PROJECT MANUAL

JASPER SCHOOL DISTRICT
OARK ELEMENTARY SCHOOL RENOVATONS
Oark, Arkansas

CONSTRUCTION / BID SET

Architecture Plus, Inc.
907 South 21st Street
Fort Smith, Arkansas 72901
Tel: (479) 783-8395 / Fax: (479) 783-0935
E-mail: craig@archplusinc.net
ARCHITECTS



PROJECT NO.: 22-25.01

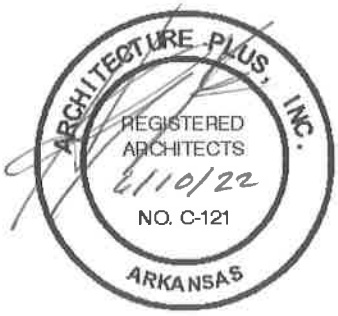
SET NO.:

June 10, 2022

DOCUMENT 00 00 02 - PROJECT DIRECTORY

OWNER:
Jasper School District
600 School Street
Jasper, Arkansas
Telephone: 870-446-2223
Superintendent: Candra Brasel
Email: candra.brasel@jasper.k12.ar.us

ARCHITECT:
Architecture Plus, Inc.
907 South 21st Street
Fort Smith, Arkansas 72901
Telephone: 479-783-8395
Fax: 479-783-0935
Principal-In-Charge: H. Craig Boone, AIA
Email: craig@archplusinc.net



Structural Engineer:
Myers Engineering, PLLC
2411 Fayetteville Road, Suite B
Van Buren, Arkansas 72956
Tel. (479) 474-4412; Fax (479) 474-4413
Project Engineer: Jason Myers, PE
Email: jason@myers-engr.com

MECHANICAL & ELECTRICAL ENG.
Engineering Elements, PLLC
2458 E. Joyce Blvd., #1
Fayetteville, AR 72703
Telephone: 479-695-1333
Fax: 479-251-0714
Project Engineer: Shane Lanning, PE, LEED AP
Email: slanning@eemep.com



END OF DOCUMENT

TABLE OF CONTENTS

Project Directory

GENERAL CONDITIONS

General Conditions - AIA Document A201-2017
Supplementary Conditions
Special Conditions

Davis Bacon Wage Rates

DIVISION 1 - GENERAL REQUIREMENTS

SUMMARY
SECTION 01 01 00 - Summary of Work

WORK RESTRICTIONS
SECTION 01 14 20 - Contractor's Use of the Premises

PRICE AND PAYMENT PROCEDURES
SECTION 01 15 20 - Application for Payment
SECTION 01 20 10 - Preconstruction Conference
SECTION 01 21 31 - Allowances
SECTION 01 26 00 - Contract Modification Procedures
SECTION 01 26 60 - Change Order Procedures
SECTION 01 29 73 - Schedule of Values

ADMINISTRATIVE REQUIREMENTS
SECTION 01 31 10 - Alterations Project Procedures
SECTUIB 01 31 13 - Coordination
SECTION 01 31 20 - General Construction Requirement
SECTION 01 33 23 - Submittals

QUALITY REQUIREMENTS
SECTION 01 40 00 - Quality Requirements
SECTION 01 41 00 - Testing Laboratory Services

TEMPORARY FACILITIES AND CONTROLS
SECTION 01 50 00 - Temporary Facilities and Controls

PRODUCT REQUIREMENTS
SECTION 01 60 00 - Product Requirements
SECTION 01 64 00 - Product Handling

EXECUTION AND CLOSEOUT REQUIREMENTS
SECTION 01 70 50 - Project Closeout
SECTION 01 73 00 - Execution Requirements
SECTION 01 74 00 - Cleaning
SECTION 01 78 00 - Closeout Submittals and Training
SECTION 01 78 39 - Project Record Documents

TECHNICAL SPECIFICATIONS

DIVISION 2 – EXISTING CONDITIONS

SECTION 02 41 10 - Utility Demolition-Relocation
SECTION 02 41 13 - Selective Demolition

And as shown on the Drawings.

DIVISION 3 – CONCRETE

SECTION 03 30 00 - Cast-in-Place Concrete

And as shown on the Drawings.

DIVISION 4 – MASONRY

SECTION 04 10 00 - Masonry Mortar and Grout
SECTION 04 20 00 - Masonry (Block)

And as shown on the Drawings.

DIVISION 5 – METALS

SECTION 05 50 00 - Metal Fabrications

And as shown on the Drawings.

DIVISION 6 - CARPENTRY

SECTION 06 10 00 - Rough Carpentry
SECTION 06 19 00 - Wood Trusses

And as shown on the Drawings.

DIVISION 7 - MOISTURE PROTECTION

SECTION 07 21 00 - Building Insulation
SECTION 07 41 00 - Preformed Metal Roofing, Wall and Soffit Panels, and Snow Guards
SECTION 07 84 00 - Firestopping
SECTION 07 92 00 - Sealants and Caulking

And as shown on the Drawings.

DIVISION 8 - DOORS, WINDOWS AND GLAZING

SECTION 08 11 13 - Hollow Metal Doors and Frames
SECTION 08 12 16 - Aluminum Entrance and Fixed Frames
SECTION 08 41 00 - Wood Doors
SECTION 08 71 00 - Hardware
SECTION 08 80 00 - Glazing

And as shown on the Drawings

DIVISION 9 – FINISHES

SECTION 09 26 00 - Gypsum Wallboard and Metal Stud System
SECTION 09 50 00 - Concrete Slab Moisture Testing
SECTION 09 51 00 - Acoustical Ceiling
SECTION 09 65 00 - Resilient Flooring
SECTION 09 67 00 - Polymer Floor Systems
SECTION 09 90 00 - Painting

And as shown on the Drawings.

DIVISION 10 – SPECIALTIES

SECTION 10 15 50 - Toilet Partitions
SECTION 10 90 00 - Miscellaneous Specialties

And as shown on the Drawings.

DIVISION 11 – EQUIPMENT

None required, or as shown on the Drawings.

DIVISION 12 – FURNISHINGS

SECTION 12 21 13 - Window Treatment

And as noted on the Drawings.

DIVISION 13 - SPECIAL CONSTRUCTION

None required or as shown on the Drawings.

DIVISION 14 - CONVEYING SYSTEMS

None required, or as noted on the Drawings.

DIVISION 21 – FIRE SUPRESSION

None required, or as noted on the Drawings.

DIVISION 22 – PLUMBING

As shown on the Drawings

DIVISION 23 – HEATING, VENTILATING, AND AIR-CONDITIONINGS (HVAC)

SECTION 23 01 00 - Basic Mechanical Materials and Methods
SECTION 23 05 93 - Testing, Adjusting, and Balancing
SECTION 23 07 00 - HVAC Insulation
SECTION 23 31 13 - Metal Ductwork
SECTION 23 33 00 - Duct Accessories

And as shown on the Drawings.

DIVISION 26 – ELECTRICAL

SECTION 26 05 00 - General Electrical Requirements
SECTION 26 05 19 - Low Voltage Conductors and Cables
SECTION 26 05 33 - Raceway and Boxes

And as shown on the Drawings.

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

None required, or as shown on the Drawings.

DIVISION 31 – EARTHWORK

SECTION 31 31 16 - Termite Control

And as shown on the Drawings.

DIVISION 32 – EXTERIOR IMPROVEMENTS

None or as shown on the Drawings.

DIVISION 33 - UTILITIES

None, or as shown on the Drawings.

AIA® Document A201™ – 2017

General Conditions of the Contract for Construction

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

THE OWNER:
(Name, legal status and address)

THE ARCHITECT:
(Name, legal status and address)

TABLE OF ARTICLES

1 GENERAL PROVISIONS

2 OWNER

3 CONTRACTOR

4 ARCHITECT

5 SUBCONTRACTORS

6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

7 CHANGES IN THE WORK

8 TIME

9 PAYMENTS AND COMPLETION

10 PROTECTION OF PERSONS AND PROPERTY

11 INSURANCE AND BONDS

12 UNCOVERING AND CORRECTION OF WORK

13 MISCELLANEOUS PROVISIONS

14 TERMINATION OR SUSPENSION OF THE CONTRACT

15 CLAIMS AND DISPUTES

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.

Init.
/

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

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

Acceptance of Nonconforming Work
9.6.6, 9.9.3, 12.3
Acceptance of Work
9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, 12.3
Access to Work
3.16, 6.2.1, 12.1
Accident Prevention
10
Acts and Omissions
3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5, 10.2.8, 13.3.2, 14.1, 15.1.2, 15.2
Addenda
1.1.1
Additional Costs, Claims for
3.7.4, 3.7.5, 10.3.2, 15.1.5
Additional Inspections and Testing
9.4.2, 9.8.3, 12.2.1, 13.4
Additional Time, Claims for
3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, 15.1.6
Administration of the Contract
3.1.3, 4.2, 9.4, 9.5
Advertisement or Invitation to Bid
1.1.1
Aesthetic Effect
4.2.13
Allowances
3.8
Applications for Payment
4.2.5, 7.3.9, 9.2, 9.3, 9.4, 9.5.1, 9.5.4, 9.6.3, 9.7, 9.10
Approvals
2.1.1, 2.3.1, 2.5, 3.1.3, 3.10.2, 3.12.8, 3.12.9, 3.12.10.1, 4.2.7, 9.3.2, 13.4.1
Arbitration
8.3.1, 15.3.2, 15.4
ARCHITECT
4
Architect, Definition of
4.1.1
Architect, Extent of Authority
2.5, 3.12.7, 4.1.2, 4.2, 5.2, 6.3, 7.1.2, 7.3.4, 7.4, 9.2, 9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1, 13.4.1, 13.4.2, 14.2.2, 14.2.4, 15.1.4, 15.2.1
Architect, Limitations of Authority and Responsibility
2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4, 9.4.2, 9.5.4, 9.6.4, 15.1.4, 15.2
Architect's Additional Services and Expenses
2.5, 12.2.1, 13.4.2, 13.4.3, 14.2.4
Architect's Administration of the Contract
3.1.3, 3.7.4, 15.2, 9.4.1, 9.5
Architect's Approvals
2.5, 3.1.3, 3.5, 3.10.2, 4.2.7
Architect's Authority to Reject Work
3.5, 4.2.6, 12.1.2, 12.2.1
Architect's Copyright
1.1.7, 1.5
Architect's Decisions
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1, 13.4.2, 15.2
Architect's Inspections
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.4
Architect's Instructions
3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.4.2
Architect's Interpretations
4.2.11, 4.2.12
Architect's Project Representative
4.2.10
Architect's Relationship with Contractor
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5, 3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16, 3.18, 4.1.2, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.3.2, 13.4, 15.2
Architect's Relationship with Subcontractors
1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3
Architect's Representations
9.4.2, 9.5.1, 9.10.1
Architect's Site Visits
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Asbestos
10.3.1
Attorneys' Fees
3.18.1, 9.6.8, 9.10.2, 10.3.3
Award of Separate Contracts
6.1.1, 6.1.2
Award of Subcontracts and Other Contracts for Portions of the Work
5.2
Basic Definitions
1.1
Bidding Requirements
1.1.1
Binding Dispute Resolution
8.3.1, 9.7, 11.5, 13.1, 15.1.2, 15.1.3, 15.2.1, 15.2.5, 15.2.6.1, 15.3.1, 15.3.2, 15.3.3, 15.4.1
Bonds, Lien
7.3.4.4, 9.6.8, 9.10.2, 9.10.3
Bonds, Performance, and Payment
7.3.4.4, 9.6.7, 9.10.3, 11.1.2, 11.1.3, 11.5
Building Information Models Use and Reliance
1.8
Building Permit
3.7.1
Capitalization
1.3
Certificate of Substantial Completion
9.8.3, 9.8.4, 9.8.5

