sales price from the sale of electricity and natural gas for residential use during the months of November through April are exempt from sales and use tax.
- The sales price from sales of fuel oil, propane, coal, steam, corn, and wood (including wood pellets which are 100% wood) used for fuel sold for residential use are exempt from sales or use tax. Wood pellets are considered 100% wood even though the pellets may contain a small amount of binding material used to form the pellets.
- The sales price from the sale of fuel and electricity for use in farming are exempt all year.

A retailer of electricity, fuel, or natural gas shall have a signed exemption certificate for exempt sales for residential or farm use unless any of the following apply:

1. 100% of the electricity, fuel, or natural gas is for exempt use.
2. The sale is to an account which is properly classified as residential or farm pursuant to schedules which are filed for rate tariff with the Wisconsin Public Service Commission which are in force at the time of sale.
3. The sale is to an account which is properly classified as residential or farm for classification purposes as directed by the Federal Rural Electrification Administration.

"Farm use" means used in farming, including use in a tractor or other farm machines used directly in farming, in a furnace heating a farm building, in providing lighting in farm buildings, and use in operating motors of machines used directly in farming.

"Residential use" means use in a structure or portion of a structure which is a person's permanent principal residence. It does not include use in motor homes, travel trailers, other recreational vehicles, or transient accommodations. "Transient accommodations" means rooms or lodging available to the public for a fee for a continuous period of less than one month in a building such as a hotel, motel, inn, tourist home, tourist house or court, summer camp, resort lodge, or cabin.

Other purchases exempted by law include:

1. Printed material which is designed to advertise and promote the sale of merchandise, or to advertise the services of individual business firms, which printed material is purchased and stored for the purpose of subsequently transporting it outside the state by the purchaser for use thereafter solely outside the state.
2. Parts, supplies, or repairs for a school bus used exclusively as a contract carrier pursuant to a contract with a school or other organization.
3. Waste reduction and recycling machinery and equipment, including parts and repairs, which are exclusively and directly used for waste reduction and recycling activities.
4. Railway cars, locomotives, and other rolling stock used in railroad operations, or accessories, attachments, parts, lubricants, or fuel therefor.
5. Commercial vessels and barges of 50-ton burden or over engaged in interstate or foreign commerce or commercial fishing, and accessories, attachments, parts, and fuel therefor.
6. Fuel sold for use in motorboats that are regularly employed in carrying persons for hire for sport fishing in and upon the outlying waters, as defined in sec. 29.001(63), Wis. Stats., and the rivers and tributaries specified in sec. 29.2285(2)(a)1. and 2., Wis. Stats., if the owner and all operators are licensed under sec. 29.514, Wis. Stats., to operate the boat for that purpose.
7. A product whose power source is the wind, direct radiant energy received from the sun, or gas generated by the anaerobic digestion of animal manure and other agricultural waste, if the product produces at least 200 watts of alternating current or at least 600 British thermal units per day, but not including a product that is an uninterruptible power source that is designed primarily for computers.
8. Effective July 1, 2013, snowmaking and snow-grooming machines and equipment, including accessories, attachments, and parts for the machines and fuel and electricity used to operate such machines and equipment, that are used exclusively and directly for snowmaking at ski hills, ski slopes, and ski trails.
9. Effective July 1, 2013, advertising and promotional direct mail and printing services used to produce advertising and promotional direct mail.

SIGNATURE: For corporations, this form must be signed by an employee or officer of the corporation.

QUESTIONS: If you have questions, please contact us.

WISCONSIN DEPARTMENT OF REVENUE
Customer Service Bureau
PO Box 8949
Madison WI 53708-8949

Phone: (608) 266-2776
Fax: (608) 267-1030
Website: revenue.wi.gov

End Document 00 64 00

DOCUMENT 00 65 19.19

CONSENT OF SURETY TO FINAL PAYMENT

PROJECT: **WESTERN TECHNICAL COLLEGE**
KUMM CENTER STUDENT UNION REMODEL
400 6TH ST N
LA CROSSE, WI 54601
PROJECT NO. 25041

OWNER: **WESTERN TECHNICAL COLLEGE**
PHYSICAL PLANT OFFICE
505 9TH STREET NORTH
LA CROSSE, WISCONSIN 54601

CONTRACTOR: _____

CONTRACT FOR: ENTIRE WORK for single prime contractor.

CONTRACT DATE: _____

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, _____, SURETY

COMPANY, on bond of_____, Contractor, hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety Company of any of its obligations to the Owner, named above, as set forth in said Surety Company's bond.

It is further agreed that, in giving this consent, the Surety has made its own investigation to determine that said payment should be made to the Contractor and has not relied on any representation by the Architect/Engineer which has induced it to consent to such payment. Surety hereby expressly waives all claims against the Architect/Engineer and the Owner for wrongful release of funds to the Contractor.

IN WITNESS WHEREOF,

The Surety Company has hereunto set its hand this day of _____, 20____.

Surety Company _____

Attest: Signature of Authorized Representative_____

(Seal)

Title_____

END OF DOCUMENT 00 65 19.19

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DOCUMENT 00 72 00

GENERAL CONDITIONS

The "General Conditions of the Contract for Construction" AIA Document A201, 2017 Edition, Articles 1-15, are hereby made a part of this Project Manual.

END OF DOCUMENT 00 72 00

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AIA® Document A201® – 2017

General Conditions of the Contract for Construction

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

See Supplementary Conditions

THE OWNER:
(Name, legal status and address)

See Supplementary Conditions

THE ARCHITECT:
(Name, legal status and address)

See Supplementary Conditions

TABLE OF ARTICLES

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.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

INDEX
(Topics and numbers in bold are Section headings.)

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 (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary 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 Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 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 Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect'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 Architect and the Architect'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. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items 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; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 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.

§ 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.

§ 1.3 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 Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and 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 the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, 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 suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give 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 served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document

G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

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 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 Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 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 information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 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.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 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.

§ 2.5 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 ten-day period after receipt of 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 default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

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, if required in the jurisdiction where the Project is located. 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 its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 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 2.3.4, 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 Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect 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 Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect 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 submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, 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 Architect 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.

§ 3.3 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. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be 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 notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative 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.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect 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

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality 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 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 Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

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.

§ 3.7 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 by government agencies 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.

§ 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.

§ 3.7.3 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 Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect 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 that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect 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 Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim 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 Architect. 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 notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect 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 and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved 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 Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and

delivered to the Architect 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 how 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 Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect 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 Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect 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 Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified 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 Architect.

§ 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 the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect 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 Architect'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 Architect on previous submittals. In the absence of such notice, the Architect'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.

§ 3.12.10.1 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 Architect will

specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately 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 Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and 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.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 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, lawful orders of public authorities, 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, or patching shall be restored to the condition existing prior to the cutting, fitting, or 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 construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its 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 and 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 the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with 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 Architect harmless from loss on account thereof, but shall not be responsible for 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 Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect'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, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent 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 such claim, damage, 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.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

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

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect 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 Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect 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.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect 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

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

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

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect 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 Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect 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 Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect'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 Architect'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 Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

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

§ 4.2.9 The Architect 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 Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect'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 Architect 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 Architect 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 Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

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

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 the 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, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect 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 Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect 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 for one previously selected if the Owner or Architect 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 Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect 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; and
- **.2** assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

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

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

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 term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract 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 any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its 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 or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has 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.

§ 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 notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work 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. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 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 that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor 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 the Architect will 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 among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect 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 Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, 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 Architect and signed by the Owner, Contractor, and Architect 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.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, 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.

§ 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 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine 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 the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;

.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and

.5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect 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.

§ 7.3.7 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.

§ 7.3.8 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 Architect. 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 Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect'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 Architect 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 Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

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.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 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 knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 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 (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect 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.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 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.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 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 supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 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, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. 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 Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect 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 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.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect 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 Architect'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 suppliers 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; or
.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

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

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier 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 Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

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

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven 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.

§ 9.6.3 The Architect 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 Architect 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 suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to 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 or provided by 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, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 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 Architect 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 Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect'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 Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 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 the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. 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 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 Architect 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 Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect 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 notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with 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 Architect'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.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (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, (3) a written statement that the Contractor knows of no 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) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance 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 the lien, claim, security interest, or encumbrance, 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 Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, 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 the 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 Architect 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** audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a 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.

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, a Subcontractor, or a Sub-subcontractor; 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 implement, 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 the owners and users of adjacent sites and utilities of the safeguards.

§ 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.

§ 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. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect 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 Architect.

§ 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, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. 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 notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's 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 Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect 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 Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect 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 by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect'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 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 hazardous 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 hazardous 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 reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances 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 reimburse 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 Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 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.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act

or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, 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 those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 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, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner 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 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

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 Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect'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 Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before 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 Architect'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 Substantial 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 any 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 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. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 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.

§ 12.2.3 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 of the Owner or Separate Contractors, whether completed or partially completed, 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 place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, 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 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 a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 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.

§ 13.3.2 No action or failure to act by the Owner, Architect, 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 thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 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 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 Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect 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 Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 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 Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 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 Architect.

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

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

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

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 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, 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;
- **.3** Because the Architect 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, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- **.4** The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work 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 seven additional days' notice to the Owner and the Architect, 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** repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- **.4** otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' 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 Architect'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 Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- **.1** that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- **.2** that an equitable adjustment is made or denied under another provision of the Contract.

§ 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 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;
- **.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 Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

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, a change in the Contract Time, 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. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 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.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 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.

§ 15.1.6.2 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.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

Additions and Deletions Report for

AIA® Document A201® – 2017

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 17:39:03 ET on 01/20/2022.

PAGE 1

See Supplementary Conditions

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See Supplementary Conditions

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See Supplementary Conditions

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, Tobin J. Faucheux, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 17:39:03 ET on 01/20/2022 under Order No. 7329489615 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A201™ – 2017, General Conditions of the Contract for Construction, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

Tobin Faucheux

(Signed)

Specifier

(Title)

01/31/2022

(Dated)

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SECTION 00 73 00

SUPPLEMENTARY CONDITIONS

GENERAL

APPLICATION

The following amendments modify, delete and add to AIA document A201-2017 General Conditions. Where any article, paragraph or subparagraph in the general conditions is supplemented by one of the following paragraphs, the provisions of such article, paragraph or subparagraph shall remain in effect and the supplemental provisions shall be considered as added thereto. Where any article, paragraph or subparagraph of the general conditions is not supplemented, amended, voided or superseded by any of the following paragraphs, the provisions of such article, paragraph or subparagraph not so amended, voided or superseded shall remain in effect.

DOCUMENTS INCLUDED IN THE SUPPLEMENTARY CONDITIONS:

Document 00 73 16 Insurance Requirements

Document 00 73 17 Bond Requirements

ARTICLE 1

1.1.3

Add the following sentence to the end of the existing sub-article:
"The word 'provide' shall also be understood to require 'furnish and install'."

1.1.4

Add the following sentence to the end of the existing sub-article:
"A detailed description of the Project can be found in Document 00 11 13."

1.2.3

After 1.2.3, insert the following new sub-articles:
"1.2.4 Where a number is listed in the Project Manual (as for gauges, weights, temperatures, amount of time, etc.) the number shall be interpreted as that or better."
"1.2.5 Whenever the words ‘approved’, ‘satisfactory’, ‘directed’, ‘submitted’, ‘inspected’, or similar words or phrases are used in the product specification sections, it shall be assumed that the words ‘Architect/Engineer or Architect/Engineer's representative’ follows the verb as the object of the clause, such as ‘approved by the Architect/Engineer or Architect/Engineer's representative’."

ARTICLE 2

2.1.2

After 2.1.2, insert the following new sub-article:
"2.1.3 Refer to Document 00 22 13 for a detailed description of the Owner."

ARTICLE 3

3.3.3

After 3.3.3, insert the following new sub-article:
"3.3.4 Refer to Section 01 40 00 for detailed quality control requirements."

3.5.1

Add the following sentence to the end of the existing sub-article:
"Refer to Article 12 to see the time frame for correcting defective Work."

After 3.5.1, insert the following new sub-article:
"3.5.1.1 Where the Contract Documents require Work better than that required by statute, the Contract Documents shall govern."

3.6

After 3.6, insert the following new sub-article:

"3.6.1 As of July 1, 2018, and in accordance with Section 77.54(9m), Wis. Stats. (2015-2016) Wisconsin contractors are exempt from sales tax on real property materials purchased for this Project. A Wisconsin Sales and Use Tax Exemption Certificate will be included with the contract.

The exemption only applies to a contractor's purchase of materials and other components that become part of a ***real property improvement*** that is a "facility." The sale of a real property improvement is not subject to tax, regardless of who is the purchaser.

"Facility" means any building, shelter, parking lot, parking garage, athletic field, athletic park, storm sewer, water supply system, or sewerage and waste water treatment facility, but does not include a highway, street, or road.

The exemption does not apply to lab equipment or other property that remains ***tangible personal property*** after sale or installation. However, all of a Wisconsin Technical College's purchases of tangible personal property are already exempt from tax. The contractor may purchase property without tax, for resale, that remains tangible personal property after sale or installation. The contractor must be sure to make all invoices and other billing documents out in the name of the Wisconsin Technical College District to substantiate that its sale was to an exempt entity."

3.7.1

Add the following sentence to the end of the existing sub-article:

"Contractor shall provide permits for driveway/curb-cuts, and cost for relocation of light poles and tree."

3.7.4

In 3.7.4, change "~~14 days after first observance~~" to "10 days after first observance"

3.8.3

After 3.8.3, insert the following new sub-article:

"3.8.4 Refer to Section 01 21 00 for detailed description of allowances."

3.12.6

After 3.12.6, insert the following new sub-articles:

".1 Contractor shall use a verification stamp with signature and date to signify Contractor's approval of Shop Drawings."

".2 Refer to Sections 01 30 00, 01 40 00 and 01 60 00 for detailed submittal information."

3.14.2

After 3.14.2, insert the following new sub-article:

"3.14.3 Refer to Section 01 70 00 for detailed cutting and patching requirements."

ARTICLE 4

4.1.1

Add the following sentence to the end of the existing sub-article:

"Wherever the term 'Architect' appears, it shall be changed to 'Architect/Engineer (AE)'."

After 4.1.1, insert the following new sub-article:

".1 Refer to Document 00 21 13 for a detailed description of the AE and any applicable consultants."

ARTICLE 5

5.2.1

Delete the first sentence of the existing sub-article:

"~~Unless otherwise stated in Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design.~~"

Replace with:

"The successful bidder, within 10 calendar days from notification of selection for award of contract, shall furnish in writing to the Owner through the Architect a listing of major subcontractors and suppliers, their addresses, phone numbers, and the portions of the work which they will perform."

ARTICLE 7

7.2.1

After sub-article 7.2.1, insert the following new sub-article:

"7.2.2 Refer to Section 01 20 00 and 7.3.4 below for detailed change order procedures."

7.3.3.2

Delete the text of existing sub-article:

"~~Unit prices stated in the Contract Documents or subsequently agreed upon;~~"

Replace with:

"Unit prices stated in the Contract Documents including Section 01 22 00 or subsequently agreed upon;"

7.3.4

In the first sentence of sub-article 7.3.4, change "~~ including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreeent, or if no such amount is set forth in the Agreement, a reasonable amount.~~" To " including the allowance for overhead and profit as set forth in the Agreement"

7.3.8

Delete the text of the first sentence of sub-article 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 Architect.~~"

Replace with:

"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 and the allowance for overhead and profit applied to the net cost as confirmed by the Architect."

7.3.10

After 7.3.10, insert the following new sub-article:

"7.3.11 In Subparagraphs 7.3.3 and 7.3.4 the percentage fee allowance for the combined overhead and profit included in the total cost to the Owner shall be based on the following schedule:

.1 for the Contractor, for Work performed by the Contractor's own forces, 10 percent of the cost.

.2 for the Contractor, for Work performed by the Contractor's Subcontractor, 7 percent of the amount due the Subcontractor.

.3 for each Subcontractor or Sub-subcontractor involved, for Work performed by that Subcontractor's or Sub-subcontractor's own forces, 7 percent of the cost.

.4 for each Subcontractor, for Work performed by the Subcontractor's Sub-subcontractor, 5 percent of the amount due the Sub-subcontractor.
.5 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and Subcontracts. Labor and materials shall be itemized in manner prescribed above. Where major cost items are subcontracts, they shall be itemized also. In no case will a change involving over $500.00 be approved without such itemization."

7.4

After 7.4, insert the following new sub-article:

"7.5 Bulletins

A Bulletin is a written document prepared by the Architect/Engineer as a statement of changes in the scope of Work which may or may not change the Contract Amount or Time. The Contractor shall return the executed Bulletin to the Architect/Engineer on or before the date stated in the Bulletin stating Contractor's agreement to change the Scope of Work and any proposed adjustment to the Contract Amount and the Contract Time. All Bulletin items shall subsequently be recorded on a Change Order."

ARTICLE 9

9.2

After 9.2, insert the following new sub-article:

"9.2.1 Refer to Section 01 20 00 for detailed schedule of values requirements."

9.3.1

Delete the first sentence of the existing sub-article:

"~~At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work.~~"

Replace with:

Submission of Applications for Payment shall follow sub-article 9.6 of the Supplementary Conditions.

9.6.8

After 9.6.8, insert the following new sub-article:

"9.6.9 Based upon Applications for Payment submitted to the Architect by the Contractor, the Owner shall make progress payment on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

.1 The period covered by each Application for Payment shall be on the 25th day of the month.

.2 Provided an Application for Payment is received by the Architect not later than the 25th day of a month, the Owner shall make payment to the Contractor not later than the 25th day of the following month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than 60 days after the Architect receives the Application for Payment.

.3 Each Application for Payment shall be based upon the Schedule of Values submitted by the Contractor in accordance with the Contract Documents. The Schedule of Values shall allocate the entire Contract Sum among the various portions of the Work and be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

.4 Applications for Payment shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

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

The retainage shall be an amount equal to not more than 5% of the estimate until 50% of the work has been completed. At 50% completion, no additional amounts shall be retained except that at 50% completion or any time thereafter when the progress of the work is not satisfactory, additional amounts may be retained, but in no event shall the total retainage be more than 10% of the value of the work completed.

.6 The progress payment amount determined in accordance with Paragraph 9.6.9.5 shall be further modified per Paragraph 9.6.9.6.1 of the Supplementary Conditions.

.6.1 Upon Substantial Completion of the Work, retainage to remain at 5% of Contract Sum until the Contract is closed out. This amount MAY be reduced to a lower percentage or lump sum if agreed to by Owner, Contractor and A/E.

.7 Reduction or limitation of retainage, if any, shall be per Paragraph 9.6 of the Supplementary Conditions."

9.8.5

After 9.8.5, insert the following new sub-article:

"9.8.6 Failure to reach final completion within 60 days from total Substantial Completion of the Project shall be cause to terminate the Contract and the Contractor's surety shall be notified accordingly."

9.10.1

After 9.10.1, insert the following new sub-articles:

".1 Upon completion of the Final Inspection if the Work is not acceptable and the Contract not fully performed, the AE will notify the Contractor, in writing, of all unfinished Work and fix the time within which the Contractor shall complete the items listed. Upon notification by the Contractor that the list of uncompleted items is complete, the AE will make a follow-up inspection trip."

".2 Time spent by the AE to follow-up on such unfinished Work to determine that the Contractor has fully performed the Contract shall be paid for by the Contractor on the basis of the AE's regular hourly rate schedule for supplementary services and reimbursable expenses as stated in the AE's agreement for services with the Owner."

".3 Payment for all such additional services required of the AE will be deducted from the balance due the Contractor, duly noted on the final Certificate for Payment and paid by the Owner directly to the AE."

9.10.5

After 9.10.5, insert the following new sub-article:

"9.10.6 Refer to Section 01 78 00 for detailed Contract closeout procedures."

ARTICLE 11

11.1.1

After 11.1.1, insert the following new sub-article:

".1 Refer to Supplementary Conditions for requirements and coverages for bonds and insurance."

11.2.1

After 11.2.1, insert the following new sub-article:

".1 The Contractor shall provide and maintain Property Insurance to cover the deductible of the Owner's property insurance in the amount of $1,000 of loss on any claim, or provide evidence satisfactory to the Owner that the Contractor shall pay for all such losses not covered by the Owner against the same peril as described for the Owner's Property Insurance."

ARTICLE 12

12.2.2.1

In 12.2.2.1, change the words "~~one year~~" in the first sentence to "two years".

12.2.2.2

In 12.2.2.2, change the words "~~one-year~~" in the first sentence to "two-year".

12.2.2.3

In 12.2.2.3, change the words "~~one-year~~" in the first sentence to "two-year".

END OF SECTION

DOCUMENT 00 73 16
INSURANCE REQUIREMENTS

1.01 SUMMARY

A. This Section includes instructions for insurance.

1.02 RELATED REQUIREMENTS

A. Section 00 72 00 General Conditions of the Contract for Construction, AIA A201. Note the requirements of Article 11.

B. Section 00 73 17 Bond Requirements

1.03 INSTRUCTIONS FOR INSURANCE

A. Notification to Owner: The Contractor shall, in consultation with insurance provider, submit documentation for the insurance coverages listed below.

B. Contractor's Liability Insurance: Concerning the insurance referenced in Article 11 in AIA Document A201, 2017 edition, policy shall be written for the following minimum limits or greater if required by law.

1. Workers' Compensation:
   a) State Statutory Limit
   b) Employer's Liability: $500,000 per Accident.
2. Comprehensive or Commercial General Liability (including Premises-Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage):
   a) Bodily Injury and Property Damage:
      $1,000,000 Each Occurrence
      Minimum $2,000,000 Aggregate or Per Project Endorsement
3. Contractual Liability:
   a) Bodily Injury and Property Damage:
      $1,000,000 Each Occurrence
   Minimum $2,000,000 Aggregate or Per Project Endorsement.
4. Business Auto Liability (including owned, non-owned and hired vehicles):
   a) Bodily Injury and Property Damage:
      $1,000,000 Combined Single Limit (CSL) Each Occurrence
5. Umbrella Excess Liability:
   $2,000,000 over primary insurance.
   Maximum self-insured retention of $25,000.
7. The Owner and AE shall be named as additional insureds.
8. If this insurance is written on the Comprehensive General Liability policy form, the Certificates shall be AIA Document G705, Certificate of Insurance. If this insurance is written on a Commercial General Liability policy form, ACORD form 25 will be acceptable.

END OF DOCUMENT 00 73 16

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DOCUMENT 00 73 17
BOND REQUIREMENTS

1.01 SUMMARY

A. This Section includes instructions for performance and payment bonds.

1.02 RELATED REQUIREMENTS

A. Document 00 21 00 Instructions to Bidders: Requirements for Bid Bond.

B. Document 00 61 13.13 Performance Bond Form

C. Document 00 61 13.16 Payment Bond Form

D. Section 00 72 00 General Conditions of the Contract for Construction, AIA A201. Note the requirements of Article 11.

E. Section 00 73 16 Insurance Requirements

1.03 INSTRUCTIONS FOR PERFORMANCE AND PAYMENT BOND

A. The Contractor shall furnish bonds as described below, covering the faithful performance of the Contract and the payments of all obligations arising thereunder.

B. Furnish both AIA A312 Performance Bond and AIA A312 Payment Bond, 2010 edition, each in the amount of 100% of the contract price.

C. Bond amounts shall not exceed the single bond limit for the Contractor's bonding company as set forth in the Federal Register current as of the date.

D. The bonds shall be written with such sureties secured through the Contractor's usual sources as may be agreeable to the parties. In addition, the sureties shall be authorized to conduct surety business in the state in which the Project is located, and the sureties and any reinsuring companies shall be listed in the current Department of the Treasury Circular No. 570 with an underwriting limitation equal to or greater than the penal sum of the bonds to be furnished.

E. The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the attorney-in-fact's power of attorney.

F. Form of bond shall be "Public Improvement Performance/Labor and Material Payment Bond," pursuant to Section 779.14 Wisconsin Statutes, WIS. AIA Document WIS A312, published by the Wisconsin Society of Architects/AIA.

G. All bonds shall be signed by an agent or official of the surety company and shall include the certified power of attorney provided by the surety company showing that the person who signs the bonds has the power of attorney to so sign for the surety company. Such certification shall be signed by the Secretary or Assistant Secretary of the company and not by an attorney-in-fact. This certification shall bear the same or earlier date as the bonds.

H. Surety company shall have a B, or better, rating by the “Best Guide,” licensed to do business in the State of Wisconsin.

I. Provide four copies each of the bonds and the power of attorney to attachment to each copy of the Agreement.

J. Contractor shall pay the premiums for the surety bonds.

K. Date of Agreement and surety bonds shall be the same.

L. Contractor shall sign the bonds, consistent with the following, as applicable:

1. Under a partnership or a joint venture, the Agreement may be signed by one partner of the partnership, or one partner of each firm comprising the joint venture, but the surety bonds shall be signed by all partners.

2. Under a corporation, the bonds shall be signed by the official signing the Agreement and the corporate seal affixed to the Agreement and the surety bonds. If the corporation has no seal, include a statement to the effect that the corporation has no seal.

1.04 AVAILABILITY OF FORMS

Sample document forms as specified above are attached hereto, and may be purchased directly from:

WISCONSIN SOCIETY OF ARCHITECTS/AIA
321 South Hamilton Street
Madison, Wisconsin 53703
Telephone:(608) 257-8477 or (800) 272-4483

END OF DOCUMENT 00 73 17

SECTION 01 10 00
SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Refer to Cover Sheet on Drawings for project title and location.

B. Refer to 00 11 13 Advertisement for Bids for brief description of Project.

1.02 RELATED REQUIREMENTS

A. Section 01 50 00 - Temporary Facilities: Requirements for temporary utilities.

B. Section 01 70 00 - Administrative Requirements: Contract limits and protection of existing conditions.

1.03 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Sum as described in Document 00 52 13 - Agreement Form.

1.04 PHASED CONSTRUCTION

A. The Work shall be conducted in a single phase.

1.05 WORK BY OTHERS

A. Items indicated "N.I.C." on the Project Drawings will be furnished and installed by others not a party to the Prime Contracts.

1.06 OWNER OCCUPANCY

A. Owner intends to continue to occupy adjacent portions of the existing building during the entire construction period.

B. Owner intends to occupy the Project area upon Substantial Completion.

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

D. Schedule the Work to accommodate Owner occupancy.

1.07 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings.

B. Arrange use of site and premises to allow:
   1. Owner occupancy.
   2. Work by Others.
   3. Work by Owner.

C. Provide access to and from site as required by law and by Owner:
   1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
   2. Do not obstruct roadways, sidewalks, or other public ways without permit.

D. Time Restrictions:
   1. Work on the Project shall be done during normal working hours. If at any time during construction it becomes necessary to accelerate the Work in order to meet completion dates for portions or all of the Work, all trades shall work overtime at no additional cost to Owner.

E. Utility Outages and Shutdown:
   1. Notify Owner within 48 hours of necessary interruptions of services including, but not limited to: HVAC systems, water service (hot & cold), electrical service, communications systems.
   2. 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.
   3. Prevent accidental disruption of utility services to other facilities.

1.08 CONSTRUCTION SCHEDULE

A. Date of Commencement of the Work: May 11, 2026.

B. Date of Substantial Completion: September 11, 2026.

C. Final Completion: The completion of all Work according to the contract Documents, approved by the AE and accepted by the Owner shall be within 30 days after the Date of Substantial Completion.

D. Exceptions: The only exceptions to the above completion dates are delay or termination because of a national emergency and/or extension of time for completion claimed and allowed according to the General Conditions and/or Supplementary Conditions.

1.09 WORK SEQUENCE

A. Coordinate construction schedule and operations with Architect.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Change order procedures.

D. Correlation of Contractor submittals based on changes.

E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

A. Document 00 52 13 - Agreement Forms AIA-A101: Contract Sum, payment period.

B. Section 00 72 00 General Conditions and 00 73 00 Supplementary Conditions: Additional requirements for progress payments, final payment, changes in the Work.

C. Section 00 73 00 - Supplementary Conditions: Percentage allowances for Contractor's overhead and profit.

D. Document 00 73 00 - Supplementary Conditions: Dates for applications for payment.

1.03 SCHEDULE OF VALUES

A. The Schedule of Values shall allocate the entire Contract Sum among the various portions of the Work and be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This Schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Applications for Payment.

B. Use Schedule of Values Form: AIA G703, edition stipulated in the Agreement.

C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.

D. Forms filled out by hand will not be accepted.

E. At least 10 days prior to submission of the first Application for Payment, secure A/E's approval of the schedule of values required to be submitted under 9.2 of the General Conditions.

F. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates of Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

B. Payment Period: One calendar month time frame.

C. Use Form AIA G702 and Form AIA G703, edition stipulated in the Agreement.

D. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

E. Forms filled out by hand will not be accepted.

F. Provide an application for payment and determine progress payment amount per 9.6 of AIA A201 and 00 73 00 Supplementary Conditions.

G. For each item, provide a column for listing each of the following:

Item Number.
Description of work.
Scheduled Value.
Work Completed From Previous Application (D + E).

Work Completed This Period.
Materials Presently Stored (Not in D or E).
Total Completed and Stored to Date (D + E + F) & Percentage Complete (G/C).
Balance to Finish (C-G).
Retainage.

H. Execute certification by signature of authorized officer.

I. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.

J. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.

K. Submit one electronic copy, in .pdf format, of each Application for Payment.

L. Include the following with the application:
   1. Transmittal letter as specified for submittals in Section 01 30 00.
   2. Construction progress schedule, revised and current as specified in Section 01 30 00.
   3. Current construction photographs specified in Section 01 30 00.

M. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 PRODUCT HANDLING

A. Maintain a "Register of Bulletins and Change Orders" at the job site, accurately reflecting current status of all pertinent data.

B. Make the Register available for review upon request.

1.06 PROCESSING CHANGES INITIATED BY THE OWNER AND/OR AE

A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.

B. Should the Owner contemplate making a change in the Work or a change in the Contract Time of Completion, the Architect/Engineer, upon Owner direction, will issue a "Bulletin" to the Contractor.
   1. Bulletins will be dated and will be numbered in sequence.
   2. The Bulletin will describe the contemplated change.
      a. Promptly advise Architect/Engineer as to credit or cost and time proposed for the described change. This is not an authorization to proceed with the change.

C. If the Contractor has been directed by Architect/Engineer to make the described change in the Work at no change in the Contract Sum and no change in the Contract Time of Completion, but the Contractor wishes to make a claim for one or both of such changes, the Contractor shall proceed with the change and shall notify the Architect/Engineer as provided for under Article 7 of the General Conditions.

D. If the Contractor has been directed by Architect/Engineer to make the described change subject to later determination of cost or credit in accordance with Article 7 of the General Conditions, the Contractor shall:
   1. Take such measures as needed to make the change.
   2. Consult with Architect/Engineer and reach agreement on the most appropriate method for determining credit or cost for the change.

1.07 PROCESSING CHANGES INITIATED BY CONTRACTOR

A. Should the Contractor discover a discrepancy among the Contract Documents, a concealed condition or other cause for suggesting a change in the Work, a change in the Contract Sum, or a change in the Contract Time of Completion, the Contractor shall notify Architect/Engineer as required by pertinent provisions of the Contract Documents.

B. Upon agreement by Architect/Engineer that there is reasonable cause to consider the Contractor's proposed change, Architect/Engineer will issue a Bulletin in accordance with the provisions described in the preceding article.

1.08 PROCESSING OF BULLETINS

A. Make written reply to Architect/Engineer in response to each Bulletin by date stated on the Bulletin:
   1. State proposed change in the Contract Sum, if any.
   2. State proposed change in the Contract Time of Completion, if any.
   3. Clearly describe other changes in the Work required by the proposed change, or desirable therewith, if any.
   4. Include full backup data such as subcontractor's letter of proposal or similar information.

B. When cost or credit for the proposed change has been agreed upon by the Owner and the Contractor, or the Owner has directed that cost or credit be determined in accordance with provisions of Article 7 of the General Conditions of the Contract for Construction A201 as modified in the Supplementary Conditions, A/E will notify contractor in writing. A formal Change Order will be initiated and executed at the time of completion of the Contract, or at a time when the payment for work completed is due. All approved Bulletins previously not incorporated into the Contract by a Change Order, shall be combined into a Change Order to adjust the final Contract Sum to compensate for all Changes in the Work to date.

1.09 PROCESSING CHANGE ORDERS

A. Change Orders will be dated and will be numbered in sequence.

B. The Change Order will describe the change or changes, will refer to the Bulletin or Bulletins involved, and will be endorsed by Architect/Engineer and signed by the Contractor and the Owner.

C. Architect/Engineer will issue three copies of each Change Order.
   1. The Contractor promptly shall sign all three copies and return all copies to Architect/Engineer.
   2. Architect/Engineer shall forward the Change Order to the Owner for his signature. Upon approval, he shall distribute two fully executed copies of the Change Order to Architect/Engineer. A/E to distribute one to the Contractor.

D. Substantiation of Costs: Provide full information required for evaluation.
   1. On request, provide the following data:
      a. Quantities of products, labor, and equipment.
      b. Taxes, insurance, and bonds.
      c. Overhead and profit.
      d. Justification for any change in Contract Time.
      e. Credit for deletions from Contract, similarly documented.
   2. Support each claim for additional costs with additional information:
      a. Origin and date of claim.
      b. Dates and times work was performed, and by whom.
      c. Time records and wage rates paid.
      d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
   3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

E. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

F. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

G. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

H. Promptly enter changes in Project Record Documents.

1.10 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
   1. All closeout procedures specified in Section 01 70 00.
   2. All closeout submittals specified in Section 01 78 00.
   3. A201 as modified in the Supplementary Conditions including sub-article 9.10.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 23 00

ALTERNATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Description of Alternates.

1.02 RELATED REQUIREMENTS

A. Document 00 21 13 - Instructions to Bidders: Instructions for preparation of pricing for Alternates.

1.03 DESCRIPTION

A. Conditions of the Contract and pertinent portions of Sections in Division One of this Project Manual, apply to the Work of this Section as fully as though repeated herein.

B. This Section describes the alternates to the project. Refer to the Product/Execution Articles of the Contract Documents for information pertaining to the work of each alternate.

C. Each proposal under an alternate shall include all incidental work and all adjustments necessary to accommodate the changes. All work shall meet the requirements of the Contract Documents.

D. Each alternate proposal shall be submitted as an individual cost for the particular alternate and shall be proposed under the premise that no other alternates have been accepted. Should the work of an alternate called for by the Bid Form not affect the cost of the work, "No Change" shall be stated.

E. Owner may, at Owner's option, vary the scope of the work by authorizing alternates which will add to the work, deduct from the work or substitute materials, equipment or methods.

F. Immediately following Award of Contract, awarded Contractor shall prepare and distribute to each party involved, notification of the status of each alternate. Indicate whether alternates have been accepted, rejected, or deferred for consideration at a later date. Include a complete description of negotiated modifications to alternates, if any.

1.04 ACCEPTANCE OF ALTERNATES

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

1.05 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Add boilers and pumps to emergency power.
   1. The following work shall be priced under Alternate No. 1: State the amount to be added to the base bid to connect existing boilers and pumps to an existing emergency power generator. Refer to Specification Section 26 27 02 Equipment Wiring Systems and Drawing number E200 Electrical Power Plan.

B. Alternate No. 2: Add floor outlets to The Space room 104 and Storage 104E.
   1. The following work shall be priced under Alternate No. 2: State the amount to be added to the base bid to add three floor outlets to 104 and one floor outlet to 104E. Work includes but is not limited to floor outlet work, patching substrates and finishes. Refer to Specification Section 26 27 26 Wiring Devices and Drawing number E200 Electrical Power Plan.

C. Alternate No. 3: Replace Panelboard ‘S’.

   The following work shall be priced under Alternate No. 3: State the amount to be added to the base bid do the following: Electrical contractor shall replace an existing 100 amp., 120/208VAC, 3-phase, 4-wire, 42 space, main-lug-only, 'General Electric' panelboard labeled 'S' located in Hub Room #108 with a new 125 amp., 120/208VAC, 3-phase, 4-wire, 42-space, main-lug-only, Square 'D' panelboard. No equals will be accepted. Refer to panelboard schedule on the drawings for a list of circuit breakers required. Refer to

Specification Sections 26 24 16 Panel Board and Drawing number E200 Electrical Power Plan.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 25 00
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedural requirements for proposed substitutions.

1.02 RELATED REQUIREMENTS

A. Document 00 21 13 - Instructions to Bidders: Submittal process prior to contract award. See Article 3.

B. Document 00 22 13 - Supplementary Instructions to Bidders: Submittal process prior to contract award. See Article 3.

C. Document 00 43 25 - Substitution Request Form - During Procurement: Form for substitution requests made prior to award of contract (During procurement).

D. Document 00 63 25 - Substitution Request Form - During Construction: Required form for substitution requests made after award of contract (During construction).

E. Section 00 72 00 - General Conditions of the Contract: AIA A201 - Review index item "Substitution of Materials".

1.03 DEFINITIONS

A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
   1. Substitutions during Procurement: Proposed changes prior to contract award.
   2. Substitutions during Construction:
      a. Substitutions for Cause: Proposed changes following contract award due to changed Project circumstances beyond Contractor's control.
         1) Unavailability.
         2) Regulatory changes.
      b. Substitutions for Convenience: Proposed changes following contract award due to possibility of offering substantial advantage to the Project. Substitution requests offering advantages solely to the Contractor will not be considered without a fair credit being offered to the owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
   2. Agrees to provide the same warranty for the substitution as for the specified product.
   3. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.
   5. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.

B. A Substitution Request for a specified installer constitutes a representation that the submitter:
   1. Has acted in good faith to obtain services of specified installer, but was unable to come to commercial, or other terms.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
   1. Explicitly note any non-compliant characteristics.

D. Limit each request to a single proposed substitution item.

3.02 SUBSTITUTION PROCEDURES DURING PROCUREMENT

A. Submittal Time Restrictions:
   1. Instructions to Bidders specifies time restrictions and the documents required for submitting substitution requests during the bidding period.
   2. Document 00 21 13 - Instructions to Bidders specifies time restrictions and the documents required for submitting substitution requests during the bidding period.

B. Document 00 22 13 Supplementary Instructions to Bidders describes substitution process during bidding and specifies time restrictions for submitting requests for substitutions during the bidding period, and the documents required.

C. Submittal Form (before award of contract):
   1. Submit substitution request. Use form in Document 00 43 25 or otherwise provide the required documentation.

3.03 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

A. Submittal Form (after award of contract):
   1. Submit substitution requests by completing the form in Document 00 63 25; see this section for additional information and instructions. Use only this form; other forms of submission are unacceptable.

B. Architect will consider requests for substitutions only within 15 days after date of Agreement.

C. Submit request for Substitution for Cause within 14 days of discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

D. Submit request for Substitution for Convenience within 14 days of discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
   1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
   2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
   3. Bear the costs engendered by proposed substitution of:
      a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.

E. Substitutions will not be considered under one or more of the following circumstances:
   1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
   2. Without a separate written request.
   3. When acceptance will require revisions to Contract Documents.

3.04 RESOLUTION

A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.

B. Architect will notify Contractor in writing of decision to accept or reject request.
   1. Architect's decision following review of proposed substitution will be noted on the submitted form.

3.05 ACCEPTANCE

A. Accepted substitutions will be documented and incorporated into work of the project only by Addendum, Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

3.06 CLOSEOUT ACTIVITIES

A. See 01 78 00 - Closeout Submittals for additional information regarding documenting warranties for accepted substitutions.

END OF SECTION

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SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General administrative requirements.

B. Electronic document submittal service.

C. Preconstruction meeting.

D. Progress meetings.

E. Construction progress schedule.

F. Progress photographs.

G. Coordination drawings.

H. Submittals for review, information, and project closeout.

I. Number of copies of submittals.

J. Requests for Interpretation (RFI) procedures.

K. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 shall govern the work of this section.

B. Section 01 25 00 - Substitution Procedures.

C. Section 01 40 00 - Quality Requirements: Testing reports.

D. Section 01 60 00 - Product Requirements: General product requirements.

E. Section 01 70 00 - Execution and Closeout Requirements: Additional coordination requirements.

F. Section 01 78 00 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 01 70 00 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

B. Make the following types of submittals to Architect:
   1. Requests for Interpretation (RFI).
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Design data.
   6. Manufacturer's instructions and field reports.
   7. Applications for payment and change order requests.
   8. Progress schedules.
   9. Coordination drawings.
   10. Correction Punch List and Final Correction Punch List for Substantial Completion.
   11. Closeout submittals.

1.04 PROJECT COORDINATOR

A. Project Coordinator: Contractor's Superintendent.

B. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for equipment access, traffic, and parking facilities.

C. During construction, coordinate use of site and facilities through the Project Coordinator.

D. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

E. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.

F. Coordinate field engineering and layout work under instructions of the Project Coordinator.

G. Make the following types of submittals to Architect through the Project Coordinator:
   1. Requests for Interpretation.
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Design data.
   6. Manufacturer's instructions and field reports.
   7. Applications for payment and change order requests.
   8. Progress schedules.
   9. Coordination drawings.
   10. Correction Punch List and Final Correction Punch List for Substantial Completion.
   11. Closeout submittals.

PART 2 PRODUCTS NOT USED

PART 3 EXECUTION

3.01 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.
   1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
   2. Contractor and Architect are required to use this service.
   3. It is Contractor's responsibility to submit documents in allowable format.
   4. Subcontractors, suppliers, and Architect's consultants and Owner are to be permitted to use the service at no extra charge.
   5. Users of the service need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software capability is provided by the service provider.
   6. Paper document transmittals will not be reviewed without prior authorization; emailed electronic documents will not be reviewed.
   7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.
   8. Physical samples or color charts required for color selection shall be scanned into PDF format and submitted for approval via the Electronic Document Submittal Service in addition to physical delivery of the samples.

9. If the service allows for customization of the submittal review and acknowledgement categories then the Contractor shall adjust the categories to match the following categories. If the service is not customizable, then the reviewer is free to pick the category of the service that best matches the desired workflow for the submittal without changing the substance of the reviewer's stamped response.
    a. The Architect's Review Stamp includes the following categories:
        1) Review Completed.
        2) Exceptions as Noted.
        3) Rejected.
        4) Revise and Resubmit.
        5) Confirmation Required.
        6) Additional Information Requested.
        7) Not Required for Review.

B. Submittal Service: The Contractor will provide and administer one of the following services.
    1. Procore: Project Management Pro (https://www.procore.com/).
    2. Primavera Submittal Exchange Cloud Service: (www.Oracle.com/industries/construction-engineering/submittal-exchange/).
    3. Viewpoint Team: https://www.viewpoint.com/products/viewpoint-team.
    4. PlanGrid Build: https://construction.autodesk.com/products/autodesk-plangrid-build/?pgr=1.
    5. Information for contractors not currently using one of the services listed above:
        a. Substitute services can be submitted for consideration by the Architect prior to bid using the substitution processes described in Section 01 25 00 Substitution Procedures.
        b. Primavera Submittal Exchange is available on a per-project basis.

C. Project Closeout: Architect will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Owner.

3.02 PRECONSTRUCTION MEETING

A. Architect will schedule a meeting within 10 working days after Notice of Award.

B. Attendance Required:
    1. Owner.
    2. Architect.
    3. Contractor.
    4. Major subcontractors.
    5. Architect/Engineer will advise other interested parties, and request their attendance.

C. Agenda:
    1. Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, and Architect/Engineer.
    2. Channels and procedures for communication.
    3. Construction schedule, including sequence of critical work.
    4. Coordination of separate contract work, if any.
    5. Distribution of Contract Documents.
    6. Designation of personnel representing the parties to Contract and Architect.
    7. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
    8. Rules and regulations governing performance of the Work.
    9. Procedures for safety and first aid, security, quality control, housekeeping, and related matters.

D. Architect will conduct meeting, record and distribute minutes.

3.03 PROGRESS MEETINGS

A. Meetings to be held throughout progress of the Work at maximum monthly intervals.

B. Architect will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record and distribute minutes.

C. Attendance Required:
   1. Contractor.
   2. Owner.
   3. Architect.
   4. Contractor's superintendent.
   5. Major subcontractors.
   6. Assign the same person or persons to represent the Contractor at project meetings throughout progress of the Work.
   7. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspect of the Work is involved.

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

E. Revisions to minutes:
   1. Unless published minutes are challenged in writing prior to the next regularly scheduled progress meeting, they will be accepted as properly stating the activities and decisions of the meeting.
   2. Persons challenging published minutes shall reproduce and distribute copies of the challenge to all indicated recipients of the particular set of minutes.
   3. Challenge to minutes shall be settled as priority portion of "old business" at the next regularly schedule meeting.

3.04 CONSTRUCTION PROGRESS SCHEDULE

A. Within 7 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of work, with a general outline for remainder of work.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 7 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
   1. Include written certification that major contractors have reviewed and accepted proposed schedule.

D. Within 7 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment.

F. Submit updated schedule periodically as required to reflect progress made and remaining work to achieve contractual completion date.

3.05 PHOTOGRAPHS

A. Take photographs as evidence of existing project conditions as follows:
   1. Interior views: Verify conditions of adjacent surfaces and finish conditions for future verification.
   2. Exterior views: Verify conditions of adjacent items (i.e. sidewalks paving sod walls etc.) for future verification.

B. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
   1. Delivery Medium: Via email.
   2. File Naming: Include project identification, date and time of view, and view identification.

3.06 COORDINATION DRAWINGS

A. Provide information required by Project Coordinator for preparation of coordination drawings.

B. Review drawings prior to submission to Architect.

3.07 REQUESTS FOR INTERPRETATION (RFI)

A. Definition: A request seeking one of the following:
   1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
   2. A resolution to an issue which has arisen due to field conditions and affects design intent.

B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.

C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
   1. Prepare a separate RFI for each specific item.
      a. Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
      b. Do not forward requests which solely require internal coordination between subcontractors.
   2. Prepare in a format and with content acceptable to Architect.

D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents (Drawings, Addenda and Specifications) to confirm that information sufficient for their interpretation is definitely not included.
   1. Include in each request Contractor's signature attesting to good faith effort to determine from Contract Documents information requiring interpretation.
   2. Unacceptable Uses for RFIs: Do not use RFIs to request the following::
      a. Approval of submittals (use procedures specified elsewhere in this section).
      b. Approval of substitutions (see Section - 01 25 00 Substitution Procedures).
      c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
      d. Different methods of performing work than those indicated in the Contract Drawings and Specifications (comply with provisions of the Conditions of the Contract).
   3. Improper RFIs: Requests not prepared in compliance with requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response, with an explanatory notation.
   4. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, Contract Documents, with no additional input required to clarify the question. They will be returned without a response, with an explanatory notation.

E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
   1. Official Project name and number, and any additional required identifiers established in Contract Documents.
   2. Owner's, Architect's, and Contractor's names.
   3. Discrete and consecutive RFI number, and descriptive subject/title.
   4. Issue date, and requested reply date.
   5. Contractor shall confirm that their research of the issue has included review of both the Project Drawings and Specification Manual.
   6. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
   7. Annotations: Field dimensions and/or description of conditions which have engendered the request.
   8. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.

F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.

G. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
   1. Indicate current status of every RFI. Update log promptly and on a regular basis.
   2. Note dates of when each request is made, and when a response is received.
   3. Highlight items requiring priority or expedited response.
   4. Highlight items for which a timely response has not been received to date.
   5. Identify and include improper or frivolous RFIs.

H. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 1:00 p.m. will be considered as having been received on the following regular working day.
   1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.

I. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
   1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
   2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
   3. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.
   4. Notify Architect within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

3.08 SUBMITTAL SCHEDULE (LOG)

A. Submit to Architect for review a schedule for submittals in tabular format.
   1. Submit at the same time as the preliminary schedule.
   2. Coordinate with Contractor's construction schedule and schedule of values.

3. Format schedule to allow tracking of status of submittals throughout duration of construction.
4. Arrange information to include scheduled date for initial submittal, specification number and title, description of item of work covered, role and name of subcontractor, and Categorization: Review, Information, Closeout, Maintenance Materials.
5. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.
    a. For assemblies, equipment, systems comprised of multiple components and/or requiring detailed coordination with other work, allow for additional time to make corrections or revisions to initial submittals, and time for their review.

3.09 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
    1. Product data.
    2. Delegated design - Instruments of Service.
    3. Shop drawings.
    4. Samples for selection.
    5. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - Closeout Submittals.

3.10 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
    1. Certificates.
    2. Test and evaluation reports.
    3. Inspection reports.
    4. Manufacturer's instructions.
    5. Manufacturer reports.
    6. Qualification documentation.
        a. Manufacturer.
        b. Supplier.
        c. Fabricators.
        d. Installers, Applicators, Erectors.
    7. Source quality control documentation.
    8. Field quality control documentation.
    9. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for Owner.

3.11 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 78 00 - Closeout Submittals:
    1. Maintenance Contracts.
    2. Project record documents.
    3. Operation and maintenance data.
    4. Warranties.
    5. Bonds.
    6. Sustainable Design Closeout Documentation.

7. Software.
8. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.12 MAINTENENACE MATERIALS SUBMITTALS

A. When the following are specified in individual sections, provide the specified items to the Owner and submit documentation of the owner's acceptance of the items, the date of transfer to the Owner and location at time of transfer.
   1. Spare Parts.
   2. Extra Stock.
   3. Tools.

B. Unless otherwise required by the Owner or Architect maintenance materials submittals can be documented in single combined transmittal at project closeout.

3.13 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Hard Copy Documents for Review: (If PDF format is not possible).
   1. Small Size Sheets, Not Larger Than 8-1/2 by 11 inches: Submit the number of copies that Contractor requires, plus one copy that will be retained by Architect.
   2. Larger Sheets, Not Larger Than 36 by 48 inches: Submit the number of opaque reproductions that Contractor requires, plus one copy that will be retained by Architect.
   3. Hard Copy Documents for product data Information: Submit number of copies required to be returned plus one copy which will be retained by the A/E.

C. Extra Copies at Project Closeout: See Section 01 78 00.

3.14 SAMPLES

A. Samples: Submit the number specified in individual specification sections, but no fewer than two; at least one of which will be retained by Architect.
   1. Retained samples will not be returned to Contractor unless specifically so stated.

3.15 SUBMITTAL PROCEDURES

A. General Requirements:
   1. Submittal Transmittal Requirements.
      a. Use a single transmittal for related submittal items. Do not combine submittal items from more than one of the following categories into a single transmittal: review, information, closeout, and maintenance materials.
         1) This project manual may contain specification sections that require transmittals that include submittal items from multiple sections as a single combined transmittal. Follow the instructions within the specification sections.
         2) For specification sections that explicitly identify related submittal items provide transmittals that combine the items indicated.
            (a) If related items are explicitly identified they will be categorized into any of the following groups:
               (1) Review Submittals - Preparatory.
               (2) Review Submittals - Samples.
               (3) Information Submittals - Preparatory.
               (4) Information Submittals - During Execution.
               (5) Closeout Submittals.
               (6) Maintenance Materials.
         3) For specification sections that do not explicitly identify related submittal items, provide a separate transmittal for each item or coordinate with the Architect for approval of grouping submittal items into combined transmittals.

b. Transmit using approved form / coversheet.
    1) Use Contractor's form, subject to prior approval by Architect.
    2) Use form generated by Electronic Document Submittal Service software.
    3) Provide space for Contractor and Architect review stamps.
c. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
d. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
e. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.

2. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
3. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
    a. Deliver hardcopy and sample submittals to Architect at business address. Submit in hardcopy form only for physical sample submittals or other submittals with prior approval by the Architect.
    b. Upload submittals in electronic form to Electronic Document Submittal Service website.
4. Schedule submittals to expedite the Project, and coordinate submission of related items.
    a. For each submittal for review, allow 10 days excluding delivery time to and from the Contractor.
    b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 5days.
5. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
6. When revised for resubmission, identify all changes made since previous submission.
7. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
8. Where contents of submitted product data include data not pertinent to the submittal, clearly indicate which portion of the contents is being submitted for review.
    a. Circle, box or callout the applicable items in the submittal.
    b. Strikethrough or cross-out non-applicable items in the submittal.
9. Within 30 days after notification of selection for award of contract, provide a listing of suppliers and manufacturers, include their address, phone number, and the portions of work which they will perform.
10. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
11. Submittals not requested will be recognized and will be returned "Not Required for Review."

B. Product Data Procedures:
    1. Submit only information required by individual specification sections.
    2. Collect required information into a single submittal.
    3. Submit concurrently with related shop drawing submittal.
    4. Do not submit (Material) Safety Data Sheets for materials or products.

C. Shop Drawing Procedures:
    1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work. Prepare drawings to a scale sufficiently large to show all pertinent aspects of the item and method of connection.
    2. Do not reproduce Contract Documents to create shop drawings.

3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.

D. Samples Procedures:
   1. Transmit related items together as single package.
   2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.
   3. Include with transmittal high-resolution image files of samples to facilitate electronic review and approval. Provide separate submittal page for each item image.
   4. In situations specifically so approved by the Architect, the Architect's sample may be used in the construction as one of the installed items.
   5. Unless the precise color and pattern is specifically described in the Contract Documents, and whenever a choice of color or pattern is available in a specified product, submit accurate color and pattern charts to the Architect for review and selection.

E. Reviewing and conditional approval are only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents.

F. Conditions of approval: The Contractor is responsible for dimensions to be confirmed and correlated at the site; for information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction and for coordination of the Work of all trades. Corrections or comments made on this shop drawing submittal do not relieve the Contractor from compliance with requirements of Contract Documents.

G. Delays caused by tardiness in receipt of submittals will not be an acceptable basis for extension of the Contract Completion date.

3.16 SUBMITTAL REVIEW

A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.

B. Submittals for Information: Architect will acknowledge receipt and review. See below for actions to be taken.

C. Submittals for Project Closeout: Architect will review with closeout documentation.

D. Submittals for Maintenance Materials: Architect will review with closeout documentation.

E. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
   1. Notations may be made directly on submitted items and/or listed on appended Submittal Review cover sheet.

F. Architect's and consultants' actions on items submitted for review:
   1. Authorizing purchasing, fabrication, delivery, and installation:
      a. "Review Completed", or language with same legal meaning.
      b. "Exceptions as Noted", or language with same legal meaning.
         1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
      c. "Additional Information Requested", or language with the same legal meaning.
         1) Resubmit with additional information, with review notations acknowledged and incorporated.
         2) Non-responsive resubmittals may be rejected.
      d. "Review Completed and Confirmation Required", or language with same legal meaning.
         1) Resubmit corrected item, with review notations acknowledged and incorporated. Resubmit separately, or as part of project record documents.
         2) Non-responsive resubmittals may be rejected.

2. Not Authorizing fabrication, delivery, and installation:
    a. "Revise and Resubmit".
        1) Resubmit revised item, with review notations acknowledged and incorporated.
        2) Non-responsive resubmittals may be rejected.
    b. "Rejected".
        1) Submit item complying with requirements of Contract Documents.

G. Architect's and consultants' actions on items submitted for information:
    1. Acknowledgment of the submittal without noting any further action required by the Contractor regarding the submittal:
        a. "Review Completed", or language with the same legal meaning.
    2. Returning the submittal to the contractor for correction:
        a. "Rejected", or language with the same legal meaning. This categorization of the submittal may be accompanied by further instruction or other categorization in the stamp to advise the contractor what needs to be corrected.

H. Architect's and consultants' actions on items submitted that were not requested.
    1. "Not Required for Review" - to notify the contractor the submittal is not required.

END OF SECTION

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SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittals.

B. References and standards.

C. Inspection agencies and services.

D. Control of installation.

E. Tolerances.

F. Manufacturers' field services.

G. Defect Assessment.

1.02 RELATED REQUIREMENTS

A. Document 00 72 00 - General Conditions: Inspections and approvals required by public authorities.

B. Section 01 30 00 - Administrative Requirements: Submittal procedures.

C. Section 01 60 00 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCE STANDARDS

A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2023).

B. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation; 2024.

C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2023.

D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2023.

E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2023.

F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2021.

G. ASTM E699 - Standard Specification for Agencies Involved in Testing, Quality Assurance, and Evaluating of Manufactured Building Components; 2016.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Information Submittals - Preparatory:
   1. Designer's Qualification Statement: Submit for Architect's knowledge as contract administrator, or for Owner's information.
      a. Include information for each individual professional responsible for producing, or supervising production of, design-related professional services provided by Contractor.
         1) Full name.
         2) Professional licensure information.
         3) Statement addressing extent and depth of experience specifically relevant to design of items assigned to Contractor.

2. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information. Provide the following information:
    a. Include calculations that have been used to demonstrate compliance to performance and regulatory criteria provided, and to determine design solutions.
    b. Include required product data and shop drawings.
    c. Include a statement or certification attesting that design data complies with criteria indicated, such as building codes, loads, functional, and similar engineering requirements.
    d. Include signature and seal of design professional responsible for allocated design services on calculations and drawings.
3. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
    a. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
    b. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.
4. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

C. Information Submittals - During Execution:
1. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
    a. Include:
        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 test/inspection.
        8) Date of test/inspection.
        9) Results of test/inspection.
        10) Compliance with Contract Documents.
        11) When requested by Architect, provide interpretation of results.
    b. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.
2. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
    a. Submit report in duplicate within 30 days of observation to Architect for information.
    b. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.

1.05 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in any reference document.

1.06 CONFLICTING REQUIREMENTS

A. If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but indicated as equal to the Architect for a decision.

1.07 TESTING AND INSPECTION AGENCIES AND SERVICES

A. Unless noted otherwise Contractor shall employ and pay for services of an independent testing agency to perform specified testing and inspection.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

C. Contractor Employed Agency:
   1. Testing agency: Comply with requirements of ASTM E329, ASTM E543, ASTM E699, ASTM C1021, ASTM C1077, ASTM C1093, and ASTM D3740.
   2. Inspection agency: Comply with requirements of ASTM D3740 and ASTM E329.
   3. Laboratory: Authorized to operate in the state in which the project is located.
   4. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

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

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

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

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

E. Have work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TOLERANCES

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

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

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

3.03 TESTING AND INSPECTION

A. See individual specification sections for testing required.

B. Testing Agency Duties:
   1. Test samples of mixes submitted by Contractor.
   2. Provide qualified personnel and required equipment at site. Cooperate with Architect and Contractor in performance of services.
   3. Perform specified sampling and testing of products in accordance with specified standards.
   4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   5. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
   6. Perform additional tests and inspections required by Architect.
   7. Submit reports of all tests/inspections specified. Test results and reports shall be furnished simultaneously to the Architect/Engineer (1 copy) and the General Contractor (1 copy) within one week of testing.

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

D. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work.
   3. Provide incidental labor and facilities:
      a. To provide access to Work to be tested/inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
      c. To facilitate tests/inspections.
      d. To provide storage and curing of test samples.
   4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
   5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

E. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

F. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.04 MANUFACTURERS' FIELD SERVICES

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

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

3.05 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not complying with specified requirements.

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

END OF SECTION

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SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.

B. Temporary telecommunications services.

C. Temporary sanitary facilities.

D. Temporary Controls: Barriers, enclosures, and fencing.

E. Security requirements.

F. Vehicular access and parking.

G. Field offices.

1.02 RELATED REQUIREMENTS

A. Section 01 10 00 - Summary of the Work: Limitations on utility interruptions.

B. Section 01 70 00 - Execution and Closeout Requirements: Instructions for protection of floors and finished work.

C. Section 01 70 00 - Execution and Closeout Requirements: Contract limits and protection of existing site conditions.

1.03 EXISTING SERVICES AND UTILITIES

A. Maintain existing services and utilities in use at all times during construction. Provide and pay for temporary connections or devices when necessary to avoid interruptions of such services and utilities, and remove same when no longer needed.

B. Schedule unavoidable, construction related interruptions with the AE and the Owner well in advance of the need for such interruptions.

C. When new services and utilities are ready to change over from Contractor's to Owner's responsibility, notify the AE in writing 10 days in advance of the proposed date of change over. If AE and Owner concur, make change over as proposed. If not, AE will so notify the Contractor in writing stating the reasons why, and stating a new date when the change over can be made.

1.04 TEMPORARY UTILITIES

A. Water:
   1. Use Owners existing water service. Provide any modifications at contractor's expense. Owner to pay for water used.
   2. Each contractor shall provide their own hoses.
   3. Drinking Water: The Contractor shall provide drinking water for all persons on the Project during construction.
   4. Use trigger-operated nozzles for water hoses, to avoid waste of water.

B. Electricity:
   1. Use the Owners existing electrical service.
   2. The Owner will furnish all electricity expended to complete construction at no cost to Contractor. Where required power requirements are not met with Owner's available service, Contractor shall provide necessary portable power to meet Project needs.
   3. When installation of the permanent electrical service and distribution system is sufficiently complete to be operated safely, the system may be used to provide construction light and power and testing and operation of permanent equipment.

1.05 TEMPORARY HEAT AND VENTILATION

A. Provide temporary heat and ventilation as required to maintain adequate environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation of materials, and to protect materials and finishes from damage due to temperature and humidity.

B. Provide adequate forced ventilation of enclosed areas for curing of installed materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors or gases.

C. Coordinate operation of existing HVAC systems during construction to prevent contaminating system with dust and debris. Cover return air grilles and supply air outlets as required to protect system. Coordinate with owner required shutdown to protect system. Replace filters at substantial completion.

D. Portable heaters shall be standard approved units complete with controls.

E. Pay all costs of installation, maintenance, operation and removal, and for fuel consumed.

1.06 TELEPHONE AND INTERNET SERVICE

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

B. Telecommunications services shall include:
   1. Windows-based personal computer dedicated to project telecommunications, with necessary software and laser printer.
   2. Telephone Land Lines or Cell Phone: One line, minimum; one handset per line.
   3. Internet Connections: Minimum of one; DSL modem or faster.
   4. Email: Account/address reserved for project use.
   5. Contractor option to have internet and email service at their main office.

1.07 TEMPORARY SANITARY FACILITIES

A. General Contractor shall provide and maintain temporary toilet facilities for use by all trades during the construction period. Such toilet facilities shall be sanitary, weathertight, painted, and complete with privacy enclosure, self-closing door and appropriate hardware.

B. When plumbing services are available in the Project building, Plumbing Contractor shall provide temporary water closets and lavatories in a toilet room area in location and quantity directed by the AE.

C. General Contractor shall keep temporary toilet facilities clean and supplied with toilet paper at all times. Maintain the facilities according to requirements of local and state health and sanitation authorities.

D. When temporary toilet facilities are no longer required, completely remove them from the Project Site and restore the premises to new condition. Disinfect, treat and clean area.

E. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

1.08 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building. Furnish, install, and maintain for the duration of construction all required scaffolds, tarpaulins, barricades, canopies, warning signs and lights, steps, fencing, barricades, bridges, platforms, and other temporary construction protection necessary for proper completion of the Work in compliance with all safety and other regulations.

C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.09 EXTERIOR ENCLOSURES

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

B. For the building proper, Contractor shall provide suitable protection at holes through roof and floors, at openings through walls where a hazard exists and shall provide visual barriers at installed glass.

C. Do not subject roofs to traffic and do not use for storage purposes. If work is required on roof, protect roofing surface.

1.10 INTERIOR ENCLOSURES

A. Provide temporary partitions and ceilings as indicated to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.

B. Construction: Framing and 10 mil reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces.

C. All surfaces in existing building not indicated to be altered, but which are damaged during the course of the Work by any trade, shall be repaired by the Prime Contractor to match adjoining similar surfaces.

D. All areas of existing building used for access to work areas, which are not within enclosed areas to altered, shall be completely cleaned of all debris and made "broom clean" by the Prime Contractor at the end of each day's work.

E. Dust which permeates areas of existing building outside of the enclosed work areas shall be the responsibility of the Prime Contractor. All such areas shall be completely cleaned by the Prime Contractor to the satisfaction of the Owner at no additional cost.

1.11 TEMPORARY SHEETING AND SHORING

A. Provide temporary sheeting and shore and brace excavations as necessary for the safe and proper execution of the Work. Remove temporary supports when backfilling is complete or new construction can safely support the loads.

1.12 SECURITY

A. Take precautions against fire and comply fully with requirements of insurance authorities and regulations of the local fire department.

B. Remove combustible refuse and dispose in an approved manner off the Project Site. Burning refuse on the Project Site shall not be permitted. Do not store combustible materials or supplies in areas where concrete forms are still in place. Limit materials storage to completely fireproof areas. When storing outside keep at least 10 feet away from any building.

C. During entire construction period, provide fire extinguishers of the types, sizes, quantity and locations effective for use by all trades to extinguish fires in the construction area(s), as defined in NFPA publication No. 10 but no less than the following:
   1. Type A at locations of low potential for fires caused by either electrical hazards or grease-oil-flammable liquids.
   2. Type ABC dry chemical at other locations, including but not limited to each workshop and each material storage shed.

D. Post warning and quick-use instructions at each extinguisher location and instruct all personnel upon first arrival at the Project Site in the pooper use of fire extinguishers and fire related procedures. Post the local fire department call number on each telephone instrument at the Project Site. Post "No Smoking" signs in areas of unusual hazard.

E. Do not relax fire protection precautions during Work interruptions such as strikes or other reasons.

F. Provide and maintain barricades with appropriate lighting to identify excavations or stored materials placed on any public street, highway or other public ground. Conform to requirements of the local governing authority.

G. For the building proper, provide suitable protection at openings through roof and floors, and at openings through walls where a hazard exists, such as man-sized openings within three feet of the floor, and provide visual barriers at installed glass but do not use tape or markings applied directly to the glass surface.

H. Be responsible to maintain complete security of the building at all times during the entire period of the Work of the Project.

1.13 MOISTURE CONTROL

A. Each Contractor: Carry on construction work in manner that will direct surface water away from new construction and off the project Site, away from adjoining property.

B. General Contractor shall be responsible for pumping of building excavations as a part of the work of the General construction Contract without extra compensation. Pumping of other than building excavations shall be the responsibility of the contractor doing the work.

C. During process of completing building weatherproof enclosure contractors shall protect materials and areas of work susceptible to moisture damage. Installation of wet or moisture damaged materials is prohibited.

1.14 VEHICULAR ACCESS AND PARKING

A. Provide and maintain all required access to the Work from paved areas and other routes, in strict accordance with Owners requirements. Do not obstruct existing service drives and parking lots with equipment, materials and/or vehicles. Keep accessible for Owner's use at all times.

B. Contractors and their employees will be allowed to park vehicles in area designated by Owner.

C. Coordinate access and haul routes with governing authorities and Owner.

D. Provide and maintain access to fire hydrants, free of obstructions.

E. Provide means of removing mud from vehicle wheels before entering streets.

1.15 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site periodically.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.16 MATERIALS HANDLING AT PROJECT SITE

A. Each Contractor: Provide suitable storage facilities for own materials at the Project Site within the limits of construction, provide and maintain staging, scaffolding and the like, tools and equipment for the erection and completion of own work and remove all upon completion.

B. Each Contractor: Protect and preserve own materials, products and equipment stored at Project Site. Materials such as wood, steel, cement, and plasters shall not be piled directly on the ground. Protective coverings shall be watertight and substantial to prevent blowing away. Confine storage of materials, sheds and other apparatus to areas designated for such purposes.

C. During the course of construction, do not place construction materials on any structural plane or member such as a floor area, beam or column, in any manner, group or arrangement which exceeds the design live load of such structural plane or member.

1.17 FIRST AID

A. Each Contractor: Provide and maintain first aid supplies and equipment in quantity and content commensurate with size of Project and type of construction work, for the use of each Contractor's personnel. Advise all personnel of the location of first aid supplies.

1.18 FIELD OFFICES

A. Contractor is not required to provide a field office. Contractor may use a portion of the existing building for office space as coordinated with the Owner and subject to approval by Owner.

B. Provide space for Project meetings, with table and chairs to accommodate 8 persons.

1.19 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the Work. Remove all such temporary facilities and controls as rapidly as progress of the Work will permit, or as directed by the Architect/Engineer.

B. Clean and repair damage caused by installation or use of temporary work.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Transportation, handling, storage and protection.

C. Product option requirements.

D. Substitution limitations.

E. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern work under this Section.

B. Section 01 25 00 - Substitution Procedures: Substitutions made during procurement and/or construction phases.

C. Section 01 40 00 - Quality Requirements: Product quality monitoring.

D. Section 01 74 19 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging and substitutions.

1.03 REFERENCE STANDARDS

A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

A. See contract Conditions and General Requirements for procedures.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

C. Existing materials and equipment indicated to be removed, but not to be re-used, salvaged, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by Contract Documents.

B. Use of products having any of the following characteristics is not permitted:

1. Made using or containing CFC's or HCFC's.
2. Made of wood from newly cut old growth timber.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

A. See Section 01 25 00 - Substitution Procedures.

3.02 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

G. Comply with manufacturer's warranty conditions, if any.

H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

I. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

J. Prevent contact with material that may cause corrosion, discoloration, or staining.

K. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

L. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

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SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition.

C. Pre-installation meetings.

D. Cutting and patching.

E. Cleaning and protection.

F. Starting of systems and equipment.

G. Demonstration and instruction of Owner personnel.

H. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

I. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 01 10 00 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 01 30 00 - Administrative Requirements: Submittals procedures, Electronic document submittal service.

C. Section 01 40 00 - Quality Requirements: Testing and inspection procedures.

D. Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Cutting and Patching Beyond Work Identified on Plans: Submit written request in advance of cutting or alteration which affects:

1. Structural integrity of any element of Project.
2. Integrity of weather exposed or moisture resistant element.
3. Efficiency, maintenance, or safety of any operational element.
4. Visual qualities of sight exposed elements.
5. Work of Owner or separate Contractor.
6. Include in request:
    a. Identification of Project.
    b. Location and description of affected work.
    c. Necessity for cutting or alteration.
    d. Description of proposed work and products to be used.
    e. Alternatives to cutting and patching.
    f. Effect on work of Owner or separate Contractor.
    g. Written permission of affected separate Contractor.
    h. Date and time work will be executed.

C. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.04 REQUIREMENTS OF REGULATORY AGENCIES

A. Comply with National Electric Code for temporary power.

B. Comply with Federal, State and local codes and regulations, and with utility company requirements.

1.05 PROJECT CONDITIONS

A. Grade site to drain. Maintain excavations free of water.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

E. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

F. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

G. Rodent Control: Provide methods, means, and facilities to prevent rodents from accessing or invading premises.

H. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.06 CONTRACT LIMITS AND PROTECTION OF EXISTING CONDITIONS

A. All work shall be confined within the Contract limits indicated on the Project Drawings. Do not infringe upon other areas without the permission of the AE. If not indicated otherwise, consider the property lines to be the Contract limits.

B. Existing property, buildings, walks, curbs, trees, shrubs, lawns, boulevards, and the Work of other Contractors, which are damaged or disturbed outside the Contract limits shall be restored to original condition or better. Contractor shall be responsible for the damage or disturbance and shall restore disturbed lawn areas with sod and replace damaged trees and shrubs.

C. Existing Pavement and Flatwork Protection:
   1. Where excessive loading of trucks and travel of tracked equipment occurs over existing asphalt paving and concrete flatwork, provide constructions mats to prevent cracking, deformation or similar damage. Damaged pavements, slabs or curb and gutter shall be replaced with new. Prior to construction start, review existing conditions with Owner and A/E and document with photos.

D. Existing shrubs and trees indicated on the Project Drawings to remain shall be protected from physical damage. Observe the following precautions within a distance of 15 feet of the trunk of such trees:
   1. Install temporary fencing as required to control traffic under trees.
   2. Dump no trash, especially concrete, plaster, mortar, or wash water.
   3. No storing of cement, plaster, concrete block, brick and similar products.
   4. Provide and maintain good drainage; no ponding water permitted.
   5. Clean up the area immediately as nearby construction work is completed.

1.07 COORDINATION

A. See Section 01 10 00 for occupancy-related requirements.

B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

C. Notify affected utility companies and comply with their requirements.

D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

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

F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

G. Coordinate completion and clean-up of work of separate sections.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 25 00 - Substitution Procedures.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or miss-fabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.04 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as indicated.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00 - Temporary Facilities and Controls.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
   1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
   2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
   2. Remove items indicated on drawings.
   3. Relocate items indicated on drawings.
   4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
   5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
   2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
   3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
      a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
      b. See Section 01 10 00 for other limitations on outages and required notifications.
      c. Provide temporary connections as required to maintain existing systems in service.
   4. Verify that abandoned services serve only abandoned facilities.
   5. Remove abandoned pipe, ducts, conduits, and equipment , including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

F. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.

G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
   1. When existing 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 make recommendation to Architect.
   2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
   3. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.

H. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

I. Refinish existing surfaces as indicated:
   1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
   2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

J. Clean existing systems and equipment.

K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

L. Do not begin new construction in alterations areas before demolition is complete.

M. Comply with all other applicable requirements of this section.

3.05 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:
   1. Complete the work.
   2. Fit products together to integrate with other work.
   3. Provide openings for penetration of mechanical, electrical, and other services.
   4. Match work that has been cut to adjacent work.
   5. Repair areas adjacent to cuts to required condition.
   6. Repair new work damaged by subsequent work.
   7. Remove samples of installed work for testing when requested.
   8. Remove and replace defective and non-complying work.

D. Unless noted otherwise, each major subcontractor shall be responsible for all cutting and patching of the existing structure and appurtenances to complete that subcontractor's Work for this Project.

E. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

F. Verify warranty requirements at areas of alteration and to make certain that required certified installers are employed for repairs to maintain said warranty.

G. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

H. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

I. Restore work with new products in accordance with requirements of Contract Documents.

J. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

K. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00, to full thickness of the penetrated element.

L. Patching:
   1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
   2. Match color, texture, and appearance.
   3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.
   4. At patches/repairs in rated walls verify required UL fire rating design to confirm integrity of fire rating at completion of repair.

3.06 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition. Accomplish rubbish removal weekly and additionally as directed by the AE. Keep interior of building free of unattended combustible rubbish at all times.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

E. Remove all tools, equipment, scaffolding and temporary facilities immediately when no longer required for execution of the Work.

F. As used herein, the term "premises" shall include all areas within and outside the construction limits which have been soiled, littered or disturbed in any manner by the Work of the Project.

3.07 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Protect installed work from damage by construction operations. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
   1. The General Contractor shall assume responsibility for the floors being in like new condition upon completion of the Project.
   2. Exercise care to prevent damage to exposed, finished concrete floor surfaces during the course of construction of the Project. Remove all spills or smears immediately and sweep floors frequently.
   3. Instruct all workmen and deliverymen to exercise caution against accidental damage to the floors by actions such as dropping heavy objects like tools and products, or scratching by sliding objects, or scoring by vibration from metal legs of stand mounted power tools, or permanent discoloration from oil dripping from pipe thread cutting machine, or the like.
   4. Avoid using areas with exposed concrete floors as workshops or in any other way which would damage the finished floors. When rooms or areas must be so used, cover floor with 5/8 inch thick plywood panels fastened together and underlain with 10 mil minimum plastic taped in place.

5. Allowable Carpet Protection:
    a. Pedestrian Traffic: Polyethylene protective film, industrial duty, temporary protection, plastic carpet film with a pressure sensitive water-based self-adhesive system allowing clean release for easy removal without adhesive transfer. Any other protection system shall be approved by A/E.
    b. Equipment Traffic (wheelbarrows, carts etc.): Plywood or similar board protection over 10 mil minimum reinforced plastic taped in place over floor finish.
6. Allowable Resilient and Hard Surface Floor Protection:
    a. Plywood sheets over 10 mil minimum reinforced plastic, resin paper or tarp taped in place.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Prohibit traffic from landscaped areas.

H. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.08 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

D. Verify that wiring and support components for equipment are complete and tested.

E. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

F. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.09 DEMONSTRATION AND INSTRUCTION

A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.

3.10 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.11 FINAL CLEANING

A. Execute final cleaning after Substantial Completion but before making final application for payment. Clean all surfaces to condition acceptable for immediate occupancy by the Owner.

B. Use cleaning materials that are nonhazardous.

C. Remove all marks, stains, fingerprints, paint droppings and other foreign matter from all finished surfaces.

D. Clean and polish all hardware.

E. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

F. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

G. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

H. Replace filters of operating equipment.

I. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.

J. Clean site; sweep paved areas, rake clean landscaped surfaces.

K. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.12 SUBSTANTIAL COMPLETION

A. Comply with General Conditions of the Contract for Construction and Supplementary Conditions for reaching Substantial Completion.

3.13 FINAL INSPECTION

A. Comply with General Conditions of the Contract for Construction and Supplementary Conditions for completing Final Inspection.

3.14 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

D. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

SECTION 01 78 00
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project record documents.

B. Operation and maintenance data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 00 72 00 - General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.

B. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.

D. Individual Product Sections: Specific requirements for operation and maintenance data.

E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Prior to requesting Architect/Engineer's final inspection for certification of final acceptance and final payment, as required by General Conditions, complete the following and list known exceptions (if any) in request:

1. Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
2. Submit updated final statement, accounting for additional (final) changes to Contract Sum.
3. Submit certified copy of Architect/Engineer's final punch list of itemized work to be completed or corrected (including equipment requiring final connection), stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by Architect/Engineer.
4. Submit record documents, as-built drawings, maintenance manuals, damage or settlement survey, property survey, and similar final record information as described in Part 3 below.
5. Complete final clean up requirements, including touch-up painting of marred surfaces.
6. Submit final meter readings for utilities, measured record of stored fuel, and similar data as of time of Substantial Completion or when Owner took possession of and responsibility for corresponding elements of the work.
7. Submit consent of surety.
8. Revise and submit evidence of final, continuing insurance coverage complying with insurance requirements.
9. Submit test, inspection and acceptance certificates as required in each product section of the Specifications.
10. Submit Contractor's Affidavit and Lien Waivers.
11. Submit lien waivers from all Subcontractors, sub-subcontractors and major material suppliers who have furnished material or labor for the Work under contract with the Contractor or Subcontractor. The lien waivers shall be in the full amount of the Contract involved.
12. Operation and Maintenance Data:
    a. As requested by the Owner and prior to final acceptance, organize maintenance-and-operating manual information into two (2) complete sets, each in manageable size, and bind into individual 3-ring binders properly identified with table of contents and tabbed accordingly. Or organized in similar fashion in PDF format. Include

emergency instructions, spare parts listing, copies of warranties, wiring diagrams, recommended "turn-around" cycles, inspection procedures, shop drawings, product data, and similar applicable information.

b. If project includes multiple sites, provide number of sets of manuals for each site as indicated above.
c. Provide additional manuals as required by product specification sections.
d. As-built temperature control drawings.
e. Mechanical testing report from Division 23 (if required in Division 23).

13. Warranties and Bonds:
    a. Guarantees and warranties as required in each product section of the Specifications.
    b. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
    c. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
    d. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

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

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   3. Field changes of dimension and detail.
   4. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
   1. Product data, with catalog number, size, composition, and color and texture designations.
   2. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
   1. Description of unit or system, and component parts.
   2. Identify function, normal operating characteristics, and limiting conditions.
   3. Include performance curves, with engineering data and tests.
   4. Complete nomenclature and model number of replaceable parts.

B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

C. 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 any special operating instructions.

D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

E. Include test and balancing reports.

3.05 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

E. Include originals of each in operation and maintenance manuals, indexed separately on Table of Contents.

END OF SECTION

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SECTION 02 41 00
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 01 10 00 - Summary: Limitations on Contractor's use of site and premises.

C. Section 01 10 00 - Summary: Sequencing and staging requirements.

D. Section 01 40 00 - Quality Requirements: Requirements for Contractor's Construction Related Professional Design Services.

E. Section 01 50 00 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Closeout Submittals:
   1. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 DEMOLITION

A. Refer to drawings for extents of work.

B. Remove other items indicated, for salvage, relocation, and recycling.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Use of explosives is not permitted.
   3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   4. Provide, erect, and maintain temporary barriers and security devices.
   5. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
   6. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   7. Do not close or obstruct roadways or sidewalks without permits from authority having jurisdiction.
   8. Conduct operations to minimize obstruction of public and private entrances and exits. Do not obstruct required exits at any time. Protect persons using entrances and exits from removal operations.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Do not begin removal until vegetation to be relocated has been removed and vegetation to remain has been protected from damage.

D. Protect existing structures and other elements to remain in place and not removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.

E. Temporary Shoring:
   1. Provide temporary shoring of load bearing structure where new openings are cut in load bearing walls, floors or ceilings. When required, Contractor shall provide services of a structural engineer registered in the state where work is performed for design of shoring. Use means and methods to prevent damage to floors and adjacent finished surfaces. Repair adjacent construction and finishes damaged during removal work.

F. Minimize production of dust due to demolition operations. Do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

G. Perform demolition in a manner that maximizes salvage and recycling of materials.
   1. Dismantle existing construction and separate materials.
   2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

H. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.03 EXISTING UTILITIES

A. Coordinate work with utility companies. Notify utilities before starting work, comply with their requirements, and obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark interior utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone. Identify and mark, in same manner as other utilities to remain, utilities to be reconnected.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Existing construction and utilities indicated on drawings are based on casual field observation and existing record documents only.
   1. Verify construction and utility arrangements are as indicated.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Remove existing work as indicated and required to accomplish new work.
   1. Remove items indicated on drawings.

C. Services including, but not limited to, HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications: Remove existing systems and equipment as indicated.
   1. Maintain existing active systems to remain in operation, and maintain access to equipment and operational components.

2. Verify that abandoned services serve only abandoned facilities before removal.
3. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings. Remove back to source of supply where possible, otherwise cap stub and tag with identification.

D. Protect existing work to remain.
1. Prevent movement of structure. Provide shoring and bracing as required.
2. Perform cutting to accomplish removal work neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.
4. Patch to match new work.

3.05 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Remove from site all materials not to be reused on site; do not burn or bury.

C. Leave site in clean condition, ready for subsequent work.

D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

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SECTION 06 41 00
ARCHITECTURAL WOOD CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wood casework with laminate cladding.

B. Floating shelf.

C. Cabinet and drawer hardware.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern work under this Section.

B. Section 01 40 00 - Quality Requirements: Additional requirements for mockups.

C. Section 06 61 00 - Cast Polymer Fabrications.

D. Section 07 92 00 - Joint Sealants.

1.03 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 2022.

B. ANSI A208.2 - Medium Density Fiberboard (MDF) for Interior Applications; 2022.

C. ANSI/AWI 0400 - Factory Finishing; 2022.

D. ANSI/AWI 0620 - Finish Carpentry/Installation; 2018.

E. ANSI/AWI 0641 - Architectural Wood Casework; 2019.

F. AWI 100 - Submittals; 2018.

G. AWI 300 - Materials; 2018.

H. BHMA A156.9 - Cabinet Hardware; 2020.

I. PS 1 - Structural Plywood; 2023.

J. PS 20 - American Softwood Lumber Standard; 2025.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. AWI QCP Program Submittal Requirements: Comply with AWI 100.

C. Review Submittals - Preparatory:
   1. Provide submittal packages that contain all the information identified in the submittal groups identified below. Follow any instructions regarding coordinating submittal timing between submittals of different sections.
   2. Product Data for Wood Casework for Transparent Finish: Submit manufacturer's published, product descriptive data.
      a. Panel Cores for Wood Veneer and HPDL Panels: For each type, include thickness.
      b. HPDL Laminates: For each type, indicate description, thickness, and color.
      c. Laminate Edgebanding: For each type, indicate thickness.
      d. Hardware: For each type of cabinet and drawer hardware.
      e. Locks: For each type of cabinet and drawer lock.
      f. Accessory Components: For each type of grommet.

D. Shop Drawings:
   1. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
   2. General: Each sheet sequentially numbered and dated.
      a. Sheet Size: 11 by 17 inches.
      b. Contents: Indicate project name and project address.

3. AWI QCP Program Shop Drawing Requirements:
    a. Comply with AWI 100 for shop drawing front matter documentation.
    b. Cover Sheet: Include phone numbers of design and general contractor firms.
    c. Table of Contents: Include page number and title of each shop drawing.
    d. Aesthetic Grade: Identify specified grade and indicate compliance.
    e. Performance Duty Level: Identify specified duty level and indicate compliance.
    f. Identification of Materials: Include material lists or schedules.
    g. Reference Plans: Casework locations in relative context of building floor plans.
    h. Plans and Elevations: Plan and elevation views of each assembly type.
        1) Include rough opening dimensions, casework assembly dimensions, locations and sizes of cutouts, drawer locations, door locations, door swings, and hinge locations.
    i. Detailed Sections: Dimensioned section views of each casework configuration.
    j. Details: Dimensioned casework assembly details with material thicknesses.
        1) Include laminate-clad panels and panel cores.

E. Review Submittals - Samples:
1. AWI QCP Program Requirements for Samples: Comply with AWI 100.
2. Samples for laminate-clad wood casework.
    a. Samples, Laminate-Clad Panels: For each laminate-clad type, submit two, laminate-clad sample panels; size: 8 by 8 inches; thickness: 3/4 inch.
    b. Samples for Initial Selection:
        1) HPDL Edgebanding: For each edgebanding type, submit two manufacturer's standard palettes, indicating full range of colors.
    c. Samples, Edgebanding:
        1) HPDL Edgebanding: For each edgebanding type, submit two sample strips, 6 inches long, minimum.
    d. Samples, Laminates: For each laminate type, submit two samples for each specified color.
3. Hardware Samples:
    a. Samples, Hardware: For each hinge, pull, catch, latch, and shelf rest type, submit one sample, full-size, indicating specified finish.

F. Information Submittals - Preparatory:
1. Certificates, AWI: At end of AWI Quality Certification Program process, provide two certificates indicating casework complies with specified performance requirements.

G. Closeout Submittals:
1. See Section 01 78 00 - Closeout Submittals for additional information regarding documenting warranties.
2. Warranty Documentation: Submit documentation of manufacturer's warranty that acknowledges the requirements defined in this section.
    a. Provide procurement information including date(s) of procurement, identification of suppliers and contractors involved in the procurement.
    b. Provide manufacturer certification of the warranty that is executed in the Owner's name.

1.05 QUALITY ASSURANCE

A. Fabricator and installer Qualifications: Firm specializing in fabricating and installing products specified in this section with minimum five years of documented experience; with qualifications indicating ability to comply with requirements of this section.
1. Casework company with at least one project in past five years with value of casework within 20 percent of casework cost for this project.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in original packaging materials bearing product identification.

1.07 FIELD CONDITIONS

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

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Section Specific Warranty: Provide manufacturer's customized warranty as described in this section. Document the warranty as defined under the Submittals heading of this section. Provide warranty in conformance with the following:
   1. Repair or replace components that fail in materials or workmanship. Failures include, but are not limited to, the following:
      a. Delamination of components or other failures of glue bond.
      b. Warping of components.
      c. Failure of operating hardware.
      d. Deterioration of finishes.

PART 2 PRODUCTS

2.01 ARCHITECTURAL WOOD CASEWORK

A. Casework Finish: Wood casework with laminate cladding.

B. Provide casework and casework components in sizes and profiles as indicated on drawings.
   1. Interior Clearances: Comply with specified performance requirements.

C. Adjustable Shelves, Number of Shelves Per Cabinet Unit:
   1. Base Cabinets: As indicated on drawings.
   2. Wall Cabinets: As indicated on drawings.

D. Scribed Fillers:
   1. Finish and Materials: Same materials and finish as exposed surfaces.

2.02 PERFORMANCE REQUIREMENTS

A. Architectural Woodwork Institute (AWI) Performance Requirements:
   1. Comply with AWI 300, ANSI/AWI 0641, ANSI/AWI 0400, and ANSI/AWI 0620 as applicable for specified casework finish, aesthetic grade, and performance duty level.
      a. Aesthetic Grade: Custom.
      b. Product Performance Duty Level: Duty Level 3.
   2. Panel and Material Thicknesses: Provide panels and materials as required to meet specified performance duty level, subject to minimum thickness requirements of AWI 300 and ANSI/AWI 0641 and flatness requirements indicated below.
   3. Panel Flatness: Provide panels with maximum variation from flat in 12 inches as measured diagonally across panel.
      a. Custom Grade: Plus or minus 0.047 inch maximum.
   4. Cabinet Door Flatness:
      a. Comply with specified performance requirements.

2.03 WOOD CASEWORK WITH LAMINATE CLADDING

A. Casework Construction:
   1. Frameless Cabinet and Door Interface: Flush overlay.
   2. Door and Drawer Front Profile: Flush.

B. Custom Grade - Laminate-Clad Wood Casework:
   1. Exposed Exterior Surfaces, Panels to Receive Laminate Cladding:
      a. HPDL Panels; Surface Finish: As indicated in the Master Color Schedule.
   2. Exposed Interior Surfaces at Door and Drawer Fronts:
      a. Same laminate materials and thicknesses as exposed exterior surfaces.
         1) Color, grain anpattern to match exposed interior or face.

3. Exposed Interior Surfaces Except Door and Drawer Front Surfaces:
    a. Same laminate materials and thicknesses as exposed exterior surfaces.
        1) Color, grain and pattern to match exposed interior or face.
4. Semi-Exposed Surfaces; Panels to Receive Laminate Cladding:
    a. Comply with specified performance requirements.

C. Edgebanding Materials for Laminate-Clad Wood Casework:
1. PVC: Well-matched to exposed face; radiused and beveled on edges and corners if thickness is greater than 0.039 inch. Provide edgebanding with minimum thickness of 0.018 inch. See applications paragraph below for additional requirements for edgebanding thicknesses.

2.04 EDGEBANDING APPLICATIONS

A. Front Edges of Frameless Cabinet Components:
1. Provide edgebanding materials and color to match exposed exterior surfaces.
    a. Provide 2mm thick plastic edge banding at front edges of shelves.

B. Top Edges of Cabinets:
1. Provide edgebanding at top edges of cabinets.

C. Bottom Edges of Wall Cabinet Ends:
1. Provide edgebanding materials and color to match exposed exterior surfaces.

D. Bottom Edges of Aprons:
1. Provide edgebanding materials and color to match exposed exterior surfaces.

E. Hinged Door Edges:
1. Provide edgebanding on all four edges except for solid wood doors.

F. Drawer Front and Drawer False Front Edges:
1. Provide edgebanding on all four edges except for solid wood drawers.

G. Drawer Box Top Edges:
1. Provide HPDL to match semi-exposed surfaces.

H. Edges of Solid Wood Panel Drawer Boxes:
1. Comply with specified performance requirements.

I. Adjustable Shelf Edges, Semi-Exposed Surfaces:
1. Provide edgebanding materials and color to match adjacent surfaces.

J. Pullout Shelf Edges:
1. Provide edgebanding materials and color to match adjacent surfaces.

K. Exposed Adjustable Shelves Mounted on Standards and Brackets:
1. Provide edgebanding materials and color to match adjacent surfaces.

2.05 HDPL-CLAD PANELS

A. Description: Panels consisting of High-Pressure Decorative Laminate (HPDL) faces applied to cores; panel layup with face ply, back ply, and core of either single ply or odd number of inner plies, to produce balanced construction panel.
1. Panels subject to size limitations, minimum thickness requirements, and fabrication tolerances of specified aesthetic grade and performance duty level in accordance with AWI 300 and ANSI/AWI 0641.

B. High-Pressure Decorative Laminate (HPDL): Sheet consisting of fibrous material impregnated with thermosetting resins; bonded by high-pressure process.

C. Manufacturers: Refer to Master Color Schedule on ID Drawings for basis of design.
1. Formica Corporation: www.formica.com.
2. Panolam Industries International, Inc: Including brands Panolam, Nevemar and Pionite; www.panolam.com.
3. Wilsonart LLC: www.wilsonart.com.

4. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.
    a. Submit substitutions to A/E for pre-bid authorization.

D. Provide specific types as indicated.
1. Horizontal Surfaces: HGS, 0.048 inch nominal thickness, through color, color as selected, finish as indicated.
2. Vertical Surfaces: VGS, 0.028 inch nominal thickness, through color, color as selected, finish as indicated.
3. Post-Formed Horizontal Surfaces: HGP, 0.039 inch nominal thickness, through color, color as selected, finish as indicated.
4. Post-Formed Vertical Surfaces: VGP, 0.028 inch nominal thickness, through color, color as selected, finish as indicated.
5. Cabinet Liner: CLS, 0.020 inch nominal thickness (melamine), color as selected, finish as selected.
6. Laminate Backer: BKL, 0.020 inch nominal thickness (melamine), undecorated; for application to concealed backside of panels faced with high pressure decorative laminate.

2.06 PANEL CORES

A. Particleboard (PTB):
1. Application: Countertops and Backsplash.
2. Description: Composite panel composed of cellulosic particles, additives, and bonding system; comply with ANSI A208.1.
3. Grade:
    a. M-2.
4. Thickness: As indicated.
5. Moisture-Resistant Category: MR10.

B. Medium Density Fiberboard (MDF):
1. Application: backing for plastic laminate unless otherwise indicated and components not indicated as another material.
2. Description: Composite panel composed of cellulosic fibers, additives, and bonding system cured under heat and pressure; comply with ANSI A208.2.
3. Grade and Thickness: As required to meet performance requirements.
4. Grade: 115.
5. Moisture Resistance: MR10; color-tinted to indicate moisture-resistance core.

2.07 CONCEALED CABINET BASE COMPONENTS

A. Cabinet Base Toe-Kick Subfronts:
1. Materials: Fabricator's option wood boards or plywood.
2. Finished Face of Toe Kick Subfronts: As indicated on drawings.

B. Cabinet Base Blocking and Stretchers:
1. Materials: Fabricator's option wood boards.

C. Cabinet Base Sleepers:
1. Materials: Fabricator's option wood boards or plywood.

2.08 WOOD AND WOOD-BASED MATERIALS

A. Plywood: Comply with PS 1.
1. Structural I, Grade C-D, Exposure I.
2. Performance Category: 23/32 minimum, unless indicated otherwise.

B. Wood Boards: Comply with PS 20.
1. Thickness: 11/16 inch, actual minimum, unless indicated otherwise.

2.09 CABINET AND DRAWER HARDWARE

A. General: Comply with BHMA A156.9 for hardware types and grades indicated below:
1. Hardware Types: As indicated on drawings.

2. Product Grade: Grade 2.

B. Hinges: European style concealed type, institutional style, hospital tipped, stainless steel with satin finish.
   1. Opening: 120 degree opening.
   2. Manufacturers:
      a. Grass America, Inc.; Tiomos 120; www.grassusa.com.
      b. Blum, Inc; Clip Top Blumotion Hinge Systems: www.blum.com.
      c. Sugatsune America, Inc: www.sugatsune.com.
      d. Titus Cabinet Hardware: www.titusplus.com/us/en.
      e. Substitutions: See contract Conditions and General Requirements for requirements.