Init.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

Certificates for Payment
4.2.1, 4.2.5, 4.2.9, 9.3.3, 9.4, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.4
Certificates of Inspection, Testing or Approval
13.4.4
Certificates of Insurance
9.10.2
Change Orders
1.1.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11, 3.12.8, 4.2.8, 5.2.3, 7.1.2, 7.1.3, 7.2, 7.3.2, 7.3.7, 7.3.9, 7.3.10, 8.3.1, 9.3.1.1, 9.10.3, 10.3.2, 11.2, 11.5, 12.1.2
Change Orders, Definition of
7.2.1
CHANGES IN THE WORK
2.2.2, 3.11, 4.2.8, 7, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1, 11.5
Claims, Definition of
15.1.1
Claims, Notice of
1.6.2, 15.1.3
CLAIMS AND DISPUTES
3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, 15, 15.4
Claims and Timely Assertion of Claims
15.4.1
Claims for Additional Cost
3.2.4, 3.3.1, 3.7.4, 7.3.9, 9.5.2, 10.2.5, 10.3.2, 15.1.5
Claims for Additional Time
3.2.4, 3.3.1, 3.7.4, 6.1.1, 8.3.2, 9.5.2, 10.3.2, 15.1.6
Concealed or Unknown Conditions, Claims for
3.7.4
Claims for Damages
3.2.4, 3.18, 8.3.3, 9.5.1, 9.6.7, 10.2.5, 10.3.3, 11.3, 11.3.2, 14.2.4, 15.1.7
Claims Subject to Arbitration
15.4.1
Cleaning Up
3.15, 6.3
Commencement of the Work, Conditions Relating to
2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3, 6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.2, 15.1.5
Commencement of the Work, Definition of
8.1.2
Communications
3.9.1, 4.2.4
Completion, Conditions Relating to
3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1, 9.10, 12.2, 14.1.2, 15.1.2
COMPLETION, PAYMENTS AND
9
Completion, Substantial
3.10.1, 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2, 15.1.2
Compliance with Laws
2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14.1.1, 14.2.1.3, 15.2.8, 15.4.2, 15.4.3
Concealed or Unknown Conditions
3.7.4, 4.2.8, 8.3.1, 10.3
Conditions of the Contract
1.1.1, 6.1.1, 6.1.4
Consent, Written
3.4.2, 3.14.2, 4.1.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 13.2, 15.4.4.2
Consolidation or Joinder
15.4.4
CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
1.1.4, 6
Construction Change Directive, Definition of
7.3.1
Construction Change Directives
1.1.1, 3.4.2, 3.11, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, 7.3, 9.3.1.1
Construction Schedules, Contractor's
3.10, 3.11, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Contingent Assignment of Subcontracts
5.4, 14.2.2.2
Continuing Contract Performance
15.1.4
Contract, Definition of
1.1.2
CONTRACT, TERMINATION OR SUSPENSION OF THE
5.4.1.1, 5.4.2, 11.5, 14
Contract Administration
3.1.3, 4, 9.4, 9.5
Contract Award and Execution, Conditions Relating to
3.7.1, 3.10, 5.2, 6.1
Contract Documents, Copies Furnished and Use of
1.5.2, 2.3.6, 5.3
Contract Documents, Definition of
1.1.1
Contract Sum
2.2.2, 2.2.4, 3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.3, 7.4, 9.1, 9.2, 9.4.2, 9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.5, 12.1.2, 12.3, 14.2.4, 14.3.2, 15.1.4.2, 15.1.5, 15.2.5
Contract Sum, Definition of
9.1
Contract Time
1.1.4, 2.2.1, 2.2.2, 3.7.4, 3.7.5, 3.10.2, 5.2.3, 6.1.5, 7.2.1.3, 7.3.1, 7.3.5, 7.3.6, 7, 7, 7.3.10, 7.4, 8.1.1, 8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 12.1.2, 14.3.2, 15.1.4.2, 15.1.6.1, 15.2.5
Contract Time, Definition of
8.1.1
CONTRACTOR
3
Contractor, Definition of
3.1, 6.1.2
Contractor's Construction and Submittal Schedules
3.10, 3.12.1, 3.12.2, 4.2.3, 6.1.3, 15.1.6.2
Contractor's Employees

Init.
/
AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

2.2.4, 3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3, 11.3, 14.1, 14.2.1.1
Contractor's Liability Insurance
11.1
Contractor's Relationship with Separate Contractors and Owner's Forces
3.12.5, 3.14.2, 4.2.4, 6, 11.3, 12.2.4
Contractor's Relationship with Subcontractors
1.2.2, 2.2.4, 3.3.2, 3.18.1, 3.18.2, 4.2.4, 5, 9.6.2, 9.6.7, 9.10.2, 11.2, 11.3, 11.4
Contractor's Relationship with the Architect
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5.1, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.4, 15.1.3, 15.2.1
Contractor's Representations
3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2
Contractor's Responsibility for Those Performing the Work
3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8
Contractor's Review of Contract Documents
3.2
Contractor's Right to Stop the Work
2.2.2, 9.7
Contractor's Right to Terminate the Contract
14.1
Contractor's Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2, 9.8.3, 9.9.1, 9.10.2, 9.10.3
Contractor's Superintendent
3.9, 10.2.6
Contractor's Supervision and Construction Procedures
1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 7.3.6, 8.2, 10, 12, 14, 15.1.4
Coordination and Correlation
1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1
Copies Furnished of Drawings and Specifications
1.5, 2.3.6, 3.11
Copyrights
1.5, 3.17
Correction of Work
2.5, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, 12.2, 12.3, 15.1.3.1, 15.1.3.2, 15.2.1
Correlation and Intent of the Contract Documents
1.2
Cost, Definition of
7.3.4
Costs
2.5, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3, 7.3.3.3, 7.3.4, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6, 11.2, 12.1.2, 12.2.1, 12.2.4, 13.4, 14
Cutting and Patching
3.14, 6.2.5
Damage to Construction of Owner or Separate Contractors
3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 12.2.4
Damage to the Work
3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 12.2.4
Damages, Claims for
3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.3.2, 11.3, 14.2.4, 15.1.7
Damages for Delay
6.2.3, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 14.3.2
Date of Commencement of the Work, Definition of
8.1.2
Date of Substantial Completion, Definition of
8.1.3
Day, Definition of
8.1.4
Decisions of the Architect
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.4.2, 14.2.2, 14.2.4, 15.1, 15.2
Decisions to Withhold Certification
9.4.1, 9.5, 9.7, 14.1.1.3
Defective or Nonconforming Work, Acceptance, Rejection and Correction of
2.5, 3.5, 4.2.6, 6.2.3, 9.5.1, 9.5.3, 9.6.6, 9.8.2, 9.9.3, 9.10.4, 12.2.1
Definitions
1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1
Delays and Extensions of Time
3.2, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, 8.3, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5
Digital Data Use and Transmission
1.7
Disputes
6.3, 7.3.9, 15.1, 15.2
Documents and Samples at the Site
3.11
Drawings, Definition of
1.1.5
Drawings and Specifications, Use and Ownership of
3.11
Effective Date of Insurance
8.2.2
Emergencies
10.4, 14.1.1.2, 15.1.5
Employees, Contractor's
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3.3, 11.3, 14.1, 14.2.1.1
Equipment, Labor, or Materials
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2
Execution and Progress of the Work
1.1.3, 1.2.1, 1.2.2, 2.3.4, 2.3.6, 3.1, 3.3.1, 3.4.1, 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.6, 8.2, 9.5.1, 9.9.1, 10.2, 10.3, 12.1, 12.2, 14.2, 14.3.1, 15.1.4
Extensions of Time
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2, 10.4, 14.3, 15.1.6, 15.2.5

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

Failure of Payment
9.5.1.3, 9.7, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2
Faulty Work
(See Defective or Nonconforming Work)
Final Completion and Final Payment
4.2.1, 4.2.9, 9.8.2, 9.10, 12.3, 14.2.4, 14.4.3
Financial Arrangements, Owner's
2.2.1, 13.2.2, 14.1.1.4
GENERAL PROVISIONS
1
Governing Law
13.1
Guarantees (See Warranty)
Hazardous Materials and Substances
10.2.4, 10.3
Identification of Subcontractors and Suppliers
5.2.1
Indemnification
3.17, 3.18, 9.6.8, 9.10.2, 10.3.3, 11.3
Information and Services Required of the Owner
2.1.2, 2.2, 2.3, 3.2.2, 3.12.10.1, 6.1.3, 6.1.4, 6.2.5,
9.6.1, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2,
14.1.1.4, 14.1.4, 15.1.4
Initial Decision
15.2
Initial Decision Maker, Definition of
1.1.8
Initial Decision Maker, Decisions
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
Initial Decision Maker, Extent of Authority
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
Injury or Damage to Person or Property
10.2.8, 10.4
Inspections
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,
9.9.2, 9.10.1, 12.2.1, 13.4
Instructions to Bidders
1.1.1
Instructions to the Contractor
3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.4.2
Instruments of Service, Definition of
1.1.7
Insurance
6.1.1, 7.3.4, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5,
11
Insurance, Notice of Cancellation or Expiration
11.1.4, 11.2.3
Insurance, Contractor's Liability
11.1
Insurance, Effective Date of
8.2.2, 14.4.2
Insurance, Owner's Liability
11.2
Insurance, Property
10.2.5, 11.2, 11.4, 11.5
Insurance, Stored Materials
9.3.2
INSURANCE AND BONDS
11
Insurance Companies, Consent to Partial Occupancy
9.9.1
Insured loss, Adjustment and Settlement of
11.5
Intent of the Contract Documents
1.2.1, 4.2.7, 4.2.12, 4.2.13
Interest
13.5
Interpretation
1.1.8, 1.2.3, 1.4, 4.1.1, 5.1, 6.1.2, 15.1.1
Interpretations, Written
4.2.11, 4.2.12
Judgment on Final Award
15.4.2
Labor and Materials, Equipment
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,
5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1,
10.2.4, 14.2.1.1, 14.2.1.2
Labor Disputes
8.3.1
Laws and Regulations
1.5, 2.3.2, 3.2.3, 3.2.4, 3.6, 3.7, 3.12.10, 3.13, 9.6.4,
9.9.1, 10.2.2, 13.1, 13.3.1, 13.4.2, 13.5, 14, 15.2.8,
15.4
Liens
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8
Limitations, Statutes of
12.2.5, 15.1.2, 15.4.1.1
Limitations of Liability
3.2.2, 3.5, 3.12.10, 3.12.10.1, 3.17, 3.18.1, 4.2.6,
4.2.7, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 9.6.8, 10.2.5, 10.3.3,
11.3, 12.2.5, 13.3.1
Limitations of Time
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7,
5.2, 5.3, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,
9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15,
15.1.2, 15.1.3, 15.1.5
Materials, Hazardous
10.2.4, 10.3
Materials, Labor, Equipment and
1.1.3, 1.1.6, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,
5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2,
10.2.1.2, 10.2.4, 14.2.1.1, 14.2.1.2
Means, Methods, Techniques, Sequences and
Procedures of Construction
3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2
Mechanic's Lien
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8
Mediation
8.3.1, 15.1.3.2, 15.2.1, 15.2.5, 15.2.6, 15.3, 15.4.1,
15.4.1.1
Minor Changes in the Work
1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1, 7.4
MISCELLANEOUS PROVISIONS
13