C. Cabinet Door and Drawer Pulls:
   1. Description: Back-mounted pulls.
   2. Provide the number of pulls per drawer as indicated on drawings.
   3. Comply with specified performance requirements.
   4. Design: U-shape wire pulls.
   5. Center-to-Center Mounting Dimension: 4 inches.
   6. Material and Finish: Satin stainless steel.
   7. Products:
      a. Hafele: Wire Pull, Stainless Steel 304; www.hafele.com.
      b. Rockwood: 853; www.assaabloydooraccessories.us.
      c. Sugatsune: SWP-640/S Stainless Steel Wire Pull; www.sugatsune.com.
      d. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

D. Cabinet Magnetic Catches:
   1. Description: Fastening devices with magnetic holding capacities that keep cabinet doors closed until pulling actions release doors for opening.
   2. Provide one catch for each swinging door 48 inches and less in height.
   3. Provide two catches for each swinging door over 48 inches in height.
   4. Non-Tabbed Magnetic Catch:
      a. Install one at base and wall cabinets, two (top and bottom) at each door of tall storage units.
      b. Products:
         1) Ives; 326 Magnetic Catch, dual double pole; us.allegion.com.
         2) Rockwood Pull; Rockwood 900 Heavy Duty Magnetic Catch: www.rockwoodpull.com.
         3) Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

E. Plastic Shelf Rests for In-Cabinet Adjustable Shelves:
   1. Also referred to as "Shelf Pegs" in the drawings.
   2. Application: Shelf rests with locking tabs for the top side of the selves that mount into holes (spaced at 1 inch centers) in the sides of cabinets.
   3. Product: #55 Double Pin manufactured by Allenfield Manufacturing and Development.
   4. Shelf Support Clip #3220CL from Bainbridge Manufacturing Inc.
   5. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

F. Drawer Slides:
   1. Type: Combination metal and roller bearing, three-quarter extension.
   2. Basis of Design for Standard Drawers: 100 lb. Accuride 3832 self close or comparable.
   3. Basis of Design for File Drawers: Combination metal and roller bearing, full extension with over travel, 150 lb. Accuride 4034 Series or comparable.
   4. Mounting: Side mounted.
   5. Stops: Integral type.

6. Features: Provide self closing type.
    a. Manufacturers:
        1) Accuride International, Inc: www.accuride.com.
        2) Blum; www.blum.com.
        3) Fulterer; www.fultererusa.com.
        4) Knape & Vogt Manufacturing Company: www.knapeandvogt.com.
    b. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

G. Cabinet Door and Drawer Silencers:
1. Description: Self-adhesive rubber silencers.
2. Doors, Quantity: One silencer at top and bottom of closing edge of each door.
3. Drawers, Quantity: One silencer at back side of each drawer front cover.
4. Size: 1/4 inch diameter; 1/8 inch projection.
5. Color: Provide solid color, selected to blend in to substrate surface.

2.10 ACCESSORIES

A. Fasteners: Size and type to suit application.

B. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.

C. Adhesives: Type recommended by fabricator to suit application.

2.11 COUNTERTOP BRACKETS

A. Formed/Bent Plate Shelf Brackets: Fixed, formed plate, face-of-wall mounting.
1. Materials: Formed steel shapes.
    a. Finish: Manufacturer's standard, factory-applied, powder coat.
    b. Color: As selected by A/E from manufacturer's standard options.
2. Support Length: Match the width of the supported surface without exceeding the width of the supported surface or interfering with edge detailing.
3. Products:
    a. A&M Hardware, Inc; Standard Brackets: www.aandmhardware.com.
    b. Gambas Workstation Brackets: Standard Brackets: www.gambasbrackets.com.
    c. Rockler: Heavy-Duty Steel Shelf Brackets: www.rockler.com.

B. Fabricated Shelf Brackets: Fixed, fabricated, face of wall mount brackets.
1. Metal T-Section.
    a. Material: Steel.
    b. Finish: Manufacturer's standard, factory-applied, powder coat.
    c. Color: White.
    d. Products:
        1) A&M Hardware, Inc; Floating Shelf Bracket - Steel: www.aandmhardware.com.
        2) Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.12 FABRICATION

A. Shop-fabricate casework to dimensions, profiles, and details indicated on drawings.

B. Fabricate to maximum extents plausible, including doors, drawers, and hardware; fabricate units in sizes transportable through building openings.

C. When necessary to cut and fit on site, provide materials with sufficient allowance for cutting.

D. Wood Casework with Laminate Cladding: Apply laminates in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline.

E. Provide cutouts for plumbing fixtures; verify locations of cutouts from on-site dimensions. Sand and seal cut edges.

F. Edgebanding: Apply where specified; do not use more than one piece for any single length.

G. Hardware: Install hardware in accordance with hardware manufacturer's written instructions; use fasteners supplied by hardware manufacturer.

H. Fabrication Tolerances: Comply with specified performance requirements.

I. Wall Cabinets:
   1. Provide manufacturer's standard construction to reinforce cabinets for wall attachment, minimum two, full width 3/4 inch thick x 3 inch, glued and mechanically fastened at cabinet back.

J. Drawers:
   1. Bottoms and Sides: 1/2 inch Veneer core panel product, "B" face hardwood veneer or 1/2 inch medium density fiberboard with thermoset decorative overlay. PVC edge banding at exposed edges.
   2. Bottoms shall be dadoed into sides, front and back. Staple and glue.
   3. Reinforcement; 1/2 inch thick under-bottom stiffeners, one at 24 inch drawers, two at 36 inch drawers and four at 48 inch drawers.
   4. File drawers shall be sized to accommodate a follower mechanism or use of hanging folders. Selection to be confirmed by A/E.

K. HDPL Veneer Shelves:
   1. Provide 3/4 inch thick shelves unless noted otherwise on drawings or to satisfy span limits described below.
   2. Shelf spans for 3/4 inch thick shelf panels:
      a. Medium Density Fiberboard: Maximum span 36 inches.
   3. Shelf spans for 1 inch thick shelf panels:
      a. Medium Density Fiberboard: Maximum span 44 inches.
      b. Use for shelves indicated to support microwaves.
   4. Shelf Veneer Material: HDPL at top and bottom of panels unless noted otherwise.
   5. Shelf Edge Material: PVC banding that is pattern/color matched to the veneer unless noted otherwise.
   6. Enclosed Shelves: Finish to match inside faces of cabinet. Fabricate all shelves to the full depth of the cabinet. Finish edges with banding at surfaces exposed when the doors are open.
   7. Non-enclosed Shelves - Finish all edges with banding if not otherwise indicated.

2.13 SOURCE QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements for additional requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify casework and materials required for installation have been delivered, handled and stored as specified.

B. Verify wood blocking and wood backing that provides casework backing is installed as indicated on drawings.

C. Verify location and sizes of rough-in plumbing and rough-in electrical associated with work of this section.

3.02 PREPARATION

A. Acclimate casework to environments indicated for installation.

3.03 INSTALLATION

A. Install and secure work of this section in accordance with specified performance requirements.

B. Install work of this section rigid, plumb, and level and in accordance with fabricator's documented instructions; secure casework as indicated on drawings.
   1. Align and secure adjoining cabinet units with fasteners in concealed locations.

C. Base and Wall Cabinet Anchorage Support Construction:
   1. See Section 09 21 16 for non-load-bearing steel stud framing providing backing for casework.

D. Install cabinet hardware in accordance with hardware manufacturer's documented instructions using hardware manufacturer's furnished fasteners.

E. Install scribe fillers to close gaps between casework and adjacent walls.

3.04 TOLERANCES

A. Comply with specified performance requirements for tolerances.

3.05 FIELD QUALITY CONTROL

A. See General Requirements for additional requirements.

3.06 ADJUSTING

A. Adjust hardware for smooth operation in accordance with hardware manufacturer's documented instructions.

3.07 CLEANING

A. See Section 01 70 00 - Execution and Closeout Requirements for additional requirements.

B. Clean exposed and semi-exposed surfaces of casework, shelving, and hardware.

3.08 PROTECTION

A. Protect installed casework from subsequent construction operations.

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SECTION 06 61 00
CAST POLYMER FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Solid surfacing fabrications.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 06 41 00 - Architectural Wood Casework.

C. Division 22 - Plumbing fixtures.

1.03 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal packages that contain all the information identified in the submittal groups identified below. Follow any instructions regarding coordinating submittal timing between submittals of different sections.

C. Review Submittals - Preparatory:
   1. Shop Drawings: Indicate dimensions, thicknesses, required clearances, tolerances, materials, colors, finishes, fabrication details, field jointing, adjacent construction, methods of support, integration of components, and anchorages.
   2. Product Data: Provide data on specified component products, electrical characteristics and connection requirements.

D. Review Submittals - Samples:
   1. Samples: Submit two samples representative of counter top, 6x6 inch in size, illustrating color, texture, and finish.

E. Information Submittals - Preparatory:
   1. Manufacturer's Installation Instructions: Indicate preparation of opening required, rough-in sizes; provide templates for cast-in or placed frames or anchors; tolerances for item placement, temporary bracing of components.

F. Closeout Submittals:
   1. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
   2. Maintenance Data: Indicate list of approved cleaning materials and procedures required; list of substances that are harmful to the component materials.
      a. Include instructions for stain removal, surface and gloss restoration.

G. Closeout Submittals:
   1. Warranty Documentation: Submit documentation the manufacturer's warranty.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with minimum three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to project site in original packages, containers, or bundles bearing brand name and identification.

B. Store products under cover, elevated above grade, and in dry, well-ventilated areas not exposed to heat or sunlight. Protect from moisture damage.

C. Handle products to prevent damage to edges, ends, or surfaces, and in accordance with manufacturer's written instructions.

1.07 WARRANTY

A. Section Specific Warranty: Provide manufacturer’s customized warranty as described in this section. Document the warranty as defined under the Submittals heading of this section. Provide warranty in conformance with the following:
   1. Finish Warranty: Provide 5-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.01 MANUFACTURERS: ALL ITEMS LISTED SHALL BE SINGLE SOURCE. REFER TO MASTER COLOR SCHEDULE ON ID DRAWINGS FOR BASIS OF DESIGN COLORS.

A. Solid Surface Fabrications: A precise blend of polymer, polyester, or acrylic modified polyester resins, catalyst, fire retardant fillers, fiber reinforcement and coloring agents. Product shall have consistent color through its cross section. vanities or countertops/wall caps shall be single sourced.

B. Includes vanity countertop with integral sink, back/end splash and apron or countertop with back/end splash as detailed. Sinks and countertops shall be same color. Refer to Master Color Schedule on ID Drawings for basis of design. Comparable products by prior approval from:
   1. Avonite; www.avonite.com.
   2. Corian; https://www.na.corian.com.
   3. Formica; www.formica.com.
   4. Meganite; www.meganite.com.
   5. Wilsonart; www.wilsonart.com.
   6. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

C. Countertops: Solid surfacing sheet self-supporting over structural members with back splash as detailed.
   1. Flat Sheet Thickness: 1/2 inch, minimum.
   2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISFA-2 and NEMA LD 3; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
      a. Surface Burning Characteristics: Flame spread 25, maximum; smoke developed 450, maximum; when tested in accordance with ASTM E84.
      b. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
   3. Other Components Thickness: 1/2 inch, minimum.
   4. Exposed Edge Treatment at Countertops: Built up to minimum 1 1/2 inch thick; eased edge.

2.02 MATERIALS

A. Cast Polymer:
   1. Resin: Proprietary; integrally-colored, stain-resistant and resistant to domestic chemicals and cleaners.
   2. Adhesive: Manufacturer's standard, two part type, cartridge dispensed.

2.03 FABRICATION - COUNTERTOPS

A. Fabricate in accordance with standards governing fabrication quality that are specified in Section 06 41 00.

B. Fabricate tops and splashes in the largest sections practicable, with top surface of joints flush.
   1. Join lengths of tops using best method recommended by manufacturer.
   2. Fabricate to overhang fronts and ends of cabinets 1 inch except where top butts against cabinet or wall or otherwise noted.

3. Prepare all cutouts accurately to size; replace tops having improperly dimensioned or unnecessary cutouts or fixture holes.
4. Provide back/end splash wherever counter edge abuts vertical surface unless otherwise indicated.
    a. Secure to countertop with concealed fasteners and with contact surfaces set in waterproof glue.
    b. Height: 4 inches, unless otherwise indicated.

C. No cracked, chipped, broken, stained or defective material will be accepted.

D. Color match differences: Minimal.

2.04 FABRICATION

A. Fabricate cutouts where indicated.

B. Radius corners and edges with 1/8 inch minimum radius; polish exposed edges.

C. Provide consistent finish over exposed surfaces matching approved samples.

D. Fill seams and mold lines; grind smooth and finish to match adjacent cast polymer surfaces.

E. Fabricate components with joints tightly fitted and secured.

F. Built-Up Edges: Laminate components where design requirements indicate built-up edges; follow manufacturer's recommended procedures for laminating.

2.05 ACCESSORIES

A. Adhesives: Type recommended by cast polymer manufacturer for application; not containing formaldehyde or volatile organic compounds.

B. Joint Sealants: Type recommended by cast polymer manufacturer for application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify field measurements are as indicated on shop drawings.

B. Verify substrates are prepared to receive cast polymer fabrications.

C. Verify plumbing, mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.02 PREPARATION

A. Prepare substrates in accordance with manufacturer's written instructions.

3.03 INSTALLATION

A. Install cast polymer units in accordance with manufacturer's written instructions.

B. Align work plumb and level.

C. Rigidly anchor to substrate to prevent misalignment.

D. Install window sills with recommended adhesive. Seal perimeter with clear silicone.

3.04 CLEANING

A. Clean exposed surfaces of installed units in accordance with manufacturer's instructions.

3.05 PROTECTION

A. Protect installed cast polymer units from subsequent construction operations.

B. After setting protect window sills with non-staining, easily removed covering.

C. Replace damaged and defective work.

END OF SECTION

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SECTION 07 84 00
FIRESTOPPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Firestopping materials, labor, services and incidentals necessary for the completion of this section of the work. Section applies to all Divisions (General, Plumbing, Firesprinkler/Standpipe, HVAC, Electrical, etc.)

B. Firestopping of joints and penetrations in fire-resistance-rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 01 40 00 - Quality Requirements: Additional requirements for mockups.

C. Section 01 45 33 - Code-Required Special Inspections and Procedures: Requirements for special inspections.

D. Section 09 21 16 - Gypsum Board Assemblies: Gypsum wallboard fireproofing and top of wall rated stud/gypsum board component requirements, including, but not limited to mineral wool flute fillers, preformed top track fire seal and deflection and firestop track.

1.03 REFERENCE STANDARDS

A. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2024.

B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2024.

C. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems; 2024.

D. ASTM E2174 - Standard Practice for On-Site Inspection of Installed Firestop Systems; 2024.

E. ASTM E2837 - Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed between Rated Wall Assemblies and Nonrated Horizontal Assemblies; 2023a, with Editorial Revision (2024).

F. ITS (DIR) - Directory of Listed Products; Current Edition.

G. FM 4991 - Approval Standard of Firestop Contractors; 2013.

H. FM (AG) - FM Approval Guide; Current Edition.

I. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

J. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

K. UL 1479 - Standard for Fire Tests of Penetration Firestops; Current Edition, Including All Revisions.

L. UL 2079 - Standard for Tests for Fire Resistance of Building Joint Systems; Current Edition, Including All Revisions.

M. UL (DIR) - Online Certifications Directory; Current Edition.

N. UL (FRD) - Fire Resistance Directory; Current Edition.

O. 2015 IBC and Wisconsin Commercial Building Code.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Develop a plan(s) showing each location where fire stopping is required. Identify each location on the plan with a number or letter. Contractor/Installer may use the construction set of drawings to indicate which UL system is to be used for each penetration. Develop an as-built schedule that corresponds to each of the numbers or letters shown on the plan(s). The schedule shall provide the following information for each number or letter:
      a. Number(s) or letter(s) corresponding to each shown on the developed plan(s).
      b. Type of approved fire stopping system to be used (UL number, etc.).
      c. Type of construction of the fire-rated wall or floor and its fire rating.
      d. Pipe size, material and system of penetrating item (4", PVC, DWV, etc.).
      e. Size of wall or floor opening.
      f. Size of annular space (0" min., 1/2" max., etc.).
      g. Backing material.
   2. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
   3. Product Data: Provide data on materials, devices, description, listing agency test number and drawing.

D. Information Submittals - Preparatory:
   1. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.
   2. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
   3. Manufacturer's qualification statement.
   4. Qualification certificate for installing mechanics.

1.05 DEFINITIONS

A. Annular Space: Opening around penetrating item.

B. Construction Gaps: Any gap, joint, or opening, whether static or dynamic, where the top of a wall may meet a floor; wall to wall applications; edge to edge floor configurations; floor to exterior wall; or any linear breach in a rated barrier. Where movement is required, the firestopping system must comply with E 1399, ASTM E1966, or UL 2079 for dynamic joints.

C. F Rating: The time period that the through-penetration firestop system limits the spread of fire through the penetration when tested in accordance with ASTM E814.

D. Fire Barrier: A fire-resistance-rated vertical or horizontal assembly of materials designed to restrict the spread of fire in which openings are protected.

E. Fire Partition: A vertical assembly of materials designed to restrict the spread of fire in which openings are protected.

F. Fire-Protection Rating: The period of time that an opening protective assembly will maintain the ability to confine a fire as determined by tests prescribed in Section 714 of the IBC. Ratings are stated in hours or minutes.

G. Fire Resistance: That property of materials or their assemblies that prevents or retards the passage of excessive heat, hot gases, or flames under conditions of use.

H. Fire-Resistance Rating: The period of time a building element, component or assembly maintains the ability to confine a fire, continues to perform a given structural function, or both as determined by the tests, or the methods based on tests, prescribed in Section 703 of the IBC.

I. Fire Wall: A fire-resistance-rated wall having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof, with sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall.

J. Fireblocking: Building materials installed to resist the free passage of flame to other areas of the building through concealed spaces.

K. Membrane Penetration: An opening made through one side (wall, floor or ceiling membrane) of an assembly.

L. Membrane-Penetration Firestop: A material device or construction installed to resist for a prescribed time period, the passage of flame and heat through openings in a protective membrane in order to accommodated cables, cable trays, conduit, tubing, pipes or similar items.

M. Penetration Firestop: A through-penetration firestop of a membrane-penetration firestop.

N. T-Rating: The time period that the penetration firestop system, including the penetrating item, limits the maximum temperature rise to 325°F (163°C) above its initial temperature through the penetration on the non-fire side when tested in accordance with ASTM E 814.

O. Through Penetration: An opening that passes through an entire assembly.

P. Through-Penetration Firestop System: An assemblage of specific materials or products that are designed, tested and fire-resistance rated to resist for a prescribed period of time the spread of fire through penetrations. The F and T rating criteria for penetration firestop systems shall be in accordance with ASTM E 814.

1.06 QUALITY ASSURANCE

A. Comply with all Federal, State and Local codes, laws, ordinances and regulations.

B. Source Limitation: When possible obtain through-penetration firestop systems for each type of penetration and construction condition indicated, from a single manufacturer. It is recognized that all manufacturer's do not supply fire stopping for all conditions, so more than one manufacturer may be required.

C. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
   1. Listing in UL (FRD), FM (AG), or ITS (DIR) will be considered as constituting an acceptable test report.
   2. Valid evaluation report published by ICC Evaluation Service, Inc. (ICC-ES) at www.icc-es.org will be considered as constituting an acceptable test report.

D. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

E. The prime contractor shall secure the services of a single Certified Firestopping Contractor, as described in Paragraph F, for all work (general, MEP and Fire Protection) OR the Prime Contractor, MEP and Fire Protection contractors shall secure a certified firestopping contractor, as described in Paragraph F, or a Trained Firestopping Installer, as described in paragraph G, for their penetration work. With separate certified firestopping contractors, the prime contractor shall be responsible for top of wall systems and any other penetrations not a part of MEP or Fire Protection work.

F. Certified Firestopping Contractor/Inspector:
   1. Company specializing in performing the work of this section.
   2. Approved by Factory Mutual Research under FM 4991, Approval of Firestop Contractors, or passed UL Certification :
      a. Verification of minimum three years documented experience installing work of this type.
      b. Verification of at least five satisfactorily completed projects of comparable size and type.

G. Trained Firestopping Installer Qualifications:
   1. Have at least 5 years documented experience installing work of this type.
   2. Able to show at least 5 satisfactorily completed projects of comparable size and type.
   3. Trained, certified and approved by firestopping manufacturer.

H. FM/UL Certified Contractors shall arrange to complete the following three sub-paragraphs. Trained Firestopping Installers that are not FM/UL certified shall arrange for an independent FM/UL Certified Contractor or manufacturer's representative to complete the following: (at no

additional cost to the owner). Confirm with manufacturer their ability to provide inspection services.

1. Inspect the installation for compliance with the approved UL systems and the manufacturer's recommendations at the necessary stages of construction.
2. Witness at least three different fire stopping system installations to confirm compliance with UL approved drawings.
3. Submit a copy of the inspection report to the A/E within ten days of substantial completion.

I. Installing Mechanic's Qualifications: Trained by firestopping manufacturer and able to provide evidence thereof.

J. Manufacturer's Instructions: Contractor shall comply with manufacturer's product data, including product technical bulletins and product catalog installation instructions.

K. Certified contractor(s)/installer(s) and manufacturer's representative, shall attend a pre-installation meeting. Said meeting shall also include general contractor's representative, each subcontractor requiring penetration protection and A/E.

L. Each respective trade shall confirm that their work is completed correctly. No fire stopping shall be allowed to be concealed until the inspection has verified the installation for compliance and no corrections are required. If required, the contractor shall correct the installation and have it re-inspected by the appropriate representative as described above, as often as required until the installation is correct, at no additional cost to the owner. The represented inspector shall perform random testing of a minimum of three completed installations as required to provide the certification. Include all costs to complete this testing. Locations to be determined by independent representative. Upon completion of correct installation, submit a copy of the manufacturer's certificate of compliance within ten days of substantial completion to the A/E. Coordinate scheduling of this work with the General Contractor as required.

M. Maintain jobsite file and comply with Material Safety Data Sheets (MSDS) for each product delivered to jobsite.

1.07 PREINSTALLATION MEETING

A. Schedule meeting minimum 2 weeks prior to any firestopping installation beginning.

B. Attendance: General Contractor, Architect, Owner's representative, Firestopping Contractor (if single contractor employed for all work), Inspecting Firm Representative and all major subcontractors, including, but not limited to Plumbing, HVAC, Electrical, AV and Access Control, even if they are not performing firestopping separately. If each major subcontractor is performing their required firestopping, their contractor and inspection representative shall be in attendance.

C. Discuss and coordinate the following:

1. Contractors responsibility for completing firestopping.
2. Each installer’s responsibility to complete testing and as-built record as described in Submittals in this Section.
3. General Contractor shall be responsible to collect all record documents to submit to Owner as a single submittal at closeout.

D. Testing protocol and how it will be accomplished.

1.08 FIELD CONDITIONS

A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.

B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Firestopping Manufacturers:
   1. 3M Fire Protection Products: www.3m.com/firestop.
   2. A/D Fire Protection Systems Inc: www.adfire.com.
   3. Hilti, Inc: www.us.hilti.com.
   4. Nelson FireStop Products: www.nelsonfirestop.com.
   5. Specified Technologies Inc: www.stifirestop.com.
   6. Bio FireShield: www.biofireshield.com.
   7. Metacaulk: www.metacaulk.com.
   8. Tremco: www.tremcosealants.com.
   9. Safti Seal: www.saftiseal.com.
   10. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 MATERIALS

A. Firestopping Materials: Any materials meeting requirements.

B. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials as required for tested firestopping assembly.

C. Fire Ratings: Refer to drawings for required systems and ratings.

2.03 FIRESTOPPING ASSEMBLY REQUIREMENTS

A. Through Penetration Firestopping: Use system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.
   1. Temperature Rise: Provide systems that have been tested to show T Rating as indicated.
   2. Air Leakage: Provide systems that have been tested to show L Rating as indicated.
   3. Watertightness: Provide systems that have been tested to show W Rating as indicated.
   4. Listing by FM (AG), ITS (DIR), UL (DIR), or UL (FRD) in their certification directories will be considered evidence of successful testing.

2.04 FIRESTOPPING SYSTEMS

A. Firestopping: Any material meeting requirements.
   1. Fire Ratings: Use any system listed by UL or tested in accordance with ASTM E814 that has F Rating equal to fire rating of penetrated assembly and minimum T Rating Equal to F Rating and that meets all other specified requirements.
   2. For systems not provided by any manufacturer for a particular situation, an engineering judgment from a manufacturer shall be allowed.

B. Top of Steel Stud Rated Wall: Peel and stick composite intumescent strip applied to legs of top track.
   1. Safti Seal: PS1, PS4, PS7 or product recommended by supplier along with other accessories to meet indicated rating requirement. www.saftiseal.com.

C. Top of wall systems to comply with rated wall system.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify openings are ready to receive the work of this section.

3.02 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other materials that could adversely affect bond of firestopping material.

B. Remove incompatible materials that could adversely affect bond.

C. Install backing materials to prevent liquid material from leakage.

3.03 INSTALLATION

A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

B. Do not cover installed firestopping until inspected by authority having jurisdiction. Each respective trade shall confirm that their work is completed correctly before the General Contractor conceals any of their fire stopping located in walls, behind cabinets or above ceilings, etc. and to submit a letter, indicating the compliance prior to the concealment, to the General Contractor and/or to the A/E.

C. Tool or trowel exposed fire stopping surfaces to a neat finish. Void spaces or gaps found in the annular space will not be acceptable.

D. Affix a sticker to the surface being penetrated at each penetration indicating UL number, fire-rating, F-rating, etc.

E. Install labeling required by code.

F. Record each system on a floor plan for as-built and schedule development per instructions under Submittals above.

3.04 CLEANING

A. Clean adjacent surfaces of firestopping materials.

3.05 PROTECTION

A. Protect adjacent surfaces from damage by material installation.

END OF SECTION

SECTION 07 92 00
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-sag gunnable joint sealants.

B. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 01 40 00 - Quality Requirements: Additional requirements related to testing and inspection.

C. Section 06 41 00 - Architectural Wood Casework: Application of sealants at countertops/wall intersection.

D. Section 08 80 00 - Glazing: Glazing sealants and accessories.

E. Section 09 21 16 - Gypsum Board Assemblies: Sealant for acoustical and sound-rated walls and ceilings.

1.03 REFERENCE STANDARDS

A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2015 (Reapproved 2022).

B. ASTM C834 - Standard Specification for Latex Sealants; 2017 (Reapproved 2023).

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).

D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.

E. ASTM C1311 - Standard Specification for Solvent Release Sealants; 2022.

F. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2023.

G. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints; 2019 (Reapproved 2025).

H. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal packages that contain all the information identified in the submittal groups identified below. Follow any instructions regarding coordinating submittal timing between submittals of different sections.

C. Review Submittals - Preparatory:

1. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
    a. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
    b. List of backing materials approved for use with the specific product.
    c. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
    d. Substrates the product should not be used on.
    e. Substrates for which use of primer is required.
    f. Substrates for which laboratory adhesion and/or compatibility testing is required.
    g. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
    h. Sample product warranty.

i. Certification by manufacturer indicating that product complies with specification requirements.
j. Instructions for repairing and replacing failed sealant joints.

2. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

D. Review Submittals - Samples:
1. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
2. Samples for Verification: Where custom sealant color is specified, obtain directions from Architect and submit at least two physical samples for verification of color of each required sealant.

E. Closeout Submittals:
1. See Section 01 78 00 - Closeout Submittals for additional information regarding documenting warranties.
2. Extended Period: Submit certificate by Contractor acknowledging the section specific period to correct work described in this Section.
3. Warranty Documentation: Submit documentation the manufacturer's warranty.

1.05 QUALITY ASSURANCE

A. Maintain one copy of each referenced document covering installation requirements on site.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.

D. Nondestructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Nondestructive Spot Method.
1. Record results on Field Quality Control Log.
2. Repair failed portions of joints.

E. Field Adhesion Tests of Joints: Test for adhesion using most appropriate method in accordance with ASTM C1521, or other applicable method as recommended by manufacturer.

F. Sample Color Verification: At locations identified by A/E, install selected color of sealant at interior and exterior building locations agreed upon with Architect and Owner for final approval.

1.06 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional information regarding documenting warranties.

B. Section Specific Warranty: Provide manufacturer’s customized warranty as described in this section. Document the warranty as defined under the Submittals heading of this section. Provide warranty in conformance with the following:
1. Provide 2-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.

C. Extended Period: Correct work in accordance with the terms of the General Conditions for a duration of not less than one year.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Nonsag Sealants:
1. Adhesives Technology Corporation: www.atcepoxy.com.
2. Bostik Inc: http://www.bostik.com/us/en_US/.

3. Dow Corning Corporation: https://www.dow.com/en-us/product-technology/pt-adhesives-sealants.html.
4. Franklin International, Inc: www.titebond.com.
5. Henry Company: www.henry.com.
6. Hilti, Inc: www.us.hilti.com.
7. Master Builders Solutions by BASF: www.master-builders-solutions.com/en-us.
8. Lucas Products: www.rmlucas.com.
9. Momentive Performance Materials, Inc (formerly GE Silicones): www.momentive.com.
10. Pecora Corporation: www.pecora.com.
11. The QUIKRETE Companies: www.quikrete.com.
12. Sherwin-Williams Company: www.sherwin-williams.com.
13. Sika Corporation: www.sika.com.
14. Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com.
15. W.R. Meadows, Inc: www.wrmeadows.com.
16. Novagard Solutions: www.novagard.com.
17. csl Silicones Inc: www.cslsilicones.com.
18. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 JOINT SEALANT APPLICATIONS

A. Scope:
   1. Interior Joints: Interior joints to be sealed include, but are not limited to, the following items.
      a. Joints between door, window, and other frames and adjacent construction.
      b. Intersection of countertop/backsplash at wall.
      c. Other joints indicated below.
   2. Do Not Seal:
      a. Intentional weep holes in masonry.
      b. Joints indicated to be covered with expansion joint cover assemblies.
      c. Joints where sealant is specified to be furnished and installed by manufacturer of product to be sealed.
      d. Joints where sealant installation is specified in other sections.
      e. Joints between suspended ceilings and walls.
      f. Weepholes in window frames.

B. Type JS-3 - Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
   1. Type JS-5 - Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
   2. Type JS-1 - Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; clear.

C. Interior Wet Areas: Fixtures in wet areas include plumbing fixtures, countertops, and cabinets.

2.03 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

2.04 NONSAG JOINT SEALANTS

A. Type JS-1 - Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
   1. Color: Clear.
   2. Products:
      a. ARDEX Engineered Cements; ARDEX SX: www.ardexamericas.com.
      b. Dow Corning Corporation: Silicone 786 Silicone Sealant.
      c. General Electric: Sanitary 1700 Sealant.
      d. LATICRETE International, Inc; LATICRETE LATASIL: www.laticrete.com.
      e. Merkrete, by Parex USA, Inc; Merkrete Colored Caulking: www.merkrete.com.
      f. Pecora Corporation; 890NST Sanitary Silicone Sealant. Class 50: www.pecora.com.

g. Sherwin Williams; White Lightening Silicone.
h. Sika Corporation; Sikasil GP: www.usa.sika.com.
i. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

B. Type JS-3 - Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multicomponent; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 35 percent, minimum.
2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
3. Color: To be selected by Architect from manufacturer's standard range.
4. Service Temperature Range: Minus 40 to 180 degrees F.
5. Products:
a. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
b. Lucas Products: #9600 Joint & Termination Sealant. www.rmlucas.com.
c. Sherwin-Williams Company; Loxon S1: www.sherwin-williams.com.
d. Sika Corporation; Sikaflex-1a: www.usa.sika.com.
e. Sika Corporation; Sikaflex-15 LM: www.usa.sika.com.
f. Sika Corporation; Sikaflex-2c NS: www.usa.sika.com.
g. Tremco Commercial Sealants & Waterproofing; Dymonic 100: www.tremcosealants.com.
h. W. R. Meadows, Inc; POURTHANE NS: www.wrmeadows.com.
i. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

C. Type JS-5 - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging, paintable; not intended for exterior use.
1. Color: To be selected by Architect from manufacturer's full range.
2. Grade: ASTM C834; Grade 0 Degrees F (Minus 18 Degrees C).
3. Products:
a. Pecora Corporation; AC-20 + Silicone Acrylic Latex Caulking Compound: www.pecora.com.
b. Sherwin-Williams Company; White Lightning 3006 Siliconized Acrylic Latex Caulk: www.sherwin-williams.com.
c. Sherwin-Williams Company; 850A Acrylic Latex Caulk: www.sherwin-williams.com.
d. Sherwin-Williams Company; 950A Siliconized Acrylic Latex Caulk: www.sherwin-williams.com.
e. Sherwin-Williams Company; Bolt Quickdry Siliconized Acrylic Latex Caulk: www.sherwin-williams.com.
f. Sherwin-Williams Company; Powerhouse Siliconized Acrylic Latex Sealant: www.sherwin-williams.com.
g. Tremco Commercial Sealants & Waterproofing; Tremflex 834: www.tremcosealants.com.
h. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.05 ACCESSORIES

A. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

B. Masking Tape: Self-adhesive, nonabsorbent, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

C. Joint Cleaner: Noncorrosive and nonstaining type, type recommended by sealant manufacturer; compatible with joint forming materials.

D. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in an inconspicuous area to verify that it does not stain or discolor slab.

3.03 INSTALLATION

A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Provide joint sealant installations complying with ASTM C1193.

C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

D. Install bond breaker backing tape where backer rod cannot be used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

H. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements for related requirements.

B. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.

C. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

END OF SECTION

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SECTION 08 12 13
HOLLOW METAL FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated hollow metal frames for non-hollow metal doors.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 07 92 00 - Joint Sealants: Sealing joints between door frames and adjacent construction.

C. Section 08 71 00 - Door Hardware: Hardware, silencers, and weatherstripping.

D. Section 09 91 23 - Interior Painting: Field painting.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.

C. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2024.

D. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.

E. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2025.

F. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

G. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2024.

H. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.

I. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2020.

J. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2025a.

K. ASTM C476 - Standard Specification for Grout for Masonry; 2023.

L. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames; 2016.

M. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

N. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.

O. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2024.

P. NAAMM HMMA 840 - Guide Specifications for Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2024.

Q. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

R. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. It is permissible for a single supplier to combine submittal items for multiple sections within Division 8 Openings. This permission applies to sections that describe requirements for glazing, hardware, any passage door and windows that are framed using the same systems as the passage doors. Identify all sections that are included in the transmittal on the coversheet.

D. Review Submittals - Preparatory:
   1. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced grade standard.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Supplier: A company experienced in the builders' hardware industry representing hollow metal products for a minimum of two (3) years.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store in accordance with applicable requirements and in compliance with standards and/or custom guidelines as indicated.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Frames with Integral Casings:
   1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com.
   2. Curries, an Assa Abloy Group company: www.assaabloydss.com.
   3. Curries Door: www.curries.com.
   4. Republic Doors, an Allegion brand: www.republicdoor.com.
   5. Steelcraft, an Allegion brand: www.allegion.com/us.
   6. Mesker Door: www.meskerdoor.com.
   7. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

B. Refer to Section 08 80 00 for glass type selections.

2.02 PERFORMANCE REQUIREMENTS

A. Refer to Door and Frame Schedule on drawings for frame sizes, fire ratings, sound ratings, finishing, door hardware to be installed, and other variations, if any.

B. Door Frame Type: Provide hollow metal door frames with integral casings.

C. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.

D. Accessibility: Comply with ICC A117.1 and ADA Standards.

E. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturers standard.

F. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior frame that is also indicated as being sound-rated must comply with the requirements specified for exterior frames and for sound-rated frames; where two requirements conflict, comply with the most stringent.

G. Hardware Preparations, Selections and Locations: Comply with BHMA A156.115, NAAMM HMMA 830, NAAMM HMMA 831 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

H. Mullions for Pairs of Doors: Fixed, except where removable is indicated, with profile similar to jambs.

I. Transom Bars: Fixed, of profile same as jamb and head.

J. Frames for Interior Glazing: Construction and face dimensions to match door frames, and as indicated on drawings.

K. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inches high to fill opening without cutting masonry units.

2.03 HOLLOW METAL DOOR FRAMES WITH INTEGRAL CASINGS

A. Frame Finish: Factory primed and field finished.

B. Interior Door Frames, Non-Fire Rated: Face welded type.
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 2 - Heavy-duty.
      b. Physical Performance Level B 500 000 cycles; in accordance with ANSI/SDI A250.4.
      c. Frame Metal Thickness: 16 gage, 0.053 inch, minimum.

C. Rated Frames for Interior Glazing or Borrowed Lights: Construction and face dimensions to match door frames, and as indicated on drawings.

2.04 FINISHES

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

B. Protective Coating: As specified and applied in Section 04 20 00.

2.05 ACCESSORIES

A. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

B. Mortar for Frames: Mortar complying with ASTM C270 for hand troweling in place; plaster grout and thinner pumpable grout are prohibited.

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

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

A. Coat inside of frames to be installed in masonry or to be filled with mortar or grout, with bituminous coating, prior to installation.

3.03 INSTALLATION

A. Install frames in accordance with manufacturer's instructions and related requirements of specified frame standards or custom guidelines indicated.

B. Coordinate frame anchor placement with wall construction.

C. Comply with glazing installation requirements of Section 08 80 00.

D. Install door hardware as specified in Section 08 71 00.

E. Coordinate installation of electrical connections to electrical hardware items.

3.04 TOLERANCES

A. Maximum Diagonal Distortion: 1/16 inch measured with straight edges, crossed corner to corner.

END OF SECTION

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SECTION 08 14 16
FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flush wood doors; flush configuration; non-rated.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 08 12 13 - Hollow Metal Frames.

C. Section 08 71 00 - Door Hardware.

D. Section 08 80 00 - Glazing.

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).

B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.

C. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

D. WDMA I.S. 1A - Interior Architectural Wood Flush Doors; 2021, with Errata (2022).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
   2. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.

D. Review Submittals - Samples:
   1. Samples: Submit two samples of door construction, 12 by 12 inch in size cut from top corner of door.
   2. Samples: Submit two samples of door veneer, 12 by 12 inch in size illustrating wood grain, stain color, and sheen.

E. Information Submittals - Preparatory:
   1. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

F. Closeout Submittals:
   1. See Section 01 78 00 - Closeout Submittals for additional information regarding documenting warranties.
   2. Warranty Documentation: Submit documentation of manufacturer's warranty that acknowledges the requirements defined in this section.

1.05 QUALITY ASSURANCE

A. Maintain one copy of the specified door quality standard on site for review during installation and finishing.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.

C. Supplier: A company experienced in the builders' hardware industry representing wood door products for a minimum of two (2) years, and can call upon an AHC, registered Architectural Hardware Consultant, for consultation during the full extent of the project.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver and store doors in accordance with specified quality standard.

B. Accept doors on site in manufacturer's packaging, and inspect for damage.

C. Protect doors with resilient packaging sealed with heat shrunk plastic; do not store in damp or wet areas or areas where sunlight might bleach veneer; seal top and bottom edges with tinted sealer if stored more than one week, and break seal on site to permit ventilation.

1.07 PROJECT CONDITIONS

A. Coordinate the work with door opening construction, door frame and door hardware installation.

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Section Specific Warranty: Provide manufacturer’s customized warranty as described in this section. Document the warranty as defined under the Submittals heading of this section. Provide warranty in conformance with the following:
   1. Provide manufacturer's warranty on interior doors for the life of the installation. Complete forms in Owner's name and register with manufacturer.
   2. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Wood Veneer Faced Doors:
   1. Forte Opening Solutions: www.forteopenings.com.
   2. Oshkosh Architectural Door Company; www.oshkoshdoor.com.
   3. VT Industries; www.vtindustries.com.
   4. Streko; www.strekodoors.com.
   5. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 DOORS

A. Doors: See drawings for locations and additional requirements.
   1. Quality Standard: Custom Grade, Heavy Duty performance, in accordance with WDMA I.S. 1A.
   2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.

B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
   1. Provide solid core doors at each location.

2.03 DOOR AND PANEL CORES

A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated.

2.04 DOOR FACINGS

A. Veneer Facing for Transparent Finish: Red oak, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.
   1. Vertical Edges: laminated.

B. Facing Adhesive: Type I - waterproof.

2.05 DOOR CONSTRUCTION

A. Fabricate doors in accordance with door quality standard specified.

B. Cores Constructed with stiles and rails:

C. Provide solid blocks at lock edge for hardware reinforcement.

D. Where supplementary protective edge trim is required, install trim after veneer facing has been applied full-width.

E. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

F. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

G. Provide edge clearances in accordance with the quality standard specified.

2.06 FINISHES - WOOD VENEER DOORS

A. Finish work in accordance with WDMA I.S. 1A for grade specified and as follows:
   1. Transparent:
      a. System - TR-6, Catalyzed Polyurethane.
      b. Stain: As selected by Architect.
      c. Sheen: Satin.

B. Factory finish doors in accordance with approved sample. Stain colors shall be selected from manufacturer's full line.

C. Seal edges as required by manufacturer’s standards to meet lifetime warranty.

2.07 ACCESSORIES

A. Hollow Metal Door Frames: See Section 08 12 13.

B. Glazing: See Section 08 80 00.

C. Glazing Stops: Wood, of same species as door facing, butted corners; prepared for countersink style tamper proof screws.

D. Door Hardware: See Section 08 71 00.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and specified quality standard.

B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.

C. Use machine tools to cut or drill for hardware.

D. Coordinate installation of new doors with installation of frames and hardware.

E. Coordinate installation of glazing.

F. Seal all job site sawn surfaces with two coats of polyurethane.

3.03 TOLERANCES

A. Comply with specified quality standard for fit and clearance tolerances.

B. Comply with specified quality standard for telegraphing, warp, and squareness.

3.04 ADJUSTING

A. Adjust doors for smooth and balanced door movement.

B. Adjust closers for full closure.

3.05 SCHEDULE - SEE DRAWINGS

END OF SECTION

DOOR HARDWARE
SECTION 08 71 00

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Conditions of the Contract and portions of Division One of this Project Manual apply to this Section as though repeated herein.

1.02 WORK INCLUDED

A. Furnish all finish hardware specified herein, listed in the hardware schedule, or required by the drawings.

B. Where items of hardware are not definitely or correctly specified and are required for the intended service, such omission, error, or other discrepancy should be directed to the Architect prior to the bid date for clarification by addendum. Otherwise, furnish such items in the type and quantity established by this specification for the appropriate service intended.

1.03 RELATED WORK

A. Section 08 12 13 – Hollow Metal Frames.

D. Division 26 - Electrical.

1.04 REFERENCES

A. A.D.A. - Americans with Disabilities Act.

B. ANSI A117.1 - Specifications for making facilities accessible to physically handicapped people.

C. 36 CFR 1191 - Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities; Final Rule; current edition; (ADA Standards for Accessible Design).

D. NFPA 80 - Standards For Fire Doors and Windows.

E. NFPA 101 - Life Safety Code.

F. U.L. - Building Material Directory.

G. D.H.I. - Recommended Locations for Architectural Hardware.

H. Applicable State and Local Building Codes, including IBC2009.

1.05 SUBMITTALS

A. Submit five (5) copies of a detailed hardware schedule, vertical format. Prepare under the supervision of an AHC, registered Architectural Hardware Consultant, and under provisions of Division One.
1. Itemize hardware in the sequence and format established by this specification.
2. List and describe each opening separately. Include all doors with identical hardware, except hand, in a single heading. Include door number, room designations, degree of swing, and hand.
3. List related details. Include dimensions, door and frame material, and other

considerations affecting hardware.

4. List all hardware items to be supplied. Include manufacturer's name, quantity, product name, catalog number, size, finish, attachments, and related details where applicable.
5. Resubmit five (5) copies of the corrected schedule when required.

B. Keying Schedule: After receipt of approved hardware schedule submit a copy of keying schedule as a result of a keying meeting between the Owner and the hardware supplier.

C. Samples: If so directed by the Architect, submit samples of finish hardware items for approval. Properly identify each sample as to make and number, and furnish in the specified finish.

D. Templates: Furnish a copy of approved hardware schedule, along with applicable templates for factory-prepared hardware to each door and frame fabricator.

E. Electrical Hardware: Submit electrical specifications and applicable information to the electrical contractor after receipt of the approved hardware schedule.

F. Substitutions: Submit under provisions of Division One. Provide detailed information and catalog cuts indicating the comparison to the specified hardware. If requested by the Architect, provide a sample accompanied by a sample of the specified item for comparison.

1.06 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer: Except where specified in the hardware schedule, furnish products of only one manufacturer for each type of hardware.
2. Supplier: A company experienced in the builders' hardware industry for a minimum of two (2) years, and can call upon an AHC, registered Architectural Hardware Consultant, for consultation during the full extent of the project

B. Regulatory Requirements:

1. Furnish UL or Warnock Hersey listed hardware for all fire labeled and 20 minute openings in conformance with requirements for class of opening scheduled, whether specifically called for in this specification or not.
2. Furnish hardware that conforms to all applicable state and local building codes, including IBC 2000 positive pressure testing requirements. Where specified hardware is not in conformance with applicable codes, such omission or error should be directed to the Architect prior to the bid date for clarification by addendum; otherwise furnish hardware as required by code.

C. Training and Inspection:

1. Hold pre-installation meeting to coordinate training of installation personnel. Installers shall be trained by manufacturer’s representative.
2. Manufacturer’s representative shall inspect installation of hardware as part of substantial completion requirements.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle in accordance with Division One. Mark each original container with a door number that corresponds to the approved hardware schedule for the

installation location.

B. Receive, inventory and store hardware in a secure and dry environment; protect against loss and damage.

C. Report any shortages to the hardware supplier no later than 48 hours after receipt of delivery to the job site.

D. Stockpile items sufficiently in advance to ensure their availability. Coordinate delivery, handling, and installation of hardware items to ensure orderly progress of total work, and minimize or eliminate losses and damage.

PART 2: PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

Products	Specified	Acceptable
Hinges	Stanley	IVES, McKinney, Hager
Flush Bolts	Rockwood	DCI, Trimco, Ives
Locks and Latches	Marshall Best	NO SUB
Push/Pull Latches	Rockwood	Trimco, Burns, Hager
Exit Devices	Von Duprin	Sargent
Door Closers	LCN	NO SUB
Protective Plates	Rockwood	Burns, Hager
Overhead Stops/Holders	ABH	Dorma, Glynn Johnson
Wall Stops/Floor Stops	Rockwood	Trimco, Hager, DCI
Thresholds, Sweeps, Weatherstrip	Reese	National Guard Products, Pemko

2.02 HINGES

A. Acceptable manufacturers and respective catalog numbers:

Description	P.B.B.	Stanley	McKinney	Hager
Std. Wt. Plain Bearing - Steel	PB81	F179	T2714	1279
Std. Wt. Ball Bearing - Steel	BB81	FBB179	TA2714	BB1279
Std. Wt. Ball Bearing -non ferrous	BB21/BB51	FBB191	TB2314	BB1191
Hvy. Wt. Ball Bearing Steel	4B81	FBB168	T4B3786	BB1168
Hvy. Wt. Ball Bearing – non ferrous	4B21/4B51	FBB179	T4B3386	BB1199

B. Hinges supplied must be tested and comply with ANSI/BHMA standards for consistency, wear and corrosion resistance.

C. Quantity: Furnish hinges for each door leaf as follows, unless otherwise noted in groups:
1. Doors up to and including 90" high - 3 hinges.
2. Doors over 90" high through 120" high - 4 hinges.

D. Type: Furnish as follows, unless otherwise noted in groups:
1. Standard weight, plain bearing hinge for interior openings through 36" wide without a door closer.
2. Standard weight, ball bearing hinge for interior openings over 36" through 40" wide with a door closer, and for interior openings through 40" wide with a door closer.
3. Heavy weight, four ball bearing hinge for all exterior openings unless noted in groups.

E. Size: Furnish as follows, unless otherwise noted in groups:
1. 1 3/4" doors: 4-1/2" x 4-1/2"
2. Provide proper hinge width to clear trim and allow full 180° swing.

F. Hinges for all lockable doors opening outward shall have non-removable pin (NRP). All other hinges shall have non-rising pins.

2.03 FLUSH BOLTS

A. Acceptable manufacturers and respective catalog numbers:

Description	Rockwood	Ives	Trimco	DCI
Manual - Metal Door	555	FB458	3917	780F
Automatic - Metal Door	1842	FB31P	3810	842
Self Latching - Metal Door	1845	FB51P	3820	845
Dust Proof Strike	570	DP2	3911	82

B. Furnish a dustproof strike for all bottom bolts.

2.04 LOCKS AND LATCHES

A. Acceptable manufacturers and respective catalog numbers:

Description	Marshall Best
Mortise Locks	RE Series x Sentinel
Cylindrical Locks	MB1 Series x 15 Style

B. Furnish lock types and functions as specified in the hardware schedule, and as follows:
1. Provide 2-3/4" backset.
2. Provide 2-3/4" x 1-1/8" “T” strike with a dust box for use in wood doors or frames.
3. Provide 4-7/8" x 1-1/4" ANSI strike for installation in a hollow metal door or frame.
4. Locksets to conform to ANSI A156.2, Series 4000, Grade 1 and be UL listed.

2.05 EXIT DEVICES

A. Acceptable manufacturers and respective catalog numbers:

Description	Von Duprin	Sargent
Wide Stile Rim	98 RIM	8800
Wide Stile Surf. Vert. Rod	9827	8700
Wide Stile Conc. Vert. Rod	9847	8600
Wide Stile Mortise	9875	8900
Narrow Stile Rim	35 RIM	8500
Narrow Stile Conc. Vert. Rod	3547	8400

B. Furnish exit device types and functions as specified in the hardware schedule.

C. Lever handles supplied with exit devices shall match the design specified for locks and latches.

2.06 PULLS, PUSHBARS, PUSH/PULL PLATES

A. Acceptable manufacturers and respective catalog numbers:

Description	Rockwood	Trimco	Burns

B. Supply product as listed in groups or equal to acceptable manufacturers..

2.07 DOOR CLOSERS

A. Acceptable manufacturers and respective catalog numbers:

Description	LCN	Sargent
Heavy Duty Reg. Arm	4041	281
Heavy Duty Parallel Arm	4041 EDA	281 P10
Heavy Duty Stop Arm	4041 CUSH	281 PS
Medium Duty	1460	1430
Standard Duty-No Cover	1070	1100

B. Furnish complete with mounting brackets, drop plates, spacers, special shoes, and thru bolts as may be required by the door and frame conditions.

2.08 LOW ENERGY AUTOMATIC OPERATORS

A. Acceptable manufacturers and respective catalog numbers:

Description	LCN
Operator-Push Side	9540
Operator-Pull Side	9530
Operator - Push Side	4640
Operator - Pull Side	4630
Hard Wired Wall Switch	956
Wireless Wall Switch	957
Wireless Receiver	931
Touchless Actuators	8310-813
Bollard	8310-866

B. Provide arms, mounting plates, sizes, stops, and any component that may be necessary to interface with electrified hardware that are required for complete and proper operation of the openings affected. Completed installation must meet or exceed requirements of ANSI A159.19.

C. Provide actuators as detailed in groups.

2.09 PROTECTIVE PLATES

A. Acceptable manufacturers: Rockwood, Trimco, Burns, Hager.

B. All kickplate heights shall be as listed in groups and 2" less door width single doors and 1" less for pairs.

C. Thickness shall be .050" (16 gauge).

2.10 OVERHEAD STOPS/HOLDERS

A. Acceptable manufacturers and respective catalog numbers:

Description	A.B.H.	Dorma	Glynn Johnson
Heavy Duty Surface	9000	900	90
Heavy Duty Concealed	1000	910	100

Standard Duty Surface	4400	700	450
Standard Duty Concealed	4000	710	410

B. Furnish an overhead stop if a door opens against equipment, casework, sidelights, or other objects that would make wall bumpers inappropriate, and as specified in the hardware groups.

2.11 WALL STOPS

A. Acceptable manufacturers and respective catalog numbers:

Description	Rockwood	Hager
Wrought Convex Wall	407	232W
Wrought Concave w/Toggle	409	237W

B. When "wall stop" is called for in hardware group, provide 407 or 409. When overhead stops are required, they will be specified by product number in the group.

C. Wall stops shall not be mounted to casework, cabinet work, sidelights, or equipment.

2.13 THRESHOLDS, SWEEPS, WEATHERSTRIP, DRIP CAPS, GASKET, ASTRAGALS

A. Acceptable manufacturers and respective catalog numbers:

Description	Reese	Pemko	National Guard
Threshold	S205	171A	425A
Sweep	323	315N	200N
Sweep	967	18133CP	OV633
Weatherstrip	970	45100CP	603
Weatherstrip	DS78	315CR	130N
Gasket	797B	S88	1010

B. Where specified in groups, furnish the above products unless otherwise detailed.

2.14 DOOR HARDWARE FINISHES

A. Unless indicated otherwise in the groups provide finishes as follows:

1. Hinges, exterior: US32D
2. Hinges, interior: US26D
3. Flush Bolts: US26D
4. Exit Devices: US32D
5. Locks and Latches: US26D
6. Pulls, Pushbars, Push/Pull: US32D
7. Door Closers: Painted Aluminum
8. Protective Plates: US32D
9. Overhead Stops: Painted Aluminum
10. Wall Stops: US32D
11. Gasket: Black
12. Thresholds: Mill Aluminum
13. Weatherstrip, Sweeps: Clear Anodized Aluminum

2.15 KEYING REQUIREMENTS:

A. Key System: New factory-registered master key system. MBS 7-PIN Small Format Interchangeable Core. Initiate and conduct meetings(s) with Owner representatives to determine system keyway(s), keybow marking, structure, degrees of physical security and degree of geographic exclusivity. Furnish Owner's written approval of the system.

B. Small Format Interchangeable Cores: furnish 7-pin solid brass construction.

C. Cylinders/cores: keyed at factory of lock manufacturer where permanent records are maintained. Locksets and cylinders same manufacturer.

D. Permanent keys: Use secured shipment direct from point of origination to Owner.

E. Masterkeyed System Documents: Use secured shipment direct from point of origination to Owner at completion.

PART 3: EXECUTION

3.01 EXAMINATION

A. Examine doors, frames, and related items for conditions that would prevent the proper application of finish hardware. Do not proceed until defects are corrected.

3.02 INSTALLATION

A. Install each hardware item in strict compliance with the manufacturer's printed instructions and recommendations, using only fasteners supplied by, or called for by the manufacturer.

B. Set units level, plumb and true to the line and location. Prepare and reinforce the attachment substrate as necessary for proper installation and operation.

C. Mortise and cut to close tolerance and conceal evidence of cutting in the finished work. Drill and countersink units which are not factory prepared for anchorage fasteners.

D. If manufacturer's instructions do not call out a mounting location, refer to the Door and Hardware Institute's publication *Recommended Locations for Architectural Hardware.*

E. Deliver to the Owner one (1) complete set of installation and adjustment instructions, as well as all tools that were furnished with the hardware.

3.03 ADJUSTMENT AND CLEANING

A. At final completion, adjust and check each operating item of hardware at each door to ensure proper operation and function of every unit. Lubricate any moving parts that do not operate freely, smoothly, and quietly using only lubricant as recommended by the manufacturer of the hardware item. Replace units that cannot be adjusted or lubricated to operate properly.

B. Instruct the Owner's personnel in the proper adjustments of the hardware as needed.

C. Clean and restore hardware to the original finish.

HARDWARE SCHEDULE

HARDWARE GROUP 1
EACH SINGLE DOOR TO HAVE:
DR.101

3 EA	BUTTS	FBB179 4.5 X 4.5 652	STANLEY
1 EA	PRIVACY LOCK W INDICATOR	L9440 06A OS-OCC 626	SCHLAGE
1 EA	AUTO OPERATOR	REUSE FROM EXISTING OPENING	
1 EA	ELECTRIC STRIKE	6216 US32D	VONDUPRIN
1 EA	KICKPLATE	10 X 2”LDW US32D	ROCKWOOD
1 EA	WALL STOP	409 US32D	ROCKWOOD
1 EA	SILENCERS	608RKW GREY	ROCKWOOD

HARDWARE GROUP 2
EACH SINGLE DOOR TO HAVE:
DR.103

3 EA	BUTTS	FBB179 4.5 X 4.5 652	STANLEY
1 EA	PRIVACY LOCK W INDICATOR	L9440 06A OS-OCC 626	SCHLAGE
1 EA	CLOSER	4040XP EDA 689	LCN
1 EA	ELECTRIC STRIKE	6216 US32D	VONDUPRIN
1 EA	KICKPLATE	10 X 2”LDW US32D	ROCKWOOD
1 EA	WALL STOP	409 US32D	ROCKWOOD
1 EA	SILENCERS	608RKW GREY	ROCKWOOD

HARDWARE GROUP 3
EACH SINGLE DOOR TO HAVE:
DR.102

3 EA	BUTTS	FBB179 4.5 X 4.5 652	STANLEY
1 EA	PUSH PLATE	8200 4 X 16 US32D	IVES
1 EA	PULL	8302-0 4 X 16 US32D	IVES
1 EA	AUTO OPERATOR	REUSE FROM EXISTING OPENING	
1 EA	KICKPLATE	10 X 2”LDW US32D	ROCKWOOD
1 EA	WALL STOP	409 US32D	ROCKWOOD
1 EA	SILENCERS	608RKW GREY	ROCKWOOD

HARDWARE GROUP 4
EACH PAIR OF DOORS TO HAVE:
DR.104.1

2 EA	CONTINUOUS HINGES	BY ALUM DR/FR SUPPLIER	
1 EA	RIM EXIT DEVICE	99NL-OP X 110MD 626	VONDUPRIN
1 EA	RIM EXIT DEVICE	99EO 626	VONDUPRIN
1 EA	RIM CYLINDER WITH CORE	MBS-ICR X MBS-IC7 626	MBS
2 EA	OFFSET PULLS	8190EZHD-O US32D	IVES
2 EA	ELECTRIC STRIKES	6300 US32D	VONDUPRIN
1 EA	AUTO OPERATOR	REUSE EXISTING	
1 EA	DOOR SEALS	BY ALUM DR/FR SUPPLLIER	
1 EA	CARD READER/PWR SUPPLY	REUSE EXISTING	

HARDWARE GROUP 5
EACH GLASS PARTION TO HAVE:
DR.104.2

ALL HARDWARE BY SUPPLIER

HARDWARE GROUP 6
EACH SINGLE DOOR TO HAVE:
DR.104A,104B,104C,104D,106

3 EA	BUTTS	FBB179 4.5 X 4.5 652	STANLEY
1 EA	OFFICE LOCK	MB1-03-01-15 626	MBS
1 EA	KICKPLATE	10 X 2"LDW US32D	ROCKWOOD
1 EA	WALL STOP	409 US32D	ROCKWOOD
1 EA	SILENCERS	608RKW GREY	ROCKWOOD

HARDWARE GROUP 7
EACH SINGLE DOOR TO HAVE:
DR.104E.1,

3 EA	BUTTS	FBB179 4.5 X 4.5 652	STANLEY
1 EA	OFFICE LOCK	MB1-03-01-15 626	MBS
1 EA	KICKPLATE	10 X 2"LDW US32D	ROCKWOOD
1 EA	SURFACE OHS	454S 652	GLYNN JOHN
1 EA	SILENCERS	608RKW GREY	ROCKWOOD

HARDWARE GROUP 8
EACH SINGLE DOOR TO HAVE:
DR.104H,

3 EA	BUTTS	FBB179 4.5 X 4.5 652	STANLEY
1 EA	PASSAGE LOCK	MB1-03-30-15 626	MBS
1 EA	KICKPLATE	10 X 2"LDW US32D	ROCKWOOD
1 EA	SURFACE OHS	454S 652	GLYNN JOHN
1 EA	GASKET	F797B17	REESE
1 EA	AUTO DR BOTTOM	521C36	REESE

HARDWARE GROUP 9
EACH SINGLE DOOR TO HAVE:
DR.105A,

3 EA	BUTTS	FBB179 4.5 X 4.5 652	STANLEY
1 EA	STORERM LOCK-CYL	MB1-03-05-15 626	MBS
1 EA	KICKPLATE	10 X 2"LDW US32D	ROCKWOOD
1 EA	WALL STOP	409 US32D	ROCKWOOD
1 EA	SILENCERS	608RKW GREY	ROCKWOOD

HARDWARE GROUP 10
EACH OVERHEAD DOOR TO HAVE:
DR.104E.2

OVERHEAD DOOR SUPPLIER TO PROVIDE NEW WEATHERSTRIPPING AND SILL SEAL ON EXISTING OVERHEAD DOOR

END OF SECTION 08 71 00

SECTION 08 80 00

GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glazing units.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 07 92 00 - Joint Sealants: Sealants for other than glazing purposes.

C. Section 08 12 13 Hollow Metal Frames: Glazed sidelights.

D. Section 08 14 16 - Flush Wood Doors: Glazed lites in doors.

1.03 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).

C. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2025.

D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.

E. GANA (GM) - GANA Glazing Manual; 2022.

F. GANA (SM) - GANA Sealant Manual; 2008.

G. IGMA TM-3000 - North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use; 1990 (Reaffirmed 2016).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory Group:
   1. Product Data on Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.
   2. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.

D. Closeout Submittals:
   1. See Section 01 78 00 - Closeout Submittals for additional information regarding documenting warranties.
   2. Warranty Documentation: Submit documentation of manufacturer's warranty that acknowledges the requirements defined in this section.
      a. Provide procurement information including date(s) of procurement, identification of suppliers and contractors involved in the procurement.
      b. Provide manufacturer certification of the warranty that is executed in the Owner's name.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with GANA (GM), GANA (SM), and IGMA TM-3000 for glazing installation methods. Maintain one copy on site.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience.

1.06 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 40 degrees F.

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Section Specific Warranty: Provide manufacturer's customized warranty as described in this section. Document the warranty as defined under the Submittals heading of this section. Provide warranty in conformance with the following:

1. Insulating Glass Units: Provide a ten (10) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Float Glass Manufacturers:

1. AGC Glass Company North America, Inc: www.us.agc.com.
2. Cardinal Glass Industries: www.cardinalcorp.com.
3. Guardian Industries Corp: www.sunguardglass.com.
4. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com.

2.02 GLASS MATERIALS

A. Float Glass: Provide float glass based glazing unless otherwise indicated.

1. Kind FT - Fully Tempered Type: Complies with ASTM C1048.
2. Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.
3. Thicknesses: As indicated; provide greater thickness as required for exterior glazing wind load design.

2.03 GLAZING UNITS

A. GLT-4 - Monolithic Safety Glazing: Non-fire-rated:

1. Applications:
   a. Glazed lites in doors, except fire doors.
   b. Glazed sidelights to doors, except in fire-rated walls and partitions.
   c. Other locations required by applicable federal, state, and local codes and regulations.
   d. Other locations indicated on drawings.
2. Glass Type: Fully tempered safety glass as specified.
3. Tint: Clear.
4. Thickness: 1/4 inch, nominal.

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

3.02 PREPARATION

A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.03 INSTALLATION, GENERAL

A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.

C. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.

D. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.

E. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.

F. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, and paint.

3.04 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.

B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.05 CLEANING

A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.

B. Remove nonpermanent labels immediately after glazing installation is complete.

C. Clean glass and adjacent surfaces after sealants are fully cured.

D. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.06 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

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SECTION 08 87 33
DECORATIVE FILMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glazing film applied to glazing assemblies.

B. Glazing assemblies to receive film are indicated on drawings.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern work under this Section.

B. Section 08 80 00 - Glazing: New glazing to received film.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Review Submittals – Preparatory:
   1. Product Data: Manufacturer's data sheets on each product to be used, including:
      a. Record of product certification for safety requirements.
      b. Preparation instructions and recommendations.
      c. Storage and handling requirements and recommendations.
      d. Installation methods.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of authorities having jurisdiction.

1.05 FIELD CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. See Master Color Schedule for selected Decorative Film.

2.02 MATERIALS

A. Glazing Film: Transparent polyester film for permanent bonding to glass.
   1. Thickness: 0.008 inch, minimum.
   2. Color: Clear.
   3. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Field -Applied Film: Verify that existing conditions are adequate for proper application and performance of film.

B. Examine glass and frames. Verify that existing conditions are adequate for proper application and performance of film.

C. Verify glass is not cracked, chipped, broken, or damaged.

D. Verify that frames are securely anchored and free of defects.

E. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean glass of dust, dirt, paint, oil, grease, mildew, mold, and other contaminants that would inhibit adhesion.

B. Immediately prior to applying film, thoroughly wash glass with neutral cleaning solution.

C. Protect adjacent surfaces.

D. Do not begin installation until substrates have been properly prepared.

3.03 INSTALLATION

A. Do not apply glazing film when surface temperature is less that 40 degrees F or if precipitation is imminent.

B. Install in accordance with manufacturer's instructions, without air bubbles, wrinkles, streaks, bands, thin spots, pinholes, or gaps, as required to achieve specified performance.

C. Accurately cut film with straight edges to required sizes allowing 1/16 inch to 1/8 inch gap at perimeter of glazed panel unless otherwise required by anchorage method.

D. Seams: Seams are not permitted without authorization by AE.

E. Clean glass and anchoring accessories following installation. Remove excess sealants and other glazing materials from adjacent finished surfaces.

F. Remove labels and protective covers.

3.04 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 09 05 61

COMMON WORK RESULTS FOR FLOORING PREPARATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section applies to floors identified in Contract Documents that are receiving the following types of floor coverings:
   1. Resilient tile.
   2. Carpet tile.

B. Removal of existing floor coverings.

C. Preparation of existing concrete floor slabs for installation of floor coverings.

D. Testing of concrete floor slabs for moisture and alkalinity (pH).

E. Testing of floor flatness at areas receiving large format tile.

F. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
   1. Contractor shall perform all specified remediation of concrete floor slabs. If such remediation is indicated by testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination prior to entering into the contract, a contract modification will be issued.

G. Patching compound.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 01 40 00 - Quality Requirements: Additional requirements relating to testing agencies and testing.

C. Section 03 30 00 - Cast-in-Place Concrete: Moisture emission reducing curing and sealing compound for slabs to receive adhered flooring, to prevent moisture content-related flooring failures; to remain in place, not to be removed.

D. Section 03 30 00 - Cast-In-Place Concrete: Limitations on curing requirements for new concrete floor slabs and coordination of any other special requirements affecting concrete floor preparations.

E. Section 03 30 00 - Cast-In-Place Concrete: Performance values for floor flatness tolerances for cast-in-place concrete.

1.03 REFERENCE STANDARDS

A. ASTM E1155/E1155M - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers; 2023.

B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2022.

C. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2023.

D. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

E. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; 2018.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Testing Agency's Report:
      a. Description of areas tested; include floor plans and photographs if helpful.
      b. Summary of conditions encountered.
      c. Moisture and alkalinity (pH) test reports.
      d. Adhesive bond and compatibility test report.
      e. Copies of specified test methods.
      f. Recommendations for remediation of unsatisfactory surfaces.
      g. Submit report to Architect.
      h. Submit report not more than two business days after conclusion of testing.
   2. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
      a. Moisture and alkalinity (pH) limits and test methods.
      b. Manufacturer's required bond/compatibility test procedure.
   3. Remedial Materials Product Data: Manufacturer's published data on each product to be used for remediation.
      a. Manufacturer's qualification statement.
      b. Manufacturer's statement of compatibility with types of flooring applied over remedial product.
      c. Test reports indicating compliance with specified performance requirements, performed by nationally recognized independent testing agency.
      d. Manufacturer's installation instructions.
      e. Specimen Warranty: Copy of warranty to be issued by coating manufacturer and certificate of underwriter's coverage of warranty.

1.06 QUALITY ASSURANCE

A. Moisture and alkalinity (pH) testing shall be performed by an independent testing agency employed and paid by Contractor.

B. Testing Agency Qualifications: Independent testing agency experienced in the types of testing specified.
   1. Submit evidence of experience consisting of at least 3 test reports of the type required, with Owner's project contact information.

C. Contractor's Responsibility Relating to Independent Agency Testing:
   1. Provide access for and cooperate with testing agency.
   2. Confirm date of start of testing at least 10 days prior to actual start.
   3. Allow at least 4 business days on site for testing agency activities.
   4. Achieve and maintain specified ambient conditions.
   5. Notify Architect when specified ambient conditions have been achieved and when testing will start.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, handle, and protect products in accordance with manufacturer’s instructions and recommendations.

B. Deliver materials in manufacturer’s packaging; include installation instructions.

C. Keep materials from freezing.

1.08 FIELD CONDITIONS

A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F or more than 85 degrees F.

B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

PART 2 PRODUCTS

2.01 MATERIALS

A. Floor Topping, Leveler and Patching Compound: Free flowing self-leveling, pumpable, cement-based compound for applications from 1-1/2 inch thick to feathered edges, minimum strength of 4000 psi.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Schonox; US. www.hpsubfloors.com.
      b. Schonox; AP. www.hpsubfloors.com.
      c. MAPEI Corporation; Ultraplan Easy with Primer T. www.mapei.com.
      d. Maxxon Great Lakes; Level-Right Maxx. www.maxxon.com.
      e. Ardex, Inc; V 1200. www.ardexamericas.com.
      f. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

B. Alternate Flooring Adhesive: Floor covering manufacturer's recommended product, suitable for the moisture and pH conditions present; low-VOC. In the absence of any recommendation from flooring manufacturer, provide a product recommended by adhesive manufacturer as suitable for substrate and floor covering and for conditions present.

PART 3 EXECUTION

3.01 CONCRETE FLOOR FLATNESS TESTING

A. Verify floor flatness meets the floor covering manufacturer's requirement.

3.02 CONCRETE SLAB PREPARATION

A. Follow recommendations of testing agency.

B. Perform following operations in the order indicated: (Moisture testing shall occur a minimum of 60 days prior to installation of flooring systems, with any required remediation efforts to begin immediately after test results.)
   1. Preliminary cleaning.
   2. Internal relative humidity tests; 3 tests in the first 1000 square feet and one test in each additional 1000 square feet, unless otherwise indicated or required by flooring manufacturer.
   3. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
   4. Specified remediation, if required.
   5. Provide patching, smoothing, and leveling, as required to meet manufacturer's requirements.
   6. Other preparation specified by flooring manufacturer.
   7. Adhesive bond and compatibility test.
   8. Protection of installed flooring.

3.03 REMOVAL OF EXISTING FLOOR COVERINGS

A. Do test removal to determine how many layers of existing flooring occur.

B. Comply with local, State, and federal regulations and recommendations of RFCI (RWP), as applicable to floor covering being removed.

C. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

3.04 PRELIMINARY CLEANING

A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.

B. Do not use solvents or other chemicals for cleaning.

3.05 MOISTURE VAPOR EMISSION TESTING

A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.

B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.

C. Verify that concrete sub-floor surfaces are ready for flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F1869. Obtain instructions if test results are not within the following limits:
   1. Moisture emission rate: Not greater than 3 lb per 1000 sq ft per 24 hours when tested using calcium chloride moisture test kit for 72 hours.
   2. At floors to receive finish materials, perform three tests for the first 1000 square feet and at least one additional test for each additional 1000 square feet.

D. Plastic sheet test and mat bond test may not be substituted for the specified ASTM test method, as those methods do not quantify the moisture content sufficiently.

E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as required. In the absence of manufacturer limits, perform remediation if test values exceed 3 pounds per 1000 square feet per 24 hours.

F. Report: Report the information required by the test method.

3.06 INTERNAL RELATIVE HUMIDITY TESTING

A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.

B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.

C. Test in accordance with ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes and as follows.

D. Verify that new and existing concrete sub-floor surfaces are ready for flooring installation by testing for moisture emission rate and alkalinity. Obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer. Testing procedures shall be:
   1. Maximum allowable moisture levels for each type of floor finish shall be received from flooring suppliers prior to testing.
   2. At floors to receive finish materials, perform three tests for the first 1000 square feet and at least one additional test for each additional 1000 square feet.
   3. Select test locations to provide information about moisture distribution across the entire floor slab, especially areas of potential high moisture. For slabs on-grade and below-grade, include a test location within three feet of each exterior wall.

E. Testing with electrical impedance or resistance apparatus may not be substituted for the specified ASTM test method, as the values determined are not comparable to the ASTM test values and do not quantify the moisture content sufficiently.

F. In the event that test values exceed floor covering manufacturer's limits, perform remediation as required. In the absence of manufacturer limits, perform remediation if any test value exceeds 75 percent relative humidity.

G. Report: Report the information required by the test method.

3.07 ALKALINITY TESTING

A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.

B. The following procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience.
   1. Use a wide range alkalinity (pH) test paper, its associated chart, and distilled or deionized water.
   2. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch in diameter. Allow the puddle to set for approximately 60 seconds, then dip the alkalinity (pH) test paper into the water, remove it, and compare immediately to chart to determine alkalinity (pH) reading.
   3. Use of a digital pH meter with probe is acceptable; follow meter manufacturer's instructions.

C. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 10.

3.08 PREPARATION

A. See individual floor covering section(s) for additional requirements.

B. Comply with requirements and recommendations of floor covering manufacturer.

C. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.

D. Do not fill expansion joints, isolation joints, or other moving joints.

3.09 ADHESIVE BOND AND COMPATIBILITY TESTING

A. Comply with requirements and recommendations of floor covering manufacturer.

3.10 APPLICATION OF REMEDIAL FLOOR COATING

A. Comply with requirements and recommendations of coating manufacturer.

3.11 PROTECTION

A. Cover prepared floors with building paper or other durable covering.

END OF SECTION

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SECTION 09 21 16
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Performance criteria for gypsum board assemblies.

B. Metal stud wall framing.

C. Metal channel ceiling framing.

D. Acoustic insulation.

E. Gypsum wallboard.

F. Joint treatment and accessories.

G. Acoustic sealant and installation of acoustic accessories, (sealants, insulation, etc.).

1.02 RELATED REQUIREMENTS

A. Section 01 40 00 - Quality Requirements: Additional requirements for mockups.

B. Section 01 40 00 - Quality Requirements: Requirements for Contractor's Design-Related Professional Design Service.

C. Section 05 40 00 - Cold-Formed Metal Framing: Exterior sheathing.

D. Section 07 84 00 - Firestopping: Top-of-wall assemblies at fire-resistance-rated walls.

E. Section 07 92 00 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

F. Section 09 91 23 - Interior Painting.

G. Section 09 72 00 - Wall Coverings: Priming at wall covering locations.

1.03 REFERENCE STANDARDS

A. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members; 2016, with Supplement (2020).

B. AISI S220 - North American Standard for Cold-Formed Steel Nonstructural Framing; 2020.

C. AISI S240 - North American Standard for Cold-Formed Steel Structural Framing; 2015, with Errata (2020).

D. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

F. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members; 2015.

G. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories; 2020 (Reapproved 2024).

H. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017 (Reapproved 2022).

I. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.

J. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2024.

K. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2024.

L. 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; 2022.

M. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2022.

N. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2019.

O. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2024.

P. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.

Q. ASTM E72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 2025.

R. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

S. ASTM E413 - Classification for Rating Sound Insulation; 2022.

T. GA-216 - Application and Finishing of Gypsum Panel Products; 2024.

U. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.
   2. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

1.05 QUALITY ASSURANCE

A. Stud Design: Manufacturer shall design stud gauge and confirm stud depth to meet performance requirements based on stud height.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

B. Interior Partitions Indicated as Sound-Rated: Provide completed assemblies with the following characteristics:
   1. Acoustic Attenuation: STC as indicated calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

2.02 METAL FRAMING MATERIALS

A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S220 or equivalent.

B. Manufacturers - Metal Framing, Connectors, and Accessories:
   1. ClarkDietrich Building Systems: www.clarkdietrich.com.
   2. Jaimes Industries: www.jaimesind.com.
   3. MarinoWARE: www.marinoware.com.
   4. MBA Metl Framing: www.mbastuds.com.
   5. Safti-Seal: www.saftiseal.com.
   6. Telling Industries: www.buildstrong.com.
   7. The Steel Network, Inc: www.SteelNetwork.com.

C. Non-structural Framing System Components: ASTM C645; galvanized, G40 coated, sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf.
   1. Exception: The minimum metal thickness and section properties requirements of ASTM C645 are waived provided steel of 40 ksi minimum yield strength is used, the metal is continuously dimpled, the effective thickness is at least twice the base metal thickness, and maximum stud heights are determined by testing in accordance with ASTM E72 using assemblies specified by ASTM C754.
   2. Studs: C-shaped with knurled or embossed faces.
   3. Runners: U shaped, sized to match studs.
   4. Ceiling Channels: C-shaped.
   5. Preformed Notched Backing Plates: 20 ga, G40 coated, cold formed plate with preformed lip, having stud notches at 16 inches on center. Install for backing to attach wall mounted items.
      a. SaftiFrame: PS51 Notched Strong Back Backing Profile. www.saftiseal.com.
      b. SaftiFrame: PS52 Flush Backing Plate Flush Mount Backing Profile. www.saftiseal.com.

D. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection and prevent rotation of studs while maintaining structural performance of partition.
   1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100.
   2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot-dipped galvanized coating.
   3. Provide mechanical anchorage devices as described above that accommodate deflection while maintaining the fire-resistance rating of the wall assembly.
      a. Products:
         1) FireTrak Corporation; Posi Klip: www.fire-trak.com.
         2) Metal-Lite, Inc; The System: www.metal-lite.net.
         3) ClarkDietrich Building Systems; MaxTrack Slotted Deflection Track.
         4) Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.
   4. Provide top track preassembled with connection devices spaced to fit stud spacing indicated on drawings; minimum track length of 10 feet.
   5. Deep legged track, minimum 2 inches with crimped stud allowed.

E. Non-structural Framing Accessories:
   1. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.
   2. Flexible Wood Backing: Fire-retardant-treated wood with sheet steel connectors.
      a. Products:
         1) ClarkDietrich; Danback: www.clarkdietrich.com.

2.03 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board: Note: No offshore produced gypsum board allowed.
   1. American Gypsum Company: www.americangypsum.com.
   2. Certainteed Gypsum Inc.: www.certainteed.com.
   3. Georgia-Pacific Gypsum: www.gpgypsum.com.
   4. National Gypsum Company: www.nationalgypsum.com.
   5. USG Corporation: www.usg.com.
   6. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
      a. Mold resistant board is required restrooms and kitchens.

3. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
4. Thickness:
    a. Vertical Surfaces: 5/8 inch.
5. Paper-Faced Products:
    a. American Gypsum Company; FireBloc Type X Gypsum Wallboard: www.americangypsum.com.
    b. American Gypsum Company; FireBloc Type C Gypsum Wallboard: www.americangypsum.com.
    c. CertainTeed Corporation; Type X Drywall: www.certainteed.com.
    d. Georgia-Pacific Gypsum; ToughRock: www.gpgypsum.com.
    e. Gold Bond Building Products, LLC provided by National Gypsum Company; Gold Bond Fire-Shield Gypsum Board: www.goldbondbuilding.com.
    f. USG Corporation; Sheetrock Brand Firecode X Panels 5/8 in. (15.9 mm): www.usg.com.
    g. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.
6. Mold-Resistant, Paper-Faced Products:
    a. American Gypsum Company; M-Bloc: www.americangypsum.com.
    b. American Gypsum Company; M-Bloc Type X: www.americangypsum.com.
    c. CertainTeed Corporation; M2Tech 5/8" Type X Moisture & Mold Resistant Drywall: www.certainteed.com.
    d. Georgia-Pacific Gypsum; ToughRock Mold-Guard: www.gpgypsum.com.
    e. Georgia-Pacific Gypsum; ToughRock Fireguard X Mold-Guard: www.gpgypsum.com.
    f. National Gypsum Company; Gold Bond XP Gypsum Board with Sporgard.
    g. USG Corporation; Sheetrock Brand EcoSmart Panels Mold Tough Firecode X 5/8 in. (15.9 mm): www.usg.com.
    h. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.04 GYPSUM BOARD ACCESSORIES

A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced. Thickness: 3 inch or as noted on Drawings.

B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
1. Composition: Permanently tacky non-hardening butyl sealant.
2. Products:
    a. Bostik Inc: www.bostik-us.com.
    b. Franklin International, Inc.; GREENchoice Acoustical Smoke & Sound Sealant: www.titebond.com.
    c. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant: www.pecora.com.
    d. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
    e. Tremco Global Sealants; Tremco Acoustical Sealant: www.tremcosealants.com.
    f. Hilti, Inc.; CP 506 Smoke and Acoustical Sealant: www.us.hilti.com.
    g. Hilti, Inc.; CP 605BoW Bottom-of-Wall Firestop Sealant: www.us.hilti.com.
    h. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

C. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, unless noted otherwise.
1. Corner Beads: Low profile, for 90 degree outside corners.
2. Wall Mounted Deflection Beads: Flexible gasket and bead with 1-1/8 inch flange.
    a. Products:
        1) Trim-Tex, Inc.; Wall mounted Deflection Bead 9220: www.trim-tex.com.
3. Edge Seal Bead: Use to seal around windows, doors, and where drywall butts up to a different wall materials. Gasket compresses upon installation to form a permanent seal and no sealant required. Do not install at acoustical wall perimeters.
    a. Trim-Tex: Super Seal Tear Away L Bead.

4. Expansion Joints:
    a. Type: Accordian profile with factory-installed protective tape.
    b. Products:
        1) Trim-Tex, Inc; Hideaway Expansion: www.trim-tex.com.
5. Ceiling Deflection Beads: Flexible gasket and bead with 1-1/8 inch flange. Install at perimeter of ceiling board.
    a. Products:
        1) Trim-Tex, Inc.; Super Seal Tear Away L Bead: www.trim-tex.com.

D. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
1. Tape for Rated Assemblies: E-Z Taping System. For tightly butted vertical and horizontal gypsum board joints above ceilings in 1 and 2 hour wood or metal stud assemblies. Follow manufacturer's requirements.

E. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.

F. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws, corrosion-resistant.

G. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C1007AISI S220 and manufacturer's instructions.

B. Studs: Space studs 16 inches on center unless called out otherwise or required by panel manufacturer's requirements (such as for curved walls).
1. Extend partition framing to structure in all locations. Install slip track at structure as detailed on drawings.
2. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.

C. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

D. Top of Wall: Coordinate installation of required top of wall firestopping or sound control materials.

E. Blocking: Install wood blocking or mechanically fastened steel sheet for support of:
1. Framed openings.
2. Wall-mounted cabinets.
3. Plumbing fixtures.
4. Toilet partitions.
5. Toilet accessories.
6. Wall-mounted door hardware.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation in Non-Fire-Rated Construction: seal around all penetrations by conduit, pipe, ducts, and rough-in boxes. Tape oversized piece of 2 inch sound blanket over backside of boxes. See plans for additional instruction. Seal pipe and conduit penetrations with acoustical

sealant backed with backer rod or acoustic insulation. Follow manufacturer's recommendations for control of annular space. HVAC contractor responsible for sound attenuation controls in duct work.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions. and according to directions on plan.
   1. Place one bead continuously on substrate before installation of perimeter framing members.
   2. Place continuous bead at perimeter of each layer of gypsum board.
   3. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.
   4. Follow rating requirements for fire rated walls that are sound walls as well. Firestopping contractor shall install required materials at rated walls.

3.04 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Nonrated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
   1. Exception: Tapered edges to receive joint treatment at right angles to framing.

C. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of nonrated double-layer assemblies, which may be installed by means of adhesive lamination.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control joint placement indicated is an industry recommended minimum. Follow manufacturer and industry location and detail recommendations. Review project plans and consult with A/E to confirm appropriate joint placement.

B. Control Joints: Place control joints consistent with lines of building spaces and as follows:
   1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
   2. Install continuous from each door jamb to top of partition.
   3. At wings of "L', "U", and "T" shaped ceilings.
   4. Control joints in rated walls shall be constructed to meet tested assemblies.
   5. All control joints shall have double studs located behind them.

C. Corner Beads: Install at external corners, using longest practical lengths.

D. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.

3.06 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated. Provide at to the extents of the backing surface where owner provided graphics will be applied.
   2. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   3. Level 3: Walls to receive textured wall finish.
   4. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
   5. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.
   6. Level 0: Temporary partitions.

B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch.
   2. Taping, filling, and sanding are not required at surfaces behind adhesive applied ceramic tile and fixed cabinetry.
   3. Taping, filling, and sanding are not required at base layer of double-layer applications.

C. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

D. Fill and finish joints and corners of cementitious backing board as recommended by manufacturer.

3.07 FINISH

A. All painted gypsum board walls shall have a smooth finish.

3.08 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

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SECTION 09 51 00
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Suspended metal grid ceiling system.

B. Acoustical units.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Mechanical Supply and Return Devices Division 26.

C. Electrical Light Fixtures Division 26.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

B. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.

C. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2023.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Provide data on suspension system components and acoustical units.

D. Review Submittals - Samples:
   1. Samples: Submit two samples 12 by 12 inch in size illustrating material and finish of acoustical units.

E. Maintenance Materials:
   1. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
      a. See Section 01 60 00 - Product Requirements, for additional provisions.
      b. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.05 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.06 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acoustic Tiles/Panels:
   1. Armstrong World Industries, Inc: www.armstrongceilings.com.
   2. Acoustic Ceiling Products, Inc: www.acpideas.com.
   3. CertainTeed Corporation: www.certainteed.com/ceilings-and-walls.
   4. USG Corporation: www.usg.com/ceilings.
   5. Roxul Rockfon. www.rockfon.com.
   6. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

B. Steel Suspension Systems:
   1. Armstrong World Industries, Inc: www.armstrongceilings.com.
   2. CertainTeed Corporation: www.certainteed.com/ceilings-and-walls.
   3. Rockfon, LLC: www.rockfon.com.
   4. USG Corporation: www.usg.com/ceilings.
   5. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 ACOUSTICAL UNITS

A. Acoustical Units - General: ASTM E1264, Class A.

B. BOARD TYPE ACT-2: 2'x2' Tegular, Min NRC.75:
   1. Armstrong: Optima.
   2. Certainteed Corp: Symphony.
   3. USG Corporation: Orion.
   4. Rockfon: Artic #660.

2.03 SUSPENSION SYSTEMS

A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with stabilizer bars, clips, splices, and perimeter moldings as required.
   1. Materials:
      a. Steel Grid: ASTM A653/A653M, G30 coating, unless otherwise indicated.

B. Exposed Suspension System: Hot-dipped galvanized steel grid and cap.
   1. Application(s): At locations with ACT-2 and where not otherwise specified.
   2. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
   3. Profile: Tee; 15/16 inch face width.
   4. Finish: Baked enamel.
   5. Products:
      a. Armstrong World Industries, Inc; Prelude 15/16" Exposed Tee: www.armstrongceilings.com.
      b. CertainTeed Corporation; 15/16" EZ Stab Classic: www.certainteed.com.
      c. Rockfon, LLC; Chicago Metallic 1200 15/16": www.rockfon.com.
      d. USG Corporation; Donn Brand DX/DXL 15/16 inch Acoustical Suspension System: www.usg.com/ceilings.
      e. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.04 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application and ceiling system flatness requirement specified.

B. Hanger Wire: 12 gauge, 0.08 inch galvanized steel wire.

C. Perimeter Moldings: Same metal and finish as grid.
   1. Size: As required for installation conditions.
   2. Angle Molding: L-shaped, for mounting at same elevation as face of grid.

D. Metal Edge Trim Cloud Suspension Systems: Steel or extruded aluminum; provide attachment clips, splice plates, and preformed corner pieces for complete trim system.
   1. Trim Type: Vertical Edge.
   2. Finish: Baked enamel.
   3. Color: White.
   4. Products:
      a. Armstrong; Axiom Classic: www.armstrongceilings.com.
      b. Flannery, Inc; Acoustical Ceiling Cloud Edge (ACCE): www.flannerytrim.com.
      c. Tamlyn; Classical Acoustical Trim (PACT): www.tamlyn.com.
      d. USG Corporation; Compasso Suspension Trim: www.usg.com.
      e. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

3.02 INSTALLATION - SUSPENSION SYSTEM

A. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

B. Locate system on room axis according to reflected plan.

C. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.
   2. Miter corners.

D. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

G. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

H. Do not eccentrically load system or induce rotation of runners.

3.03 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

E. Cutting Acoustical Units:
   1. Cut to fit irregular grid and perimeter edge trim.
   2. Make field cut edges of same profile as factory edges.

F. Where round obstructions occur, provide preformed closures to match perimeter molding.

G. Provide tegular edge at walls and other abutting vertical surfaces. Field paint cut edges to surface color and sheen.

END OF SECTION

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SECTION 09 65 00
RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Resilient tile flooring.

B. Resilient base.

C. Installation accessories.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 09 05 61 - Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.

C. Section 09 05 61 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

1.03 REFERENCE STANDARDS

A. ASTM F1861 - Standard Specification for Resilient Wall Base; 2021 (Reapproved 2025).

B. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; 2018.

1.04 SUBMITTALS

A. See contract Conditions and General Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

D. Review Submittals - Samples:
   1. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.

E. Closeout Submittals:
   1. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

F. Maintenance Materials Submittals:
   1. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
      a. See Section 01 60 00 - Product Requirements for additional provisions.
      b. Deliver stock of extra materials to Owner. Furnish extra materials from same manufactured lot as materials installed and enclosed in protective packaging with appropriate identifying labels.
         1) Furnish one box for each type, color, pattern and size installed.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect roll materials from damage by storing on end.

1.06 FIELD CONDITIONS

A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2 PRODUCTS

2.01 TILE FLOORING

A. Luxury Vinyl Tile: Plank type tile as indicated on Master Color Schedule on ID Drawings. Comparable products by prior approval of submitted samples showing color match and equal performance criteria.

2.02 RESILIENT BASE

A. Resilient Base: ASTM F1861, Type TV, vinyl, thermoplastic; top set Style B, Cove.
   1. Height: 4 inches.
   2. Thickness: 0.125 inch.
   3. Finish: Satin.
   4. Length: Roll.
   5. Color: Refer to master Color Schedule for basis of design.

2.03 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.

C. Moldings, Transition and Edge Strips: Same material as flooring.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate. Refer to Section 09 05 61 for floor flatness tolerances.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.

C. Cementitious Subfloor Surfaces: Verify that substrates are ready for resilient flooring installation by testing for moisture and alkalinity (pH).
   1. Test in accordance with Section 09 05 61.
   2. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI (RWP).

B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

C. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.

D. Prohibit traffic until filler is fully cured.

E. Clean substrate.

F. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

3.03 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of subfloor conditions.

B. Install in accordance with manufacturer's written instructions.

C. Adhesive-Applied Installation:
   1. Spread only enough adhesive to permit installation of materials before initial set.
   2. Fit joints and butt seams tightly.

3. Set flooring in place, press with heavy roller to attain full adhesion.

D. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.

E. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
   1. Resilient Strips: Attach to substrate using adhesive.

F. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.04 INSTALLATION - TILE FLOORING

A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.

3.05 INSTALLATION - RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.

C. Install base on solid backing. Bond tightly to wall and floor surfaces. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
   1. Adhesive shall cover a minimum of 90 percent of ribbed back of base.
   2. Leave 1/4 inch uncovered at top edge of base to prevent oozing.
   3. Roll base firmly, roll back toward starting point.

D. Scribe and fit to door frames and other interruptions.

3.06 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean in accordance with manufacturer's written instructions.

3.07 PROTECTION

A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION

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SECTION 09 68 13
TILE CARPETING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Carpet tile, fully adhered.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 09 05 61 - Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.

C. Section 09 05 61 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

D. Section 09 65 00 - Resilient Flooring: Resilient base.

1.03 REFERENCE STANDARDS

A. ASTM D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials; 2016 (Reapproved 2021).

B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2022.

C. CRI 104 - Standard for Installation of Commercial Carpet; 2015.

D. CRI (GLP) - Green Label Plus Testing Program - Certified Products; Current Edition.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.

D. Review Submittals - Samples:
   1. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.

E. Information Submittals - Preparatory:
   1. Manufacturer's Installation Instructions: Indicate special procedures.

F. Closeout Submittals:
   1. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.
   2. Extended Period: Submit certificate by Contractor acknowledging the section specific period to correct work described in this Section.
   3. Warranty Documentation: Submit documentation of manufacturer's warranty that acknowledges the requirements defined in this section.
      a. Provide procurement information including date(s) of procurement, identification of suppliers and contractors involved in the procurement.
      b. Provide manufacturer certification of the warranty that is executed in the Owner's name.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in installing carpet with minimum 3 years experience who is certified by the Floor Covering Installation Board (FCIB) or who can demonstrate compliance with FCIB certification program requirements.

B. Single Source Responsibility: Obtain carpet tile from one source and by a single manufacturer.

1.06 WARRANTY

A. Section Specific Warranty: Provide manufacturer’s customized warranty as described in this section. Document the warranty as defined under the Submittals heading of this section. Provide warranty in conformance with the following:
   1. Provide carpet manufacturer's 5 year warranty against defects in materials. Warranty coverage shall include:
      a. Surface Wear: Not more than 10 percent by weight throughout life of project.
      b. Static: Maintain static generation at less than 3.5 kV at 70 degrees F, and 20 percent R.H. throughout life of product.
      c. No delamination throughout life of product.
      d. No edge ravel throughout life of product.
      e. Provide tuft bind consistent with industry standards.
      f. No dimensional instability (i.e. shrinkage, curling and doming), which adversely affects ability of carpet tile to lie flat throughout life of product.

B. Extended Period: Correct work in accordance with the terms of the General Conditions for a duration of not less than one year.

1.07 FIELD CONDITIONS

A. Store materials in area of installation for minimum period of 24 hours prior to installation.

1.08 EXTRA MATERIALS

A. Provide one full carton of carpet tiles of each color and pattern selected.

PART 2 PRODUCTS

2.01 MATERIALS

A. Tile Carpeting: Tufted, manufactured in one color dye lot.
   1. Refer to Master Color Schedule affiliated with Interior Drawings for product selection.
   2. Surface Flammability Ignition: Pass ASTM D2859 (the "pill test").

2.02 ACCESSORIES

A. Edge Strips: Vinyl, color as selected by Architect.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that subfloor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.

B. If surfaces cannot be put into proper condition for carpet tile installation by customary cleaning and prepping operations, Contractor shall report defects immediately to Architect in writing. Application of carpet tile materials is considered acceptance of surfaces condition by this Contractor and any subsequent repairs and/or refinishing required shall be performed at this Contractor's expense.

C. Verify that subfloor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to subfloor surfaces.

D. Cementitious Subfloor Surfaces: Verify that substrates are ready for flooring installation by testing for moisture and alkalinity (pH).
   1. Test in accordance with Section 09 05 61.
   2. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.

3.02 PREPARATION

A. Prepare floor substrates for installation of flooring in accordance with Section 09 05 61.

3.03 INSTALLATION

A. Starting installation constitutes acceptance of subfloor conditions.

B. Install carpet tile in accordance with manufacturer's instructions and CRI 104 (Commercial).

C. Blend carpet from different cartons to ensure minimal variation in color match.

D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.

E. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.

F. Locate change of color or pattern between rooms under door centerline.

G. Fully adhere carpet tile to substrate.

H. Trim carpet tile neatly at walls and around interruptions.

I. Complete installation of edge strips, concealing exposed edges.

3.04 CLEANING

A. Remove excess adhesive without damage, from floor, base, and wall surfaces.

B. Clean and vacuum carpet surfaces.

END OF SECTION

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SECTION 09 84 30

SOUND-ABSORBING WALL AND CEILING UNITS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sound-absorbing panels.