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

Modifications, Definition of
1.1.1
Modifications to the Contract
1.1.1, 1.1.2, 2.5, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7, 10.3.2
Mutual Responsibility
6.2
Nonconforming Work, Acceptance of
9.6.6, 9.9.3, 12.3
Nonconforming Work, Rejection and Correction of
2.4, 2.5, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4, 12.2
Notice
1.6, 1.6.1, 1.6.2, 2.1.2, 2.2.2., 2.2.3, 2.2.4, 2.5, 3.2.4, 3.3.1, 3.7.4, 3.7.5, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 7.4, 8.2.2 9.6.8, 9.7, 9.10.1, 10.2.8, 10.3.2, 11.5, 12.2.2.1, 13.4.1, 13.4.2, 14.1, 14.2.2, 14.4.2, 15.1.3, 15.1.5, 15.1.6, 15.4.1
Notice of Cancellation or Expiration of Insurance
11.1.4, 11.2.3
Notice of Claims
1.6.2, 2.1.2, 3.7.4, 9.6.8, 10.2.8, 15.1.3, 15.1.5, 15.1.6, 15.2.8, 15.3.2, 15.4.1
Notice of Testing and Inspections
13.4.1, 13.4.2
Observations, Contractor's
3.2, 3.7.4
Occupancy
2.3.1, 9.6.6, 9.8
Orders, Written
1.1.1, 2.4, 3.9.2, 7, 8.2.2, 11.5, 12.1, 12.2.2.1, 13.4.2, 14.3.1
OWNER
2
Owner, Definition of
2.1.1
Owner, Evidence of Financial Arrangements
2.2, 13.2.2, 14.1.1.4
Owner, Information and Services Required of the
2.1.2, 2.2, 2.3, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5, 9.3.2, 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4
Owner's Authority
1.5, 2.1.1, 2.3.32.4, 2.5, 3.4.2, 3.8.1, 3.12.10, 3.14.2, 4.1.2, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1, 7.3.1, 8.2.2, 8.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2, 10.3.2, 11.4, 11.5, 12.2.2, 12.3, 13.2.2, 14.3, 14.4, 15.2.7
Owner's Insurance
11.2
Owner's Relationship with Subcontractors
1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2
Owner's Right to Carry Out the Work
2.5, 14.2.2
Owner's Right to Clean Up
6.3
Owner's Right to Perform Construction and to Award Separate Contracts
6.1
Owner's Right to Stop the Work
2.4
Owner's Right to Suspend the Work
14.3
Owner's Right to Terminate the Contract
14.2, 14.4
Ownership and Use of Drawings, Specifications and Other Instruments of Service
1.1.1, 1.1.6, 1.1.7, 1.5, 2.3.6, 3.2.2, 3.11, 3.17, 4.2.12, 5.3
Partial Occupancy or Use
9.6.6, 9.9
Patching, Cutting and
3.14, 6.2.5
Patents
3.17
Payment, Applications for
4.2.5, 7.3.9, 9.2, 9.3, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1, 14.2.3, 14.2.4, 14.4.3
Payment, Certificates for
4.2.5, 4.2.9, 9.3.3, 9.4, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4
Payment, Failure of
9.5.1.3, 9.7, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2
Payment, Final
4.2.1, 4.2.9, 9.10, 12.3, 14.2.4, 14.4.3
Payment Bond, Performance Bond and
7.3.4.4, 9.6.7, 9.10.3, 11.1.2
Payments, Progress
9.3, 9.6, 9.8.5, 9.10.3, 14.2.3, 15.1.4
PAYMENTS AND COMPLETION
9
Payments to Subcontractors
5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2
PCB
10.3.1
Performance Bond and Payment Bond
7.3.4.4, 9.6.7, 9.10.3, 11.1.2
Permits, Fees, Notices and Compliance with Laws
2.3.1, 3.7, 3.13, 7.3.4.4, 10.2.2
PERSONS AND PROPERTY, PROTECTION OF
10
Polychlorinated Biphenyl
10.3.1
Product Data, Definition of
3.12.2
Product Data and Samples, Shop Drawings
3.11, 3.12, 4.2.7
Progress and Completion
4.2.2, 8.2, 9.8, 9.9.1, 14.1.4, 15.1.4
Progress Payments
9.3, 9.6, 9.8.5, 9.10.3, 14.2.3, 15.1.4
Project, Definition of
1.1.4
Project Representatives

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

4.2.10
Property Insurance
10.2.5, 11.2
Proposal Requirements
1.1.1
PROTECTION OF PERSONS AND PROPERTY
10
Regulations and Laws
1.5, 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14, 15.2.8, 15.4
Rejection of Work
4.2.6, 12.2.1
Releases and Waivers of Liens
9.3.1, 9.10.2
Representations
3.2.1, 3.5, 3.12.6, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.10.1
Representatives
2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.10, 13.2.1
Responsibility for Those Performing the Work
3.3.2, 3.18, 4.2.2, 4.2.3, 5.3, 6.1.3, 6.2, 6.3, 9.5.1, 10
Retainage
9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3
Review of Contract Documents and Field Conditions by Contractor
3.2, 3.12.7, 6.1.3
Review of Contractor's Submittals by Owner and Architect
3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2
Review of Shop Drawings, Product Data and Samples by Contractor
3.12
Rights and Remedies
1.1.2, 2.4, 2.5, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1, 6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.1, 12.2.2, 12.2.4, 13.3, 14, 15.4
Royalties, Patents and Copyrights
3.17
Rules and Notices for Arbitration
15.4.1
Safety of Persons and Property
10.2, 10.4
Safety Precautions and Programs
3.3.1, 4.2.2, 4.2.7, 5.3, 10.1, 10.2, 10.4
Samples, Definition of
3.12.3
Samples, Shop Drawings, Product Data and
3.11, 3.12, 4.2.7
Samples at the Site, Documents and
3.11
Schedule of Values
9.2, 9.3.1
Schedules, Construction
3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Separate Contracts and Contractors
1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2
Separate Contractors, Definition of
6.1.1
Shop Drawings, Definition of
3.12.1
Shop Drawings, Product Data and Samples
3.11, 3.12, 4.2.7
Site, Use of
3.13, 6.1.1, 6.2.1
Site Inspections
3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.9.2, 9.4.2, 9.10.1, 13.4
Site Visits, Architect's
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Special Inspections and Testing
4.2.6, 12.2.1, 13.4
Specifications, Definition of
1.1.6
Specifications
1.1.1, 1.1.6, 1.2.2, 1.5, 3.12.10, 3.17, 4.2.14
Statute of Limitations
15.1.2, 15.4.1.1
Stopping the Work
2.2.2, 2.4, 9.7, 10.3, 14.1
Stored Materials
6.2.1, 9.3.2, 10.2.1.2, 10.2.4
Subcontractor, Definition of
5.1.1
SUBCONTRACTORS
5
Subcontractors, Work by
1.2.2, 3.3.2, 3.12.1, 3.18, 4.2.3, 5.2.3, 5.3, 5.4, 9.3.1.2, 9.6.7
Subcontractual Relations
5.3, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1
Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.4, 9.2, 9.3, 9.8, 9.9.1, 9.10.2, 9.10.3
Submittal Schedule
3.10.2, 3.12.5, 4.2.7
Subrogation, Waivers of
6.1.1, 11.3
Substances, Hazardous
10.3
Substantial Completion
4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2, 15.1.2
Substantial Completion, Definition of
9.8.1
Substitution of Subcontractors
5.2.3, 5.2.4
Substitution of Architect
2.3.3
Substitutions of Materials
3.4.2, 3.5, 7.3.8
Sub-subcontractor, Definition of
5.1.2
Subsurface Conditions
3.7.4
Successors and Assigns

Init.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

13.2
Superintendent
3.9, 10.2.6
Supervision and Construction Procedures
1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.4
Suppliers
1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.5.4, 9.6, 9.10.5, 14.2.1
Surety
5.4.1.2, 9.6.8, 9.8.5, 9.10.2, 9.10.3, 11.1.2, 14.2.2, 15.2.7
Surety, Consent of
9.8.5, 9.10.2, 9.10.3
Surveys
1.1.7, 2.3.4
Suspension by the Owner for Convenience
14.3
Suspension of the Work
3.7.5, 5.4.2, 14.3
Suspension or Termination of the Contract
5.4.1.1, 14
Taxes
3.6, 3.8.2.1, 7.3.4.4
Termination by the Contractor
14.1, 15.1.7
Termination by the Owner for Cause
5.4.1.1, 14.2, 15.1.7
Termination by the Owner for Convenience
14.4
Termination of the Architect
2.3.3
Termination of the Contractor Employment
14.2.2

TERMINATION OR SUSPENSION OF THE CONTRACT
14
Tests and Inspections
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 10.3.2, 12.2.1, 13.4
TIME
8
Time, Delays and Extensions of
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, 8.3, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5
Time Limits
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2, 5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15.1.2, 15.1.3, 15.4
Time Limits on Claims
3.7.4, 10.2.8, 15.1.2, 15.1.3
Title to Work
9.3.2, 9.3.3
UNCOVERING AND CORRECTION OF WORK
12
Uncovering of Work
12.1
Unforeseen Conditions, Concealed or Unknown
3.7.4, 8.3.1, 10.3
Unit Prices
7.3.3.2, 9.1.2
Use of Documents
1.1.1, 1.5, 2.3.6, 3.12.6, 5.3
Use of Site
3.13, 6.1.1, 6.2.1
Values, Schedule of
9.2, 9.3.1
Waiver of Claims by the Architect
13.3.2
Waiver of Claims by the Contractor
9.10.5, 13.3.2, 15.1.7
Waiver of Claims by the Owner
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.3.2, 14.2.4, 15.1.7
Waiver of Consequential Damages
14.2.4, 15.1.7
Waiver of Liens
9.3, 9.10.2, 9.10.4
Waivers of Subrogation
6.1.1, 11.3
Warranty
3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.2, 9.10.4, 12.2.2, 15.1.2
Weather Delays
8.3, 15.1.6.2
Work, Definition of
1.1.3
Written Consent
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.10.3, 13.2, 13.3.2, 15.4.4.2
Written Interpretations
4.2.11, 4.2.12
Written Orders
1.1.1, 2.4, 3.9, 7, 8.2.2, 12.1, 12.2, 13.4.2, 14.3.1

Init.
/

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

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

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

§ 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,

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:

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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

§ 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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

§ 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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

§ 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

Init.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

§ 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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:

§ 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

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

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

Init.
/
AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

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,

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

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,

Init. /

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

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:

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

.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

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:

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

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

§ 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.

Init.
/
AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

§ 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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:

§ 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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:

§ 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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

§ 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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:

§ 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

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:

§ 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.