B. Sound-absorbing ceiling baffles.

C. Mounting accessories.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

1.03 REFERENCE STANDARDS

A. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2023, with Editorial Revision (2024).

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

1.04 SUBMITTALS

A. See contract Conditions and General Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Manufacturer's printed data sheets for products specified.
   2. Shop Drawings: Fabrication and installation details, panel layout and fabric orientation.

D. Review Submittals - Samples:
   1. Selection Samples: Manufacturer's color charts for fabric covering, indicating full range of fabrics, colors, and patterns available.
   2. Verification Samples: Fabricated samples of each type of panel specified; 12 by 12 inch, showing construction, edge details, and fabric covering.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect acoustical units from moisture during shipment, storage, and handling. Deliver in factory-wrapped bundles; do not open bundles until units are needed for installation.

B. Store units flat, in dry, well-ventilated space; do not stand on end.

C. Protect edges from damage.

PART 2 PRODUCTS

2.01 FABRIC-COVERED SOUND-ABSORBING UNITS

A. General:
   1. Surface Burning Characteristics: Flame spread index of 25 or less and smoke developed index of 50 or less, when tested in accordance with ASTM E84.

B. AWP-1, AWP-2, AWP-3 Acoustical Panels for Walls:
   1. See the master color schedule for basis of design products.
   2. Substitutions: See contract Conditions and General Requirements for requirements.
      a. Submit substitution requests to the A/E for pre-bid approval.

C. AC-1 Acoustic Cloud System:
   1. See the master color schedule for the basis of design products.

2. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.
    a. Submit substitution requests to the A/E for pre-bid approval.

2.02 FABRICATION

A. Tolerances: Fabricate to finished tolerance of plus or minus 1/16 inch for thickness, overall length and width, and squareness from corner to corner.

2.03 ACCESSORIES

A. Back-Mounting Accessories: Manufacturer's standard accessories for concealed support, designed to allow panel removal:
    1. Two-part clip and base-support bracket system; brackets designed to support full weight of panels and clips designed for lateral support, with one part mechanically attached to back of panel and the other attached to substrate.
        a. Hanger Options: Monarch Metal Fabrication. www.monarchmetal.com.

B. Ceiling-Suspended Accessories: Manufacturer's standard accessories at locations as indicated on each acoustical unit, sized appropriately for weight of acoustical unit.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates for conditions detrimental to installation of acoustical units. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install acoustical units in locations as indicated, following manufacturer's installation instructions.

B. Install mounting accessories and supports in accordance with shop drawings.

C. Align panels accurately, with edges plumb and top edges level. Scribe to fit accurately at adjoining work and penetrations.

D. Suspend ceiling baffles at locations and heights as indicated.

E. Vertical Ceiling Baffle System:
    1. Install system with manufacturer's suspension track, toggles, clamps and hanger cable.
    2. Follow manufacturer's installation instructions. Panels shall be hung level with ceiling above.

F. Install acoustical units to construction tolerances of plus or minus 1/16 inch for the following:
    1. Plumb and level.
    2. Flatness.

3.03 CLEANING

A. Clean sound-absorptive panels upon completion of installation from dust and other foreign materials, following manufacturer's instructions.

3.04 PROTECTION

A. Provide protection of installed acoustical panels until Date of Substantial Completion.

B. Replace panels that cannot be cleaned and repaired to satisfaction of the Architect.

END OF SECTION

SECTION 09 91 23
INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Identification of rated walls.

D. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
   1. Refer to Architectural Drawings for metal fabrications to be painted.
   2. Refer to Interior Drawings for wall and ceiling paint scope.
   3. Painting contractor shall review both architectural and interior Drawings for complete paint scope.
   4. Hollow metal doors and frames.
   5. Mechanical and Electrical:
      a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
      b. In finished areas, paint shop-primed items.

E. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
   5. Stainless steel, anodized aluminum, bronze, terne-coated stainless steel, and lead items.
   6. Marble, granite, slate, and other natural stones.
   7. Floors, unless specifically indicated.
   8. Ceramic and other tiles.
   9. Brick, architectural concrete, cast stone, integrally colored plaster, and stucco.
   10. Glass.
   11. Concrete masonry units in utility, mechanical, and electrical spaces.
   12. Acoustical materials, unless specifically indicated.
   13. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 05 50 00 - Metal Fabrications: Shop-primed items.

C. Section 06 20 00- Finish Carpentry: Architectural woodwork to be stained.

D. Section 07 05 53 - Fire and Smoke Assembly: Painting required where stenciling used for wall identification.

E. Section 08 11 13 - Hollow Metal Doors and Frames: Frames and doors to be field painted.

F. Section 09 91 13 - Exterior Painting.

1.03 DEFINITIONS

A. Comply with ASTM D16 for interpretation of terms used in this section.

1.04 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.

B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2024.

C. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).

D. SSPC-SP 2 - Hand Tool Cleaning; 2024.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Provide complete list of products to be used, with the following information for each:
      a. Manufacturer's name, product name and/or catalog number, and general product category (e.g., "alkyd enamel").
      b. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
      c. Manufacturer's installation instructions.
      d. If proposal of substitutions is allowed under submittal procedures, explanation of substitutions proposed.

D. Review Submittals - Samples:
   1. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
      a. Where sheen is specified, submit samples in only that sheen.
      b. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens not required.

E. Information Submittals - Preparatory:
   1. Certification: By manufacturer that paints and finishes comply with VOC limits specified.
   2. Manufacturer's Instructions: Indicate special surface preparation procedures.
   3. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.

F. Maintenance Materials:
   1. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
      a. See contract Conditions and General Requirements for procedures and requirements., for additional provisions.
      b. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
      c. Label each container with color in addition to the manufacturer's label.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply materials when relative humidity exceeds 85 percent, at temperatures less than 5 degrees F above the dew point, or to damp or wet surfaces.

D. Minimum Application Temperatures for Paints: 50 degrees F for interiors unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 fc measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

B. Paints:
   1. Base Manufacturer: Sherwin Wiliams (SW). www.sherwin-williams.com.
   2. Halman-Lindsay (HL): www.hallmanlindsay.com.
   3. Behr Process Corporation: www.behr.com.
   4. Benjamin Moore: www.benjaminmoore.com.
   5. Diamond Vogel Paints: www.diamondvogel.com.
   6. PPG Paints: www.ppgpaints.com.
   7. Pratt & Lambert Paints: www.prattandlambert.com.

C. Substitutions: See contract Conditions and General Requirements for requirements.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless intended to be a field-catalyzed paint.
   1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
   4. Supply each paint material in quantity required to complete entire project's work from a single production run.
   5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
   6. Paint for insulated piping shall be latex based. If the insulation taping is rippled due to oil based application, the Painter shall be responsible for replacement of the insulation. Certain Class A, non-combustible paints may maintain a 25/50 smoke rating for the painted pipe insulation, PVC jacketing and fittings. Check with state and local building codes and fire marshal for approved practice before painting.

B. Volatile Organic Compound (VOC) Content:
   1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

C. Flammability: Comply with applicable code for surface burning characteristics.

D. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.

E. Colors: As indicated in Color Schedule.
   1. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to Owner.
   2. Extend colors to surface edges; colors may change at any edge as directed by Architect.
   3. In finished areas, diffusers, grilles, registers, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.
   4. In unfinished areas: Paint all woodwork, doors and metal frames, convectors, ladders, railings, gratings and the like.

2.03 PAINT SYSTEMS - INTERIOR

A. IPS 5 Ferrous Metal (Primed Ferrous metal and Hollow Metal Doors and Frames): Satin/Semi-Gloss:
   1. (SW) One coat Pro Industrial Pro-Cryl Universal Primer B66-310 Series, one coat Pro Industrial Pre-Catalyzed Waterbased Epoxy Semi-Gloss K46-1150 Series.
   2. (HL) One coat Metalguard DTM Acrylic Primer/finish 338 and two coats two coats Rustoleum High Performance DTM Acrylic 3800.

B. IPS 14 Gypsum Board: Vinyl Acrylic Latex Eggshell over Vinyl Acrylic Primer:
   1. (SW) One coat ProMar 200 Zero VOC Interior Latex primer B28W02600 Series. two coats ProMar 200 Zero VOC Interior Latex Low Gloss Eg-Shel B41-2600 Series.
   2. (HL) One coat Pro Wall Primer Zero VOC 227, two coats Pro Kote Interior Latex Zero VOC Eggshell 284.

C. IPS 16 Gypsum Board-Ceilings and Soffits: Latex Flat:
   1. (SW) One coat ProMar 200 0 VOC Latex Wall Primer B28W2600, two coats ProMar 400 Flat Latex B30W400 Series.
   2. (HL) One coat Pro Wall Primer Zero VOC 227, two coats Masterkote Interior Latex Flat 267.

D. IPS 21 Existing Painted Masonry: Latex Egg Shell:
   1. (SW) Two coats ProMar 200 Zero VOC Interior Latex Low Gloss Eg-Shel B41-2600 Series.
   2. (HL) Two coats Pro Kote Interior Latex Zero VOC Eggshell 284.

E. IPS 24 Existing Painted Gypsum Board: Vinyl Acrylic Latex Eggshell Over Existing Paint:
   1. (SW) One coat Extreme Bond Interior/Exterior Bonding Primer B51W00150 Series, two coats ProMar 200 Zero VOC Interior Latex Low Gloss Eg-Shel, B41-2600 Series.
   2. (HL) One coat Stainguard 100% Acrylic Primer 526, two coats Pro Kote Interior Latex Zero VOC Eggshell 284.

2.04 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of paints and finishes until substrates have been adequately prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

E. Test shop-applied primer for compatibility with subsequent cover materials.

F. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:
   1. Gypsum Wallboard: 12 percent.
   2. Concrete Masonry Units: 12 percent.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application. Fill damaged/indented and holes in all wall surfaces from equipment removal flush with wall surface. Spot prime.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or repair existing paints or finishes that exhibit surface defects.

D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

E. Seal surfaces that might cause bleed through or staining of topcoat.

F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

G. Masonry:
   1. Remove efflorescence and chalk. Do not coat surfaces if moisture content, alkalinity of surfaces, or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
   2. Prepare surface as recommended by top coat manufacturer.

H. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

I. Ferrous Metal:
   1. Coordinate surface preparation in accordance with requirements of selected paint/coating supplier recommendations.
   2. Solvent clean according to SSPC-SP 1.
   3. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
   4. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer. Protect from corrosion until coated.

J. Existing Painted Hollow Metal to Receive Paint:
   1. Remove loose paint, dirt and grime. Sand edges of paint chipping tapered smooth.
   2. Wipe frames down with solvent cleaner.

K. Metal Doors and/or Frames to be Painted: Prime metal door top and bottom edge surfaces.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions.

C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.

D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

E. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

F. Hollow Metal Doors and Frames: Doors and frames shall be painted with sprayer, no exceptions.

G. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.

H. Sand metal surfaces lightly between coats to achieve required finish.

I. Use tack cloth to remove dust and particles just prior to applying next coat.

J. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 IDENTIFICATION OF FIRE WALLS

A. Refer to Section 07 05 53 - Fire and Smoke Assembly Identification. Coordinate type of identification (stencil paint or applied sign) with Lead Contractor.

B. Refer to Code Plans, floor plans and referenced sections and details for scope of rated walls.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

SECTION 09 93 00

STAINING AND TRANSPARENT FINISHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Field application of transparent finishes.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 10 28 00 - Toilet, Bath, and Laundry Accessories: Satin the product of this section.

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Provide complete list of products to be used, with the following information for each:
      a. Manufacturer's name, product name and catalog number, and general product category.
      b. Manufacturer's installation instructions.
      c. If proposal of substitutions is allowed under submittal procedures, explanation of substitutions proposed.

D. Review Submittals - Samples:
   1. Samples: Submit two samples, illustrating selected colors and sheens for each system with specified coats cascaded.

E. Information Submittals - Preparatory:
   1. Certification: By manufacturer that stains and transparent finishes comply with VOC limits specified.
   2. Manufacturer's Instructions: Indicate special surface preparation procedures.
   3. Maintenance Data: Submit data including finish schedule showing where each product, color, and finish was used, product technical data sheets, safety data sheets (SDS), care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements for additional provisions.
   2. Extra Stock Materials: Stain and transparent finish materials, 1 qt of each shade; store where directed.
   3. Label each container with color and type in addition to the manufacturer's label.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of stain or transparent finish, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Stain and Transparent Finish Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.06 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by manufacturer of stains and transparent finishes.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Stains:
   1. Base Manufacturer: Sherwin Williams (SW). www.sherwin-williams.com.
   2. Halman-Lindsay (HL): www.hallmanlindsay.com.
   3. Behr Process Corporation: www.behr.com.
   4. Benjamin Moore: www.benjaminmoore.com.
   5. Diamond Vogel Paints: www.diamondvogel.com.
   6. PPG Paints: www.ppgpaints.com.
   7. Pratt & Lambert Paints: www.prattandlambert.com.

2.02 STAINS AND TRANSPARENT FINISHES - GENERAL

A. Finishes:
   1. Provide finishes capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Provide materials compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   3. Supply each finish material in quantity required to complete entire project's work from a single production run.
   4. Do not reduce, thin, or dilute finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content:
   1. Provide stains and transparent finishes that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
      b. Architectural coatings VOC limits of _____.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

C. Colors: To be selected from manufacturer's full range of available colors.
   1. Selection to be made by Architect after award of contract.
   2. Extend colors to surface edges; colors may change at any edge as directed by Architect.

2.03 INTERIOR STAIN AND TRANSPARENT FINISH SYSTEMS (IWF INTERIOR WOOD FINISH)

A. IWF 4 Wood: Oil Base Stain and Waterborne Polyurethane:
   1. (SW) One coat Wood Classics Stain A49 Series, two coats Wood Classics 250 Stain A49 Series - Satin.
   2. (HL) One coat Colortone Interior Alkyd Stain 345 and two coats Waterborne Acrylic Urethane V364 - Satin.
   3. Match shade of existing doors to remain. Confirm shade with A/E.

2.04 ACCESSORY MATERIALS

A. Accessory Materials: Cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of finished surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of stains and finishes until substrates have been properly prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

D. Wood Surfaces to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.

3.03 APPLICATION

A. Apply products in accordance with manufacturer's written instructions.

B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

C. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

D. Sand wood surfaces lightly between coats to achieve required finish.

E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

F. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

G. Reinstall items removed prior to finishing.

3.04 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

A. Protect finishes until completion of project.

END OF SECTION

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SECTION 10 22 39
FOLDING GLASS PARTITIONS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes furnishing and installing a sliding-folding, acoustically rated, slim-framed wood panel system that includes:
   1. Cross-grained wood framed profile.
   2. Threshold.
   3. Wood framed panels.
   4. Sliding-folding and locking hardware.
   5. Sound gasketing.
   6. Multipurpose frame insert.
   7. Panel Catch.
   8. Glass and glazing.
   9. Accessories as required for a complete working installation.

B. Related Requirements:
   1. Applicable provisions of Division 1 govern work under this Section.
   2. Section 07 92 00 - Joint Sealants.
   3. Section 09 21 16 Gypsum Board Assemblies: Requirements for framing opening.

1.02 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.

B. AAMA 920 - Specification for Operating Cycle Performance of Active Side-Hinged Exterior Door Slabs; 22.

C. AAMA 1304 - Voluntary Specification for Determining Forced Entry Resistance of Side-Hinged Door Systems; 2018.

D. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).

E. ASTM C1036 - Standard Specification for Flat Glass; 2025.

F. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2025.

G. ASTM E2068-00 - Standard Test Method for Determination of Operating Force of Sliding Windows and Doors; 2016.

H. ASTM F842 - Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies, Excluding Glazing Impact; 2017 (Reapproved 2023).

I. DIN EN 1191 - Windows and Doors - Resistance to repeated opening and closing - Test Method; 2013-04.

J. DIN EN 12400 - Windows and pedestrian doors - Mechanical durability - Requirements and classification; 2003-01.

K. ISO 9001 - Quality Management Systems — Requirements; 2015, with Amendment (2024).

L. ISO 14001 - Environmental Management Systems — Requirements with Guidance for Use; 2015.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate Folding Glass Partition system and framing R.O.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Review Submittals - Preparatory:
   1. Product Data: Submit manufacturer’s printed product literature for each Folding Glass Partition system to be incorporated into the Work. Show performance test results and details of construction relative to materials, dimensions of individual components, profiles, and colors.
   2. Product Drawings: Indicate Folding Glass Partition system component sizes, dimensions and framing R.O., configuration, swing panels, direction of swing, stacking layout, typical head jamb, side jambs and sill details, type of glazing material, handle height, and field measurements.

C. Information Submittals - Preparatory:
   1. Installation, Operation and Maintenance Data: Submit Owner’s Manual from manufacturer. Identify with project name, location and completion date, and type and size of unit installed.

D. Closeout Submittals:
   1. Warranty Documentation: Submit documentation of the manufacturer's warranty.

1.05 QUALITY ASSURANCE

A. Regulatory Requirements: Folding Glass Partition to be CE Mark certified.

B. Manufacturer Qualifications: Manufacturer capable of providing complete, precision built, engineered, pre-fitted units with thirty five (35) years’ experience in the sale of folding-sliding door systems for large openings in the North American market.
   1. Manufacturer to have DIN EN ISO 9001: 2015 quality management system registration.
   2. Manufacturer to have DIN EN ISO 14001: 2015 environmental management system registration.

C. Installer Qualifications: Installer experienced in the installation of manufacturer’s products or other similar products for large openings. Installer to provide reference list of at least three (3) projects of similar scale and complexity successfully completed in the last three (3) years.
   1. Installer to be trained and certified by manufacturer.

D. Single Source Responsibility: Furnish Folding Glass Partition system materials from one manufacturer for entire Project.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer’s instructions and recommendations, Section 01 60 00. requirements, and as follows:
   1. Condition wood components to average prevailing relative humidity before installation. Do not subject wood components to extreme nor rapid changes in heat or humidity.
   2. Do not use forced heat to dry out building.
   3. Store flat in a well-ventilated area out of direct sunlight under cover in a clean and dry location, protecting units against weather and defacement or damage from construction activities, especially to the edges of panels.

1.07 FIELD CONDITIONS

A. Field Measurements: Contractor to field verify dimensions of rough openings (R.O.) and threshold depressions to receive sill. Mark field measurements on product drawings submittal.

1.08 WARRANTY

A. Section Specific Warranty: Provide manufacturer's standard warranty as described in this section. Document the warranty as defined under the Submittals heading of this section.
   1. Warranty Period beginning with the earliest of 120 days from Date of Delivery or Date of Substantial Completion:
      a. Rollers and Glass Seal Failure: Ten (10) years.
      b. All Other Components: Ten (10) years.
         1) Exception: Five (5) years if NOT installed by manufacturer's specific system approved or certified trained installer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design Product by Manufacturer: Generation 4 Comprehensive Product Line by NanaWall NW Acoustical 545 (www.nanawall.com).
   a. NANA WALL SYSTEMS, INC.
   b. 100 Meadow Creek Drive, Corte Madera, CA 94925.
   c. Toll Free (800) 873-5673.
   d. Telephone: (415) 383-3148.
   e. Fax: (415) 383-0312.
   f. Email: info@nanawall.com.
   2. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 PERFORMANCE / DESIGN CRITERIA

A. Performance Criteria:
   1. Acoustic Performance STC (Rw).
      a. System STC (Rw) 37 (37) with 1/2 inch STC 39 enhanced laminated glass.
   2. Swing Panel - Operation / Cycling Performance (AAMA 920):500,000 cycles.
   3. System - Life Cycle Performance (DIN EN 1191/DIN EN 12400): 20,000 cycles.
   4. Operating Force (ASTM E2068-00):
      a. Swing Panel: Open 1 lbf & Close 1 lbf.
      b. Folding Panel:
         1) Initiate Motion - Open 4 lbf & Close 3 lbf .
         2) Maintain Motion - Open 1 lbf & Close 1 lbf.

B. Forced Entry (AAMA 1304, DIN EN 1191): Pass.
   1. Forced Entry Resistance (ASTM F842, AAMA 1304, CAWM 300): Meets Grade 40: +F2.

C. Design Criteria:
   1. Sizes and Configurations: As indicated by the Drawings for selected number and size of panels, location of swing and folding panels, and number of panels stacking to the left and to the right.
   2. Unit Operation: Adjustable sliding and folding hardware with top and bottom tracks.
   3. Mounting Type: Floor supported with upper guide track.
   4. Panel Configuration:
      a. Straight.
   5. Operation: Panels configured to part at the center and stack up at the walls at both ends of the track.
   6. Stack Storage Configuration:
      a. Inswing type and stack storage inside jamb.
   7. Panel Type: Hinged.
   8. Panel Pairing Configuration: See drawings.
      a. Bi-folding panels hinged to side jamb.

2.03 MATERIALS

A. Wood Framed Folding Glass Description: Nominal frame stile width of 5-11/16 inches between folding panels, floor track supported system. Manufacturer’s standard quadruple laminated solid single-species wood panel profiles and wood clad thermally broken head track and side jambs with dimensions as shown on Drawings.
   1. Panels and Frame:
      a. Panels:
         1) See diagrams associated with the door schedule for configuration.
         2) Wood: quadruple laminated cross-grained solid premium wood beams with mortise and tenon, glued and pinned corners.
         3) Single lite.
      b. Rail Depth: 3-3/8 inch.

c. Frame:
1) Thermally broken top track and side jambs with multipurpose frame insert to hide anchoring frame connections and conceal cable routing to security system by others.
2) Wood cladding on both sides.
3) For long-term tight, consistent sealing, provide a lateral adjustment feature at the side jambs capable of adjustment of +/- 3/16″ [0.2] inch. Frame finish to match panel finish.
4) Frame Depth: 3-3/8 inch.
5) Head Track Width:
(a) 2-13/16 inch standard.
6) Side Jamb Width: 2 inches.
7) Sill Type:
(a) Flush sill - ADA compliant with high heel protector insert.
8) Sill Finish:
(a) Black anodized.

2. Aluminum Extrusion: Black anodized aluminum inside of top track and side jambs.
a. Alloy: AlMgSi0.5; 6063-T5 (F-22 - European standard).
b. Thickness: 0.078 inch nominal.
c. Acoustic Break: 1-1/4 inch wide.
3. Wood:
a. Interior/Exterior Species:
1) European Oak.
b. Wood Finish: Provide factory water-based, open pore clear sanding sealer for stain with one additional clear coat; See Section 09 90 00 for field finish.

B. Glass and Glazing:
1. Safety Glazing: In compliance with ASTM C1036, ASTM C1048, ANSI Z97.1 and CPSC 16 CFR 1201.
2. Manufacturer’s tempered glass lites in single insulated glazing units, dry glazed with glass stops on the inside.
a. Glass Lite Type:
1) Standard reduced iron (Light Transmission (VLT) 89%).

C. Locking Hardware and Handles:
1. Pairs of Folding Panels: Provide manufacturer’s flat handles and concealed two-point locking hardware operated by 180° turn of handle between each pair. Face applied flush bolt locking NOT acceptable.
a. Flat Handle - Finish:
1) Brushed satin stainless steel.
2. Handle Height: 41-3/8 inch centered from bottom of panel or as otherwise indicated.
3. Locking rods with standard end caps at the top and bottom. Rods to have a stroke of 15/16 inch.
4. Additional profile cylinders to be Keyed alike.
5. Panel Catch: panel catch to hold swing panel to adjacent folding panel to prevent incorrect operation when moving the panel.

D. Sliding-Folding Hardware: Provide manufacturer’s standard combination sliding and folding hardware with top and bottom tracks and threshold. All bottom rollers to be with sealed, self-lubricating, double ball bearing multi-rollers. Surface mounted hinges and bottom rollers NOT acceptable.
1. Bottom Rollers Carrying Capacity: 240 lb. (110 kg). Bottom rollers provided with two vertical stainless-steel wheels with double row of ball bearings and two horizontal polyamide wheels.
2. Vertical wheels with Gothic arch feature to ride on top of stainless-steel guide track covers over the full length of the sill track.

3. Upper guide rollers with two horizontal polyamide guiding wheels. For configurations with unhinged FourFold and SixFold panel sets that can slide left or right, additional concealed, additional vertical tilt protection hardware.
4. Hinges and Rollers: Clear anodized aluminum with stainless steel security hinge pins and set-screws. Concealed panel alignment with a tight seal. Double ball bearing stainless wheels rollers match hinge finish.

E. Sound Gasketing: Manufacturer's double layer EPDM between panels and EPDM gasket, Q-Ion gasket, or brush seal between panel and frame, or brush seals with a two-layer fiberglass reinforced polyamide fin attached at both inner and outer edge of bottom of door panels with a recessed sill or on frame for sealing between panels and between panel and frame.

F. Fasteners: Installation plates for connecting frame components made of stainless steel with sealing cushion to avoid thermal connectivity.

2.04 FABRICATION

A. Folding Glass Wall: Use solid, quad-layer, cross grained wood for panels, connected to hinges, sliding, and folding hardware, locking hardware and handles, threshold and track, glass and glazing and sound gasketing.
1. Each unit factory pre-assembled and shipped with complete system components and installation instructions.
2. Exposed work to be carefully matched to produce continuity of line and design with all joints.
3. No raw edges visible at joints.
4. Wood frame and panel components to be sealed with a clear sand sealer or primer.

2.05 ACCESSORIES

A. Provide sidelights, transoms, corner posts, or single or double doors as indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examination and Acceptance of Conditions per Section 01 70 00 and as follows:
1. Carefully examine rough openings with Installer present, for compliance with requirements affecting Work performance.
a. Examine surfaces of openings and verify dimensions; verify rough openings are level, plumb, and square with no unevenness, bowing, or bumps on the floor; and other conditions as required by the manufacturer for readiness to receive Work.
b. Verify structural integrity of the header for deflection with live and dead loads limited to 1/4 inch. Provide structural support for lateral loads, and both wind load and eccentric load when the panels are stacked open.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General: Install Folding Glass Partition system in accordance with the Drawings, approved submittals, manufacturer's recommendations, and installation instructions, and as follows:
1. Properly seal around opening perimeter to reduce sound infiltration from surroundings.
2. Securely attach anchorage devices to rigidly fit frame in place, level, straight, plumb, and square. Install frame in proper elevation, plane, and location, and in proper alignment with other work.
3. Wood Finishing: Field finish wood under Section 09 93 00 - Staining and Transparent Finishing; seal and finish promptly after installation and prior to exposure.
4. Install panels, handles, lockset, gasketing, and other accessories in accordance with manufacturer's recommendations and instructions.

3.03 FIELD QUALITY CONTROL

A. Field Tests and Inspections per Section 01 40 00 - Quality Requirements of the following:
   1. Verify the Folding Glass Partition system operates and functions properly. Adjust hardware for proper operation.

B. Non-Conforming Work: Repair or replace non-conforming work as directed by the Architect; see General and Supplementary Conditions, and Division 01, General Requirements.

3.04 CLEANING AND PROTECTION

A. Keep units closed and protect Folding Glass Partition installation against damage from construction activities.

B. Remove protective coatings and use manufacturer recommended methods to clean exposed surfaces.

END OF SECTION

SECTION 10 26 00
WALL AND DOOR PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Corner guards.

B. Protective wall covering.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

1.03 REFERENCE STANDARDS

A. ASTM D256 - Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics; 2024.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

C. SAE J1545 - Instrumental Color Difference Measurement For Exterior Finishes, Textiles and Colored Trim; 198606.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Indicate physical dimensions, features, wall mounting brackets with mounted measurements, anchorage details, and rough-in measurements.
   2. Shop Drawings: Include plans, elevation, sections, and attachment details.

D. Review Submittals - Samples:
   1. Samples: Submit samples illustrating component design, configurations, joinery, color and finish.
      a. Submit two sections of corner guards, 24 inches long.
      b. Submit two samples of protective wall covering and door surface protection, 6 by 6 inches square.

E. Information Submittals - Preparatory:
   1. Manufacturer's Instructions: Indicate special procedures, perimeter conditions requiring special attention.
   2. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
   3. Maintenance Data: Manufacturer's instructions for care and cleaning of each type of product. Include information about both recommended and potentially detrimental cleaning materials and methods.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver wall and door protection items in original, undamaged protective packaging. Label items to designate installation locations.

B. Protect work from moisture damage.

C. Protect work from UV light damage.

D. Do not deliver products to project site until areas for storage and installation are fully enclosed, and interior temperature and humidity are in compliance with manufacturer's recommendations for each type of item.

E. Store products in either horizontal or vertical position, in compliance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 PRODUCT TYPES

A. Corner/End Guards - Surface Mounted:
   1. Product: Refer to Master Color Schedule for basis of design.
   2. Length: One piece.
   3. All accessories for a complete finished system.
   4. Preformed end caps.

B. Protective Wall Covering:
   1. Refer to Master Color Schedule for basis of design.
   2. Surface Burning Characteristics: Provide assemblies with flame spread index of 25 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.

C. Protective Wall Covering:
   1. Refer to Master Color Schedule for basis of design.
   2. UL classified rigid vinyl sheet conforming with the NFPA Class A fire rating.
   3. Surface Burning Characteristics: Provide assemblies with flame spread index of 25 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.
   4. Impact Strength of 30.4 ft-lbs/ inch of thickness as tested in accordance with the procedures specified in ASTM D256-90b, Impact Resistance of Plastics.
   5. Color Consistency: Provide components matched in accordance with SAE J1545 - (Delta E) with a color difference no greater than 1.0 units using CIE Lab, CIE CMC, CIE LCh, Hunter Lab or similar color space scale systems.
   6. Mounting: Adhesive.

D. Adhesives and Primers: As recommended by manufacturer.

2.02 FABRICATION

A. Fabricate components with tight joints, corners and seams.

2.03 SOURCE QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for additional requirements.

B. Provide wall and door protection systems of each type from a single source and manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that rough openings, concealed blocking, and anchors are correctly sized and located.

B. Verify that field measurements are as indicated on drawings.

C. Verify that substrate surfaces for adhered items are clean and smooth.

3.02 INSTALLATION

A. Install components in accordance with manufacturer's instructions, level and plumb, secured rigidly in position to supporting construction.

3.03 CLEANING

A. Clean wall and door protection items of excess adhesive, dust, dirt, and other contaminants.

END OF SECTION

SECTION 10 28 00

TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Mirrors.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 09 21 16 - Gypsum Board Assemblies: Concealed supports for accessories, including in wall framing and plates.

1.03 REFERENCE STANDARDS

A. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.

B. ASTM C1036 - Standard Specification for Flat Glass; 2025.

C. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2024.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.

D. Review Submittals - Samples:
   1. Samples: Submit two samples of partition panel, illustrating color and finish.

E. Information Submittals - Preparatory:
   1. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Commercial Toilet, Shower, and Bath Accessories:
   1. ASI - American Specialties, Inc: www.americanspecialties.com.
   2. Bradley Corporation: www.bradleycorp.com.
   3. Bobrick Washroom Equipment Inc: www.bobrick.com.
   4. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

B. Provide products of each category type by single manufacturer.

2.02 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
   1. Grind welded joints smooth.
   2. Fabricate units made of metal sheet of seamless sheets with flat surfaces.

B. Stainless Steel Sheet: ASTM A666/A666M, Type 304.

C. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.

D. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.

2.03 FINISHES

A. Stainless Steel: Satin finish, unless otherwise noted.

2.04 COMMERCIAL TOILET ACCESSORIES

A. Mirrors: Stainless steel framed, 1/4 inch thick annealed float glass; ASTM C1036.
   1. Size: As scheduled on Drawings.
   2. Frame: 0.05 inch angle shapes, with mitered and welded and ground corners, and tamperproof hanging system; bright annealed or satin finish.
   3. Backing: Full-mirror sized, minimum 0.03 inch galvanized steel sheet and nonabsorptive filler material.
   4. Products:
      a. American Specialties, Inc:; www.americanspecialties.com.
      b. Ketcham Medicine Cabinets, a Division of Fred Silver and Company, Inc: www.ketchamcabinets.com.
      c. Bobrick:; www.bobrick.com.
      d. Bradley:; www.bradleycorp.com.
      e. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify exact location of accessories for installation.

C. Verify that field measurements are as indicated on drawings.

D. Coordinate with the contractor performing the work of the section referenced in the Related Requirements paragraph of this Section for installation of blocking and concealed anchors in walls.

3.02 PREPARATION

A. Deliver inserts and rough-in frames to site for timely installation.

B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.

B. Install plumb and level, securely and rigidly anchored to substrate.

C. Mounting Heights: As required by accessibility regulations and indicated on accessory schedule on drawings.

D. Mounting Heights and Locations: As required by accessibility regulations and as indicated on drawings.

END OF SECTION

SECTION 26 00 00
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END OF SECTION 26 00 00

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SECTION 26 05 00
COMMON WORK RESULTS FOR ELECTRICAL

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 govern work under this Section.

1.02 REFERENCE STANDARDS

A. Abbreviations of standards organizations referenced in this and other sections are as follows:

ANSI American National Standards Institute
ASTM American Society for Testing and Materials
EPA Environmental Protection Agency
ETL Electrical Testing Laboratories, Inc.
IEEE Institute of Electrical and Electronics Engineers
IES Illuminating Engineering Society
ISA Instrument Society of America
NBS National Bureau of Standards
NEC National Electric Code
NEMA National Electrical Manufacturers Association
NESC National Electrical Safety Code
NFPA National Fire Protection Association
UL Underwriters Laboratories Inc.
DSPS Wisconsin Department of Safety and Professional Services

1.03 REGULATORY REQUIREMENTS

A. All work and materials are to conform in every detail to applicable rules and requirements of the Wisconsin State Electrical Code (SPS 316), the National Electrical Code (NFPA 70), other applicable National Fire Protection Association codes, the National Electrical Safety Code, and present manufacturing standards (including NEMA).

B. All Division 26 work shall be done under the direction of a currently certified State of Wisconsin Certified Master Electrician.

1.04 QUALITY ASSURANCE

A. Where equipment or accessories are used which differ in arrangement, configuration, dimensions, ratings, or engineering parameters from those indicated on the contract documents, the contractor is responsible for all costs involved in integrating the equipment or accessories into the system and the assigned space, and for obtaining the performance from the system into which these items are placed.

B. Manufacturer references used herein are intended to establish a level of quality and performance requirements unless more explicit restrictions are stated to apply.

C. All materials shall be listed by and shall bear the label of an approved electrical testing laboratory. If none of the approved electrical testing laboratories has published standards for a particular item, then other national independent testing standards, if available, applicable, and approved by Western Technical College, shall apply and such items shall bear those labels. Where one of the approved electrical testing laboratories has an applicable system listing and label, the entire system shall be so labeled.

1.05 CONTINUITY OF EXISTING SERVICES AND SYSTEMS

A. No outages shall be permitted on existing systems except at the time and during the interval specified by the user agency and by the Project Representative. The institution may require written approval. Any outage must be scheduled when the interruption causes the least interference with normal institutional schedules and business routines. No extra costs will be paid to the Contractor for such outages which must occur outside of regular weekly working hours.

B. This Contractor shall restore any circuit interrupted because of this work to proper operation as soon as possible.

1.06 APPROVED ELECTRICAL TESTING LABORATORIES

A. The following laboratories are approved for providing electrical product safety testing and listing services as required in these specifications:

1. Underwriters Laboratories Inc.
2. Electrical Testing Laboratories, Inc.

1.07 SEALING AND FIRESTOPPING

A. Sealing and firestopping of sleeves/openings between conduits, wireways, etc. and the structural or partition opening shall be the responsibility of the contractor whose work penetrates the opening. The contractor responsible shall hire individuals skilled in such work to do the sealing and firestopping.

These individuals hired shall normally and routinely be employed in the sealing and fireproofing occupation.

1.08 WESTERN TECHNICAL COLLEGE FURNISHED EQUIPMENT AND WORK

A. Interior security cameras will be provided by WTC IT Department installed by Electrical Contractor, refer to Low Voltage drawings.
B. Wireless Access Points shall be provided and installed by WTC IT Department. Electrical Contractor shall provide and install Cat6A cable, Data jacks, junction boxes and conduit as required. Coordinate with WTC IT Department.
C. Door Access Control System provided and installed by WTC sub-contractor. Electrical Contractor shall provide and install all low voltage wiring and raceway system.
D. Network Switches shall be provided and installed by WTC IT Department.

1.09 PROVISIONS FOR FUTURE WORK

A. None required for this project.

1.10 INTENT

A. The Contractor shall furnish and install all the necessary materials, apparatus, and devices to complete the electrical equipment and systems installation herein specified, except such parts as are specifically exempted herein.
B. If an item is either called for in the specifications or shown on the plans, it shall be considered sufficient for the inclusion of said item in this contract. If a conflict exists within the Specifications or exists within the Drawings, the Contractor shall furnish the item, system, or workmanship, which is the highest quality, largest, or most closely fits Western Technical College's intent (as determined by the WTC Facility Manager). Refer to the General Conditions of the Contract for further clarification.
C. It must be understood that the details and drawings are diagrammatic. The Contractor shall verify all dimensions at the site and be responsible for their accuracy.
D. All sizes as given are minimum except as noted.
E. Materials and labor shall be new (unless noted or stated otherwise), first class, and workmanlike, and shall be always subject to the WTC's and/or A/E's inspections, tests and approval from the commencement until the acceptance of the completed work.
F. Whenever a particular manufacturer's product is named, it is intended to establish a level of quality and performance requirements unless more explicit restrictions are stated to apply.

1.11 OMISSIONS

A. No later than ten (10) days before bid opening, the Contractor shall call the attention to any materials or apparatus the Contractor believes to be inadequate and to any necessary items of work omitted.

1.12 SUBMITTALS (ELECTRONIC IS ACCEPTABLE)

A. Submit for all equipment and systems as indicated in the respective specification sections, marking each submittal with that specification section number. Mark general catalog sheets and drawings to indicate specific items being submitted and proper identification of equipment by name and/or number, as indicated in the contract documents. Failure to do this may result in the submittal(s) being returned to the Contractor for correction and resubmission. Failing to follow these instructions does not relieve the Contractor from the requirement of meeting the project schedule.
B. On request from the A/E, the successful bidder shall furnish additional drawings, illustrations, catalog data, performance characteristics, etc.
C. Submittals shall be grouped to include complete submittals of related systems, products, and accessories in a single submittal. Mark dimensions and values in units to match those specified. Include wiring diagrams of electrically powered equipment.
D. The submittals must be approved before fabrication is authorized.
E. Submit enough submittals to allow the following distribution:

Operating and Maintenance Manuals	2 copies
User agency	1 copy
A/E	1 copy
WTC Field Office	1 copy

1.13 PROJECT/SITE CONDITIONS

A. Install Work in locations shown on drawings, unless prevented by project conditions.
B. Prepare drawings showing proposed rearrangement of work to meet project conditions, including changes to work specified in other sections. Obtain permission before proceeding.
C. Tools, materials, and equipment shall be confined to areas designated by the Western Technical College and or the Users Agent.

1.14 WORK SEQUENCE AND SCHEDULING

A. During the construction period coordinate electrical schedule and operations with WTC's Facility Plant Representative.

1.15 WORK BY OTHER TRADES

A. Every attempt has been made to indicate in this trade's specifications and drawings all work required of this Contractor. However, there may be additional specific paragraphs in other trade specifications and addenda, and additional notes on drawings for other trades which pertain to this trade's work, and thus those additional requirements are hereby made a part of these specifications and drawings.

B. Electrical details on drawings for equipment to be provided by others are based on preliminary design data only. This Contractor shall lay out the electrical work and shall be responsible for its correctness to match equipment actually provided by others.

1.16 SALVAGE MATERIALS

A. No materials removed from this project shall be reused. All materials removed shall become the property of and shall be disposed of by the Electrical Contractor.

1.17 CERTIFICATES AND INSPECTIONS

A. Obtain and pay for all required Local Electrical installation inspections.

B. This contractor is responsible for coordination of electrical inspections.

1. 18 OPERATION AND MAINTENANCE DATA

A. All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

B. In addition to the general content specified under GENERAL REQUIREMENTS supply the following additional documentation:

1. Manufacturer’s wiring diagrams for electrically powered equipment.

1.19 RECORD DRAWINGS

A. The Contractor shall always maintain at least one copy each of the specifications and drawings on the job site.

B. The A/E will provide the Contractor with a suitable set of contract drawings on which daily records of changes and deviations from contract shall be recorded. Dimensions and elevations on the record drawings shall locate all buried or concealed piping, conduit, or similar items.

C. The daily record of changes shall be the responsibility of Contractor's field superintendent. No arbitrary mark-ups will be permitted.

D. At completion of the project, the Contractor shall submit the marked-up record drawings to the A/E prior to final payment.

PART 2 PRODUCTS

2.01 ACCESS PANELS AND DOORS

A. Lay-in Ceilings: Removable lay-in ceiling tiles in 2 x 2 foot or 2 x 4-foot configuration provided under other divisions are sufficient; no additional access provisions are required unless specifically indicated.

B. Concealed Spline Ceilings: Removable sections of ceiling tile held in position with metal slats or tabs compatible with the ceiling system used will be provided under other divisions.

C. Metal Pan Ceilings: Removable sections of ceiling tile held in position by pressure fit will be provided under other divisions.

D. Plaster Walls and Ceilings:16-gauge frame with not less than a 20-gauge hinged door panel, prime coated steel for general applications, stainless steel for use in toilets, showers and similar wet areas, concealed hinges, screwdriver operated cam latch for general application, key lock for use in public areas, UL listed for use in fire rated partitions if required by the application. Use the largest size access opening possible, consistent with the space and the equipment needing service; minimum size is 12" by 12".

2.02 IDENTIFICATION

A. See Electrical section 26 05 53 – Identification for Electrical Systems.

2.03 SEALING AND FIRESTOPPING

A. Fire and/or Smoke Rated Penetrations:

1. Manufacturers: 3M, STI/SpecSeal, Tremco, Hilti or approved equal.
2. All firestopping systems shall be by the same manufacturer.
3. Submittals: Contractor shall submit product data for each firestop system. Submittals shall include product characteristics, performance and limitation criteria, test data, MSDS sheets, installation details and procedures for each method of installation applicable to this project. For non-standard conditions where no UL tested system exists, submit manufacturer's drawings for UL system with known performance for which an engineering judgment can be based upon.

4. Product: Firestop systems shall be UL listed or tested by an independent testing laboratory approved by the Department of Safety and Professional Services.
5. Use a product that has a rating not less than the rating of the wall or floor being penetrated. Reference architectural drawings for identification of fire and/or smoke rated walls and floors.
6. Refer to Architectural Drawings for identification of smoke partitions and fire rated walls.
7. Contractor shall use firestop putty, caulk sealant, intumescent wrap strips, intumescent firestop collars, firestop mortar or a combination of these products to provide a UL listed system for each application required for this project. Provide mineral wool backing where specified in manufacturer's application detail.

B. Non-rated penetrations:
1. Conduit Penetrations: At conduit penetrations of non-rated interior partitions, floors and exterior walls above grade, use urethane caulk in annular space between conduit and sleeve, or the core drilled opening.

PART 3 EXECUTION

3.01 CUTTING AND PATCHING

A. Refer to Division 1, General Requirements, Cutting and Patching.

3.02 EQUIPMENT ACCESS

A. Install all piping, conduit, ductwork, and accessories to permit access to equipment for maintenance. Coordinate the exact location of wall and ceiling access panels and doors with the General Contractor, making sure that access is available for all equipment and specialties. Where access is required in plaster or drywall walls or ceilings, furnish the access doors to the General Contractor and reimburse the General Contractor for installation of those access doors.

3.03 COORDINATION

A. The Contractor shall cooperate with other trades in locating work in a proper manner. Should it be necessary to raise or lower or move longitudinally any part of the electrical work to better fit the general installation, such work shall be done at no extra cost, provided such decision is reached prior to actual installation. The Contractor shall check location of electrical outlets with respect to other installations before installing.

B. The Contractor shall verify that all devices are compatible for the surfaces on which they will be used. This includes, but is not limited to light fixtures, panelboards, devices, etc. and recessed or semi-recessed heating units installed in/on architectural surfaces.

C. Coordinate all work with other contractors prior to installation. Any installed work that is not coordinated and that interferes with other contractor's work shall be removed or relocated at the installing contractor's expense.

3.04 SEALING AND FIRESTOPPING

A. Fire and/or Smoke Penetrations:
1. Install approved product in accordance with the manufacturer's instructions where a pipe (i.e., conduit, wireway, trough, etc.) penetrates a fire rated surface.

B. Non-Rated Surfaces:
1. When the opening is through a non-fire rated wall, floor, ceiling or roof the opening must be sealed using an approved type of material.

3.5 HOUSEKEEPING AND CLEAN UP

A. The Contractor shall clean up and remove from the premises, on a daily basis, all debris and rubbish resulting from its work and shall repair all damage to new and existing equipment resulting from its work. When job is complete, this Contractor shall remove all tools, excess material and equipment, etc., from the site.

3.6 WARRANTY

A. Electrical contractor shall provide a 1-year minimum warranty for product and labor.

END OF SECTION 26 05 00

SECTION 26 05 02
ELECTRICAL DEMOLITION FOR REMODELING

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 govern work under this Section.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work as specified in the individual Sections.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify field measurements and circuiting arrangements as shown on Drawings.

B. Verify that abandoned wiring and equipment serve only abandoned facilities.

C. Verify whether PCB ballasts exist in light fixtures which will be disposed of. If PCB light fixture ballasts exist, then follow requirements in PCB BALLAST HANDLING AND DISPOSAL and LAMP AND PCB BALLAST DISPOSAL below.

D. Demolition Drawings are based on casual field observation and/or existing record documents. Report discrepancies to the User Agency, Architect/Engineer and WTC Field Representative before disturbing existing installation.

E. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

A. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.

B. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations. All security and safety systems must be maintained in operation at all times as required by the User Agency. This includes security and safety lighting.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Demolish and extend existing electrical work to meet all requirements of these specifications.

B. If certain raceways and boxes are abandoned but not scheduled for removal, those items must be shown on the "As Built Drawings".

C. Remove, relocate, and extend existing installations to accommodate new construction.

D. Remove abandoned wiring to source of supply.

E. Provide revised typed circuit directory in panelboards that have circuits removed.

F. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.

G. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets which are not removed.

H. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

I. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.

J. Repair adjacent construction and finishes damaged during demolition and extension work.

K. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.

L. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified. This includes the extension of the circuit from the last active device to the next device in the system to be activated.

3.04 PCB BALLAST HANDLING

A. Generally, all high-power factor fluorescent light ballasts manufactured before 1978 and some HID ballasts contain polychlorinated biphenyl (PCB) compounds in their capacitors. The Contractor shall inspect all ballasts in all light fixtures and take the actions described below.

B. The disposal of all ballasts labeled as "NON-PCBs" or "NO PCBs" shall become the responsibility of the Contractor. If the PCB content is not stated on the ballast label, the ballast shall be handled as a PCB ballast.

C. All PCB ballasts shall be removed from the light fixtures and shall have the wires clipped off. However, before removal, all PCB ballasts shall be carefully inspected for leaks. If a ballast appears to be leaking (evidenced by potting compound leaking out or by an oily film on the ballast surface) the ballast must be handled per EPA and DNR PCB regulations.

D. THESE PCB BALLASTS ARE NOT TO BE REMOVED FROM THE WORK SITE BY THE CONTRACTOR. To do so would be a violation of DNR and DOT hazardous waste regulations and may result in a fine to the Contractor.

E. See Lamp and PCB Ballast Disposal instructions below.

3.05 LAMP AND PCB BALLAST DISPOSAL

A. All lamps (fluorescent, incandescent, and HID) contain mercury and/or lead (in the base) as well as other heavy metals and compounds which are regulated by the EPA and DNR during the disposal process. As a result, regulations have been issued covering the handling and disposal of all lamps. Therefore, lamps which have been removed from service for disposal shall be handled as follows by the Contractor:

B. The Contractor shall very carefully remove all lamps (fluorescent, incandescent, and HID) from light fixtures before removal of the fixture from its mounted position. This is to reduce the likelihood that the lamp(s) will be broken.

3.06 INSTALLATION

A. Install relocated materials and equipment as noted on drawings.

END OF SECTION 26 05 02

SECTION 26 05 04
CLEANING, INSPECTION, AND TESTING OF ELECTRICAL EQUIPMENT

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 govern work under this Section.

PART 2 PRODUCTS

A. Not Used.

PART 3 EXECUTION

3.01 GENERAL INSPECTION AND CLEANING OF ALL ELECTRICAL EQUIPMENT

A. Inspect for physical damage and abnormal mechanical and electrical conditions.

B. Any item found to be out of tolerance, or in any other way defective because of the required inspection or testing, shall be reported. Procedure for repair and/or replacement will be outlined. After appropriate corrective action is completed the item shall be re-tested.

C. Compare equipment nameplate information with the latest single line diagram and report any discrepancies.

D. Verify proper auxiliary device operation and indicators.

E. Check tightness of accessible bolted electrical joints. Use torque wrench method.

F. Make a close examination of equipment and remove any shipping brackets, insulation, packing, etc. that may not have been removed during original installation.

G. Make a close examination of equipment and remove any dirt or other forms of debris that may have collected in existing equipment or in new equipment during installation.

H. Clean All Equipment:
   1. Vacuum inside of panelboards, switchboards, switchgear, fire alarm panels, etc.
   2. Loosen attached particles and vacuum them away.
   3. Re-vacuum inside surfaces as directed by the WTC Construction Representative or Inspector

I. Inspect equipment anchorage.

J. Inspect equipment and bus alignment.

K. Check all heater elements for operation and control.

L. Lubricate nonelectrical equipment per manufacturer's recommendations.

3.02 GROUNDING SYSTEMS

A. Inspect the ground system for adequate termination at all devices.

3.03 EXISTING AND NEW PANELBOARDS (120/208VAC, 3-phase, 4-Wire)

A. Visual and Mechanical Inspection:
   1. Inspect for physical, electrical and mechanical conditions. Re-torque all bolted connections.
   2. Compare equipment nameplate information with latest single line diagram and report discrepancies.
   3. Inspect for proper alignment, anchorage and grounding.
   4. All doors, panels and sections shall be inspected for paint, dents, scratches, and fit.
   5. Inspect cleanliness.

B. Clean panelboard enclosures using the following methods:
   1. Loosen attached particles and vacuum them away.
   2. Wipe all porcelain with a clean, dry, lint-free rag.
   3. Clean all insulator grooves.
   4. Vacuum inside of switchgear enclosure.

5. Lubricate per manufacturer's recommendations.

C. All active components shall be exercised and cleaned where possible.

D. All indicating devices shall be inspected for proper operation.

3.04 CABLES

A. 600 Volt cable:

1. Visually inspect cables, lugs, connectors and all other components for physical damage and proper connections.
2. Check all cable connectors for tightness (with a torque wrench) and clearances. Torque test conductor terminations to manufacturer's recommendations.

3.05 PANELBOARDS

A. Torque all the connections per the manufacturer’s spec. Verify phase wires, color coding, separate neutral and mechanical bonding. Verify circuit breaker operation. Verify the directory.

3.06 LIGHT FIXTURES

A. Check the bonding and proper lamping. Verify that recessed fixtures are installed with hold down clips. Confirm operation of the fixture with the proper switch or sensor.

3.07 OCCUPANCY SENSORS

A. Confirm operation of the sensor per the manufacturers spec.

3.08 BATTERY EMERGENCY LIGHTING

A. Verify the operation per the manufacturers spec and run all the diagnostic steps. Confirm proper grounding and location.

3.09 MOTOR STARTERS

A. Verify the control circuits. Confirm t**h**e fusing and the grounding of the control transformers. Torque all the connections. Confirm the overload elements and the circuit breakers (fuse) for proper sizing. Verify all grounding. Operate and test each motor starter for proper operation.

END OF SECTION 26 05 04

SECTION 26 05 19
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLE

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 govern work under this Section.

Section 26 0533 – Raceway and Boxes for Electrical Systems.

Section 26 0553 – Identification for Electrical Systems.

1.02 REFERENCES

A. NFPA 70 - National Electrical Code

1.03 SUBMITTALS

A. Submit electronic shop drawings.

1.04 PROJECT CONDITIONS

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

B. Conductor sizes are based on copper.

C. Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet project conditions.

D. Where wire and cable routing are not shown, and destination only is indicated, determine exact routing and lengths required.

PART 2 - PRODUCTS

2.01 GENERAL

A. All wire shall be new, delivered to the site in unbroken cartons and shall be less than one year old out of manufacturer's stock.

B. All conductors shall be copper. All ground conductors shall be copper.

C. Insulation shall have a 600-volt rating.

D. All conductors shall be stranded.

1. Stranded conductors may only be terminated with UL OR ETL Listed type terminations or methods: e.g., stranded conductors may not be wrapped around a terminal screw but must be terminated with a crimp type device or must be terminated in an approved back wired method.

2.02 BUILDING WIRE

A. Description: Single conductor insulated wire 90-degree C.

B. Insulation: Type THHN/THWN-2, XHHW-2 insulation.

2.03 SERVICE ENTRANCE CONDUCTORS **(Not Required for this Project)**

A. Description:

1. Single conductor or multi-conductor insulated wire. 90 degree C sized at the 75 degree C table.

B. Insulation:

1. Type USE-2, XHHW-2 insulation for service entrance conductors routed from exterior source to exterior termination location.
2. Type XHHW-2 insulation for services entrance conductors routed from exterior source to interior termination location.

2.04 VARIABLE FREQUENCY DRIVE (VFD) WIRE

A. All power wiring from the VFD output to the motor shall be type XHHW-2 insulation, single conductor wire.

2.05 ABOVE GROUND WIRE FOR EXTERIOR WORK

A. Description: Single conductor insulated wire, 90-degree C.

B. Insulation: Type THHN/THWN-2, XHHW-2 insulation.

2.06 UNDERGROUND WIRE FOR EXTERIOR WORK

A. Description: Stranded single or multiple conductors insulated wire, 90-degree C.

B. Insulation: Type XHHW-2 insulation.

C. This wiring shall be used in all underground feeder and branch circuit applications.

2.07 WIRING CONNECTORS

A. Split Bolt Connectors: Not acceptable.

B. Solderless Pressure Connectors: High copper alloy terminal. May be used only for cable termination to equipment terminals. Not approved for splicing.

C. Twist Type Wire Connectors: Solderless twist type spring connector (wire-nut) with insulating cover for copper wire splices and taps. Use for conductor sizes 10 AWG and smaller. The manufacturer's wire fill capacity must be followed.

D. All wire connectors used in underground or exterior pull boxes shall be gel filled twist connectors or a connector designed for damp and wet locations. Gel filled twist type connectors can be used for copper conductor sizes 6 AWG and smaller for site lighting applications. The manufacturer's wire fill capacity must be followed.

E. Mechanical Connectors: Bolted type tin-plated; high conductivity copper alloy; spacer between conductors; beveled cable entrances.

F. Compression (crimp) Connectors: Long barrel; seamless, tin-plated electrolytic copper tubing; internally beveled barrel ends. Connector shall be clearly marked with the wire size and type and proper number and location of crimps. Connector must be installed with a crimper tool listed for use with the manufacturer and type of compression connector.

PART 3 EXECUTION

3.01 GENERAL WIRING METHODS

A. All wire and cable shall be installed in conduit.

B. Do not use wire smaller than 12 AWG for power and lighting circuits.

C. All conductors shall be sized to prevent excessive voltage drop at rated circuit ampacity. As a minimum use 10 AWG conductors for 20 amperes, 120-volt branch circuit home runs longer than 100 feet (30 m), and for 20 amperes, 277-volt branch circuit home runs longer than 200 feet (61 m).

D. Make conductor lengths for parallel conductors equal.

E. Splice only in junction or outlet boxes.

F. No conductor less than 12 AWG shall be installed in exterior underground conduit.

G. Identify ALL low voltage wire, 600V and lower, per section 26 05 53.

H. Neatly train and lace wiring inside boxes, equipment, and panelboards.

3.02 WIRING INSTALLATION IN RACEWAYS

A. Pull all conductors into a raceway at the same time. Use Listed water or silicone-based wire pulling lubricant for pulling 4 AWG and larger wires and for other conditions when necessary. Wax based lubricants are not allowed. Pulling lubricant is not required for low friction type products where the cable manufacturer recommends that cables be pulled without lube.

B. Install wire in raceway after interior of building has been physically protected from the weather and all mechanical work likely to injure conductors has been completed.

C. Completely and thoroughly swab raceway system before installing conductors.

D. Place all conductors of a given circuit (this includes phase wires, neutral (if any), and ground conductor) in the same raceway. If parallel phase and/or neutral wires are used, then place an equal number of phase and neutral conductors in same raceway or cable.

E. VFD Installations: Install VFD input wiring and output wiring in separate conduit systems. Do not mix VFD input power and output power, or control wiring in a common raceway.

F. In high ambient spaces, mechanical rooms, utility rooms and exterior exposed conduit, 90 degree C conductors shall be utilized.

3.03 WIRING CONNECTIONS AND TERMINATIONS

A. Splice only in accessible junction boxes.

B. Wire splices and taps shall be made firm, and adequate to carry the full current rating of the respective wire without soldering and without perceptible temperature rise.

C. All splices shall be so made that they have an electrical resistance not more than two feet (600 mm) of the conductor.

D. Use solderless twist type spring connectors (wire nuts) with insulating covers for wire splices and taps, 10 AWG and smaller.

E. Use mechanical or compression connectors for wire splices and taps, 8 AWG and larger. Tape uninsulated conductors and connectors with electrical tape to 150 percent of the insulation value of the wiring.

F. Thoroughly clean wires before installing lugs and connectors.

G. At all splices and terminations, leave tails long enough to cut splice out and completely re-splice.

3.04 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under the provisions of Section 26 05 04.

3.05 WIRE COLOR

A. General:
   1. Solid colored insulation is required for all THHN/THWN-2 wire. For other wire types use colored wire or identify wire with colored tape at all terminals, splices and boxes. Wire shall be colored as indicated below.
   2. In existing facilities, use existing color scheme.
   3. In new facilities, use black and red for single phase circuits at 120/240 volts, use Phase A black, Phase B red and Phase C blue for circuits at 120/208 volts single or three phase, and use Phase A brown, Phase B orange and Phase C yellow for circuits at 277/480 volts single or three phase. Note: This includes fixture whips except for Listed whips mounted by the fixture manufacturer on the fixture and Listed as a System.
   4. All switch legs shall be the same color as their associated circuit. Traveler conductors run between 3- and 4-way switches shall be colored pink or purple.

B. Neutral Conductors: White for 120/208V systems. Where there are two or more neutrals in one conduit, each shall be individually identified with a different stripe.

C. Branch Circuit Conductors: Three or four wire home runs shall have each phase uniquely color coded.

D. Feeder Circuit Conductors: Each phase shall be uniquely color coded.

E. Ground Conductors: Green colored insulation for THHN/THWN-2 wire. For other wire types use green colored wire or identify wire with green tape at both ends and at all access points, such as panelboards, motor starters, disconnects and junction boxes. When isolated grounds are required, contractor shall provide green with yellow tracer.

3.06 BRANCH CIRCUITS

A. The use of single-phase, multi-wire branch circuits with a common neutral is not permitted. All single-phase branch circuits shall be furnished and installed with an individual accompanying neutral, sized the same as the phase conductors.

END OF SECTION 26 05 19

SECTION 26 05 23
CONTROL-VOLTAGE ELECTRICAL POWER CABLES

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 govern work under this Section.

Section 26 0533 – Raceway and Boxes for Electrical Systems.

Section 26 0553 – Identification for Electrical Systems.

1.02 REFERENCES

A. NFPA 70 - National Electrical Code.

1.03 SUBMITTALS

A. Submit electronic shop drawing.

1.04 PROJECT CONDITIONS

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

B. Conductor sizes are based on copper.

C. Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet Project Conditions.

D. Where wire and cable routing are not shown, and destination only is indicated, determine exact routing and lengths required.

PART 2 PRODUCTS

2.01 GENERAL

A. All wire shall be new, delivered to the site in unbroken cartons and shall be less than one year old out of manufacturer's stock.

B. All conductors shall be copper.

C. Insulation shall have a 600-volt rating.

D. All conductors must be suitable for the application intended. Conductors #12 and smaller may be solid or stranded with the following requirements or exceptions:
   1. All conductors terminated with crimp type devices must be stranded.
   2. Stranded conductors may only be terminated with UL OR ETL Listed type terminations or methods: e.g., stranded conductors may not be wrapped around a terminal screw but must be terminated with a crimp type device or must be terminated in an approved back wired method.
   3. Provide **Plenum** rated cable only for this project.

2.02 REMOTE CONTROL AND SIGNAL CABLE

A. All other systems cabling shall meet the requirements of NEC Article 725 and the following:
   1. Control Cable for Class 1 Remote Control and Signal Circuits: 600-volt insulation, individual conductors twisted together and covered with an overall PVC jacket. Cable shall be Listed, temperature rated, and plenum or non-plenum rated for the application as required in the National Electrical Code.
   2. Control Cable for Class 2 or Class 3 Remote Control and Signal Circuits shall be constructed, Listed, temperature rated, and plenum or non-plenum rated for the application as required in the National Electrical Code.
   3. Provide **Plenum** rated cable.

2.03 WIRING CONNECTORS

A. Split Bolt Connectors: Not acceptable.

B. Spring Wire Connectors: Solderless spring type pressure connector with insulating covers for copper wire splices and taps. Use for conductor sizes 10 AWG and smaller.

C. All wire connectors used in underground or exterior pull boxes shall be gel filled twist connectors or a connector designed for damp and wet locations.

PART 3 EXECUTION

3.01 GENERAL WIRING METHODS

A. Low voltage control and signal cables shall be installed in conduit. However, they may be installed without conduit above accessible ceilings if the cable meets NEC requirements for the application, unless specified to be in conduit in other sections of the specifications. See requirements for free-air cabling installation below.

B. Do not use wire smaller than 14 AWG for control wiring greater than 60 volts, or 22 AWG for voltages less than 60 volts, all sizes subject to NEC 725 requirements.

C. Splice only in junction boxes.

D. Identify wire per section 26 05 53.

E. Neatly train and lace wiring inside boxes, and equipment.

3.02 WIRING INSTALLATION IN RACEWAYS

A. Pull all conductors into a raceway at the same time. Use Listed wire pulling lubricant for pulling conditions when necessary.

B. Install wire in raceway after interior of building has been physically protected from the weather and all mechanical work likely to injure conductors has been completed.

3.03 FREE-AIR CABLE INSTALLATION (ABOVE SUSPENDED CEILING ONLY)

A. Cabling shall be neatly run at right angles and be kept clear of other trades work.

B. Cabling shall be supported at a maximum of 4-foot intervals utilizing ‘bridal-type’ mounting rings anchored to ceiling concrete, piping supports or structural steel beams. If cable sag at mid-span exceeds 12-inches, another support shall be provided. Mounting rings shall be designed to maintain cables bend to larger than the minimum bed radius (typically 4 x cable diameter).

C. Cabling shall not be attached to or supported by existing cabling, plumbing or steam piping, ductwork, suspended ceiling supports or electrical or communications conduit. Additionally, cabling shall not be laid directly on the ceiling grid.

D. To reduce or eliminate Electro-Magnetic Interference (EMI), the following minimum separation distances for ‘Free-Air’ cabling installations shall be adhered to:
   1. Twelve (12) inches from power lines of less than 5kV.
   2. Thirty-nine (39) inches from power lines of 5kV or greater.
   3. Eighteen (18) inches from lighting fixtures.
   4. Thirty-nine (39) inches from transformers and motors.

E. A coil of 4 feet in each cable shall be placed in the ceiling at each ‘free-air’ wired device. These coils shall be secured (wire tied) at the last cable support before the cable reaches the device and shall be coiled from 100% to 200% of the cable recommended minimum bend radius.

F. All cable shall be free of tension at both ends. Nylon strain relief connectors shall be provided at each device and junction box where cables enter. In cases where the cable must bear some stress, Kellum type grips may be used to spread the strain over a longer length of cable.

G. Cable manufacturers minimum bend radius shall be observed in all instances. Care should be taken in the use of cable ties to secure and anchor the station cabling. Ties should not be over tightened as to compress the cable jacket. No sharp burrs should remain where excess length of the cable tie has been cut.

H. All exposed vertical cable extensions to devices located below the finished ceiling shall be in conduit.

I. Provide protection for exposed cables where subject to damage.

J. Use suitable cable fittings and connectors.

3.04 WIRING CONNECTIONS AND TERMINATIONS

A. Splice only in accessible junction boxes (except splices to low voltage occupancy sensor power packs and terminations to temperature control devices).

B. All splices shall be so made that they have an electrical resistance not more than two feet (600 mm) of the conductor.

C. Use solderless spring type pressure connectors with insulating covers for wire splices and taps, 10 AWG and smaller.

D. Thoroughly clean wires before installing lugs and connectors.

E. At all splices and terminations, leave tails long enough to cut splice out and completely re-splice.

3.05 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 26 05 04.

END OF SECTION 26 05 23

SECTION 26 05 26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 govern work under this Section.

1.02 REFERENCES

NFPA 70 - National Electrical Code
ANSI/IEEE 142 (Latest edition) - Recommended Practice for Grounding of Industrial and Commercial Power Systems
UL 467 Electrical Grounding and Bonding Equipment
IEEE 837 - IEEE Standard for Qualifying Permanent Connections Used in Substation Grounding
ANSI J-STD-607-B - Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
TIA/EIA-606-A - Administration Standard for Commercial Telecommunications Infrastructure

1.03 PERFORMANCE REQUIREMENTS (NONE)

1.04 SUBMITTALS (NONE)

1.05 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. or testing firm acceptable to authority having jurisdiction as suitable for purpose specified and shown.

PART 2 - PRODUCTS

2.01 MECHANICAL CONNECTORS

A. The mechanical connector bodies shall be manufactured from high strength, high conductivity cast copper alloy material. Bolts, nuts, washers and lock washers shall be made of Silicon Bronze and supplied as a part of the connector body and shall be of the two-bolt type.

B. Split bolt connector types are NOT allowed. Exception: the use of split bolts is acceptable for grounding of wire-basket type cable tray, and for cable shields/straps of medium voltage cable.

C. The connectors shall meet or exceed UL 467 and be clearly marked with the catalog number, conductor size and manufacturer.

2.02 COMPRESSION CONNECTORS

A. The compression connectors shall be manufactured from pure wrought copper. The conductivity of this material shall be no less than 99% by IACS standards.

B. Each connector shall be factory filled with an oxide-inhibiting compound.

C. The connectors shall meet or exceed the performance requirements of IEEE 837, latest revision.

D. The connectors shall be clearly marked with the manufacturer, catalog number, conductor size and the required compression tool settings.

E. The installation of the connectors shall be made with a compression tool and die system, as recommended by the manufacturer of the connectors, and shall be irreversible.

2.03 CONDUCTORS

A. Material: Stranded copper (aluminum not permitted).

B. Grounding Electrode Conductor: Size as shown on drawings, specifications or as required by NFPA 70, whichever is larger.

C. Feeder and Branch Circuit Equipment Ground: Size as shown on drawings, specifications or as required by NFPA 70, whichever is larger.

PART 3 EXECUTION

3.01 GENERAL

A. Install Products in accordance with manufacturer's instructions.

B. Mechanical connections shall be accessible for inspection and checking. No insulation shall be installed over mechanical ground connections.

C. Ground connection surfaces shall be cleaned and all connections shall be made so that it is impossible to move them.

D. Terminate each grounding conductor on its own terminal lug. Sharing a single lug by multiple conductors is not allowed.

3.02 LESS THAN 600 VOLT ELECTRICAL SYSTEM GROUNDING

A. Equipment Grounding Conductor: Provide separate, insulated equipment grounding conductor within each raceway. Terminate each end on suitable lug, bus, enclosure or bushing. Provide a ground wire from each device to the respective enclosure.

B. Bond together system neutrals, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and plumbing systems.

C. Bond together each metallic raceway, pipe, duct and other metal object entering space under access floors. Bond to under floor ground grid. Use #4 AWG bare copper conductor.

3.03 FIELD QUALITY CONTROL

A. Inspect equipment grounding conductors and connections for tightness and proper installation.

3.04 IDENTIFICATION AND LABELING

A. Label Grounds at point of termination.

END OF SECTION 26 05 26

SECTION 26 05 29
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 govern work under this Section.

1.02 SUBMITTALS

A. Product Data: Provide data for support channel.

1.03 QUALITY ASSURANCE

A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

PART 2 PRODUCTS

2.01 MATERIAL

A. Support Channel: Steel, Galvanized, Enameled or other corrosion resistant.

B. Hardware: Corrosion resistant.

C. Minimum sized threaded rod for supports shall be 3/8” for trapezes and single conduits 1-1/4” and larger, and ¼” for single conduits 1” and smaller.

D. Conduit clamps, straps, supports, etc., shall be steel or malleable iron. One-hole straps shall be heavy duty type. All straps shall have steel or malleable backing plates when rigid steel conduit is installed on the interior or exterior surface of any exterior building wall.

PART 3 EXECUTION

3.01 INSTALLATION

A. Fasten hanger rods, conduit clamps, outlet, junction and pull boxes to building structure using pre-cast insert system, preset inserts, beam clamps, expansion anchors, or spring steel clips (interior metal stud walls only).

B. Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchors on concrete surfaces; sheet metal screws in sheet metal studs and wood screws in wood construction. If nail-in anchors are used, they must be removable type anchors.

C. **Powder-actuated fasteners and plastic wall anchors are not permitted. Compressed-air power-actuated fasteners may ONLY be used for the installation of separate ceiling wires required for support of conduits and aircraft cable hung light fixtures.**

D. File and de-bur cut ends of support channel and spray paint with cold galvanized paint to prevent rusting.

E. Do not fasten supports to piping, ductwork, mechanical equipment, cable tray or conduit. Do not fasten to suspended ceiling grid system.

F. Do not drill structural steel members unless approved by Structural Engineer.

G. Fabricate supports from galvanized structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

H. In mechanical rooms and electrical rooms install free-standing electrical equipment on 3.5-inch (89 mm) concrete pads (minimum).

I. Install surface-mounted cabinets and panelboards with a minimum of four anchors. At all cabinet and panelboard locations on concrete or concrete block walls, and at ALL locations below grade, provide steel channel supports to stand cabinet one inch (25 mm) off wall (7/8” Uni-strut or ¾” painted, fire-retardant plywood is acceptable). In above-grade equipment rooms that have drywall walls, the cabinets and panelboards may be mounted to the drywall if backing is provided in the stud walls behind the equipment.

J. Bridge studs top and bottom with channels to support flush-mounted cabinets and panelboards in stud walls.

K. Furnish and install all supports as required to fasten all electrical components required for the project, including free standing supports required for those items remotely mounted from the building structure, catwalks, walkways etc.

END OF SECTION 26 05 29

SECTION 26 05 33
RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 govern work under this section.

Section 26 0529 – Hangers and Supports for Electrical Systems.

Section 26 2702 – Equipment Wiring Systems.

Section 26 2726 – Wiring Devices.

1.02 SUBMITTALS

A. Surface Raceway System - submit product data and catalog sheets for all components.

B. Boxes - provide product data showing configurations, finishes, dimensions, and manufacturer's instructions.

PART 2 - PRODUCTS

2.01 RIGID METAL CONDUIT (RMC) AND FITTINGS

A. Conduit: Heavy wall threaded, galvanized steel, schedule 40.

B. Fittings and Conduit Bodies: Use all steel threaded fittings and conduit bodies.

2.02 ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS

A. Conduit: Steel, galvanized tubing.

B. Fittings: All steel, set screw, concrete tight. No push-on or indenter types permitted.

C. Conduit Bodies: All steel threaded conduit bodies.

2.03 FLEXIBLE METAL CONDUIT (FMC) AND FITTINGS

A. Conduit: steel, galvanized, spiral strip.

B. Fittings and Conduit Bodies: All steel, galvanized, or malleable iron (except as allowed in specification 26 51 13).

2.04 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC) AND FITTINGS

A. Conduit: flexible, steel, galvanized, spiral strip with an outer Liquidtight, nonmetallic, sunlight-resistant jacket.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1, compression type. There shall be a metallic cover/insert on the end of the conduit inside the connector housing to seal the cut conduit end.

2.05 RIGID POLYVINYL CHLORIDE CONDUIT (PVC) AND FITTINGS

A. Conduit: Rigid non-metallic conduit, Schedule 40 PVC minimum, Listed, sunlight resistant, rated for 90^0 C conductors.

B. Fittings and Conduit Bodies: NEMA TC 2, Listed.

2.06 CONDUIT SUPPORTS

A. See section 26 05 29.

2.07 PULL AND JUNCTION BOXES

A. Interior Sheet Metal Boxes: code gauge galvanized steel, screw covers, flanged and spot-welded joints and corners.

B. Interior Sheet Metal Boxes Larger Than 12 Inches (300 mm) in any dimension shall have a hinged cover or a chain installed between box and cover.

C. Exterior Boxes and Wet Location Installations: Type 4 and Type 6, flat-flanged, surface-mounted junction box, UL listed as raintight.

D. Box extensions and adjacent boxes within 48” of each other are not allowed for the purpose of creating more wire capacity.

E. Junction boxes 6" x 6" or larger size shall be without stamped knockouts.

F. Wireways shall not be used in lieu of junction boxes.

2.08 OUTLET BOXES

A. Sheet Metal Outlet Boxes: galvanized steel, with stamped knockouts.

B. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; include 3/8-inch male fixture studs where required.

C. Concrete Ceiling Boxes: Concrete type.

D. Cast Boxes: Cast ferroalloy, or aluminum type deep type, gasketed cover, threaded hubs.

2.09 GENERAL

A. All steel fittings and conduit bodies shall be galvanized.

B. No cast metal or split-gland type fittings permitted.

C. Mogul-type condulets larger than 2 inch (50 mm) not permitted except as approved or detailed.

D. All condulet covers must be fastened to the condulet body with screws and be of the same manufacture.

E. Wireways, gutters and c-condulets shall not be used in lieu of pull boxes and condulets.

F. All boxes shall be of sufficient size to provide free space for all conductors enclosed in the box and shall comply with NEC requirements.

PART 3 - EXECUTION

3.01 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

A. EMT is permitted to be used in sizes 4" (50 mm) and smaller for power and low-voltage systems.

B. Size power conductor raceways for conductor type installed. Conduit size shall be 1/2-inch (16 mm) minimum except all homerun conduits shall be ¾" (21 mm), or as specified elsewhere. Caution: Per the NEC, the allowable conductor ampacity is reduced when more than three current-carrying conductors are installed in a raceway. Contractor must take the NEC ampacity adjustment factors into account when sizing the raceway and wiring system.

C. Minimum size for raceway for communications, control, security, fire alarm, signal, video and other low-voltage applications shall be 3/4 inch, unless otherwise noted on drawings.

D. Provide one raceway from each communications outlet box to above accessible ceiling as detailed on drawings.

E. Arrange conduit to maintain headroom and present a neat appearance.

F. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping.

G. Maintain minimum 6-inch (150 mm) clearance between conduit and piping. Maintain 12-inch (300 mm) clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.

H. Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized pipe straps, conduit racks (lay-in adjustable hangers), clevis hangers, or bolted split stamped galvanized hangers.

I. Group conduit in parallel runs where practical and use conduit rack (lay-in adjustable hangers) constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.

J. Do not fasten conduit with wire or perforated pipe straps. Before conductors are pulled, remove all wire used for temporary conduit support during construction.

K. Support and fasten metal conduit at a maximum of 8 feet (2.4 m) on center.

L. Supports shall be independent of the installations of other trades, e.g., ceiling support wires, HVAC pipes, other conduits, etc., unless so approved or detailed.

M. Changes in direction shall be made with symmetrical bends, cast steel boxes, stamped metal boxes or cast steel conduit bodies.

N. For indoor conduits, no continuous conduit run shall exceed 100 feet (30 meters) without a junction box.

O. All conduits installed in exposed areas shall be installed with a box offset before entering box.

3.02 CONDUIT INSTALLATION

A. Cut conduit square; de-burr cut ends.

B. Conduit shall not be fastened to the corrugated metal roof deck.

C. Bring conduit to the shoulder of fittings and couplings and fasten securely.

D. Use conduit hubs for fastening conduit to cast boxes. Use sealing locknuts or conduit hubs for fastening conduit to sheet metal boxes in damp or wet locations.

E. Terminate all conduit (except for terminations into conduit bodies) using conduit hubs, or connectors with one locknut, or shall use double locknuts (one each side of box wall) and insulated bushing. Provide bushings for the ends of all conduits not terminated in box walls. Refer to Section 26 05 26 – Grounding and Bonding for Electrical Systems for grounding bushing requirements.

F. Install no more than the equivalent of:
   1. Three 90-degree bends between boxes for electrical systems.
   2. Two 90-degree bends between boxes for communications and other low voltage systems.

G. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2-inch (50 mm) size unless sweep elbows are required.

H. Bend conduit according to manufacturer's recommendations. Torches or open flame shall not be used to aid in bend of PVC conduit.

I. Use suitable conduit caps or other approved seals to protect installed conduit against entrance of dirt and moisture.

J. Provide 1/8-inch (3 mm) nylon pull string in empty conduit, except sleeves and nipples.

K. Install expansion-deflection joints where conduit crosses building expansion joints. Note: expansion-deflection joints are not required where conduit crosses building control joints if the control joint does not act as an expansion joint. Install expansion fitting in PVC conduit runs as recommended by the manufacturer.

L. Avoid moisture traps where possible. Where moisture traps are unavoidable, provide junction boxes with drain fittings at conduit low points.

M. Where conduit passes between areas of differing temperatures such as into or out of cool rooms, freezers, unheated and heated spaces, buildings, etc., provide Listed conduit seals to prevent the passage of moisture and water vapor through the conduit.

N. Route conduit through roof openings for piping and ductwork where possible.

O. Where communication cabling is to be installed in conduit to the wiring hub (e.g., Telcom Room), multiple conduits may be consolidated into fewer, larger conduits. Capacity of shared conduits shall equal the capacity of the individual conduits unless otherwise noted. Electrical Contractor is responsible for sizing of conduit for all low-voltage systems.

P. Use U.L. listed metallic grounding clamps when terminating conduit to cable tray.

Q. Ground and bond conduit under provisions of Section 26 05 26.

R. Conduit is not permitted in any slab topping of two inches (50 mm) or less.

S. Maximum Size Conduit in Slabs Above Grade: 3/4 inch (19 mm). Do not route conduits to cross each other in slabs above grade.

T. Identify conduit under provisions of Section 26 05 53.

U. All conduit installed underground (exterior to building) shall be buried a minimum of 24" below finished grade, whether or not the conduit is concrete encased.

V. Clean PVC conduit with solvent, and dry before application of glue. The temperature rating of glue/cement shall match weather condition. Apply full even coat of cement/glue to entire area that will be inserted into fitting. The entire installation shall meet manufacturer's recommendations.

3.03 CONDUIT INSTALLATION SCHEDULE

A. Conduit other than that specified below for specific applications shall not be used.
   1. Underground Installations: Rigid metal conduit, Schedule 40/80 PVC conduit.
   2. Exposed Outdoor Locations: Schedule 80 PVC conduit.

3. Concealed in Concrete Walls: Electrical metallic tubing. Schedule 40 PVC conduit.
4. Concealed in Block Walls: Electrical metallic tubing, Schedule 40 PVC conduit.
5. Concealed Dry Interior Locations: Rigid metal conduit. Electrical metallic tubing.
6. Exposed Dry Interior Locations: Rigid metal conduit. Electrical metallic tubing.
7. Motor and equipment connections: Liquidtight flexible metal conduit (LFMC) (all locations). Minimum length shall be one foot (300 mm), maximum length shall be three feet (900 mm). Conduit must be installed perpendicular to direction of equipment vibration to allow conduit to freely flex.
8. Light fixtures: Direct box or conduit connection for surface mounted and recessed fixtures. Flexible metal conduit from a J-box for recessed lay-in light fixtures. Conduit size shall be 3/8" (10 mm) minimum diameter and six foot (1.8 M) maximum length. Conduit length shall allow movement of fixture for maintenance purposes.

3.04 COORDINATION OF BOX LOCATIONS

A. Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance.

B. Electrical box locations shown on Contract Drawings are approximate unless dimensioned. Verify location of outlets in offices, classroom and work areas prior to rough-in.

C. No outlet, junction, or pull boxes shall be located where it will be obstructed by other equipment, piping, lockers, benches, counters, etc.

D. Conduit and boxes shall not be fastened to the metal roof deck. If conduit and boxes are required to be located and installed on roof decks, the conduit and boxes are required to be spaced minimum 1-5/8” off the lowest part of the metal roof decking material, per NEC 300.4 (E).

E. It shall be the Contractor's responsibility to study drawings pertaining to other trades, to discuss location of outlets with workmen installing other piping and equipment and to fit all electrical outlets to job conditions.

F. In case of any question or argument over the location of an outlet, the Contractor shall refer the matter to the Architect/Engineer and install outlet as instructed by the Architect/Engineer.

G. The proper location of each outlet is considered a part of this contract and no additional compensation will be paid to the Contractor for moving outlets which were improperly located.

H. Locate and install boxes to allow access to them. Where installation is inaccessible, coordinate locations and provide 18-inch (450 mm) by 24-inch (600 mm) access doors. Boxes must be installed within 12” from edge of the access door.

I. Locate and install to maintain headroom and to present a neat appearance.

J. Install boxes to preserve fire resistance rating of partitions and other elements, using approved materials and methods.

3.05 PULL AND JUNCTION BOX INSTALLATION

A. Pull boxes and junction boxes shall be minimum 4-inch square (100 mm) by 2 1/8inches (54 mm) deep for use with 1 inch (25 mm) conduit and smaller. On conduit systems using 1 1/4-inch (31.75 mm) conduit, minimum junction box size shall be 4 11/16” by 2-1/8” deep.

B. Where used with raceway(s) of larger than 1¼” trade size or larger, pull box shall be sized as follows unless otherwise noted on the drawings:
   1. For straight pull through, have a length of at least 8-times trade-size diameter of largest raceway.
   2. For angle and U pulls:
      a. Have a distance between each raceway entry inside box and opposite wall of box of at least 6-times trade-size diameter of largest raceway, this distance being increased by sum of trade-size diameters of other raceways on same wall of box; and
      b. Have a distance between nearest edges of each raceway entry enclosing same conductor of at least six times trade-size diameter of raceway; or six times trade-size diameter of larger raceway if they are of different sizes.
   3. For a raceway entering wall of a pull box opposite to a removable cover, have a distance from wall to cover of not less than trade-size diameter of largest raceway plus 6-times diameter of largest conductor.

C. Locate pull boxes and junction boxes above accessible ceilings, in unfinished areas or furnish and install approved access panels in non-accessible ceilings where boxes are installed. All boxes are to be readily accessible.

D. Provide Pull and Junction boxes for communications and other low voltage applications (a) in any section of conduit longer than 100 feet, (b) where there are bends totaling more than 180 degrees between pull points or pull boxes and (c) wherever there is a reverse bend in run. Locate boxes on straight section of raceway (e.g., do not use boxes in place of raceway bends).

E. Support pull and junction boxes independent of conduit.

3.06 OUTLET BOX INSTALLATION

A. Do not install boxes back-to-back in walls. Provide minimum 6-inch (150 mm) separation, except provide minimum 24-inch (600 mm) separation in acoustic-rated walls.

B. Power:
   1. Recessed (1/4” maximum) outlet boxes in masonry, concrete, tile construction, or drywall shall be minimum 4-inch square, with device rings. Device covers shall be square cut except rounded corner plaster rings are allowed in drywall applications. Angle cut plaster rings are not permitted. Coordinate masonry cutting to achieve neat openings for boxes. A single gang box can be used in drywall and masonry, for a single device location, when a single conduit enters box.
   2. Shallow 4x4x1-1/2” deep boxes can be used as device boxes for power provided the box and plaster ring is sized for installed device and conductors.

C. Low Voltage:
   1. Recessed (1/4” maximum) outlet boxes in masonry, concrete, tile construction or drywall shall be minimum 4-inch square, 2-1/8” deep with single gang device ring (unless noted otherwise on drawings). Device covers shall be square cut except rounded corner plaster rings are allowed in drywall applications. Angle cut plaster rings are not permitted. Coordinate masonry cutting to achieve neat openings for boxes.
   2. Provide one conduit from each communications outlet box. Conduit runs between outlet boxes for communications are not allowed. In general, terminate conduit above accessible ceiling in corridor on cable tray unless noted otherwise. The intent is to provide a conduit path between the low voltage junction box and the cable tray.

D. Provide knockout closures for unused openings.

E. Support boxes independently of conduit except for cast boxes that are connected to two rigid metal conduits, both supported within 12 inches (300 mm) of box.

F. Use multiple-gang boxes where more than one device is mounted together; do not use sectional boxes. Provide non-metallic barriers to separate wiring of different voltage systems.

G. Install boxes in walls without damaging wall insulation.

H. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.

I. Ceiling outlets shall be 4-inch square, minimum 2-1/8 inch (54 mm) deep except that concrete boxes and plates will be approved where applicable. Position outlets to locate luminaires as shown on reflected ceiling plans.

J. In inaccessible ceiling areas, position outlets and junction boxes within 6 inches (150 mm) of recessed luminaire, to be accessible through luminaire ceiling opening.

K. Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness. Use stamped steel stud bridges for flush outlets in hollow stud wall, and adjustable steel channel fasteners for flush ceiling outlet boxes.

L. Align wall-mounted outlet boxes for switches, thermostats, and similar devices.

M. Provide cast ferroalloy or aluminum outlet boxes in exterior and wet locations.

N. Surface wall outlets shall be 4-inch (100 mm) square with raised covers for one and two gang requirements. For three gang or larger requirements, use gang boxes with non-overlapping covers.

END OF SECTION 26 05 33

SECTION 26 05 53
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 shall govern work under this section.
Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables
Section 26 05 23 - Control-Voltage Electrical Power Cables
Section 26 05 33 - Raceway and Boxes for Electrical Systems
Section 26 27 26 - Wiring Devices
Section 27 00 00 - Communications Cable and Equipment
Section 28 31 00 - Fire Detection and Alarm

PART 2 PRODUCTS

2.01 MATERIALS

A. Labels: All labels shall be permanent, and machine generated. NO HANDWRITTEN OR NON-PERMANENT LABELS ARE ALLOWED.

B. All wiring labels shall be white/transparent vinyl or vinyl-cloth, self-laminating, wraparound type. Flag type labels are not allowed. The labels shall be of adequate size to accommodate the circumference of the cable being labeled and properly self-laminate over the full extent of the printed area of the label.

C. Tape (wiring phase identification only): Scotch #35 tape in appropriate colors for system voltage and phase.

D. Nameplates: Engraved three-layer laminated plastic. Normal system shall use nameplates with black letters on white background.

E. Adhesive type labels not permitted except for identification of wires, wiring devices (device plates), 8" square and smaller junction boxes, and control devices.

F. See Junction and Pullbox Identification and Wiring Device Identification sections for allowed usage of permanent marker.

G. Coordinate thoroughly with WTC IT Department for Communications and Equipment labeling.

PART 3 EXECUTION

3.01 GENERAL

A. All branch circuit and power panels shall be identified with the same symbol used in circuit directory in main distribution center.

B. Clean all surfaces before attaching labels with the label manufacturer's recommended cleaning agent. Install all labels firmly as recommended by the label manufacturer. Labels shall be installed plumb and neatly on all equipment.

C. Install nameplates parallel to equipment lines.

D. Secure nameplates to equipment fronts using screws, rivets or manufacturer approved adhesive or cement.

E. Embossed tape will not be permitted for any application.

3.02 JUNCTION AND PULLBOX IDENTIFICATION

A. The following junction and pullboxes shall be identified utilizing spray-painted covers:

System	Color(s)
Secondary Power – 208Y/120V, 240/120V	White
Fire Alarm	Red
Temperature Control	Green
Door Control and Door Monitoring System	Orange
Sound and Intercom Systems	Gray
Video Surveillance System	Yellow
Data	Blue

B. Additional required junction and pullbox identification shall include:

1. Provide circuit numbers and source panel designations for power wiring junction boxes. Other system junction boxes shall be identified as shown on details or approved shop drawings. Temperature control boxes shall identify the source.
2. Where exposed, junction boxes larger than 8” square shall utilize engraved nameplates with ½” minimum letter height. Identify system source(s) and load(s) served.
3. Where exposed, 8” square and smaller junction boxes shall utilize machine generated, adhesive labels.
4. Where located above an accessible ceiling, junction boxes may be neatly identified using a permanent marker.

3.03 COMMUNICATION CABLE AND CONDUIT LABELING

A. All conduits installed between Telecommunication Equipment Rooms shall be clearly labeled in accordance with ANSI/TIA/EIA-606. Both ends of the conduits shall be labeled.

B. All labels shall be mechanical, no handwritten labels.

C. The label shall indicate the location of the far end of the conduit run and a unique conduit number. (i.e., TR-1A-01 or Room #216 – 01).

D. Each individual Communications Cable shall be labeled on each end per WTC IT Department direction.

3.04 POWER, CONTROL AND SIGNAL WIRE IDENTIFICATION

A. Provide wire labels on each conductor in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Identify with branch circuit or feeder number for power and lighting circuits, and with wire number as indicated on schematic and interconnection diagrams or equipment manufacturer's shop drawings for control and signal wiring.

B. All wiring shall be labeled within 2 to 4 inches of terminations. Each end of a wire or cable shall be labeled as soon as it is terminated including wiring used for temporary purposes.

3.05 WIRING DEVICE IDENTIFICATION

A. Wall switches, receptacles, occupancy sensors, wall dimmers, device plates and box covers, photocells, and time clocks shall be identified with circuit numbers and source (ex. Panel ABC-3). In exposed areas, identifications should be made outside of device covers, unless directed otherwise. Use machine-generated adhesive labels.

3.06 PANELBOARD DIRECTORIES

A. Typed directories for panels must be covered with clear plastic and have a metal frame. Room number on directories shall be Owner's numbers, not Plan numbers unless Owner so specifies.

END OF SECTION 26 05 53

SECTION 26 24 16
PANELBOARDS

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 govern work under this Section.

Section 26 4313 - Surge Protective Devices for Low Voltage Electrical Power Circuits

1.02 SUBMITTALS (ELECTRONIC PDF)

A. Include outline and support point dimensions, voltage, main bus ampacity, circuit breaker arrangement and sizes, and interrupting ratings confirming a fully rated system for all equipment and components.

1.03 OPERATION AND MAINTENANCE DATA

A. All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

1.04 SPARE PARTS

A. Keys: Furnish 2 keys for each panelboard to Owner.

B. One set of three spare fuses of each size and type utilized.

PART 2 PRODUCTS

2.01 BRANCH CIRCUIT PANELBOARDS (SQUARE 'D' ONLY)

A. Lighting and Appliance Branch Circuit Panelboards: Circuit breaker type.

B. The panelboard and overcurrent devices contained within shall be rated as noted on drawings.

C. Enclosure: NEMA Type 1 or as scheduled. Minimum cabinet size: 5-3/4 inches (144 mm) deep; 20 inches (508 mm) wide with 5" minimum gutter space top and bottom. Constructed of galvanized code gauge steel. Panel enclosure (back box) shall be of non-stamped type (without KO's) to avoid concentric break out problem.

D. Cabinet front cover and cabinet shall be Type 3R, 4X, in wet and damp locations.

E. Provide cabinet front (flush or surface per plans) with concealed trim clamps, concealed hinge and flush cylinder lock all keyed alike. Front cover shall be hinged to allow access to wiring gutters without removal of panel trim. Hinged trim shall be held in place with screw fasteners. Finish in manufacturer's standard gray enamel.

F. Provide metal directory holders with clear plastic covers.

G. Provide panelboards with copper bus (phase buses, bus fingers, etc.), ratings as scheduled on Drawings.

H. Provide ground bars in all panelboards. Phase, neutral and ground bar terminations can be dual rated ALCU9. All spaces shall have bus fully extended and drilled for the future installation of breakers.

I. Incoming conductors shall terminate at lug landing pads rated for the panelboard.

J. Minimum System (i.e., individual component) Short Circuit Rating: 22KAIC.

K. Molded Case Circuit Breakers: Bolt-on type thermal magnetic trip circuit breakers. Provide UL Class A ground fault interrupter circuit breakers were shown on Drawings. Provide circuit breakers UL listed as Type HACR for air conditioning equipment branch circuits.

L. Do not use tandem circuit breakers.

M. Circuit breakers shall be bolt-on type with common trip handle for all poles. No handle ties of any sort will be approved.

N. All the panelboards provided under this section shall be by the same manufacturer.

O. All sub-feed panelboards installed side by side shall utilize same enclosure height.

P. Provide feed-thru and sub-feed lugs to easily install an additional 'future' panelboard and/or disconnect.

PART 3 - EXECUTION

3.01 INSTALLATION

A. See section 26 05 29 for support requirements.

B. Install panelboards plumb with wall finishes.

C. Height: 6 feet (2 m) to top.

D. Install a crimp type stud termination to stranded conductor when terminating on circuit breakers without a captive assembly rated for terminating stranded conductors.

E. Provide filler plates for unused spaces in panelboards.

F. See section 26 05 53 for identification requirements. Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes required to balance phase loads.

3.02 FIELD QUALITY CONTROL

A. Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections.

END OF SECTION 26 24 16

SECTION 26 27 02
EQUIPMENT WIRING SYSTEMS

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 govern work under this Section.
Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.
Section 26 05 33 - Raceway and Boxes for Electrical Systems.
Section 26 05 53 - Identification for Electrical Systems
Section 26 27 26 - Wiring Devices

1.02 SUBMITTALS

A. Product Data: Provide data for cord and wiring devices.

1.03 COORDINATION

A. Coordinate all equipment requirements with the various contractors and the Owner. Review the complete set of drawings and specifications to determine the extent of wiring, starters, devices, etc., required.

PART 2 PRODUCTS

2.01 CORDS AND CAPS

A. Straight-blade Attachment Plug: NEMA WD 1.

B. Locking-blade Attachment Plug: NEMA WD 5.

C. Attachment Plug Configuration: Match receptacle configuration at outlet provided for equipment.

D. Cord Construction: Oil-resistant thermoset insulated multi-conductor flexible cord with identified equipment grounding conductor, suitable for hard usage in damp locations.

E. Cord Size: Suitable for connected load of equipment and rating of branch circuit overcurrent protection.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify that equipment is ready for electrical connection, wiring, and energy.

3.02 PREPARATION

A. Review equipment submittals prior to installation and electrical rough-in. Verify location, size, and type of connections. Coordinate details of equipment connections with supplier and installer.

3.03 INSTALLATION

A. Use wire and cable with insulation suitable for temperatures encountered in heat-producing equipment.

B. Provide a green equipment ground conductor for all installed equipment wiring.

C. Make conduit connections to equipment using flexible PVC-coated metal conduit.

D. Install pre-finished cord set where connection with attachment plug is indicated or specified, or use attachment plug with suitable strain-relief clamps.

E. Provide suitable strain-relief clamps for cord connections to outlet boxes and equipment connection boxes.

F. Make wiring connections in control panel or in wiring compartment of pre-wired equipment in accordance with manufacturer's instructions. Provide interconnecting wiring where indicated.