Init.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:

(3B9ADA52)

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,

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

§ 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

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:

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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes: (3B9ADA52)

§ 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.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:28:38 ET on 06/13/2019 under Order No. 9234565536 which expires on 04/03/2020, and is not for resale.
User Notes:
(3B9ADA52)

SUPPLEMENTARY CONDITIONS

The following supplements modify the "General Conditions of the Contract for Construction," AIA Document A201, Fifteenth Edition, 2017. Where a portion of the General Conditions is modified or deleted by the Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

ARTICLE 1 - GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

Delete the last sentence and substitute the following:

1.1.1 "Unless specifically excluded in Owner/Contractor Agreement, the Contract Documents also include Instructions to Bidders, Contractor's Bid including unit prices and Addenda to these documents."

Add the following definitions:

.8 Product: Materials, systems, and equipment incorporated or to be incorporated in the Work.

.9 Provide: Furnish and install and shall include, without limitation, labor, materials, equipment, transportation, services and other items required to complete the referenced tasks.

.10 Furnish: Pay for, deliver (or receive), unload, inspect, and store as specified or directed while retaining care, custody and control until received for installation by others based on a signed receipt.

.11 Install: Receive, unload, inspect, and store as specified or directed while retaining care, custody and control; set or place in position, make required connections; and adjust and test for satisfactory performance and operation.

.12 Not In Contract (N.I.C.): Products not in Contract, but which may require provisions in the Work for future installation.

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

Add the following:

1.2.4 Contract Documents are to be read and interpreted as a whole. The intent of the Contract Documents is to require Contractor to provide the highest quality of Work consistent with the design intent. Actual or alleged conflicts or inconsistencies between the Drawings and Specifications or other Contract Documents shall be brought to the Architect's attention in writing, prior to performing the affected Work.

1.6 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS OF SERVICE

Revise as follows:

1.6.1 The Drawings, Specifications and other documents, including those in electronic form, prepared by the Architect and the Architect's consultants are Instruments of Service through which the Work to be executed by the Contractor is described. The Contractor may retain one record set. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Architect or the Architect's consultants, and unless otherwise indicated the Architect and the Architect's consultants shall be deemed the authors of them and will retain all common law, statutory and other reserved rights, in addition to the copyrights, except as stated in the Agreement between the Owner and the Architect. All copies of Instruments of Service, except the Contractor's record set, shall be returned or suitably accounted for to the Architect, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Architect and the Architect's

consultants, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants. The Contractor, Subcontractors, Sub-subcontractors and material or equipment supplier are authorized to use and reproduce applicable portions of the Drawings, Specification and other documents prepared by the Architect and the Architect's consultants appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this authorization shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' copyrights, or other reserved rights.

Add the following:

1.6.2 Owner/Architect Agreement describes ownership and use of the Drawings, Specifications, and other documents prepared by Architect and Owner. Contractor shall take no action that would result in derogation or the rights of the Architect and Owner as set forth in the Owner/Architect Agreement.

ARTICLE 2 - OWNER

2.1 GENERAL

Revise as follows:

2.1.1 Delete the following sentences: "The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owners approval or authorization. Except as otherwise provided in Subparagraph 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative."

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

Revise as follows:

2.2.5 Contractor will be furnished twenty (20) complete sets of Contract Documents and one (1) CD with Contract Documents as a PDF. Additional sets will be furnished to Contractor at the Contractor's expense.

2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

Revise as follows:

2.4.1 Delete the following sentences: "Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect."

Add the following:

2.5 ARCHITECT'S COMPENSATION FOR SERVICES TO REMEDY DEFECTIVE WORK

2.5.1 When the Architect's services are required because of defective work, neglect, failure, deficiencies, default or failure to complete work within stated time by the Contractor, the Architect's compensation for such services shall be based on the Architect's invoice sent to the Owner. This Invoice along with other costs, damages and liabilities incurred by the Owner or Architect shall be the basis for adjusting the Contract Sum by a Change Order, or compensate the Owner for the Architect's Additional Services. This paragraph 2.5.1 shall be in addition to any other rights or remedies of the Architect set forth herein or provided by law.

ARTICLE 3: CONTRACTOR

Add the following:

3.2.4 If any Work deviates from the requirements of the Contract Documents, Contractor shall be solely responsible for all resulting costs, damages, and expenses. No claim by the Contractor that (a) Work indicated was not constructible, or (b) that performing the Work in accordance with Contract Documents would have caused or resulted in damages; shall be available to the Contractor as a defense or a claim to reduce the Contractor's liability, or to increase the Contractor's compensation or the Contract Time, unless the Contractor has informed the Owner and Architect in writing before performing Work in question and has received written direction concerning such Work from the Owner and Architect. This provision does not limit any other rights of the Owner or Architect or other obligations of Contractor.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

Revise as follows:

3.3.1 Deleting the following sentences: "If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of Changes proposed by the Contractor, the Owner shall be solely responsible for any resulting loss or damage."

Add the following:

3.3.4 Contractor shall review all specified construction installation procedures including procedures recommended by manufacturers or reference standards cited. If the specified procedure deviates from accepted construction practice, or if the procedure will affect any warranties including Contractor's general warranty, or is objected to by Contractor, Contractor shall advise Architect in writing prior to performing the affected Work, and propose alternative procedures which will not affect Contractor's warranty.

3.4 LABOR AND MATERIALS

Revise as follows:

3.4.2 The Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order. After the Award of the Contract, substitutions of products shall only be considered under the conditions, and in the manner, specified in Section 01630.

Add the following Subparagraphs 3.4.3 and 3.4.4 to 3.4:

3.4.3 After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 1 of the Specification).

3.4.4 By making requests for substitutions based on Subparagraph 3.4.3 above, the Contractor:

.1 represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;

.2 represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified.

.3 certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and

.4 will coordinate the installation of the accepted substitute, making such changes as may be required for the Work

to be complete in all respects.

Add the following to subparagraph 3.16.2 to 3.16:

3.16.2 The Contractor awarded this project agrees to allow any City, Federal or State inspector, acting in their official capacity, to have access to the job site.

ARTICLE 4: ADMINISTRATION OF THE CONTRACT

4.5 MEDIATION

4.6 ARBITRATION

Delete all references to mediation and arbitration.

ARTICLE 5: SUBCONTRACTORS

Add the following Subparagraph 5.1.3 to 5.1

A. No person shall perform electrical work on the contract without possessing an Arkansas State Master or Journeyman License from the Arkansas State Electrical Examiners Board. All electrical work and apprentice electricians shall be supervised by a Master or Journeyman Electrician on a one-to-one ratio.

B. All electricians shall have a copy of their license with them and shall be required to show it to an appropriate inspector upon request.

ARTICLE 7: CHANGES IN THE WORK

7.3 CONSTRUCTION CHANGE DIRECTIVES

Delete clauses 7.3.3.1; .2; .3 and .4 and substitute the following clauses to 7.3.3:

7.3.3.1 All quotations for changes, be they additions or deductions, shall be submitted in a complete, itemized breakdown form acceptable to the Architect and/or Owner using Contract Unit prices when set forth therein. The value of any and all such additions or deductions shall be determined as set forth in ".3", as follows:

.2 The itemized breakdown shall show unit quantities and costs of all labor and materials. Submit all verifying data as necessary or required by the Architect and/or Owner to support claims, such as copies of original invoices, payrolls, etc. The burden of proof of cost rests upon the Contractor. Contractor agrees that the Owner or his Representative shall have the right, at reasonable times, to inspect and audit the books and records of Contractor to verify the propriety and allowability of such costs.

.3 Compute requests for changes be they additions or deductions as follows:

(1) For work performed by the Contractor:

Net Cost of Materials		a
State Sales Tax	b	
Net Placing Cost		c
W. C. Insurance Premium and FICA Tax	d	
		a+b+c+d
Overhead and Profit, 12% x (a+b+c+d)		e
Allowable Bond Premium		f
TOTAL COST		a+b+c+d+e+f

(2) Credit for work omitted (deleted) shall be computed as outlined in (1) "a through e" except the Contractor's share of overhead and profit percentage is 7%.

(3) For work performed by Subcontractors:
Subcontractors shall compute their work as outlined in (1), "a through e".
To the cost of that portion of the work (Change) that is performed by the Subcontractor, the General Contractor shall add an Overhead and Profit Charge of Five (5%) percent plus the Allowable Bond Premium.

ARTICLE 9: PAYMENTS AND COMPLETION

9.3 APPLICATIONS FOR PAYMENT

Add the following Clause 9.3.1.3 to 9.3.1:

9.3.1.3 The Owner shall pay ninety-five percent (95%) of the amount due the Contractor on account of progress payments until Final completion. Five percent (5%) retainage will be withheld until the project has reached FINAL completion. **FINAL RETAINAGE WILL NOT BE RELEASED UNTIL ALL WORK ITEMS INCLUDING PUNCH LIST ITEMS AND PROJECT CLOSEOUT DOCUMENTS HAVE BEEN COMPLETED TO THE SATISFACTION OF THE OWNER.**

9.7 PAYMENT TO THE CONTRACTOR

Add the following Paragraph 9.7.2:

9.7.2 Payment to the contractor; The owner shall make final payment within 30 days of completion and final acceptance of the work. In the event the project extends beyond these 30 days, periodic payments may be made at the Owner's discretion.

9.11 LIQUIDATED DAMAGES

Add the following Paragraph 9.11 to Article 9:

9.11.1 The Contractor and the Contractor's surety, if any, shall be liable for and shall pay the Owner the sums hereinafter stipulated as liquidated damages for each calendar day of delay until the Work is substantially complete:
Five Hundred and no/100 Dollars ($500.00) (Refer to 1.2 of Special Conditions)

9.11.2 The Contractor and the Contractor's surety, if any, shall be liable for and shall pay the Owner the sum hereinafter stipulated as liquidated damages for each reinspection as stated in Section 01705 - Project Closeout:
Reinspection costs of $100.00 per hour for each Architect and/or Consultant, plus $0.405 per mile travel, plus expenses.

9.11.3 The Contractor and the Contractor's surety, if any, shall be liable and pay the Owner the sums hereinafter stipulated as liquidated damages for failure to submit no later than thirty (30) days after the Date of Substantial Completion, to the Owner and/or Architect, approved Final Project Record Documents:
One thousand and no/100 dollars ($1,000.00) (Refer to Section 01720).

9.11.4 The said amounts are fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such even sustain, and said amount is agreed to be the amount of damage which the Owner would sustain.

ARTICLE 11: INSURANCE AND BONDS

Add the following clauses to 11.1.1

11.1.1.9 Liability Insurance shall include all major divisions of coverage and be on a comprehensive basis including:

1. Premises Operations (including X and C)
2. Independent Contractors' Protective.
3. Products and Completed Operations.
4. Personal Injury Liability with Employment Exclusion deleted.
5. Contractual, including specified provision for Contractor's obligation under Paragraph 3.18.
6. Owned, non-owned and hired motor vehicles
7. Broad Form Property Damage including Completed Operations.
8. Underground.
9. Completed Value Builder's Risk (including theft)

11.1.1.10 If the General Liability coverages are provided by a Commercial General Liability Policy on a claims-made basis, the policy date or Retroactive Date shall predate the Contract; the termination day of the policy or applicable extended reporting period shall be no earlier than the termination date of coverages required to be maintained after final payment, certified in accordance with Subparagraph 9.10.2.

Add the following Clause 11.1.2.1 to 11.1.2:

11.1.2.1 The insurance required by Subparagraph 11.1.1 shall be written for not less than the limits shown on the sample certificates of insurance attached at the end of these Supplementary Conditions. Either format of certificate may be submitted. Only insurance companies admitted and licensed by the Arkansas State Insurance Commission (AR Code 22-9-402 et seq.) shall write policies. They must be executed by a resident local agent.