G. Install disconnect switches, controllers, control stations, and control devices such as limit switches and temperature switches as indicated. Connect with conduit and wiring as indicated.

3.04 HVAC AND PLUMBING CONNECTIONS

A. Provide all power wiring including all circuitry carrying electrical energy from panelboard or other source through starters, variable frequency drives (VFDs), and disconnects to motors or to packaged

control panels. Packaged control panels may include disconnects and starters and overcurrent protection. Provide all wiring between packaged control panels and motors.

B. Contractor shall verify with mechanical contractor the electrical requirements including voltages, horsepower, disconnecting means, starters and variable frequency drives for motors and equipment prior to ordering circuit breakers, disconnects and starters.

C. VFD Installations: Install VFD input wiring and output wiring in separate conduit systems. Do not mix VFD input power and output power, or control wiring in a common raceway.

D. Provide 120 volts to each temperature control panel. Coordinate quantity and exact locations with HVAC/DDC contractors. Connect to the nearest Emergency (Equipment Branch) panelboard.

E. Unless otherwise specified, all electrical motors and control devices such as aquastats, float and pressure switches, fan powered VAV boxes, switches, electro-pneumatic switches, solenoid valves and damper motors requiring mechanical connections shall be furnished and installed and wired by the Contractor supplying the devices.

F. Each motor terminal box shall be connected with a minimum 12", maximum 36" piece of flexible PVC-coated metal conduit to a fixed junction box. Conduit must be installed perpendicular to direction of equipment vibration to allow conduit to freely flex.

G. Check for proper rotation of each motor.

H. All heating, air conditioning and refrigeration equipment installed on the exterior of the building or rooftop shall have a 120V, single phase 20 ampere rated outlet at an accessible location within 25 feet of the equipment.

3.05 EQUIPMENT CONNECTION SCHEDULE

A. As indicated on the drawings.

END OF SECTION 26 27 02

SECTION 26 27 26
WIRING DEVICES

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 govern work under this Section.

1.02 SUBMITTALS

A. Provide product data showing model numbers, configurations, finishes, dimensions, and manufacturer's instructions.

B. For occupancy sensor shop drawings, the manufacturer’s actual layout of occupancy sensors and the wiring diagrams shall be provided.

1.03 OPERATION AND MAINTENANCE DATA

A. All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

PART 2 PRODUCTS

2.01 WALL SWITCHES

A. **General:** Heavy duty use toggle switch, rated 20 amperes and 120/277 volts AC. Switches shall be UL20 Listed and meet Federal Specification WS-896. All switches shall be heavy duty Specification Grade.

1. Grey color made of nylon or high impact resistant material is campus standard..

B. **Wall Switches for Lighting Circuits and Motor Loads Under 1/2 HP:** All switches shall be back, and side wired, screw clamp type, suitable for solid or stranded wire up to #10 AWG, with separate green ground screw. Switches shall be Cooper Arrow-Hart1221*, Hubbell 1221*, Leviton 1221-S*, Pass & Seymour CS20AC1-*, or approved equal. (* indicates color selection). Provide Gray color.

2.02 RECEPTACLES

A. **General Requirements:** NEMA Type 5-20R color (to match existing to remain) nylon or high impact resistant face. Receptacles shall be UL498 Listed and meet Federal Specification WC-596. All duplex receptacles shall be heavy duty Specification Grade, 20 amp rated. Provide Gray color.

B. Generally, all receptacles shall be duplex convenience type unless otherwise noted.

C. All receptacles installed in bathrooms, kitchens, Locker Rooms, exterior and within 6 feet of the outside edge of sinks shall be GFCI type.

D. All receptacles installed in outdoor locations, garages, rooftops, and in other damp or wet locations shall be GFCI type with a weather resistant (WR) rating.

E. **Convenience and Straight-blade Receptacles:** All receptacles shall be back, and side wired, screw clamp type, suitable for solid or stranded wire up to #10 AWG, with a separate green ground screw. Receptacles shall be Cooper Arrow-Hart 5362*, Hubbell5362*, Leviton5362-S*, Pass& SeymourPS5362-*, or approved equal. (* indicates color selection). Grey is the campus standard.

F. **GFCI Receptacles:** Duplex convenience receptacle with integral ground fault current interrupter meeting the requirements of UL standard 943 Class A. GFCI receptacles shall be Cooper Arrow-Hart VGF20*, HubbellGF20*L, LevitonN7899-*, Pass & Seymour2095*, or approved equal.

G. **GFCI Receptacles with a weather-resistant (WR) rating:** Weather-Resistant duplex convenience receptacle with integral ground fault current interrupter meeting the requirements of UL standard 943 Class-A. WR GFCI receptacles shall be Cooper Arrow-Hart WRVGF20*, HubbellGFR5362*TR, LevitonWR899-*, Pass & Seymour2095TRWR*, or approved equal.

2.03 OCCUPANCY SENSORS (NOT REQUIRED)

A. All occupancy sensors shall be hardwired type; battery type shall not be permitted.

B. Wall Mounted (Wall Switch Type)

1. The sensor shall use either passive infrared or, if dual technology, passive infrared and passive acoustic sensing, or passive infrared and ultrasonic, for detecting room occupancy. The unit shall fit in/on a standard single gang switch box.

2. Rated capacity: 600 watts minimum at 120 volts, 60 Hz; 1000 watts minimum at 277 volts, 60 Hz.
3. Sensitivity shall be user adjustable or self-adjusting type.
4. The delay timer shall be adjusted within a range of 6 to 30 minutes by the contractor in the field. The sensor shall have a test mode for performance testing.
5. The sensor shall have two switches where dual-level lighting is required. The off switch shall have manual override for positive off and automatic on.
6. The test LED shall indicate motion.
7. The area of coverage shall be approximately 180 degrees by 35-40 feet.
8. The unit shall have a five-year warranty.
9. Sensor switch and Wattstopper are approved manufacturers.

C. Ceiling Mounted

1. The sensor shall use either passive infrared or, if dual technology, passive infrared and passive acoustic sensing, or passive infrared and ultrasonic, for detecting room occupancy. The unit shall fit in/on a standard octagon box. All ceiling mounted sensors shall be installed to a box with ring and box support.
2. Rated capacity shall be 20 amps at 120 or 277 volts, for LED. Line voltage sensors are acceptable, especially in exposed ceiling areas where all wiring shall be installed in conduit, including low voltage cabling if power packs are used. Provide power pack as required for low voltage sensors.
3. Sensitivity shall be user adjustable or self-adjusting type.
4. The delay timer shall be adjusted within a range of 6 to 30 minutes by the contractor in the field. The sensor shall have a test mode for performance testing.
5. The coverage area shall be 360 degrees by approximately 15 feet radius when mounted at 9-foot height. The sensor shall have provisions, such as masking, to block out problem areas.
6. Test LED to indicate motion.
7. The unit shall have a five-year warranty.
8. See drawings for actual type of sensor.
9. Please pay attention to ceiling heights, install high bay type sensors in ceilings exceeding 10’-0” above the finish floor.
10. Sensor switch and Wattstopper are approved manufacturers.

2.04 WALL DIMMERS (NOT REQUIRED)

A. Wall Dimmers: linear slide semiconductor type, suitable for use with LED drivers (0-10 Volts), with positive ‘OFF’ as indicated on the Drawings. Combination Occupancy Sensor/Dimmer.

2.05 DEVICE PLATES AND BOX COVERS

A. **Standard Cover Plate:** Stainless Steel 302/304.

B. **Weatherproof Cover Plate:** Gasketed metal with hinged “in-use” device covers, powder coat painted. Non-metallic covers are not allowed. All receptacles installed in wet locations shall have an enclosure that is weatherproof whether or not the attachment plug is inserted.

C. **Damp Location Cover Plate:** Gasketed metal with hinged device covers, powder coat painted. Non-metallic covers are not allowed. All receptacles installed outdoors in a location protected from the weather or in other damp locations shall have an enclosure that is weatherproof when the receptacle is covered (attachment plug not inserted and receptacle covers closed).

D. **Surface Cover Plate:** Raised galvanized steel.

PART 3 EXECUTION

3.01 INSTALLATION

A. See plans for device mounting heights.

B. Install wall switches with OFF position down.

C. Wall dimmers: de-rate ganged dimmers as instructed by manufacturer; do not use common neutral.

D. Install convenience receptacles with grounding pole on bottom.

E. Install box for information outlet at the same height as adjacent convenience receptacles. Locate boxes for information outlet as close as practical to duplex power outlet, approximately 2-inches apart.

F. Install box for telephone jack for wall telephone at 46-inches to center above finished floor.

G. Install specific-use receptacles at heights shown on Contract Drawings.

H. Install decorative plates on switch, receptacle, and blank outlets in finished areas.

I. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface-mounted outlets.

J. Install devices and wall plates flush and level.

K. Receptacles shall have a bonding conductor from grounding terminal to the metal conduit system. Self-grounding receptacles using mounting screws as bonding means are not approved.

3.02 FIELD QUALITY CONTROL

A. Inspect each wiring device for defects.

B. Operate each wall switch and sensor with circuit energized and verify proper operation.

C. Verify that each receptacle device is energized.

D. Test each receptacle device for proper polarity.

E. Test each GFCI receptacle device for proper operation.

3.03 OCCUPANCY SENSORS

A. Provide a minimum of 4’ of coiled cable for ceiling-mounted sensors.

B. Occupancy sensors shall be installed at locations indicated on the manufacturer’s submittal layout drawings. Sensors shall be located to prevent false “ON” tripping of the lights.

C. Sensitivity Test: After the sensor has been energized for at least 15 minutes, walk to the middle of the room (if conference room) or sit at the normal desk position (if an office). Make no motion for 20 seconds. Move one arm up and down slowly. The test LED should blink.

D. Time Delay Test: Set the time delay for 10 minutes. Walk into the room to activate the sensor then leave room. Sensor must turn lights off at approximately 10 minutes. Walk into the room again to reactivate the lights. Lights should activate within 1 second.

3.04 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

B. Mark all conductors with the panel and circuit number serving the device with a machine generated label, at the device, and on the back of the device cover.

END OF SECTION 26 27 26

SECTION 26 51 13
LED LIGHTING FIXTURES

PART 1 GENERAL

1.01 RELATED WORK

A. Applicable provisions of Division 1 govern work under this Section.

1.02 SUBMITTALS

A. Include outline drawings, Led lamps, LED drivers, support points, weights, accessory information and performance data for each luminaire type.

B. For each luminaire type, submit luminaire information in the following example table format, and submit catalog cuts with highlighted catalog numbers and required accessories.

LUMINAIRE		LED DRIVER	LAMP	ANSI INPUT WATTS
Type	Manufacturer and Catalog No.	Manufacturer, Quantity per Fixture, and Catalog No.	Manufacturer, Quantity per Fixture, and Catalog No.	

1.03 OPERATION AND MAINTENANCE DATA

A. All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

PART 2 PRODUCTS

2.01 INTERIOR LUMINAIRES AND ACCESSORIES

A. See the Lighting Fixture Schedule on the drawings, for type of fixtures and catalog numbers. Catalog numbers are shown on the drawings for quality and performance requirements only. Fixtures manufactured by others are equally acceptable provided they meet or exceed the performance of the indicated fixtures and meet the intent of the design.

B. LED Lighting Fixtures (ONLY) will be installed for this project.

C. Provide LED lighting fixtures approved by Focus–On–Energy for this project.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer’s instructions.

B. Locate ceiling luminaires as indicated on reflected ceiling plan.

C. Install surface mounted luminaires plumb and adjust to align with building lines and with each other. Secure to prohibit movement.

D. The Contractor shall install fixture supports as required. Fixture installations with fixtures supported only by insecure boxes will be rejected. It shall be the Contractor's responsibility to support all lighting fixtures adequately, providing extra steel work for the support of fixtures if required. Any components necessary for mounting fixtures shall be provided by the Contractor. No plastic, composition or wood type anchors shall be used.

E. Install recessed luminaires to permit removal from below.

F. Install recessed luminaires using accessories and firestopping materials to meet regulatory requirements for fire rating.

G. Install code required hardware to secure recessed grid-supported luminaires in place.

H. Install accessories furnished with each luminaire.

I. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.

J. Bond fixtures and metal accessories to branch circuit equipment grounding conductor.

K. All new LED Fixtures shall be operational at the Substantial Completion of the project.

3.02 ADJUSTING AND CLEANING

A. Align luminaires and clean lenses and diffusers at completion of Work. Clean paint splatters, dirt, and debris from installed luminaires.

B. Aim and adjust luminaires as indicated on Drawings or as directed by the A/E.

C. Touch up luminaire finish at completion of work.

3.03 FIELD QUALITY CONTROL

A. Operate each luminaire after installation and connection. Inspect for proper connection and operation.

3.04 ALL FIXTURE CONNECTIONS

A. Direct box or conduit connections for surface and recessed fixtures. Flexible metal conduit from a J-box for recessed lay-in light fixtures. Flexible metal conduit shall be minimum 3/8" (10 mm) minimum diameter and six foot (1.8 M) maximum length. Conduit length shall allow movement of the fixture for maintenance purposes.

B. The flexible connectors shall be all steel, galvanized, clamp type with locknut or snap-in connector.

END OF SECTION 26 51 13

27 00 00

COMMUNICATIONS CABLE AND EQUIPMENT

PART 1 GENERAL

1.01 SCOPE

A. This section describes the products and execution requirements relating to furnishing and installation of Telecommunications Cabling and Termination Components and related sub- systems as part of a Structured Cabling System.

1.02 RELATED WORK

A. Applicable provisions of Division 1 govern work under this Section.

Section 26 05 00 – Common Work Results for Electrical

Section 26 05 33 – Raceway and boxes for Electrical Systems

Section 26 27 26 – Wiring Devices

Section 26 05 26 – Grounding and Bonding for Electrical Systems

Section 26 27 02 – Equipment Wiring

Section 26 05 53 – Identification for Electrical Systems

1.03 REGULATORY REFERENCES

A. All work and materials shall conform in every detail to the rules and requirements of the National Fire Protection Association, the Wisconsin Electrical Code and present manufacturing standards.

B. All materials shall be listed by UL and shall bear the UL label. If UL has no published standards for a particular item, then other national independent testing standards shall apply and such items shall bear those labels. Where UL has an applicable system listing and label, the entire system shall be so labeled.

C. Other applicable standards are as follows:

1. ANSI/IEEE C2 - National Electrical Safety Code
2. NFPA 70- 2002 - National Electrical Code
3. DILHR Chapter 16 - Wisconsin Electrical Code
4. TIA/EIA Standards 526-14A (OFSPT-14A), 526-7 (OFSPT-7), 568B.1 (Category 6e), 568B.2 (Category 6), 568B.3, 569A, 606A, and 607 (with exception)
5. IEEE/ANSI 142-1982 - Recommended Practice for Grounding of Industrial and Commercial Power Systems.
6. ICEA publication S-80-576-2002

1.04 DESIGN INTENT

A. The Horizontal (Station) Network Cabling System is based on the installation of 4-Pair Unshielded Twisted Pair (UTP) DATA Category 6A and 4-Pair UTP IP VOICE Category 6A Copper Cables.

B. The Horizontal (Station) A/V Cabling System is based on the installation of 4-Pair Shielded Twisted Pair (UTP) DATA Category E-6A Copper Cables.

C. Station cables shall be installed in conduit and/or free air. Outlets shall be mounted flush on a wall-mounted box, and/or on Surface Raceway. Information Outlet locations are to be identified on Project Drawings.

D. At the Data Hub Rooms, Data, A/V and IP Phone cable terminations shall be mounted on existing freestanding and/or wall-mounted equipment racks; (as indicated on the drawings) termination hardware related to Data and Voice Cabling shall be rack mounted.

E. All cables and related termination, support and grounding hardware, bonding, shall be furnished, installed, wired, tested, labeled, and documented by the Contractor, as detailed in the following section[s].

F. The Contractor shall provide all labor and materials necessary to construct the system as described herein. This includes but is not limited to - furnishing and installing cable, cable supports, racking and termination components, termination, testing, labeling and documentation.

G. Installer shall be Hubbell certified, provide Hubbell products only.

1.05 WORK SEQUENCE

A. During the construction period, coordinate telecommunications schedule and operations with the Architect, Engineer and WESTERN TECHNICAL COLLEGE IT department.

B. It shall be required to schedule a Pre-Construction meeting with WESTERN TECHNICAL COLLEGE IT DEPARTMENT prior to installation.

1.06 SUBMITTALS

A. Under the provisions of Section 26 05 00 and Division 1, prior to the start of work the Contractor shall submit:

B. Electronic sets of Manufacturer's Data covering all products proposed indicating construction, materials, ratings and all other parameters identified in Part 2 (Products) below.

C. Manufacturer's installation instructions.

D. Submittals should be electronically grouped to include complete documentation of related systems, products and accessories in a single submittal. Where applicable, dimensions should be marked in units to match those specified.

E. Submittals shall be original catalog sheets, photocopies, or electronic format (ADOBE Portable Document format ".pdf") thereof. Facsimile (fax) sheets shall not be accepted.

F. Two sets of submittals. The Engineer shall review the Submittals and annotate them indicating approvals and shall return to the contractor.

G. Work shall not proceed without the Engineer's approval of the submitted items.

H. If materials are furnished as specified no further qualifications is necessary, except for items requiring shop drawings. However, if the Contractor wishes to substitute another manufacturer and/or catalog number, the following information in triplicate shall be submitted to the Engineer:

1. A complete description of the material which the contractor proposes to substitute (shop drawings, illustrations, catalog data, performance characteristics, etc.) and the reason for the substitution identifying any benefit to the Owner.

I. The Contractor shall receive approval from the Engineer on all substitutions of material. No substituted materials shall be installed except by written approval from the Engineer.

1.07 PROJECT RECORD DOCUMENTS

A. Submit and record documents under provisions of 26 0500.

B. Accurately record exact sizes, locations and quantities of cables.

1.08 QUALITY ASSURANCE

A. The manufacturer shall be a company specializing in communication cable and/or accessories with a minimum of five years documented experience in producing cable and/or accessories similar to those specified below.

B. The contractor shall have been in this line of business for a minimum of five (5) years.

C. The installing contractor shall have at a minimum one (1) Certified Installer trained to the latest industry standards to ensure the most reliable installation available. The Certified Installer shall have been trained by a company(s) that offers a minimum fifteen (15) year system warranty.

1.09 DELIVERY, STORAGE AND HANDLING

A. Cable shall be stored according to the manufacturer's recommendations as minimum. In addition, cable must be stored in a location protected from vandalism and weather.

1.10 DRAWINGS

A. It shall be understood that the electrical and telecommunication details and drawings provided with the specification package are diagrammatic. They are included to show the intent of the specifications and to aid the Contractor in bidding for the job. The Contractor shall make allowance in the bid proposal to cover whatever work is required to comply with the intent of the plans and specifications.

B. The Contractor shall verify all dimensions at the site and be responsible for their accuracy.

C. Prior to submitting the bid, the Contractor shall call the attention of the Engineer to any materials or

apparatus the Contractor believes to be inadequate and to any necessary items of work omitted, within ten (10) days prior to the Bid Due Date.

PART 2 PRODUCTS

2.01 INFORMATION OUTLET

A. Station cables shall each be terminated at their designated workstation location in the connector types described in the sub-sections below. Included are modular jacks (IP Voice & Data) assemblies. These connector assemblies shall snap into a mounting frame. All ports shall be installed such that the opening faces the floor. The combined assembly is referred to as the Standard Information Outlet (SIO).

1. SIO mounting configurations shall be as follows:
    a. Flush where existing boxes are in place
    b. Surface mounted on Systems Furniture (base panel) - Systems Furniture Type shall be defined prior to construction. Existing concrete block and brick walls and similar wall construction types.
    c. All data/IP voice jacks shall be flush mounted where possible.
2. The Telecommunications Outlet Frame shall accommodate:
    a. a minimum of One (1), when installed on a wall-mounted assembly.
    b. a minimum of One (1), when installed on modular furniture (where applicable)
    c. the outlet frame shall incorporate a mechanism for adjusting the surface plate to a plumb position.

B. Multiple Jacks - identified in close proximity on the drawings (and not separated by a physical barrier) - may be combined in a single assembly. The contractor shall be responsible for determining the optimum compliant configuration based on the products proposed and documenting these in the as-built records.

C. The same orientation and positioning of Jacks and Connectors shall be utilized throughout the installation. Prior to installation, the Contractor shall submit the proposed configuration for each SIO type for review by the Engineer.

D. Wall Mount Outlet Faceplates shall incorporate identifying labels.

E. Where stand-alone "Data" or "IP Voice" only Jacks are identified, the SIO Frame shall be configured to allow for the addition of one (1) additional jack (Voice or Data) to be installed to supplement each such jack as defined by this project. The installation of these supplemental Jacks IS NOT part of this project.

F. Any unused jack positions shall be fitted with a removable blank inserted into the opening.

G. The faceplate of the SIO shall be constructed of Stainless Steel.

H. Wall-mounted "Voice Only" outlets shall be installed where identified on the Floorplan Drawings to accommodate wall-mounted telephone sets. The Wall Plate shall be of Stainless-Steel construction, accommodate one (1) voice jack as defined below, mount on a standard single gang outlet box or bracket and include mating lugs for wall phone mounting.

I. All Standard Information Outlets and the associated Jacks shall be of the same manufacturer throughout the project. An allowable exception, however, is the Wall- mounted "Voice Only" Outlet described above. The manufacturer must be approved by WTC IT Department (No Exceptions).

2.02 DATA AND IP VOICE JACKS (Category 6A)

A. Data and IP Voice jacks shall be an 8-pin Modular Jack.

B. The interface between the jack and the station cable shall be a 110-Style block or insulation displacement type contact. Termination components shall be designed to maintain the cable's pair twists as closely as possible to the point of mechanical termination

C. Data Jacks shall be pinned TIA-568B with the pairs as follows:

1. TIA-568B: Pair 1 - Pins 5 & 4
2. Pair 2 - Pins 1 & 2

3. Pair 3 - Pins 3 & 6
4. Pair 4 - Pins 7 & 8

D. IP Voice Jacks shall be pinned TIA-568B with the pairs as follows:
1. TIA-568B: Pair 1 - Pins 5 & 4
2. Pair 2 - Pins 1 & 2
3. Pair 3 - Pins 3 & 6
4. Pair 4 - Pins 7 & 8

E. Transmission characteristics of the Data and Voice Jack shall be as required to meet the TIA/EIA Category 6A performance criteria. Refer to the Execution Section which details the required performance criteria of the completed Link of which the Jacks are a part.

F. The Jack shall be UL verified and listed.

G. Jack contacts shall have a minimum of 50 micro-inches of gold plating.

H. The color of the Data Jacks shall be as noted on the drawings or as determined by WTC IT Department, the school has strict color standards which must be followed.

I. All face plates shall be Stainless Steel.

2.03 WALL-MOUNT IP VOICE-ONLY OUTLETS

A. Wall mounted "voice only" outlets shall be installed where identified ("W") on the Project Drawing(s) to accommodate wall-mounted telephone sets. The Wall Plate shall be of Stainless-Steel construction, accommodate one (1) voice jack as previously defined, mounted on a standard single gang outlet box or bracket and include mating lugs for wall phone mounting.

2.04 DATA ANGLED PATCH PANEL (Category 6A)

A. Data cabling shall be terminated at existing equipment racks located in Comm Room #116 (First Floor) and IT/AV Room #105A (First Floor) on patch panels incorporating Modular Jacks meeting the specifications for the Telecommunications Outlet detailed in the Section above.

B. At the Equipment Racks, these panels shall be rack mounted-Angled **or** to match existing.

C. The Data Patch Panel shall consist of a Modular to 110-type connector system. Modular jacks shall meet the specifications detailed above (NON-KEYED 8-pin).

D. The largest single patch panel configuration shall not exceed 48 ports. Panels which are modular shall be fully populated (all ports occupied by jacks) and be provided in increments of no less than 12-jacks. High density patch panel configurations must incorporate horizontal cable management systems sized to accommodate the quantity of patch panel jacks being installed.

E. The Patch Panel blocks shall have the ability to seat and cut 8 conductors (4 pairs) at a time and shall have the ability of terminating 22- through 26-gauge plastic insulated, solid and stranded copper conductors. Data blocks shall be designed to maintain the cable's pair twists as closely as possible to the point of mechanical termination.

F. The Data Patch Panel as a system (including jack, cable interface and intermediate components) must maintain Category 6A performance per the referenced TIA/EIA documents. All pair combinations must be considered, with the worst-case measurement being the basis for compliance.

G. Panels shall incorporate cable support and/or strain relief mechanisms to secure the horizontal cables at the termination block and to ensure that all manufacturers minimum bend radius specifications are adhered to.

H. The Patch Panel shall have color coded designation strips to identify cable count.

I. Transmission performance shall be maintained by the Data Patch Panel as a system (including jack, cable interface and intermediate components).

2.05 EQUIPMENT RACKS (EXISTING)

A. Free Standing Equipment Racks - Existing:
1. Located in existing Comm Room #116 (First Floor), IT/AV Room #105A (First Floor) existing floor mounted equipment racks. Electrical Contractor shall terminate Network cables at these existing racks as required.

B. Jumper Management

1. Existing and new racks shall be equipped with Vertical and Horizontal Jumper Management Hardware in the form of rings and guides, as to allow an orderly routing of twisted pair, optical fiber and coaxial jumpers from the patch panels to the customer provided network equipment. Jumper management hardware shall be as follows:

a. Horizontal Jumper Management

i. Panels shall be plastic (3.5" panel), have a minimum of five (5) Jumper distribution rings (1.75" x 3.75" minimum dimension) and incorporate jumper routing clips (plastic) for individual jumpers.

ii. At minimum, horizontal cable management hardware shall be positioned above and below (a) each grouping of two rows of Data Patch Panels.

b. Vertical jumper management

i. Shall provide for cable routing on front and rear of each rack and be 3½" square (minimum). Vertical Jumper Management hardware shall mount on spacers attached to the rack uprights and not on the upright itself. Where multiple racks are to be installed, this hardware shall be mounted between the uprights of adjacent racks. Rack uprights and the spacers shall be secured together per manufacturer recommendations.

ii. Each rack shall be supplied with a minimum of twelve (12) releasable (e.g. "hook & loop") cable support ties.

C. NOTE: Where Cable Termination Hardware is wall mounted, the contractor shall be responsible for establishing a cable pathway for jumpers routed from the Equipment Rack(s) to the wall. This shall be in the form of slotted ducts, troughs, “D” rings or other means. The proposed method shall be included in the submittals required by this document and shall be approved by the Engineer prior to installation.

2.06 Horizontal Network CAT 6A Cable (Plenum rated)

A. Description: 24 AWG, 4-pair UTP, covered with a thermoplastic jacket:

1. Comply with ICEA S-90-661 for mechanical properties.
2. Comply with ANSI/TIA/EIA-568-B.2, for performance specifications.
3. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 444 and NFPA 70 for the following types:
4. Communications, Plenum Rated: Type CMP, complying with NFPA 262.
5. CMR
6. Flame Rating: Patch-UL 1581, CM, IEC 332-1, UL Listed.
7. Category 6A, 550MHz (minimum), UTP PVC Cable.
8. Polyethylene Insulation.
9. Unshielded twisted pair.
10. Blue jacket color, or as required by WTC IT Department Color Requirements.
11. Manufacturer: General Cable, model GenSpeed-10MTP-Gen5-Category 6A or approved equal.

B. Horizontal A/V Shielded CATE-6A:

1. Provide General Cable, GenSpeed 10 Category 6A-F/UTP (SCTP) CMP Green (Plenum Rated). Green Color.

2.07 MISCELLANEOUS MATERIALS

A. IP Voice, DATA and A/V Station Patch Cords

1. The contractor is to furnish voice station patch cords which are six inches or less in length and consist of an 8P8C plug (pinned 568B) and connected to an 8P8C jack with Category 6A cable.
2. The Contractor is to furnish ***ALL*** data **and** A/V station CAT6 patch cords, length as required.
3. Provide double the amount of patch cords compared to data and IP jacks. Provide ***ALL*** patch cords for this project, the electrical contractor is responsible to determine total quantity for project. No additional compensation will be allowed for non-sufficient patch cords, a complete workable system shall be provided.

2.08 SURFACE RACEWAY

A. It is anticipated that Surface raceway will be used in this project.

B. In remodeled areas, Surface Raceway will be used as a cable path. No exposed wire shall be permitted.

C. With the agreement of the Architect/Engineer, if a need arises to add telecommunications outlets in areas where the walls cannot be fished, the station wire serving these outlets shall be covered with raceways. No exposed wire shall be permitted within offices, classrooms, corridors, or like facilities.

D. The *metallic* surface raceway shall have a screw applied base and have a snap-on cover. Both the base and cover shall be metallic.

E. The raceway shall originate from a flush/surface mounted box as required.

F. The color of this raceway shall be electrical ivory or match the décor. All fittings including, but not limited to, extension boxes, elbows, tees, fixture boxes shall match the color of the raceway.

G. The raceway and all system devices must be UL Listed, exhibit nonflammable self- extinguishing characteristics, tested to specifications of UL94V-0 and be Category Compliant as defined by TIA/EIA 568B.

H. Refer to Section 26 05 33 “Raceway and Boxes for Electrical Systems” for metallic Raceway guidelines for this Project. A minimum bend radius shall be adhered to for UTP cable.

I. Provide Wiremold 3000/4000/6000 series or equal.

2.09 TELECOMMUNICATIONS GROUND (NOT REQUIRED)

A. At each Telecommunications Equipment Rack, a rack-mounted "Telecommunications Grounding Busbar (TGB)" shall be installed by the Electrical Contractor. Ground to the nearest available grounding source.

PART 3 EXECUTION

3.01 GENERAL

A. The contractor shall furnish and install all cables, connectors and equipment as shown on drawings and as specified above. It shall be noted that all cables shall be installed in continuous lengths from endpoint to endpoint. No splices shall be allowed unless noted otherwise.

B. Refer to Project Drawings which indicate termination location(s) within each building section.

C. It is the contractor's responsibility to survey the site and include all necessary costs to perform the installation as specified. This includes any modifications required to route and conceal horizontal distribution wiring.

D. Beginning installation means the contractor accepts existing conditions.

E. The contractor shall furnish all required installation tools to facilitate cable pulling without damage to the cable jacket. Such equipment is to include, but not limited to, sheaves, winches, cable reels, cable reel jacks, duct entrance tunnels, pulling tension gauge and similar devices. All equipment shall be of substantial construction to allow steady progress once pulling has begun. Makeshift devices, which may move or wear in a manner to pose a hazard to the cable, shall not be used.

F. All cable shall be pulled by hand unless installation conditions require mechanical assistance.

G. The contractor will be responsible for identifying and reporting to the Architect/Engineer any existing damage to walls, flooring, tiles and furnishings in the work area prior to start of work. All damage to interior spaces caused by the installation of cable, raceway or other hardware must be repaired by the Contractor. Repairs must match preexisting color and finish of walls, floors and ceilings. Any contractor-damaged ceiling tiles are to be replaced by the contractor to match color, size, style and texture.

H. Where unacceptable conditions are found, the Contractor shall bring this to the attention of the construction supervisor immediately. A written resolution will follow to determine the appropriate action to be taken.

I. Qualified personnel utilizing state-of-the-art equipment and techniques shall complete all installation work. During pulling operation an adequate number of workers shall be present to allow cable observation at all points of duct entry and exit as well as the feed cable and operate pulling machinery.

J. Cable pulling shall be done in accordance with the cable manufacturer's recommendations and ANSI/IEEE C2 standards. Manufacturer's recommendations shall be a part of the cable submittal. Recommended pulling tensions and pulling bending radius shall not be exceeded. Any cable bent or kinked to a radius less than the recommended dimension shall not be installed. If any installed cable is kinked to a radius less than recommended dimension it shall be replaced by the contractor with no additional cost to the project.

K. All wiring shall be run "free air", in conduit, in a secured metal raceway, in cable tray as designated on the floorplan(s). All cables shall be free of tension at both ends.

L. Avoid abrasion and other damage to cables during installation.

M. Pulling Lubricant may be used to ease pulling tensions. Lubricant shall be of a type that is non-injurious to the cable jacket and other materials used. Lubricant shall not harden or become adhesive with age.

N. The Cable system will be tested and documented upon completion of the installation as defined in the Section below.

O. A pull cord (nylon; 1/8" minimum) shall be co-installed with all cable installed in any conduit.

P. Should it be found by the Engineer, that the materials or any portion thereof, furnished and installed under this contract, fail to comply with the specifications and drawings, with the respect or regard to the quality, amount of value of materials, appliances or labor used in the work, it shall be rejected and replaced by the Contractor and all work distributed by changes necessitated in consequence of said defects or imperfections shall be made good at the Contractor's expense.

Q. Clearly label each end of CAT 6A cable and each data jack as directed by WTC IT Department.

3.02 SYSTEM TOPOLOGY AND CABLE SIZE REQUIREMENTS

A. Station Cabling

1. Information Outlets cables with copper media (Voice & Data UTP) shall be located as detailed on the Project Drawings.
2. The Bidder in determining materials quantities and routing should utilize these documents.
3. Station Cabling on each Floor shall be routed to the IT Equipment Racks as noted on the drawings.
4. Station cables shall be run to the Information Outlet from the Telecommunications Room serving each area in conduit, free-air above drop ceiling, or in cable tray.
5. The maximum station cable drop length for Data and Voice UTP Category 6A shall not exceed 295-feet (90-meters) in order to meet data communications performance specifications. This length is measured from the termination panel in the wiring closet to the outlet and must include any slack required for the installation and termination. The Contractor is responsible for installing station cabling in a fashion as to avoid unnecessarily long runs. Any area that cannot be reached within the above constraints should be identified and reported to the Engineer prior to installation. Changes to the plan shall be approved by the Engineer.
6. All cables shall be installed splice-free unless otherwise specified.
7. During pulling operation an adequate number of workers shall be present to allow cable observation at all points of duct entry and exit as well as the feed cable and operate pulling machinery.
8. Avoid abrasion and other damage to cables during installation.
9. All cable shall be free of tension at both ends. In cases where the cable must bear some stress, Kellom grips may be used to spread the strain over a longer length of cable.
10. Where installed free-air, installation shall consider the following:
    a. Cable shall run at right angles and be kept clear of other trades work.
    b. Cables shall be supported according to code utilizing "J-" or "Bridal-type" mounting rings anchored to ceiling concrete, piping supports or structural steel beams. Rings shall be designed to maintain cables bend to larger than the minimum bend radius (typically 4 x cable diameter).
    c. Supports shall be spaced at a maximum 4-foot interval unless limited by building construction. If cable "sag" at mid-span exceeds 6-inches, another support shall be used.
    d. Cable shall never be laid directly on the ceiling grid or attached in any manner to the ceiling

grid wires.

e. Cables shall not be attached to existing cabling, plumbing or steam piping, ductwork, ceiling supports or electrical or communications conduit.

f. All cables shall be PLENUM rated.

11. Manufacturer’s minimum bend radius specifications shall be observed in all instances.
12. Care should be taken in the use of cable ties to secure and anchor the station cabling. Ties should not be over tightened as to compress the cable jacket. No sharp burrs should remain where excess length of the cable tie has been cut.
13. Cable sheaths shall be protected from damage from sharp edges. Where a cable passes over a sharp edge, a bushing or grommet shall be used to protect the cable.
14. A coil of 4 feet in each cable shall be placed in the ceiling at the last support (e.g., J- Hook, Bridal Ring, etc.) before the cables enter a fishable wall, conduit, surface raceway or box. At any location where cables are installed into movable partition walls or modular furniture via a service pole, approximately 15-feet of slack shall be left in each station cable under 250-feet in length to allow for change in the office layout without re-cabling. These "service loops" shall be secured at the last cable support before the cable leaves the ceiling and shall be coiled from 100% to 200% of the cable recommended minimum bend radius.
15. At all Telecommunication Rooms (TR), approximately 15-feet of slack shall be left in each station cable under 250-feet in length to allow for changes in the telecommunication room layout without re-cabling. These "service loops" shall be secured to the ladder rack, with “J” hooks, or “D” rings above the equipment, racks, and patch panels and shall be coiled from 100% to 200% of the cable recommended minimum bend radius.
16. To reduce or eliminate EMI, the following minimum separation distances from ≤480V Power lines shall be adhered to:
    a. Twelve (12) inches from power lines of <5-kVa.
    b. Eighteen (18) inches from high voltage lighting (including fluorescent).
    c. Thirty-nine (39) inches from transformers and motors.
17. All openings shall be sleeved and fire stopped per prevailing code requirements upon completion of cable installation.
18. IMPORTANT: Within the room in which Data Cabling is to be terminated, Hook and Loop (e.g., “Velcro”) ties only shall be used from room entry to the point of termination. This is to facilitate the addition of future cables.

B. Information Outlet
1. Information Outlets shall be flush mounted on wall-mounted boxes, and on Surface Raceway.
2. Any outlets to be added where these conditions are not met shall be positioned at a height matching that of existing services or as directed otherwise by the Site Coordinator and the Engineer. Nominal height (from finished floor to center line of Outlet) in new installation shall be as follows:
    a. Standard IP Voice & Data Outlet - 18-inches
    b. Wall-Mounted Telephone Outlet (Standard IP Voice only) - 46-inches.
    c. Wall-mounted Telephone Outlets for ADA: Approach head on - per ADA regulations Approach parallel - per ADA regulations

C. Cable Runway (Not Required)
1. Sometimes referred to as “Ladder Rack”, Cable Runway is used for support and routing of cabling within a Telecommunications Equipment Room.
2. Construction: Rungs welded to tubular stringers.
3. Material: 0.065-inch-thick steel
4. Stringer Height - 1.5 inches.
5. Rung Spacing - 9 inches on center.
6. Finish: Manufacturer's standard epoxy paint or baked-polyester powder coat.

7. Color: Black
8. Width: 12”.

D. Flexible Nonmetallic Innerduct And Fittings (If Required)
1. Flexible Non-metallic Innerduct (e.g., “Innerduct”) may be used as follows:
2. To segment conduit(s), increasing their capacity,
3. As protection to backbone fiber optic cables when installed in cable tray, and/or
4. As protection to fiber optic cable(s) within equipment rooms and Telecommunications Rooms.
5. Innerduct shall be corrugated.
6. Where not installed in a continuous length, innerduct segments should be spliced using couplings designed for that purpose.
7. Any vacant innerduct shall be equipped with a pull cord and capped at all ends to inhibit the entry of water and contaminants.
8. Nominal duct size shall be 1-inch (minimum).

E. Innerduct should be rated (e.g., General, Flame-retardant, Riser or Plenum) as required by the installation environment. Riser and Plenum innerduct shall be of a color contrasting to that of the “Standard” and Flame-retardant innerduct. The preferred colors are Orange (“Standard & Flame-retardant) and White (Riser and Plenum).

3.03 CABLE TERMINATION

A. General
1. At Equipment Racks located in Storage Room #130. All Data and IP Voice Cables shall be positioned on termination hardware in sequence of the Outlet I.D. starting with the lowest number. Exceptions to the sequencing of terminations is allowed only with the permission of WTC IT Department.
2. Termination Hardware (Blocks and Patch Panels) Positioning and Layout must be reviewed and approved by the Engineer prior to construction. The review does not exempt the Contractor from meeting any of the requirements stated in this document.

B. Cable Termination – Network Data and IP Voice UTP
1. Network Data and IP Voice pairs shall terminate on patch panels at the rack in the Telecommunication Room. The contractor shall coordinate the placement of patch panels with the Engineer in order to integrate with other cabling.
2. Patch Panels shall be provided to accommodate a minimum of 20% growth in the quantity of stations relative to the initial installation.
3. The contractor shall furnish and install cable management hardware (e.g., D Rings and cable guides) to route the cable neatly and securely to the cable termination hardware.
4. The Height of the Voice Termination Field shall not exceed 6-feet (72-inches) above floor level to facilitate cable maintenance.
5. Patch panels on which Station Cabling are terminated shall be positioned in separate columns. Backbone Cabling should be positioned to the Left; Station cabling to the Right and be in close proximity as to simplify installation and subsequent tracing of cross-connect wiring. Where new cabling is to be integrated with existing cabling, it will be the responsibility of the Contractor, in cooperation with the Owner, to coordinate placement of Voice Termination hardware.
6. Cables shall be fed from below the Termination Hardware in a manner that will facilitate growth.
7. Horizontal Troughs incorporating split plastic distribution rings shall be provided by the Contractor to accommodate routing of jumpers. Troughs shall be positioned at the top of each column of termination blocks and between each 100-pair wiring block. Rings shall be positioned between the Backbone and Station blocks for vertical routing of jumpers and/or cross-connect wiring.
8. The installer shall insure that the twists in each cable pair are preserved to within 1.0- inch of the termination for all IP Voice UTP cables and within 0.5-inch for Category 6A cables. The cable jacket shall be removed only to the extent required to make the termination.

C. Cable Termination - Data UTP

1. Data Patch Panels shall be designed and installed in a fashion as to allow future station cabling to be terminated on the panel without disruption to existing connections.
2. Data Patch panels shall be sized to accommodate a minimum of 20% growth in the quantity of stations relative to the initial installation.
3. At Information Outlets and Data Patch Panels, the installer shall insure that the twists in each cable pair are preserved to within 0.5-inch of the termination for Data cables. The cable jacket shall be removed only to the extent required to make the termination.

D. Equipment Racks (Existing)
1. Equipment racks shall be furnished and installed as follows:
   a. The Contractor shall bolt the rack to the floor as recommended by the manufacturer.
2. A space between the rack upright and the wall (~4") should be planned to allow for cabling in that area.
3. All hardware and equipment are to be mounted between 18" and 79" above floor level. This is to afford easy access and, in the case of the lower limit, prevent damage to the components. Positioning of hardware should be reviewed and approved by the Engineer and Site Coordinator(s) prior to installation.
4. Equipment Rack shall be equipped with cable management hardware as to allow an orderly and secure routing of twisted pair cabling to the data patch panels. At minimum, one such Horizontal Jumper Management Panel shall be installed by the Contractor.
5. The rack shall be grounded using a #4 AWG (or larger) insulated stranded copper conductor (GREEN jacket or GREEN jacket with one or more yellow stripes).
6. Provide One (1) floor-mounted equipment rack as noted on drawings in Electrical Room #127.

E. Identification and Labeling
1. Refer to Section 26 05 53 “Identification for Electrical Systems” for Identification and Labeling guidelines for this Project.
2. Each individual Copper Station Cables (on both ends), each individual data jack at Outlet Faceplates and Termination components (e.g., Voice Field & Data Patch Panel) shall be clearly labeled.
3. Prior to installation, the Contractor shall provide samples of all label types planned for the project. These samples shall include examples of the lettering to be used.

F. Work by Owner
1. Point-Over-Ethernet Switches shall be provided and installed by the owner.
2. Wireless Access Points provided by WTC IT Department, installed by Electrical Contractor.

G. Cooperation
1. The Contractor shall cooperate with other trades in locating work in a proper manner. Should it be necessary to raise or lower or move longitudinally any part of the work to better fit the general installation, such work shall be done at no extra cost, provided such decision is reached prior to actual installation. The Contractor shall check the location of electrical outlets with respect to other installations before installing.

3.04 TESTING AND ACCEPTANCE

A. The contractor is responsible for performing acceptance tests as indicated below for each sub- system (e.g., backbone, station, etc.) as it is completed.

B. All tests shall be documented.

C. The Contractor is responsible for supplying all equipment and personnel necessary to conduct the acceptance tests. Prior to testing, the Contractor shall provide a summary of the proposed test plan for each cable type including equipment to be used, set-up, test frequencies or wavelengths, results format, etc. The method of testing shall be approved by the Engineer and WTC IT Department.

D. The Contractor shall visually inspect all cabling and termination points to ensure that they are complete and conform to the wiring pattern defined herein. The contractor shall provide the Engineer with a written certification that this inspection has been made.

E. The Contractor shall conduct acceptance testing according to a schedule coordinated with WTC IT Department. Representatives of the Owner may be in attendance to witness the test procedures. The contractor shall provide a minimum of one (1) week advance notice to the Engineer as to allow for such participation. The notification shall include a written description of the proposed tests including copies of blank test result sheets to be used. Failure to provide the above information shall be grounds for the Owner/Engineer to reject any and all Documentation of Results on related testing and to require a repeat of the affected test.

F. Tests related to connected equipment of others shall only be done with the permission and presence of Contractor involved. The Contractor shall ascertain that testing only as required to prove the wiring connections are correct.

G. The Contractor shall provide test results and describe the conduct of the tests including the date of the tests, the equipment used, and the procedures followed. At the request of the Engineer, the contractor shall provide copies of the original test results.

H. All cabling shall be 100% fault free unless noted otherwise. If any cable is found to be outside the specification defined herein, that cable and the associated termination(s) shall be replaced at the expense of the contractor. The applicable tests shall then be repeated.

I. Should it be found by the Engineer that the materials or any portion thereof furnished and installed under this contract fail to comply with the specifications and drawings, with the respect or regard to the quality, amount of value of materials, appliances or labor used in the work, it shall be rejected and replaced by the Contractor and all work distributed by changes necessitated in consequence of said defects or imperfections shall be made good at the Contractor's expense.

3.05 DOCUMENTATION

A. Upon completion of the installation, the contractor shall provide three (3) full Documentation Sets to the Western Technical College IT Department for approval.

3.06 AS-BUILT CONSTRUCTION DRAWINGS

A. Drawings included with the specifications set shall be modified by the contractor to denote as-built information.

B. The drawings are to include cable routes and outlet locations. Outlet locations shall be identified by their sequential number as defined elsewhere in this document. Numbering, icons and drawing conventions used shall be consistent throughout all documentation provided.

C. The Architect through the Consultant will provide floor plans in paper formats on which as- built construction information can be added. These documents will be modified accordingly by the contractor to denote as-built information as defined above and returned to the Consultant for acceptance.

D. The Contractors shall annotate the base drawings and return to the A/E in hard copy form.

E. Each drawing submitted by the Contractor as part of the Project Documentation shall be identified as an "As-built" drawing and include the following (1) The Contractor name and/or logo (2) The date of the drawing.

F. All documentation, including hard copy and electronic forms shall become the property of the owner.

3.07 WARRANTY

A. This Contractor shall guarantee all materials, equipment, etc., two (2) years from date of substantial completion of this work. This guarantee shall include all labor, material and travel time. See Division 1, GENERAL CONDITIONS, and GENERAL REQUIREMENTS - Guarantee Documents for further requirements.

END OF SECTION 27 00 00

SECTION 28 31 00

FIRE DETECTION AND ALARM SYSTEM

INTELLIGENT FIRE ALARM DETECTION SYSTEM

PART 1 GENERAL

1.01 RELATED SECTIONS

A. Section 13900 (21 00 00) – Fire Suppression.

1.02 SUMMARY

A. Provide all permits, labor, equipment, materials and services to furnish and install a fully tested functional, UL Listed, code compliant, intelligent addressable networked fire alarm, emergency communications and active smoke control system including but not limited to all initiation and notification appliances, all raceways and wiring, connection to a central monitoring station.

B. Also included are system wiring, raceways, pull boxes, terminal cabinets, mounting boxes, and any accessories and miscellaneous items required for a code compliant system.

C. The system drawings show the intended coverage and suggested device locations. Final device quantity, location, and AHJ approval are the responsibility of the contractor.

D. The final system shall be complete, tested, and ready for operation as described elsewhere in this specification before owner acceptance.

E. Strict conformance to this specification is required to ensure that the installed and programmed system will function as designed and will accommodate the future requirements and operations of the building owner. All specified operational features must be met without exception.