11.4 PROPERTY INSURANCE

11.4.1 Modify the first sentence of Subparagraph 11.4.1 as follows: Delete "unless otherwise provided, the Owner" and substitute "the Contractor."

Add the following sentences:

The form of policy for this coverage shall be Completed Value.

If the Owner is damaged by the failure of the Contractor to maintain such insurance, then the Contractor shall bear all reasonable costs properly attributable thereto.

11.4.1.2 Delete Clause 11.4.1.2.

11.4.1.3 Delete Clause 11.4.1.3.

11.4.4 Delete Subparagraph 11.4.4.

Delete Subparagraph 11.4.6 and substitute the following:

11.4.6 Certificates of Insurance shall be filed with the Owner prior to contact award. The Contractor shall file with the Owner two certified copies of the policy or policies providing this Property Insurance coverage, each containing those endorsements specifically related to the Project. Each policy shall contain a provision that the policy coverage will not be canceled or allowed to expire unless at least 15 days prior written notice has been given to the Contractor and the Owner.

11.4.7 Modify Subparagraph 11.4.7 by substituting "Contractor" for "Owner" at the end of the first sentence.

11.4.8 Modify Subparagraph 11.4.8 by substituting "Contractor" for "Owner" as fiduciary; except that at the first reference to "Owner" in the first sentence, the word "this" should be substituted for "Owner's."

11.4.9 Modify Subparagraph 11.4.9 by substituting "Contractor" for "Owner" each time the latter word appears.

11.4.10 Modify Subparagraph 11.4.10 by substituting "Contractor" for "Owner" each time the latter word appears.

11.5 PERFORMANCE BOND AND PAYMENT BOND

Delete Subparagraph 11.5.1 and substitute the following:

11.5.1 Within (10) days after receipt of the Owner's Intent to Award notice, the successful bidder shall furnish to the Owner an executed statutory Performance and Payment Bond. Failure to furnish the required bonds may cause forfeiture of bid guarantee to the Owner as liquidated damages (Act 757 of 1987).

11.5.1.1 The Performance and Payment Bond shall be in an amount equal to one hundred percent (100%) of the accepted Proposal (contract price) as security for the faithful performance of the contract, and as security for the payment of all persons performing labor and furnishing materials in connection with the contract. The bond shall be written by a surety company which is qualified and authorized to do business in the State of Arkansas; the bonds must be executed by a Licensed Resident Local Agent of Arkansas who shall be entitled to full commission paid local agents and who is licensed by the Insurance Commissioner to represent the surety company executing said bond; and the bonds shall conform to the requirements of Arkansas Code Ann. 18-44-501 et seq.

11.5.1.2 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 power of attorney. An original and (2) copies of the bond must be furnished, with power of attorney attached to each. The Contractor shall file (not record) the original bond with the Clerk in the Circuit Court of Sebastian County. The Contractor shall pay all expense incident to the filing of the bond. The remaining two copies shall be certified by the Clerk to evidence the filing of the original and submitted to the Owner.

END OF SECTION

SPECIAL CONDITIONS

1.1 OWNER'S USE OF THE PREMISES

A. The Owner or his representatives shall have access to the construction site for observation or installation of work items which are not a part of this work.

1.2 USE OF SITE BY OWNER

A. The Owner shall have the right to take possession of and use any complete or partially completed portions of the Work included under the Contract whether or not the time for completing the Work has expired, provided the Owner:
   1. Secures written consent of the Contractor, except in the event, in the opinion of the Architect, the Contractor is chargeable with unwarranted delay in the completion of the Work.
   2. Secures consent of the property insurance-carrier and consent of the Surety permitting occupancy of the building(s) or use of the project during the remaining period of construction without cancellation or lapse of insurance or bond on account of such occupancy.

B. Possession or use of any part of the Work, prior to final acceptance and payment, shall not constitute an acceptance of the Work taken or used.

C. If such use prior to the Contract time for completion increases the cost of the Work or delays its completion, the Contractor shall be entitled to extra compensation or extension of time, or both. The Contractor's claim for such extra compensation shall be in writing, with vouchers and other supporting data attached.

D. After the Contract time for completion has expired, the Contractor shall not be entitled to extra compensation or extension of time due to such use, neither shall the amount of the liquidated damages be reduced because of partial use or occupancy.

1.3 EXISTING FACILITIES

A. As the Work described in the Drawings and Specifications involves a public school complex that shall continue to be operational during the entire construction schedule, the following shall apply:
   1. A barrier (safety orange plastic construction fencing as minimum) shall be erected completely around the Project Site and Contractor's Staging/Storage Area for the duration of the work.
   2. Every effort shall be made by the Contractor to maintain accessible vehicle and pedestrian routes to all buildings by patrons for the duration of the Work. Coordination of accessible routes shall be discussed at the Pre-Construction Conference.

1.4 PHASING

A. Work at all areas shall be accomplished at the contractor's schedule within the time allowed in the final accepted Work Progress Schedule as prepared by the Construction Manager: **All work must be closely coordinated with the Construction Manager, Owner and Architect.**

1.5 PRESENCE OF ASBESTOS-CONTAINING MATERIAL

A. The Contract for this Work does not include requirements for asbestos abatement. Any suspected asbestos-containing materials encountered by the Contractor during the Project Work shall be immediately brought to the attention of the Architect and Owner. Refer to Specification Section 01121 - Asbestos and Precautions and Procedures.

1.6 PERMITS/FEES

A. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL NECESSARY PERMANENT AND / OR TEMPORARY PERMITS, BONDS, TAPS, AND INSPECTIONS FOR ALL UTILITIES, HIGHWAYS, STREETS, BUILDING CONSTRUCTION, AND ANY OTHER SUCH ITEM NOT SPECIFICALLY LISTED. ANY AND ALL COSTS ASSOCIATED WITH THESE PERMANENT AND / OR TEMPORARY PERMITS / FEES SHALL BE A PART OF THE BASE BID.

END OF SPECIAL CONDITIONS

DAVIS-BACON ACT DOES APPLY TO THIS PROJECT. THE GENERAL CONTRACTOR AND SUBCONTRACTORS WILL BE REQUIRED TO FILE WEEKLY WAGE AND HOURLY REPORTS. SEE ATTACHED WAGE RATES THAT APPLY.

A. WAGE PAYMENTS AND RECORDS.

1. Prevailing wages shall be paid in accordance with the provisions of the Davis-Bacon Act.
2. The Contractor or subcontractor shall insert in any subcontracts the clauses entitled Davis-Bacon Act, Contract Work Hours and Safety Standards Act- Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Withholding of funds. Subcontractors (Labor Standards), Contract Termination - Department Disputes Concerning Labor Standards, Compliance with Davis- Bacon and Related Act regulations, and Certification of Eligibility and such other clauses as the Architect may be appropriate instructions, require, and also a clause requiring subcontractors to include these clauses in any lower tier subcontracts.

B. POSTING OF WAGE RATES

1. The scale of wages to be paid shall be posted by the Contractor in a prominent and easily accessible place at the site of the work.

C. WAGE RATES

1. The requirements of the Davis-Bacon Wage Rate Decision No. AR20220008 08/05/2022 which establishes the current prevailing wages to be paid on this project, is contained herein and applies to this project.

"General Decision Number: AR20220008 08/05/2022

Superseded General Decision Number: AR20210008

State: Arkansas

Construction Type: Building
BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

County: Johnson County in Arkansas.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at https://www.dol.gov/agencies/whd/government-contracts.

Modification Number	Publication Date
0	01/07/2022
1	02/18/2022

2 02/25/2022
3 08/05/2022

CARP0216-003 01/01/2022

	Rates	Fringes
MILLWRIGHT	$ 29.90	11.58

ELEC0295-010 01/01/2017

	Rates	Fringes
ELECTRICIAN (Includes Low Voltage Wiring)	$ 24.55	12.23

ENGI0624-006 01/01/2017

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Crane	$ 26.20	12.30
Forklift	$ 26.20	12.30

---

* IRON0321-010 03/01/2022

	Rates	Fringes
IRONWORKER, STRUCTURAL	$ 23.50	19.96

PAIN0424-008 07/01/2021

	Rates	Fringes
PAINTER (Spray)	$ 16.25	10.42

---

* SUAR2015-005 01/09/2017

	Rates	Fringes
BRICKLAYER	$ 20.00	0.00
CARPENTER, Includes Drywall Hanging, and Metal Stud Installation	$ 17.05	4.64
CEMENT MASON/CONCRETE FINISHER	$ 15.62	0.00
HVAC MECHANIC: HVAC Duct Installation	$ 17.27	5.03
LABORER: Common or General	$ 11.72 **	0.00
LABORER: Mason Tender - Brick	$ 10.00 **	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 23.08	0.00
OPERATOR: Bulldozer	$ 18.14	0.00
PAINTER (Brush and Roller)	$ 17.78	0.00
PLUMBER	$ 17.73	2.84
TRUCK DRIVER: Dump Truck	$ 15.00	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($15.00) or 13658 ($11.25). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the

Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISIO"

SECTION 01 01 00 - SUMMARY OF THE WORK

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included:
1. The "Project," of which the "Work" of this Contract is a part, is titled:
Jasper School District – Oark Elementary School Renovations.

2. The "Work of this Contract includes, but is not necessarily limited to:
Renovation of existing building consisting of ±5,500 square feet renovation of classroom spaces and adding gang toilet rooms and addition of ±1,590 square feet corridor. Includes new wood truss system, new walls and doors. See drawings for additional information.

B. Related Work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, Special Conditions, and Sections in Division 1 of these Specifications.

END OF SECTION

SECTION 01 14 20 - CONTRACTOR'S USE OF THE PREMISES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: This Section applies to work requiring the Contractor and/or his representatives including, but not necessarily limited to, suppliers, subcontractors, employees, and field engineers, to enter the Owner's existing facilities.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Promptly upon award of the Contract, notify all pertinent personnel regarding requirements of this Section.

B. Require that all personnel who will enter upon the Owner's existing facilities certify their awareness of and familiarity with the requirements of this Section.

1.3 TRUCK AND EQUIPMENT ACCESS

A. To avoid traffic conflict, to maintain safety on the site, and to avoid overloading of streets and driveways elsewhere on the Owner's property, limit the access of trucks and equipment to the route designated at the Preconstruction Conference as the Contractor's Access Route.

B. Provide adequate protection over existing paving and site improvements over or near which trucks and equipment pass to reach the job site.

1.4 CONTRACTOR'S VEHICLES AND PARKING

A. Require Contractor's vehicles, vehicles belonging to employees of the Contractor, and all other vehicles entering upon the Owner's property in performance of the Work of the Contract, to use only the Access Route so designated.

B. Do not permit such vehicles to park on any street or other area of the Owner's property except in the area so designated at the Pre-Construction Conference as "Contractor's Parking Area" on the Project Site, but shall be the Work area as a minimum.

1.5 CONTRACTOR'S STAGING AND STORAGE

A. The staging and storage area shall be limited to the areas so designated at the Pre-Construction Conference, but shall be the Work area as a minimum.

1.6 SECURITY

A. Restrict the access of all persons entering upon the Owner's property in connection with the Work to the Access Route and to the actual site of the Work.

END OF SECTION

SECTION 01 15 20 - APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Comply with procedures described in this Section when applying for progress payment and final payment under the Contract.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.
2. The Contract Sum and the schedule for payments are described in the Form of Agreement.
3. Payments upon Substantial Completion and Completion of the Work are described in the General Conditions and in Section 017050 of these Specifications.
4. The Architect's approval of applications for progress payment and final payment may be contingent upon the Architect's approval of applications for progress payment and final payment may be contingent upon Architect's approval of compliance with Section 01705 of these Specifications.

1.2 QUALITY ASSURANCE

A. Prior to start of construction, secure the Architect's approval of the Schedule of Values required to be submitted under Paragraph 9.2 of the General Conditions.

B. During progress of the Work, modify the Schedule of Values as approved by the Architect to reflect changes in the Contract Sum due to Change Orders or other modifications of the Contract.

C. Base requests for payment on the approved Schedule of Values.

1.3 SUBMITTALS

A. Formal submittal: Unless otherwise directed by the Architect, submit request for each calendar month, not later than the 5th day of the following month.
1. Make formal submittal of request for payment by filling in the agreed data, by typewriter or neat lettering in ink, on AIA Document G702, "Application and Certificate for Payment," plus continuation sheet or sheets.
2. Sign and notarize the Application and Certificate for Payment. The Application and Certificate for Payment MUST be notarized before submittal to the Architect.
3. Submit the original of the Application and Certificate for Payment, plus two identical copies of the continuation sheet or sheets, plus an updated Construction Schedule to the Architect.
4. The Architect will compare the formal submittal with the approved informal submittal and, when approved, will sign the application and Certificate for Payment, will make required copies, and will distribute:
   a. One copy to Contractor;
   b. One copy to Owner;
   c. One copy to Architect's file.
5. Owner will, upon approval, disburse directly to the Contractor.
6. **EACH APPLICATION FOR PAYMENT MUST ALSO CONTAIN A CURRENT, UPDATED PROGRESS SCHEDULE/CONSTRUCTION SCHEDULE.**

B. Prior to the initial payment request, submit:
1. **Schedule of Values**
2. **Progress Schedule/Construction Schedule: As a minimum this shall show dates, in a bar graph form, of work to occur within the 16 major Divisions of the Specifications.**
3. **Evidence of Insurance Coverages**

C. **Contractor's Construction Schedule (GANTT Chart)**
   1. **Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, (or similar) Contractor's Construction Schedule within 15 days of date established for Commencement of the Work.**
   2. **The schedule shall be similar to the one following this Section, but must contain an "Actual" bar along with a "Scheduled" bar. The "Scheduled" bar shall not change throughout the project, except through an approved Change Order.**
   3. **The Contractor's Schedule must be updated at least every 30 days and be submitted with each Application for Payment.**

D. Following issuance by Architect of Certificate of Substantial Completion, Contractor may submit special payment request, provided the following items have been completed:
   1. Obtains inspections and other approval by governing authorities required for Owner's occupancy and use of project.
   2. Submit warranties and similar documentation.
   3. Submit maintenance and operation manuals.
   4. Complete final cleaning of the work.
   5. Submit listing of work to be completed before final acceptance by the Owner.

E. Following completion of the following requirements, final payment request may be submitted:
   1. Complete work listed as incomplete at the time of Substantial Completion, or otherwise assure Owner of subsequent completion of individual incomplete items.
   2. Settle liens and other claims, or assure Owner of subsequent settlement.
   3. Submit proof of payment on fees, taxes and similar obligations.
   4. Transfer operational, access, security and similar provisions to Owner.
   5. Remove temporary facilities, materials, signs and similar items.

END OF SECTION

[Project Name]

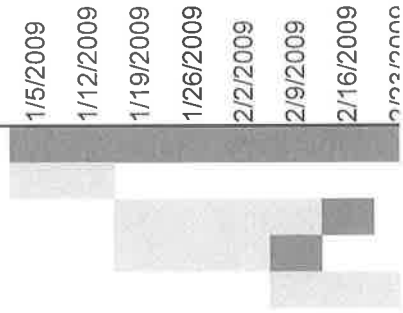
[Company Name]

Project Lead: John Doe

Today's Date: 3/5/2009 (Friday)

Start Date: 1/5/2009 (Monday) First day of Week (Sunday=1)

WBS	Tasks	Task Lead	Start	End	Duration (Days)	% Complete	Working Days	Days Complete	Days Remaining
1	Task Category 1	John	1/3/09	3/17/09	74	80%	52	59	15
1.1	Sub Task		1/3/09	1/20/09	18	100%	12	18	0
1.2	Sub Task		1/21/09	2/19/09	30	95%	22	28	2
1.3	Sub Task		1/22/09	2/9/09	19	95%	13	18	1
1.4	Sub Task		2/10/09	3/18/09	37	50%	27	18	19
2	Task Category 2	Jane	3/1/09	5/11/09	72	13%	51	29	43
2.1	Sub Task		3/1/09	3/17/09	17	50%	12	8	9
2.2	Sub Task		3/1/09	3/17/09	17	30%	12	5	12
2.3	Sub Task		3/18/09	4/25/09	39	0%	28	0	39
2.4	Sub Task		4/15/09	5/12/09	28	0%	20	0	28
3	Task Category 3	Bill	4/25/09	8/1/09	99	0%	70	0	99
3.1	Sub Task		4/25/09	5/11/09	17	0%	11	0	17
3.2	Sub Task		5/12/09	5/28/09	17	0%	13	0	17
3.3	Sub Task		5/29/09	7/4/09	37	0%	26	0	37
3.4	Sub Task		7/5/09	8/2/09	29	0%	20	0	29



SECTION 01 20 10 - PRECONSTRUCTION CONFERENCE

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: To help clarify construction contract administration procedures, the Architect will conduct a Preconstruction Conference prior to start of the Work. Provide attendance by the designated personnel.

B. Related Work:
   1. Documents affecting Work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. For those persons designated by the Contractor, his subcontractors, and suppliers to attend the Preconstruction Conference, provide required authority to commit the entities they represent to solutions agreed upon in the Conference.

1.3 SUBMITTALS

A. To the maximum extent practical, advise the Architect at least 24 hours in advance of the Conference as to items to be added to the agenda.

B. The Architect will compile Minutes of the Conference and will furnish copies of the Minutes to the Construction Manager and the Owner. The Construction Manager may make and distribute such copies as is required.

1.4 PRECONSTRUCTION CONFERENCE

A. The Conference will be scheduled to be held within 15 working days after the Owner has issued the Notice to Proceed.

B. Attendance:
   1. Provide attendance by authorized representatives of the Construction Manager, Contractors and major suppliers.
   2. The Architect and / or Construction Manager will advise other interested parties, including the Owner, and request their attendance.

C. Minimum Agenda: Data will be distributed and discussed on:
   1. Organizational arrangement of Construction Manager's/Contractor's forces and personnel, and those of subcontractors, materials suppliers and the Architect;
   2. Channels and procedures for communication;
   3. Construction schedule, including sequence of critical work and phasing;
   4. Contract Documents, including distribution of required copies of Drawings and revisions.
   5. Processing of Shop Drawings and other data submitted to the Architect for review.
   6. Processing of field decisions and Change Orders;
   7. Rules and Regulations governing performance of the Work; and
   8. Procedures for safety and first aid, security, quality control, housekeeping and related matters.
   9. "As-Built" Drawings, Project Close-Out Documents.
   10. Contractor Storage, Parking and Staging areas.
   11. Bi-weekly meetings with the Owner, Architect, Construction Manager and Contractors.

END OF SECTION

SECTION 01 21 31 - ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements governing the following:
   1. Lump-sum allowances.
   2. Contingency allowances.

1.2 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.3 SUBMITTALS

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

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.4 COORDINATION

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

1.5 LUMP-SUM ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.

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

1.6 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.

B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.

C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.

D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.7 UNUSED MATERIALS

A. Return unused materials purchased under and allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

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

END OF SECTION

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. See Division 01 Section "Allowances" for procedural requirements for handling and processing allowances.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions.", or similar document with Architect's letterhead.

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
   1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
   2. Within 10 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
      a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
      b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
      c. Include costs of labor and supervision directly attributable to the change.
      d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.
   1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
   2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
   3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
   4. Include costs of labor and supervision directly attributable to the change.
   5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
   6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests, or other similar form approved by the Owner and Architect.

1.4 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.5 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
   1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
   1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 26 60 - CHANGE ORDER PROCEDURE

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Make such changes in the Work, in the Contract Sum, in the Contract Time of Completion, or any combination thereof, as are described in written Change Orders signed by the Owner and the Architect and issued after execution of the Contract, in accordance with the provisions of this Section.

B. Related Work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.
   2. Changes in the Work are described further in Article 7 of the General Conditions.
   3. Architect's Supplemental Instructions:
      a. From time to time during progress of the Work the Architect may issue a "Supplemental Instructions" which interprets the Contract Documents or orders minor changes in the Work without change in Contract Sum or Contract Time.
      b. Should the Contractor consider that a change in the Contract Sum or Contract Time is required, he shall submit an itemized proposal to the Architect immediately and before proceeding with the Work. If the proposal is found to be satisfactory and in proper order, the Supplemental Instructions will be superseded by a Change Order.
   4. Proposal Requests:
      a. From time to time during progress of the Work the Architect may issue a "Proposal Request" for an itemized quotation for changes in the Contract Sum and/or Contract Time incidental to proposed modifications to the Contract Documents.

1.2 QUALITY ASSURANCE

A. Include within the Contractor's quality assurance program such measures as are needed to assure familiarity of the Contractor's staff and employees with these procedures for processing Change Order data.

1.3 SUBMITTALS

A. Make submittals directly to the Architect at the address shown in the Project Manual.

1.4 PRODUCT HANDLING

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

1.5 PROCESSING CHANGES INITIATED BY THE OWNER

A. Should the Owner contemplate making a change in the Work or a change in the Contract Time of Completion, the Architect will issue a "Proposal Request" or "Supplemental Instructions" to the Contractor.

B. If the Contractor has been directed by the Architect 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 as provided for under Article 7 of the General Conditions.

C. If the Contractor has been directed by the Architect 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 the Architect and reach agreement on the most appropriate method for determining credit or cost for the change.

D. If the Contractor has been directed by the Architect to promptly advise him as to credit or cost proposed for the described change, the Contractor shall:
   1. Analyze the described change and its impact on costs and time;
   2. Secure the required information and forward it to the Architect for review;
   3. Meet with the Architect as required to explain costs and, when appropriate, determine other acceptable ways to achieve the desired objective;
   4. Alert pertinent personnel and subcontractors as to the impending change and, to the maximum extent possible, avoid such work as would increase the Owner's cost for making the change, advising the Architect in writing when such avoidance no longer is practicable.

1.6 PROCESSING CHANGES INITIATED BY THE CONTRACTOR

A. Should the Contractor discover a discrepancy among the Contract Documents, a concealed condition as described in Paragraph 4.7.6 of the General Conditions, 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, he shall notify the Architect as required by pertinent Sections of the Contract Documents.

B. Upon agreement by the Architect that there is reasonable cause to consider the Contractor's proposed change, the Architect will issue a Proposal Request in accordance with the provisions described in subparagraph 1.1.B.4 above.