F. The system supplied under this specification shall utilize modular low voltage design with direct wired, node to node, peer-to-peer network communications. The system shall utilize independently addressed, fire detection devices, input/output control modules, audio amplifiers, telephone communications and notification appliances as described in this specification. Network panels are existing and contain the required user interfaces for all functions. All equipment shall be new and the current products of a single manufacturer – **EDWARDS EST ONLY**. The main existing EST Fire Alarm Control Panel is located in the Electrical Room in the Basement.

G. This section of the specification includes the furnishing, installation, and connection of an intelligent reporting, microprocessor controlled, addressable, fire detection and emergency alarm communication system. It shall include, but not be limited to, alarm initiating devices, alarm notification appliances, control panels, auxiliary control devices, annunciators, power supplies, and wiring as shown on the drawings and specified herein.

H. The fire alarm shall comply with requirements of NFPA Standard 72 for Fire Alarm Control Unit except as modified and supplemented by this specification. The system shall be electrically supervised and monitor the integrity of all conductors.

I. The system shall be an active/interrogative type system where each addressable device is repetitively scanned, causing a signal to be transmitted to the main Fire Alarm Control Unit (FACU) indicating that the device and its associated circuit wiring is functional. Loss of this signal at the main FACU shall result in a trouble indication as specified hereinafter for the particular input.

J. The facility shall have an Emergency Voice/Alarm Communication System (EVACS). Digitally stored message sequences shall notify the building occupants that a fire or life safety condition has been reported. Message generator(s) shall be capable of automatically distributing up to eight (8) simultaneous, unique messages to appropriate audio zones within the facility based on the type and location of the initiating event. The Fire Command Center (FCC) shall also support Emergency manual voice announcement capability for both system wide or selected audio zones and shall include provisions for the system operator to override automatic messages system wide or in selected zones.

K. The system shall support additional, alternate Fire Command Centers, which shall be capable of simultaneous monitoring of all system events. Alternate Fire Command Centers shall also support an approved method of transferring the control functions to an alternate Fire Command Center where necessary.

L. Each designated zone shall transmit separate and different alarm, supervisory and trouble signals to the Fire Command Center (FCC) and designated personnel in other buildings at the site via a multiplex

communication network.

M. The fire alarm system shall be manufactured by an ISO 9001 certified company and meet the requirements of BS EN9001: ANSI/ASQC Q9001-1994

N. The system and its components shall be Underwriters Laboratories, Inc. listed under the appropriate UL testing standard as listed herein for fire alarm applications and the installation shall comply with the UL listing.

O. The installing company shall employ NICET (minimum Level II Fire Alarm Systems) technicians on site to guide the final checkout and to ensure the system's integrity.

P. System Programming:

1. Ability to program the system via the local user interface.
2. The system shall be capable of off-line/on-line programming by the manufacturer's programming utility.

Q. Provide a cloud base connected life safety platform with the ability to remotely monitor the buildings fire system and capable of providing system diagnostics with full detail reports on annual test and inspections from a web-based server or mobile device application. The software shall also expand to allow for future offerings and provide dedicated account access to facility users and service personal.

R. The system shall automatically track NFPA 72 installation and testing requirements for all fire system devices to ensure that every device is functionally tested upon installation and then periodically as required by Code. A gateway/hub shall be utilized to retrieve the system information using its native protocol and/or bar codes without the need of additional tools and accessories.

S. This section includes the minimum requirements for the following equipment:

- Main Fire Alarm Control Unit
- Signal Line Circuit Control Module
- Enclosures
- Digital Voice Command Center
- Addressable Main Power Supply
- Auxiliary Addressable Power Supply
- Power Supply Expander
- System Circuit Supervision
- Audio Amplifiers
- CLSS Gateway
- Digital Alarm Communicator Transmitter
- Speaker Notification Devices
- Audible/Visual Combination Devices
- Manual Fire Alarm Stations
- Projected Beam Detectors
- Waterflow Indicator
- Annunciator Control Display
- Network Node Communication
- ONYX Works Workstation
- Network Control Display
- Gateway Communication
- Addressable Wireless Devices
- Intelligent Photoelectric Smoke Detectors

- Intelligent Thermal Detectors
- Self-testing Photoelectric Smoke Detectors
- Self-testing Thermal Detectors
- Self-testing Photo Thermal Detectors
- High Sensitivity Photo Smoke Detectors
- Multi-Criteria Smoke Detectors
- Low Frequency Sounder Base
- Intelligent Duct Smoke Detectors
- CO Detectors
- Photoelectric Smoke and CO Detectors
- Batteries and External Charger

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

A. The specifications and standards listed below form a part of this specification. The system shall fully comply with the latest issue of these standards, if applicable.

B. 2015 International Fire Code

C. National Fire Protection Association (NFPA) – USA

No. 13 Sprinkler Systems
No. 70 National Electric Code
No. 90A Air Conditioning Systems
No. 72 National Fire Alarm Code (2013)

D. Underwriters Laboratories Inc. (UL) – USA

No. 268 Smoke Detectors for Fire Protective Signaling Systems
No. 864 Control Units for Fire Protective Signaling Systems
No. 217 Smoke Detectors, Single and Multiple Station
No. 228 Door Closers - Holders for Fire Protective Signaling Systems
No. 268A Smoke Detectors for Duct Applications
No. 521 Heat Detectors for Fire Protective Signaling Systems
No. 464 Audible Signaling Appliances
No. 38 Manually Actuated Signaling Boxes
No. 1481 Power Supplies for Fire Protective Signaling Systems
No. 346 Waterflow Indicators for Fire Protective Signaling Systems
No. 1076 Control Units for Burglar Alarm Proprietary Protective Signaling Systems
No. 1971 Visual Notification Appliances
No. 2017 Standard for General-Purpose Signaling Devices and Systems

E. Local and State Building Codes.

F. Latest Adopted Edition of the International Building Code

G. Latest Adopted Edition of the International Fire Code

H. All requirements of the Authority Having Jurisdiction (AHJ)

1.04 APPROVALS

A. The system shall have proper listing and/or approval from the following nationally recognized agencies:

UL Underwriters Laboratories, Inc.
FM Factory Mutual

NYFD	New York Fire Department
CSFM	California State Fire Marshal

B. The Fire Alarm Control Unit and all transponders shall meet the modular listing requirements of the tenth edition of UL Standard 864 (Control Units). Each subassembly, including all printed circuits, shall include the appropriate UL modular label. This includes all printed circuit board assemblies, power supplies, and enclosure parts. Systems that do not include modular labels may require return to the factory for system upgrades and are not acceptable.

1.05 SCOPE

A. An existing EST-3X fire detection system shall be expanded to include remodel work in accordance to the project specifications and drawings.

B. The system shall be designed such that each signaling line circuit (SLC) is limited to only 80% of its total capacity at initial installation.

C. Basic Performance:

1. Alarm, trouble and supervisory signals from all intelligent reporting devices shall be encoded on NFPA Class <A, B or X>Signaling Line Circuits (SLC).
2. Initiation Device Circuits (IDC) shall be wired Class <A or B> as part of an addressable device connected by the SLC Circuit.
3. Notification Appliance Circuits (NAC) shall be wired Class <A or B>
4. On Class A configurations a single ground fault or open circuit on the system Signaling Line Circuit shall not cause system malfunction, loss of operating power or the ability to report an alarm.
5. Alarm signals arriving at the FACU shall not be lost following a primary power failure (or outage) until the alarm signal is processed and recorded.
6. Speaker circuits may be controlled by NAC outputs built into the amplifiers, which shall function as addressable points on the Digital Audio Loop.
7. Notification Appliance Circuits (NAC) speaker circuits shall be arranged such that there is a minimum of one speaker circuit per floor of the building or smoke zone whichever is greater.
8. Audio amplifiers and tone generating equipment shall be electrically supervised for normal and abnormal conditions.
9. Notification Appliance Circuits (NAC) speaker circuits and control equipment shall be arranged such that loss of any one (1) speaker circuit will not cause the loss of any other speaker circuit in the system.
10. Speaker circuits shall be arranged such that there is a minimum of one speaker circuit per smoke zone.
11. Speaker circuits shall be electrically supervised for open and short circuit conditions. If a short circuit exists on a speaker circuit, it shall not be possible to activate that circuit.
12. Audio amplifiers and tone generating equipment shall be electrically supervised for abnormal conditions. Digital amplifiers shall provide built-in speaker circuits, field configurable as four Class B, two or four Class A circuits where necessary
    a. Speaker circuits shall be <25 or 70V> VRMS Speaker circuits shall have 20% space capacity for future expansion or increased power output requirements.

D. Basic System Functional Operation

When a fire alarm condition is detected and reported by one of the systems initiating devices, the following functions shall immediately occur:

1. The System Alarm shall flash on display.
2. A local piezo electric signal in the control panel shall sound.
3. The touchscreen LCD display shall indicate all information associated with the fire alarm condition, including the type of alarm point and its location within the protected premises.
4. Printing and history storage equipment shall log the information associated each new Fire Alarm Control Unit condition, along with time and date of occurrence.

5. All system output programs assigned via control-by-event interlock programming to be activated by the particular point in alarm shall be executed, and the associated system outputs (notification appliances and/or relays) shall be activated.
6. The audio portion of the system shall sound the proper audio signal to the appropriate zones.

1.06 DEPARTMENT OF SAFETY AND PROFESSIONAL SERVECES PLAN REVIEW (ONLY IF REQUIRED)

A. REQUIRED DOCUMENTS: This project requires a submittal to the Department of Safety and Professional Services for review and approval. The following details the requirements of the contractor and the A/E with regard to the fire alarm Department of Safety and Professional Services submittal.

B. CONTRACTOR'S RESPONSIBILITY:

1. Department of Safety and Professional Services approval is required prior to the start of fire alarm system construction. The contractor shall prepare and submit the required documents in a timely fashion to meet this requirement. If the contractor starts fire alarm system construction before approval is given by the Department of Safety and Professional Services, the contractor is responsible for all additional fees required by the Department of Commerce.
2. Initially, prepare one set of the Department of Safety and Professional Services fire alarm submittals and send it to the A/E for approval before proceeding with actual submittal to DSPS.
3. Contractor shall follow DSF's CAD standards when preparing fire alarm shop drawings, using information consistent with the project's construction drawings.
4. After obtaining A/E approval to proceed with the Department of Safety and Professional Services fire alarm submittal, prepare four (4) sets of the fire alarm shop drawings as approved by the A/E that will be sent to the Department of Safety and Professional Services by the contractor. These shop drawings shall be stamped, signed and dated by a Wisconsin registered architect, professional engineer or electrical designer taking responsibility for the shop drawings. Signing and sealing shall comply with SPS 361.31(1). Note that each shop drawing copy must be stamped, signed and dated unless there is a drawing index sheet, in which case only the four index sheets need to be stamped, signed and dated. Where the submitter is both the designer and installer of the fire alarm system, a signature only will suffice [ch. 443.14(6), Stats.]. It shall be an original signature and date.
5. Prepare one bound booklet of the fire alarm system device cut sheets and all calculations (indicating device power calculations, voltage drop calculations and battery calculations). These booklets do not need to be stamped, signed or dated.
6. Prepare a letter of transmittal listing all items being sent to the Department of Safety and Professional Services. Copy the A/E on the letter of transmittal only.
7. Complete the Application for Review, Buildings, HVAC, Fire and Components – SBD-118 form.
8. Calculate the SDB-118 submittal fee; write a check for the appropriate amount, payable to Safety and Professional Services.
9. Request a review date with Department of Safety and Professional Services, Division of Safety and Buildings by emailing the completed first page of the review application, SBD-118, to planschedule@commerce.state.wi.us. or, fax it to 877-840-9172.
10. Assemble the submittal and send the documents described in items (d), (e), (f), (g) and (h) above to the Department of Safety and Professional Services at the appropriate address shown on at the bottom of DBS-118.
11. If requested by DSF, A/E, Department of Safety and Professional Services or its authorized representative, additional data pertaining to the construction, materials and equipment shall be submitted to the A/E to substantiate conformance to DSPS 361 code.

C. PLAN REVIEW FEES

1. Fees shall be determined in accordance with Table 302.31-1 or Table 302.31-2 found in Chapter SPS 302 of the Wisconsin Administrative Code.
2. Reduced plan review fees (Table 302.31-2) may be utilized for projects in municipalities that perform inspections as an agent of the Division of Safety & Buildings.
3. A list of "Delegated Municipalities" that perform inspections can be found at: http://dsps.wi.gov/sb/SB-CommBldgsDeleMunis.html

4. Reduced fees (Table 302.31-2) do not apply to State-owned buildings.
5. In addition to the plan review fee, a plan entry fee of $100 shall be included with each submittal.
6. Per SPS 302.10, plan review fees shall be doubled for projects where the installation, erection or construction was initiated without the required Departmental approval.

D. WHAT TO SUBMIT

1. Four (4) sets of properly signed/sealed fire alarm plans.
2. In an effort to limit handling and mailing costs, the submitter may opt to submit one (1) complete set of plans and three (3) index sheets. The plan set will be retained. A copy of the approval letter will be attached to the index sheets and returned. It shall then be the responsibility of the submitter to properly attach the approval and index page to plans to match the copy on file with the Department.
3. A maximum of five (5) plan sets may be submitted. Additional plan sets (in excess of 5) will incur a $25/set fee.
4. One (1) set of battery calculations.
5. One (1) set of voltage-drop calculations for each notification circuit.
6. One (1) copy of applicable material data sheets.
7. A detailed, project-specific 'Sequence of Operation' which clearly identifies all functions of the fire alarm system, including the transmission of alarm, supervisory and trouble signals to an approved supervising station.
8. A completed SBD-118 application form. The application must identify the Transaction ID No. related to the parent building review approval. Fire alarm submittals for new construction, building additions or building alterations cannot be reviewed prior to building plan approval.
9. The original supervising professional's signature for the building project is applicable to fire alarm submittals and a separate signature is not required. Standalone fire alarm system submittals do not require a supervising professional.
10. Plan review fee.

E. FORMS

1. SBD-118 (R11/11) can be downloaded from: http://dsps.wi.gov/sb/docs/sb-Form118App.pdf (PDF) or http://dsps.wi.gov/sb/docs/SB-Form118App.doc (Word)
2. Visit Department of Safety and Professional Services, Division of Safety and Buildings Commercial Buildings Plan Review info website for additional information: http://dsps.wi.gov/sb/SB-HomePage.html.
3. For scheduling of building, HVAC, and fire plans, use the electronic online request for commercial building plan appointments: http://dsps.wi.gov/sb/SB-DivPlanReview.html
4. Once approved, Safety and Buildings will retain one of the sets, and will return three sets, which shall be distributed as follows:
   a. (1) copy shall be retained by the fire alarm contractor on-site and shall be used as a reference / made available to any Department of Safety and Professional Services inspectors, who may make periodic inspection visits to the site.
   b. (1) copy shall be forwarded to the Owner for their records.
   c. (1) copy shall be retained by the Division 26 electrical contractor, for their records. If the Division 26 electrical contractor and the fire alarm contractor are the same firm, this copy shall be kept on site, at or near to the Fire Alarm Control Panel.

1.06 DESIGN CALCULATIONS

A. Battery Capacity: Provide battery capacity calculations for each power supply that uses batteries for secondary power. Identify all loads. Identify any loads shed during alarm operation. Use the manufacturer's recommended methods and/or forms.

B. 24 VDC Notification Appliance Circuits: For each 24VDC NAC, provide worst case voltage drop calculations. The load shall be treated as a lump sum at the end of the circuit. *Worst case power supply terminal voltage shall include all applicable internal power supply losses.* Using 85% of nominal circuit voltage (20.4VDC) shall not be accepted as lowest terminal voltage without manufacturer's

published documentation stating there are no internal losses in the power supply.

1.07 SYSTEM MAINTENANCE ANALYSIS AND REPORTING

A. The software shall automatically report fire system events during usage and via Push Notifications when the App is not in the foreground on a mobile device. The software shall also record active events during test and inspection mode and capable of silencing alarm/trouble during the test period remotely.

B. The software shall be capable of downloading and uploading such data to approved handheld devices via web portal or bar codes. Systems that rely solely on the use of bar codes shall not be considered as equal. No proprietary software of any kind shall be required for viewing reports online.

C. The software shall have the capability to provide several services with open protocol to allow for future expansion. At minimum the software shall have the following functionalities:

1. Check point access for commissioning.
2. Detail commissioning reports.
3. Facility Management.
4. Service Site Management
5. Check point remote access for service monitoring
6. User Management

D. The software shall be secure and encrypted with user authentication to meet cyber security requirements. Each user shall have a dedicated account with limitations based on designated clearances. Online access to the web-based reporting system shall run 24/7 with no downtime.

E. Allow active control of fire system during test and inspection when connected to the buildings network for authentication. Off premise services shall only allow for monitoring and history of the system.

F. Forwarding of event notifications and reports by utilizing a mobile device or PC.

G. Full capability to monitor an unlimited number of buildings and shall display events customizable to the user.

1.08 SUBMITTALS

A. General

1. Submit for approval no less than (3) copies of all submittals shall be submitted to the consulting engineer for review and comment.

B. Submittal books shall meet the following requirements:

1. Cover sheet.
2. Table of contents: Provide a list of all types of equipment and components provided. This shall be incorporated as part of a table of contents, which will also indicate the manufacturer’s part number, the description of the part, and the part number of the manufacturer’s product datasheet on which the information can be found.
3. Product data sheets, as detailed elsewhere in this specification.
4. Provide description of operation of the system (sequence of operation), similar to that provided in Part 2 of this section of the specifications. The description shall be specific to this project and shall provide individual sequences for every type of alarm, supervisory, or trouble condition, which may occur as part of normal or off-normal system use.
5. System calculations, as detailed elsewhere in this specification.
6. Installation instructions.
    a. All references to manufacturer's model numbers and other pertinent information herein are intended to establish minimum standards of performance, function and quality. Equivalent compatible UL-listed equipment from other manufacturers may be substituted for the specified equipment as long as the minimum standards are met.
    b. All substitute equipment proposed as equal to the equipment specified herein shall meet or exceed the following standards. For equipment other than that specified, the contractor shall supply proof that such substitute equipment equals or exceeds the features, functions, performance, and quality of the specified equipment.

C. Shop Drawings

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.
2. Include manufacturer's name(s), model numbers, ratings, power requirements, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.
3. Show annunciator layout, configurations, and terminations.

D. Manuals

1. Submit simultaneously with the shop drawings, complete operating and maintenance manuals listing the manufacturer's name(s), including technical data sheets.
2. Wiring diagrams shall indicate internal wiring for each device and the interconnections between the items of equipment.
3. Provide a clear and concise description of the operation that gives, in detail, the information required to properly operate the equipment and system.
4. Approvals will be based on complete submissions of manuals together with shop drawings.

E. Software Modifications

1. Provide the services of a factory trained and authorized technician to perform all system software modifications, upgrades or changes. Response time of the technician to the site shall not exceed 4 hours.
2. Provide all hardware, software, programming tools and documentation necessary to modify the fire alarm system on site. Modification includes addition and deletion of devices, circuits, zones and changes to system operation and custom label changes for devices or zones. The system structure and software shall place no limit on the type or extent of software modifications on-site. Modification of software shall not require power-down of the system or loss of system fire protection while modifications are being made.

F. Certifications

1. Together with the shop drawing submittal, submit a certification from the major equipment manufacturer indicating that the proposed supervisor of the installation and the proposed performer of contract maintenance is an authorized representative of the major equipment manufacturer. Include names and addresses in the certification.

1.09 WARRANTY

A. The Contractor shall warrant the completed fire alarm system wiring and equipment to be free from inherent mechanical and electrical defects for a period of One (1) year from the date of substantial completion of the project.

B. At the end of the project, the Contractor shall post the warranty period along with the company’s name and telephone number inside the fire alarm panel.

C. Warranty service for the equipment shall be provided by the system supplier's factory trained representative. Further, Warranty shall include all parts, labor and necessary travel.

1.10 TRAINING

A. The Contractor through his/her supplier shall provide, as part of this contract, a minimum of (2) hours system operation training for owner, the Architect/Engineer, and fire department personnel.

1.11 SPARE PARTS

A. The contractor shall furnish the following extra material that matches the products installed. Spares shall be packaged with protective covering for storage and identified with labels describing contents.

B. Keys - A minimum of three (3) sets of keys shall be provided and appropriately identified.

1.12 POST CONTRACT MAINTENANCE

A. Complete maintenance and repair service for the fire detection system shall be available from a factory trained authorized representative of the manufacturer of the major equipment for a period of one (1) years after expiration of the guaranty.

B. As part of the bid/proposal, include a quote for a maintenance contract to provide all maintenance, tests, and repairs described below. Include also a quote for unscheduled maintenance/repairs,

including hourly rates for technicians trained on this equipment, and response travel costs for each year of the maintenance period. Submittals that do not identify all post contract maintenance costs will not be accepted. Rates and costs shall be valid for the period of One (1) year after expiration of the guaranty.

C. Maintenance and testing shall be on a semiannual basis or as required by the AHJ. A preventive maintenance schedule shall be provided by the contractor describing the protocol for preventive maintenance. The schedule shall include:

1. Systematic examination, adjustment and cleaning of all detectors, manual fire alarm stations, control panels, power supplies, relays, waterflow switches and all accessories of the fire alarm system.
2. Each circuit in the fire alarm system shall be tested semiannually.
3. Each smoke detector shall be tested in accordance with the requirements of NFPA 72 Chapter 7.

1.13 POST CONTRACT EXPANSIONS

A. The contractor shall have the ability to provide parts and labor to expand the system specified, if so requested, for a period of three (3) years from the date of acceptance.

B. As part of the submittal, include a quotation for all parts and material, and all installation and test labor as needed to increase the number of intelligent or addressable devices by ten percent (10%). This quotation shall include intelligent smoke detectors, intelligent heat detectors, addressable manual stations, addressable monitor modules and addressable modules equal in number to one tenth of the number required to meet this specification (list actual quantity of each type).

C. The quotation shall include installation, test labor, and labor to reprogram the system for this 10% expansion. If additional FACU hardware is required, include the material and labor necessary to install this hardware.

D. Do not include cost of conduit or wire or the cost to install conduit or wire.

E. Submittals that do not include this estimate of post contract expansion cost will not be accepted.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

EDWARDS EST ONLY (NO EQUALS)

Contact:

Ban-Koe Systems

201 South Chestnut Street

La Crescent, MN 55947

Kevin Weichert

(608) 354-4632

Kevin.weichert@bankoe.com

EXISTING EDWARDS EST, FIRE ALARM PANEL, LOCATED IN BASEMENT ELECTRICAL ROOM.

2.02 EQUIPMENT AND MATERIAL, GENERAL

A. All equipment and components shall be new, and the manufacturer's current model. The materials, appliances, equipment and devices shall be tested and listed by a nationally recognized approvals agency for use as part of a protected premises protective signaling (fire alarm) system. The authorized representative of the manufacturer of the major equipment, such as control panels, shall be responsible for the satisfactory installation of the complete system. The materials, equipment, and devices shall be tested to function with manufacturers approved FACU via a cloud base life safety services system.

B. The system shall fully comply with commissioning and test and inspect reports as outline in NFPA-72. System test shall automatically retrieve the fire systems connected devices utilizing a gateway. In applications where a gateway is not applicable the systems peripheral devices shall be entered manually and/or by using barcodes.

C. All equipment and components shall be installed in strict compliance with each manufacturer's recommendations. Consult the manufacturer's installation manuals for all wiring diagrams,

schematics, physical equipment sizes, etc. before beginning system installation. Refer to the riser/connection diagram for all specific system installation/termination/wiring data.

D. All equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place (e.g., detectors shall not be supported solely by suspended ceilings). Fasteners and supports shall be adequate to support the required load.

2.03 CONDUIT AND WIRE

A. Conduit

1. Conduit shall be in accordance with The National Electrical Code (NEC), local and state requirements.
2. Where possible, all wiring shall be installed in conduit or raceway. Conduit fill shall not exceed 40 percent of interior cross-sectional area where three or more cables are contained within a single conduit.
3. Cable must be separated from any open conductors of Power, or Class 1 circuits, and shall not be placed in any conduit, junction box or raceway containing these conductors, as per NEC Article 760.
4. Wiring for 24-volt control, alarm notification, emergency communication and similar power-limited auxiliary functions may be run in the same conduit as initiating and signaling line circuits. All circuits shall be provided with transient suppression devices and the system shall be designed to permit simultaneous operation of all circuits without interference or loss of signals.
5. Conduit shall not enter the Fire Alarm Control Unit, or any other remotely mounted control panel equipment or backboxes, except where conduit entry is specified by the FACU manufacturer.
6. Conduit shall be 3/4-inch (19.1 mm) minimum.

B. System Wiring

1. All fire alarm system wiring must be new.
2. Wiring shall be in accordance with local, state and national codes (e.g., NEC Article 760) and as recommended by the manufacturer of the fire alarm system. Number and size of conductors shall be as recommended by the fire alarm system manufacturer, but not less than 18 AWG (1.02 mm) for initiating device circuits, signaling line circuits, and notification appliance circuits.
3. All wire and cable shall be listed and/or approved by a recognized testing agency for use with a protective signaling system.
4. Wire and cable not installed in conduit shall have a fire resistance rating suitable for the installation as indicated in NFPA 70 (e.g., FPLR).
5. The system shall permit the use of IDC and NAC wiring in the same conduit with the multiplex communication loop.
6. All field wiring shall be completely supervised. In the event of a primary power failure, disconnected standby battery, removal of any internal modules, or any open circuits in the field wiring; a trouble signal will be activated until the system and its associated field wiring are restored to normal condition.
7. All analog voice speaker and analog telephone circuits shall use twisted/shielded pair to eliminate cross talk.

C. Terminal Boxes, Junction Boxes

1. All boxes and cabinets shall be UL listed for their intended purpose.

D. Initiating circuits shall be arranged to serve like categories (manual, smoke, waterflow). Mixed category circuitry shall not be permitted except on signaling line circuits connected to intelligent reporting devices.

E. The Fire Alarm Control Unit shall be connected to a separate dedicated branch circuit, maximum 20 amperes. This circuit shall be labeled at the main power distribution panel as FIRE ALARM. Fire Alarm Control Unit primary power wiring shall be 12 AWG. The control panel cabinet shall be grounded securely to either a cold-water pipe or grounding rod.

2.04 MAIN FIRE ALARM CONTROL UNIT (EXISTING EDWARDS EST-3X)

A. The main FACU Central Console is an existing Edwards EST-3X. (Existing to remain as is)

. Addressable Main Power Supply (Existing to remain as is)

1. Provide additional Power Supplies as required by Edwards EST manufacturer.

B. Auxiliary Addressable Power Supply (Provide If Required)

C. Power Supply Expander (Provide if Required)

D. System Circuit Supervision

1. The FACU shall supervise all circuits to intelligent devices, transponders, annunciators and peripheral equipment and annunciate loss of communication with these devices. The CPU shall continuously scan above devices for proper system operation and upon loss of response from a device shall sound an audible trouble, indicate which device or devices are not responding and print the information in the history buffer and on the printer.
2. Transponders that lose communication with the CPU shall sound an audible trouble and light an LED indicating loss of communications.
3. Sprinkler system valves, standpipe control valves, PIV, and main gate valves shall be supervised for off-normal position.
4. All speaker and emergency phone circuits shall be supervised for opens and shorts. Each transponder speaker and emergency phone circuit shall have an individual ON/OFF indication (green LED).

E. Field Wiring Terminal Blocks

1. All wiring terminal blocks shall be the plug-in/removable type and shall be capable of terminating up to 12 AWG wire. Terminal blocks that are permanently fixed to the PC board are not acceptable.

2.05 SYSTEM COMPONENTS

A. Audible/Visual Combination Devices

1. Shall meet the applicable requirements of Section A listed above for audibility.
2. Shall meet the requirements of Section D listed below for visibility.
3. Visuals shall be installed at a height no less than 90 inches from the floor and no less than 6 inches below the finished ceiling when the greater of the two cannot be achieved as required per NFPA-72

B. Programmable Electronic Sounders

1. Electronic sounders shall operate on 24 VDC nominal.
2. Electronic sounders shall be field programmable without the use of special tools, at a sound level of at least 80 dBA measured at 10 feet from the device & low frequency 520Hz sounders shall provide sound level at least 75 dBA measured at the pillow per NFPA 72
3. Shall be flush or surface mounted as shown on plans.

C. Strobe lights, shall meet the requirements of the ADA, UL Standard 1971, be fully synchronized, and shall meet the following criteria:

1. The maximum pulse duration shall be 20 milliseconds.
2. Strobe intensity shall meet the requirements of UL 1971.
3. The flash rate shall meet the requirements of UL 1971.

D. Manual Fire Alarm Stations

1. Manual fire alarm stations shall be non-code, non-break glass type, equipped with key lock so that they may be tested without operating the handle.
2. Stations must be designed such that after an actual activation, they cannot be restored to normal except by key reset.
3. An operated station shall automatically condition itself so as to be visually detected, as operated, at a minimum distance of 100 feet (30.5 m) front or side.
4. Manual stations shall be constructed of high impact Lexan, with operating instructions provided on the cover. The word FIRE shall appear on the manual station in letters one half inch (12.7 mm) in size or larger.

5. Manual Fire Alarm station shall be located within 5ft of each exit door and mounted between 42-48 inches from the finish floor as required per NFPA-72 and ADA requirements.
6. Add additional manual fire alarm stations when the distance between stations exceeds 200ft.

E. Intelligent Duct Smoke Detector

1. The smoke detector housing shall accommodate an intelligent photoelectric detector that provides continuous analog monitoring and alarm verification from the panel. When sufficient smoke is sensed, an alarm signal is initiated at the FACP, and appropriate action taken to change over air handling systems to help prevent the rapid distribution of toxic smoke and fire gases throughout the areas served by the duct system. The Intelligent Duct Smoke Detector shall support the installation of addressable Photoelectric detector capable or being tested remotely. The Intelligent Duct Detector housing shall and remote test capable photoelectric smoke detector shall be Edwards EST.

F. Projected Beam Detectors

1. The projected beam type shall 24 VDC device.
2. The detector shall be listed to UL 268A
3. The detector shall operate in either a short range (16' - 100') or long range (100' - 330') mode.
4. The temperature range of the device shall be -22 degrees F to 131 degrees F.
5. The detector shall feature a bank of four alignment LEDs on both the receiver and the transmitter that are used to ensure proper alignment of unit without special tools.
6. Beam detectors shall feature automatic gain control which will compensate for gradual signal deterioration from dirt accumulation on lenses.
7. The unit shall be both ceiling and wall mountable.
8. The detector shall have the ability to be tested using calibrated test filters or magnet activated remote test station.

G. LED Annunciator Control Display (Existing to remain as is)

2.07 SYSTEM COMPONENTS – ADDRESSABLE DEVICES

A. Addressable Devices – General

1. Addressable devices shall provide an address-setting means using rotary decimal switches. Addressable devices that require the address be programmed using a programming utility are not an allowable substitute.
2. Addressable devices shall use simple to install and maintain decade (numbered 0 to 15) type address switches. Devices which use a binary address or special tools for setting the device address, such as a dip switch are not an allowable substitute.
3. Detectors shall be Analog and Addressable and shall connect to the Fire Alarm Control Unit's Signaling Line Circuits.
4. Addressable smoke and thermal detectors shall provide dual (2) status LEDs. Both LEDs shall flash under normal conditions, indicating that the detector is operational and in regular communication with the control panel, and both LEDs shall be placed into steady illumination by the control panel, indicating that an alarm condition has been detected. If required, the flashing mode operation of the detector LEDs can be programmed via the fire control panel program.
5. The Fire Alarm Control Unit shall permit detector sensitivity adjustment through field programming of the system. Sensitivity can be automatically adjusted by the panel on a time-of-day basis.
6. Using software in the FACU, detectors shall automatically compensate for dust accumulation and other slow environmental changes that may affect their performance. The detectors shall be listed by UL as meeting the calibrated sensitivity test requirements of NFPA Standard 72, Chapter 7.
7. The detectors shall be ceiling mounted and shall include a separate twist-lock base which includes a tamper proof feature.
8. The following bases and auxiliary functions shall be available:
   a. Sounder base rated at 85 Db(high) and 75 Db (low)
   b. Form-C Relay base

c. Isolator base

d. Where required a Low Frequency 520 HZ

9. The detectors shall provide a test means whereby they will simulate an alarm condition and report that condition to the control panel. Such a test may be initiated at the detector itself (by activating a magnetic switch) or initiated remotely on command from the control panel.
10. Detectors shall also store an internal identifying type code that the control panel shall use to identify the type of device (example: Duct, PHOTO, THERMAL).
11. Self-testing initiating devices shall be capable of providing both a functional test and smoke entry test using a self-test function. The detector shall transmit a wireless beacon activated only during self-test mode designed to communicate with the CLSS app to prove successful completion of a visual inspection.
12. Detector Sensitivity Level Standard = 8% obs/m (2.5% obs/ft)

    The detector shall have a test port per detection chamber to facilitate centralized smoke test under user control.

B. Addressable Manual Fire Alarm Box (manual station) - Edwards EST

1. Addressable manual fire alarm boxes shall, on command from the control panel, send data to the panel representing the state of the manual switch and the addressable communication module status. They shall use a key operated test-reset lock and shall be designed so that after actual emergency operation, they cannot be restored to normal use except by the use of a key.
2. All operated stations shall have a positive, visual indication of operation and utilize a key type reset.
3. Manual fire alarm boxes shall be constructed of Lexan with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in raised letters, 1.75 inches (44 mm) or larger.

C. Self-Testing Photo Smoke Detector – Edwards EST

1. Smoke detectors shall be intelligent addressable devices using photoelectric (light scattering) principal to measure smoke density. It shall connect via two wires to the Fire Alarm Control Unit signaling line circuit.
2. The detector shall comply with UL268 7th edition; operating at 24Vdc, nominal.
3. The self-test sensor shall generate a controlled amount of smoke into the chamber which will test the optics in response to a real smoke simulation.
4. The detector shall also measure the dilution of smoke within a set time frame to determine if there is masking that will prevent smoke from entering the chamber.
5. An alarm condition shall be generated upon smoke entering the chamber.
6. A trouble condition shall be generated if the testing chamber reveals it is being blocked.

D. Self-Testing Thermal Detector – Edwards EST

1. Thermal detectors shall be intelligent addressable devices rated at 135°F (57.2°C) Fixed Temperature. It shall connect via two wires to the Fire Alarm Control Unit signaling line circuit.
2. The detector shall comply with UL521 and operating at 24VDC, nominal.
3. The self-test sensor shall generate energy into an internal thermistor to allow register heat to be identified.
4. The detector shall also measure the cooling of the heating element after it's cycle has been completed.
5. An alarm condition shall be generated upon the introduction of heat from the thermistor.
6. A trouble condition shall be generated if the thermistor does not detect heat.

E. Self-Testing Photo Thermal Detector – Edwards EST

1. Photo Thermal detectors shall be intelligent addressable devices using photoelectric (light-scattering) principal to measure smoke density and rated at 135°F (57.2°C) Fixed Temperature. It shall connect via two wires to the Fire Alarm Control Unit signaling line circuit.

2. The detector shall comply with UL268 7th edition and UL521; operating at 24VDC, nominal.
3. The self-test sensor shall generate a controlled amount of smoke into the chamber which will test the optics in response to a real smoke simulation and shall generate energy into an internal thermistor to allow register heat to be identified.
4. The detector shall also measure the dilution of smoke within a set time frame to determine if there is masking that will prevent smoke from entering the chamber.
5. The detector shall also measure the cooling of the heating element after its cycle has been completed.
6. An alarm condition shall be generated upon smoke entering the chamber. and heat from the thermistor.
7. A trouble condition shall be generated if the testing chamber reveals its being blocked, or if the thermistor does not detect heat.

F. Multi-Criteria Smoke Detectors – Edwards EST
1. Mounting: Twist-lock base interchangeable with smoke-detector bases.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire alarm control unit.
3. Automatically adjusts its sensitivity by means of drift compensation and smoothing algorithms. The detector shall send trouble alarm if it is incapable of compensating for existing conditions.
4. An operator at fire alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
   a. Primary status.
   b. Device type.
   c. Present sensitivity selected.
   d. Sensor range (normal, dirty, etc.).
5. Categories of multicriteria detector should offer the following variants for different applications:
   - Fire / CO
   - PTIR (Photo, Thermal, Infrared)
   - Photo/Thermal
   - Photo/CO
   - Each sensor shall be separately listed according to requirements for its detector type (Except IR).

G. Intelligent Duct Smoke Detector – Edwards EST
1. The smoke detector housing shall accommodate intelligent photoelectric detector, of that provides continuous analog monitoring and alarm verification from the panel.
2. When sufficient smoke is sensed, an alarm signal is initiated at the FACU, and appropriate action taken to change over air handling systems to help prevent the rapid distribution of toxic smoke and fire gases throughout the areas served by the duct system.

H. Addressable Control Module – Edwards EST
1. Addressable control modules shall provide supervised monitoring of wiring to load devices that require an external power supply to operate, such as horns, strobes, or bells. It shall be capable of Class B (Style Y) and Class A (Style Z) supervision. Upon command from the control panel, the control module shall be able to disconnect the supervision and connect the external power supply across the load device. The disconnection of the supervision shall provide verification to the panel that the control relay state changed. The external power supply shall always be relay isolated from the communication loop. The control module shall transmit full analog measurement of the supervised wiring back to the panel and can be used to detect impedance changes or other special test functions.
2. The modules shall provide address-setting means on the module using rotary switches. Because of the possibility of installation error, systems that use binary jumpers or DIP switches to set the

module address are not acceptable. The modules shall also store an internal identifying code that the control panel shall use to identify the type of detector. Systems that require a special programmer to set the module address (including temporary connection at the panel) are labor intensive and not acceptable. Each module occupies any one-off at least 99 possible addresses on the signaling line circuit (SLC) loop. It responds to regular polls from the system and reports its type and status. The module shall have an LED that is controlled by the panel to indicate module status. Coded signals, transmitted from the panel, can cause the LED to blink, latch on, or latch off. Refer to the control panel technical documentation for module LED status operation.

3. The module shall mount in a standard 4-inch square, 2-1/8" deep electrical box, surface mounted backbox listed, or compatible duct smoke detector housing. The notification appliance circuit (NAC) shall wire in a Class B (Style Y) or Class A (Style Z) fashion. Each control module shall support up to 1 amp of inductive or 2 amps of resistive audible/visual signals. Audio/visual power shall be provided by a separate supervised power loop from the main fire alarm control panel or from a supervised, UL listed remote power supply. The module shall use SEMS screws for easy wiring. Wiring terminals shall be easily accessible for troubleshooting while installed.

I. Addressable Relay Module – Edwards EST

1. Addressable relay modules shall allow a compatible control panel to switch discrete contacts by code command. The relay module shall provide two isolated sets of Form-C contacts, which operate as a double pole double throw switch. The module shall allow the control panel to switch these contacts on command. The module shall not provide supervision for the notification appliance circuit (NAC). Module shall have both normally open and normally closed connections available for field wiring.
2. The modules shall provide address-setting means on the module using rotary switches. Because of the possibility of installation error, systems that use binary jumpers or dipswitches to set the module address are not acceptable. The modules shall also store an internal identifying code that the control panel shall use to identify the type of module. Systems that require a special programmer to set the module address (including temporary connection at the panel) are labor intensive and not acceptable. Each module occupies any one of at least 99 possible addresses on the SLC loop. It responds to regular polls from the system and reports its type and status. The module shall have an LED that is controlled by the panel to indicate module status. Coded signals, transmitted from the panel, can cause the LED to blink, latch on, or latch off.
3. The module shall mount in a standard 4-inch square, 2-1/8" deep electrical box or to a surface mounted backbox. The relay module contact ratings shall support up to 1 amp/30 VDC of inductive load or 2 amps/30VDC (coded) of resistive load (up to 3 amps in non-coded applications). The relay coil shall be magnetically latched to minimize wiring connection requirements and to ensure that 100% of all auxiliary relays may be energized simultaneously on the same pair of wires. The module will use SEMS screws for easy wiring. Wiring terminals shall be easily accessible for troubleshooting while installed.

J. Isolator Module – Edwards EST

1. Isolator modules shall automatically isolate wire-to-wire short circuits on a signaling line circuit (SLC) loop. The isolator module shall limit the number of modules or detectors that may be rendered inoperative by a short circuit fault on the SLC Loop.
2. If a wire-to-wire short occurs, the isolator module shall automatically open-circuit (disconnect) the SLC loop. When the short circuit condition is corrected, the isolator module shall automatically reconnect the isolated section of the SLC loop.
3. The isolator module shall not require any address-setting, and its operations shall be fully automatic. It shall not be necessary to replace or reset an isolator module after its normal operation. The module shall have an LED that is controlled by the panel to indicate module status.
4. Coded signals, transmitted from the panel, can cause the LED to blink, latch on, or latch off. Refer to the control panel technical documentation for module LED status operation.
5. The module shall mount in a standard 4-inch square, 2-1/8" deep electrical box, in a surface mounted backbox, or in the Fire Alarm Control Unit. The module shall use SEMS screws for easy wiring. Wiring terminals shall be easily accessible for troubleshooting while installed.
6. Meets Agency Standards:

- ANSI/ UL 864- Control Units and Accessories for Fire Alarm Systems
- ULC S527- Control Units for Fire Alarm Systems
- FM- ANSI/NFPA 72- National Fire Alarm Code.

PART 3 EXECUTION

3.01 INSTALLATION

A. Installation shall be in accordance with the NEC, NFPA 72, local and state codes, as shown on the drawings, and as recommended by the major equipment manufacturer.

B. All conduit, junction boxes, conduit supports, and hangers shall be concealed in finished areas and may be exposed in unfinished areas. Smoke detectors shall not be installed prior to the system programming and test period. If construction is ongoing during this period, measures shall be taken to protect smoke detectors from contamination and physical damage.

C. All fire detection and alarm system devices, control panels and remote annunciators shall be flush mounted when located in finished areas and may be surface mounted when located in unfinished areas.

D. Manual Pull Stations shall be suitable for surface mounting or semi-flush mounting as shown on the plans, and shall be installed not less than 42 inches, nor more than 48 inches above the finished floor.

3.02 TYPICAL OPERATION

A. Actuation of any manual station, smoke detector heat detector or water flow switch shall cause the following operations to occur unless otherwise specified:

1. Activate all programmed speaker circuits.
2. Actuate all strobe units until the panel is reset.
3. Light the associated indicators corresponding to active speaker circuits.
4. Release all magnetic door holders to doors to adjacent zones on the floor from that the alarm was initiated.
5. Return all elevators to the primary or alternate floor of egress.
6. A smoke detector in any elevator lobby shall, in addition to the above functions, return all elevators to the primary or alternate floor of egress.
7. Smoke detectors in the elevator machine room or top of hoist-way shall return all elevators in to the <primary/ alternate> floor. Smoke detectors or heat detectors installed to shut down elevator power shall do so in accordance with ANSI A17.1 requirements and be coordinated with the electrical contractor.
8. Duct type smoke detectors shall, in addition to the above functions shut down the ventilation system or close associated control dampers as appropriate.
9. Activation of any sprinkler system low pressure switch or valve tamper switch shall cause a system supervisory alarm indication.

3.03 TEST AND INSPECTION REPORT

A. Before proceeding with any testing, all persons, facilities and building occupants who receive alarms or trouble signals shall be notified by the contractor to prevent unnecessary response or building occupant distress. At the conclusion of testing, those previously notified shall be notified that testing has been concluded.

B. The manufacturer's authorized representative shall provide on-site supervision of installation of the complete fire alarm system installation, perform a complete functional test of the system, and submit a written report to the Contractor attesting to the proper operation of the completed system prior to final inspection.

C. Contractor shall pre-test each and every device in the system before the system is considered ready for final inspection.

D. The completed and pre-tested fire alarm system shall be fully tested in accordance with NFPA- 72 by the Contractor in the presence of the Engineer, Owner's representative and the local Fire Department.

E. The Engineer or his authorized representative may suspend or discontinue the tests at any time performance is considered unsatisfactory. Resumption of testing will cover untested elements and

any replaced elements. The contractor shall furnish all test personnel, test instruments and equipment of the accuracy necessary to perform the test. Arrangements for testing must be made with the Owner's representative and the Engineer at least two weeks before the proposed testing date.

F. Upon the completion of a successful test, and prior to the final request for payment the Contractor shall:
   1. Certify the system to the Owner in writing.
   2. Complete the NFPA 72 record of completion form.
   3. Provide as builts and O&M manuals.
   4. Provide a signed statement that the Owner had received the specified system operation and maintenance training.

G. The final payment will not be processed unless these documents are complete and are on hand.

H. Only a factory-authorized service representative trained shall be allowed to test and inspect components, assemblies, and equipment installations, including connections.

I. All test and inspection shall be completed by using the CLSS platform.

J. Perform the following tests and inspections via the mobile app:
   1. Visual Inspection: Conduct visual inspection prior to testing.
      a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Documentation" chapter in NFPA 72.
      b. Comply with the "Visual Inspection" table in the "Inspection" section of the "Inspection, Testing, and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.
   2. Verification shall take place carrying out an automated self-testing process (without need of manual intervention or a smoke/ heat pole). The detectors shall be able to carry out the following;
      a. Functional test on heat or smoke
      b. Smoke entry test for smoke alarms
      c. Determine that the dust cover is in place during construction.
      d. Determine that the dust cover has been removed when the building becomes ready for occupation.
      e. Provide an automated summary report of above points.
   3. The system will register real events from all initiating devices not in test mode after each test. Upon an alarm condition during the self-test process the system will be overwritten and initiate an alarm at the FACU.
   4. System Testing: Comply with the "Testing" table in the "Testing" section of the "Inspection, Testing, and Maintenance" chapter in NFPA 72.
   5. During inspection the software shall automatically comply and generate "Fire Alarm System Record of Completion" in the "Documentation" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing, and Maintenance" chapter in NFPA 72.

K. Annual Test and Inspection: One year after date of Substantial Completion, test fire alarm system complying with visual and testing inspection requirements in NFPA 72. A report shall be automatically be generated from the mobile app upon completion and provide to applicable parties.

3.04 SYSTEM TEST

A. Provide the service of a competent, factory-trained engineer or technician authorized by the manufacturer of the fire alarm equipment to technically supervise and participate during all of the adjustments and tests for the system.

B. Before energizing the cables and wires, check for correct connections and test for short circuits, ground faults, continuity, and insulation.

C. Close each sprinkler system flow valve and verify proper supervisory alarm at the FACU.

D. Open initiating device circuits and verify that the trouble signal actuates.

E. Open signaling line circuits and verify that the trouble signal actuates.

F. Open and short notification appliance circuits and verify that trouble signal actuates.

G. Ground initiating & Signaling device circuits and verify response of trouble signals.

H. Ground notification appliance circuits and verify response of trouble signals.

I. Check presence and audibility of tone at all alarm notification devices.

J. Check installation, supervision, & operation of intelligent smoke detectors during a walk test.

K. Each of the alarm conditions that the system is required to detect should be introduced on the system. Verify the proper receipt and the proper processing of the signal at the FACU and the correct activation of the control points.

L. When the system is equipped with optional features, the manufacturer's manual should be consulted to determine the proper testing procedures. This is intended to address such items as verifying controls performed by individually addressed or grouped devices, sensitivity monitoring, verification functionality and similar.

3.05 FINAL INSPECTION

A. At the final inspection a factory-trained representative of the manufacturer of the major equipment shall demonstrate that the systems function properly in every respect.

3.06 INSTRUCTION

A. Provide instruction as required for operating the system. Hands-on demonstrations of the operation of all system components and the entire system including program changes and functions shall be provided.

B. The contractor and/or the systems manufacturer's representatives shall provide a typewritten "Sequence of Operation."

END OF SECTION 28 31 00