1.7 PROCESSING PROPOSAL REQUESTS

A. The Contractor shall make written reply to the Architect in response to each Proposal Request.
   1. State proposed change in the Contact Sum, if any. Any and all additional costs shall be itemized, by both the general contractor and subcontractors, to clearly and completely show all materials, both quantities and unit costs, and labor costs.
   2. State proposed change in the Contact Time of Completion, if any.
   3. Clearly describe other changes in the Work, if any, required by the proposed change or desirable therewith.
   4. Include full backup data such a subcontractor's letter of proposal or similar information.
   5. Submit this response in single copy.

B. When cost or credit for the 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, the Architect will issue a "Change Order" to the Contractor.

1.8 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 Proposal Requests or Supplemental Instructions involved, and will be signed by the Owner and the Architect.

C. The Architect will issue three copies of each Change Order to the Contractor.
   1. The Contractor promptly shall sign all three copies and return two copies to the Architect.
   2. The Architect will retain one signed copy in his file and will forward one signed copy to the Owner.

D. Should the Contractor disagree with the stipulated change in Contract Sum or change in Contract Time of Completion, or both:
   1. The Contractor promptly shall return two copies of the Change Order, unsigned by him, to the Architect with a letter signed by the Contractor and stating the reason or reasons for the Contractor's disagreement.
   2. The Contractor's disagreement with the Change Order shall not in any way relieve the Contractor of his responsibility to proceed with the change as ordered and to seek settlement of the dispute under pertinent provisions of the Contract Documents.

END OF SECTION

SECTION 01 29 73 - SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 GENERAL

A. Submit to the architect/engineer a Schedule of Values, at least ten (10) days prior to submitting the first Application for Payment.

B. Upon request by architect/engineer, support values given with data that will substantiate their correctness.

C. Submit quantities of designated materials.

D. Payment for materials stored on site will be limited to those materials listed in Schedule of Unit Material Values.

E. Use Schedule of Values only as a basis for contractor's Application for Payment.

1.2 FORM OF SUBMITTAL

A. Submit typewritten Schedule of Values on 8-1/2" x 11" white paper.

B. Use Table of Contents of this specification as basis for format for listing costs of work for each of the sections for all divisions.

C. Identify each line item with number and title as listed in Table of Contents of this specification (sections).

D. The example following this section sham be used and modified to be applicable to this Project/Work.

1.3 PREPARING SCHEDULE OF VALUES

A. Itemize separate line item cost for each of the following general cost items:
   1. Performance and Payment Bonds
   2. Field Supervision and Layout
   3. Temporary Facilities and Controls

B. Itemize separate line item cost for work required by each section of this specification.

C. Breakdown installed cost into:
   1. Delivered cost of product, with taxes paid.
   2. Installation cost

D. For each line item which has installed value of more than 1%, break down costs to list major products or operations under each item.

E. Round off figures to nearest dollar.

F. Make sum of total costs of all items listed in schedule equal to total contract sum.

1.4 PREPARING SCHEDULE OF UNIT MATERIAL VALUES

A. Submit separate Schedule of Unit Prices for materials to be stored on which progress payments will be made.

B. Make form of submittal parallel to Schedule of Values, with each line item identified same as line time in Schedule of Values.

C. Include in unit prices only:
   1. Cost of material
   2. Deliver and unloading at site
   3. Sales taxes

D. Make sure that unit prices multiplied by quantities given equal material cost of that item in Schedule of Values.

1.5 REVIEW AND RESUBMITTAL

A. After review by architect/engineer, revise and resubmit Schedule (and Schedule of Material values) as required.

B. Resubmit revised Schedule in same manner.

END OF SECTION

Schedule of Values

Project: Oark Elementary School Renovations
Location: Jasper, Arkansas
Contractor:

Architect's
Project No.: 22-25
Date:

Item	Description of Work	Scheduled Value	Work Completed					Work Remaining	
			Previous Application	This Application		Total Completed and Stored	%	Balance to Finish	Retainage
				Work In Place	Stored Materials				
Division 1	**General Conditions**								
1.0	Overhead								
1.1	Bonds & Insurance								
1.2	Permits & Fees								
Division 2	**Sitework**								
2.0	Paving (off-site)								
2.1	Utilities (off-site)								
2.2	Clearing & Grubbing								
2.3	Demolition								
2.4	Earthwork (develop.)								
2.5	Earthwork (finish)								
2.6	Utilities (on-site)								
2.7	Storm Drainage								
2.8	Electrical (site)								
2.9	Paving								
2.9A	Paving - Concrete								
2.9B	Paving - Asphalt								
2.10	Exterior signage								
2.11	Fences & Gates								
2.12	Landscaping								
Division 3	**Concrete**								
3.0	Site Concrete-Walks								
3.1	Building Concrete- Piers & Grade Beams								
3.2	Building Concrete - Slabs								
Division 4	**Masonry**								
4.0	Masonry								
Division 5	**Metals**								
5.0	Structural Steel								
5.1	Steel Joists								
5.2	Steel Deck								
5.3	Metal Studs								
5.4	Handrails & Railings								
Division 6	**Wood & Plastics**								
6.0	Rough Carpentry								
6.1	Finish Carpentry								
6.2	Casework/Millwork								
Division 7	**Thermal & Moisture**								
7.0	Roofing System - Membrane								
7.1	Bldg Insulation & V.B.								
7.2	Roofing Sys-Shingles								
7.3	Roofing Accessories								
7.4	Sealants & Caulking								
7.5	Membrane Waterproofing								
7.6	E.I.F.S.								

Item	Description of Work	Scheduled Value	Work Completed					Work Remaining	
			Previous Application	This Application		Total Completed and Stored	%	Balance to Finish	Retainage
				Work In Place	Stored Materials				
Division 8	**Doors & Windows**								
8.0	Doors & Frames								
8.1	Overhead Doors & Grilles								
8.2	Specialty Doors								
8.3	Storefronts								
8.4	Hardware								
8.5	Other Glazing								
Division 9	**Finishes**								
9.0	Gypsum Board								
9.1	Ceramic Tile								
9.2	Acoustical Ceiling								
9.4	Resilient Flooring & Base								
9.5	Painting								
9.6	Carpet								
9.7	Vinyl Wallcovering								
Division 10	**Specialties**								
10.0	Toilet Accessories								
10.1	Entry Mats								
10.2	Interior Signage								
10.3	Lockers								
10.4	Misc. Specialties								
Division 11	**Equipment**								
11.0	Stage Equipment								
11.1	Wall Surface System								
11.2	Food Service Equipment								
Division 12	**Furnishings**								
12.0	Window Treatment								
Division 13	**Special Construction**								
Division 14	**Conveying Systems**								
14.0	Elevator								
Division 15	**Mechanical**								
15.0	Plumbing - Rough-in								
15.1	Plumbing - Top-out								
15.2	HVAC System - Units								
15.3	HVAC Test & Balance								
15.4	HAVC System - Ductwork								
Division 16	**Electrical**								
16.0	Electrical Power -								
	Switch Gear								
16.1	Electrical Power -								
	Conduit, Fittings & Wire								
16.2	Electrical Lighting-Fixtures								
16.3	Fire Alarm System								
	Change Orders								
Subtotal	**Site Development**	$ -							
	Site Improvement	$ -							
	Building	$ -	Construction costs not including Sitework cost						
	Total	$ -	$ -	$ -	$ -	$ -		$ -	$ -

SECTION 01 31 10 - ALTERATIONS PROJECT PROCEDURES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Contractor's responsibilities concerning isolation of dust-producing work from adjacent and occupied spaces of the building where work is to occur.

B. Contractor's responsibilities concerning temporary dust-containment for materials, products, and equipment used in the construction project.

PART 2 - PRODUCTS

A. As required and selected by the Contractor for the work described in PART 3 - EXECUTION.

PART 3 - EXECUTION

A. Temporary Dust Partitions: Maintain temporary dust partitions to seal openings to occupied areas to isolate the areas of construction and ensure that no dust, smoke and/or fumes are released into the building. Temporary Partitions may also be required for some locations to provide building security. Such partitions shall be installed as required and directed by the Owner's Construction Coordinator and the Architect. They will be identified at the Preconstruction Conference and are NOT indicated on the Drawings.
   1. Dust Drapes: To be maintained in place and require approval of the Owner and/or Architect.
      a. Covering material: 6 mil. Clear polyethylene sheeting, with a minimum of 1 foot overlapped and continuously-taped joints. Attach sheeting from ceiling to finished floor to create dust-proof separation. If conditions make attachment to the ceiling impossible, light framing with sheeting attached all around shall be installed to prohibit dust penetration from the work areas.
   2. Mats
      a. Provide "walk-off" type mats at doors or entrances into construction area to reduce tracking of dust and debris. Replace or clean daily or as required to ensure dust containment.
   3. Ventilation Exposure Controls
      a. Provide supply air to and exhaust air from the work area to maintain a negative pressure of 0.01 inch of water. The ventilation system shall operate on a 24-hour basis throughout the construction process.
      b. **ALL NEW HVAC SYSTEM FILTERS THROUGHOUT THE BUILDING ADDITIONS AND EXISTING ROOMS WHICH ARE REMODELED, SHALL BE CHANGED TO NEW ONES UPON RECEIPT OF CERTIFICATE OF OCCUPANCY FROM CITY.**
   4. **Temporary Walls: To be maintained in place and require approval of the Owner's Construction Coordinator.**
      a. **2 x 4 stud walls with ½" plywood, as a minimum. Walls to be full height of structure, constructed from FFL to underside of roof decking.**
      b. **Walls shall provide security, dust, control and public protection at all areas where existing interior and/or exterior walls are to be removed.**
      c. **All temporary exterior walls and/or doors shall be weathertight/weatherproof.**

END OF SECTION

SECTION 01 31 13 - COORDINATION

PART 1 - GENERAL

1.1 EXAMINATION

A. Each contractor, subcontractor, or supplier shall thoroughly examine the drawings and specifications pertaining to separate contracts and include in his base bid those items for which he will be responsible and for the proper coordination of the work to be performed.

1.2 TRANSITIONS

A. The architect accepts no responsibility for the naming of every item that may be needed to make transitions from the work of one contractor to another. All such transitions shall be the entire responsibility of the contractor, subcontractor, and materials and equipment suppliers involved.

1.3 SCHEDULES

A. General contractor shall coordinate the scheduling of all work.

1.4 LOCATION OF WORK

A. The contractor shall check and verify all measurements and dimensions shown on contract drawings and shop drawings of all the work as it progresses.

B. The proper location of work of all subcontractors, including supports for equipment shall be the final conclusive responsibility of the general contractor regardless of who is responsible for the layout of the work in the first instance.

1.5 UNLOADING AND HOISTING MATERIALS

A. The contractor, each subcontractor, and each supplier of materials and equipment shall be responsible for the hoisting of their materials and equipment to the proper location for installation on the project.

B. They shall also be responsible for unloading of all materials and equipment at the job site.

1.6 STORAGE OF MATERIALS

A. General contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and equipment and coordinate the storage and execution of their work with his.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 31 20 - GENERAL CONSTRUCTION REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Special Provisions.
2. Commencement activity.
3. Quality control.
4. Project closeout.

B. Related Documents:
1. The Contract Documents, as defined in Section 01 01 00 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.

1.2 SPECIAL PROVISIONS

A. Project: The Project is the total construction for which the Contractor is responsible, including all labor, materials and equipment used or incorporated in such construction.

B. Work: The Work comprises the completed construction designed under the Project and includes labor necessary to produce such construction, and materials and equipment incorporated or to be incorporated in such construction.

C. Contract Documents: Five (5) paper sets of Contract Documents will be furnished to the Contractor. One (1) electronic PDF set of Contract Documents will be furnished to the Contractor.

D. Demolition: Contractor, if there are any, shall remove all existing Improvements on the site. Demolish existing construction completely and remove from the site. Use such methods as required to complete the work in compliance with city and utility company requirements. All existing utility connections shall be disconnected, properly capped and removed by the Contractor. Demolish foundation walls to a depth of not less than 24 inches below the finish grade surface. Complete removal is required under the new building or other new foundations. Remove all below-grade wood and metal. Any existing basements, cisterns and/or other below grade voids shall be filled with compatible fill material suitable for proposed constructions and compacted per specific requirements. All debris, rubbish, salvage and other materials shall be removed from the site. Protect all adjacent properties and/or structure from damage.

E. Utilities: It is the Contractor's responsibility to coordinate with the appropriate utility companies actual location of mains serving the site and route the building utility lines in the most direct route.
1. The location of utilities existing in the building as indicated on the Drawings may be modified by the Contractor to accommodate a more direct route to the utility connection location with written approval from the Owner and Architect.

F. Permits and Fees: The Contractor shall obtain and pay for the Building Permit and other permits and governmental fees, licenses, and inspections required. The Contractor is to include in the offer the cost of the following charges (permanent and temporary) if applicable to the project, payable to State, local or special community development agencies and any additional fees as required:
1. Water service connection and meter fee.
2. Electrical company connection and meter fee.
3. Telephone company connection and meter fee.
4. Sanitary sewer connection fee.
5. Culvert installation.
6. Sign installation.

7. Historical and Archeological Finds: All items having any apparent historical or archeological interest discovered in the course of construction must be carefully preserved. The Contractor must leave the archeological find undisturbed and immediately report it to the Owner and Architect.
8. Any and all other fee's not listed but required by state local or other agencies.

ALL OF THE ABOVE LISTED PERMITS AND FEES REQUIRE THE CONTRACTOR TO CONTACT EACH AGENCY DURING THE BIDDING PROCESS, IN ORDER TO OBTAIN THESE FEES.

1.3 COMMENCEMENT ACTIVITY

A. Evidence that the Contractor has started procurement of materials, preparation and submission of shop drawings, preparation of subcontracts and other preparatory work must satisfy the requirement that work begin upon receipt of Notice to Proceed.

1.4 PRECONSTRUCTION CONFERENCE AND OTHER MEETINGS

A. Specified in Section 01 20 10 – Preconstruction Conference.

1.5 QUALITY CONTROL

A. Testing:
   1. Employ the services of an independent testing laboratory to take samples, perform tests and make inspections. The costs for such laboratory and tests shall be borne by the Contractor.
   2. Submit testing reports as required.

1.6 PRE-FINAL AND FINAL/OCCUPANCY INSPECTIONS

A. The Contractor is to notify in writing, the Architect, that the work is complete for a Pre-Final Inspection with the Owner and the Architect. The Contractor must provide the Owner at least 10 calendar days advance notice.

B. The Contractor is to diligently complete all punch list items before a Final/Occupancy Inspection is scheduled.

1.7 PROJECT CLOSEOUT

A. Specified in Section 017800 - Closeout Submittals and Training.

B. Closeout Submittals:

   1. Specified in Section 017800 - Closeout Submittals and Training.
   2. **BEFORE THE PROJECT CAN BE CLOSED OUT, AND BEFORE FINAL PAYMENT CAN BE MADE, THE CONTRACTOR SHALL HAVE PROVIDED ALL SUBMITTALS REQUIRED BY THE CONTRACT DOCUMENTS. ALL SUBMITTALS REQUIRED BY THE CONTRACT DRAWINGS OR SPECIFICATIONS SHALL BE SENT TO THE ARCHITECT FOR REVIEW AND COORDINATION, IN ACCORDANCE WITH THE REQUIREMENTS OF THE RESPECTIVE DRAWING OR SPECIFICATION SECTION. ANY ITEMS THAT THE ARCHITECT DETERMINES ARE INCOMPLETE OR INCORRECT SHALL BE CORRECTED AND RESUBMITTED. ALL CLOSEOUT SUBMITTALS MUST BE RECEIVED NO LATER THAN THE DATE OF SUBSTANTIAL COMPLETION.**
   3. Required submittals include, but are not necessarily limited to, the following:
      a. Warranties/Guarantees. As indicated in the Contract Documents.
      b. Operation and Maintenance Manuals.
         1) Furnish three complete manuals, or sets of manuals, containing the manufacturers' instructions for maintenance and operation of each item of equipment and apparatus furnished under the Contract, and any additional data specifically required under the various sections of the Specifications.
         2) ARRANGE THE MANUALS IN PROPER ORDER, INDEXED, AND BOUND INTO 3-RING BINDERS. ALL INFORMATION SHALL ALSO BE SUBMITTED AS AN ELECTRONIC COPY, PDF, ON A CD.

3) In the front of each binder, include a list containing the name, address, phone number, and area or item of responsibility, for every party to be contacted, should any problems or defects with the building or its equipment occur during the warranty period(s). The first party listed shall be the Contractor.

c. Project Record Documents. Furnish "As-Builts" required by the Specifications.
d. Certificate of Occupancy. Where the local authority at the site of the building requires either a temporary or permanent Certificate of Occupancy, obtain and pay for the Certificate(s) and furnish a copy to the COR.
e. Inspection/Testing Reports. Furnish two copies of all reports required by the Architect or as otherwise indicated in the various other Specification sections.
f. Shop Drawings, Product Data. As indicated in the various Specification sections.
g. Hardware and Keying Schedules. As indicated in the appropriate Specification section.
h. Spare Parts. Replacement Stock, Samples, Special Tools. As indicated in the various Specification Sections.
i. Contractor must sign and submit a "Certificate of Asbestos and Lead-Based Paint".

C. Retention:
1. The Architect will assign a monetary value to all punch list items not completed, and to all required submittals not received, as of the date of "Final Acceptance" and the total value of those items shall be retained and/or deducted from the Contractor's final payment until the Contractor demonstrates to the Owner's satisfaction that such items have been completed or corrected.

END OF SECTION

SECTION 01 32 16 – CONSTRUCTION SCHEDULES

PART 1 - GENERAL

1.1 SCHEDULE

A. Prepare and submit for architect's approval a projected construction schedule for the entire work.

B. The schedule shall indicate the dates for the starting and completion of various stages and sequencing of construction and shall be revised monthly. Submit with contractor's Application for Payment each month.

1.2 FORM

A. Prepare schedule in the form of a horizontal bar chart providing:
   1. Separate horizontal bar column for each major specification section.
   2. Place in chronological order of beginning of each item of work.
   3. Identify each horizontal bar:
      a. By major specification section
      b. By distinct graphic delineation
   4. Horizontal time scale (weeks)
   5. Allow space for denoting of actual progress of the work.
   6. Minimum sheet size: 8-1/2" x 14". Maximum sheet size: 11' x 17".

1.3 SCHEDULE UPDATE

A. Update schedules accurately indicating the progress to first day of each month and submit monthly with Application and Certificate for Payment. Updated schedules are to be distributed at monthly progress meetings to all attendees.

B. **The original schedule shall always be shown on the monthly updated schedules. The bar char and data shall always show (state), the original schedule and the revised schedule. Thus, showing how the schedule has, or has not, changed over time (each month).**

END OF SECTION

SECTION 01 33 23 - SUBMITTALS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Project Data

B. Shop Drawings

C. Samples

D. Design Data

E. Test Reports

F. Certificates

G. Manufacturer's Instructions

H. Manufacturer's Field Reports

I. Erection Drawings

1.2 PROJECT DATA: Submit "electronically" to the Architect

A. Manufacturer's standard schematic drawings:
   1. Modify drawings to delete information which is not applicable to project.
   2. Supplement standard information to provide additional information applicable to project.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data.
   1. Clearly mark each copy to identify pertinent materials products, or models
   2. Show dimensions and clearances required
   3. Show performance characteristics and capacities
   4. Show wiring diagrams and controls.

1.3 SHOP DRAWINGS: Submit "electronically" to the Architect

A. Original drawings, prepared by contractor, subcontractor, supplier, or distributor, which illustrate some portion of the work; showing fabrication, layout, setting, or erection drawings.
   1. Prepared by a qualified detailer
   2. Identify details by reference to sheet and detail numbers shown on contract document drawings
   3. Minimum sheet size: 8-1/2" x 11"
   4. Reproductions for submittal: Blackline copies

1.4 SAMPLES

A. Physical examples to illustrate materials, equipment, or workmanship, and to establish standards by which completed work is judged.
   1. Office Samples: of sufficient size and quantity to clearly illustrate:
      a. Functional characteristics of product or material with integrally related parts and attachment devices
      b. Finishes

1.5 DESIGN DATA: Submit "electronically" to the Architect

A. Submit for the Architect/Engineer's knowledge as contract administrator or for the Owner.

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

1.6 TEST REPORTS: Submit "electronically" to the Architect

A. Submit for the Architect/Engineer's knowledge as contract administrator or for the Owner.

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

1.7 CERTIFICATES: Submit "electronically" to the Architect

A. When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor to Architect/Engineer, in quantities specified for Product Data.

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

C. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect/Engineer.

1.8 MANUFACTURER'S INSTRUCTIONS: Submit "electronically" to the Architect

A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing to Architect/Engineer for delivery to Owner in quantities specified for Product Data.

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

1.9 MANUFACTURER'S FIELD REPORTS: Submit "electronically" to the Architect

A. Submit reports for the Architect/Engineer's benefit as contract administrator or for the Owner.

B. Submit report in duplicate within 30 days of observation to architect/engineer for information.

C. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.10 ERECTION DRAWINGS: Submit "electronically" to the Architect

A. Submit drawings for the Architect/Engineer's benefit as contract administrator or for the Owner.

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

C. Data indicating inappropriate or unacceptable Work may be subject to action by the Architect/Engineer or Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 CONTRACTOR RESPONSIBILITIES

A. Review shop drawings, project data, and samples prior to submission and make corrections as necessary to meet the specifications and/or the construction conditions. **Do not submit to architect unless it is clearly shown on the information that the contractor has reviewed the information and it meets the requirements of the construction documents.**

B. Verify:
1. Field measurements
2. Field construction criteria
3. Catalog numbers and similar data

C. Coordinate each submittal with requirements of work and of contract documents.

D. Contractor's responsibility for errors and omissions in submittals is not relieved by Architect/Engineer's review of submittals.

E. Contractor's responsibility for deviations in submittals from requirements of contract documents is not relieved by Architect/Engineer's review of submittals, unless Architect/Engineer gives written acceptance and deviations are clearly marked on submittals.

F. Notify Architect/Engineer in writing at time of submission of deviations in submittals from requirements of contract documents.

G. Begin no work which requires submittals until return of submittals with Architect/Engineer's stamp and initials or signature indicating review.

3.2 SUBMISSION REQUIREMENTS

A. Schedule submissions at least 14 days before dates reviewed submittals/materials will need to be ordered for proper execution within contractor's schedule for construction.

B. Submit all shop drawings and material/product/project data electronically (via emails) to the Architect.

1. **Should the contractor use a contract management system to send/ receive submissions (including pay requests, change orders and etc.) such as ProCore and desires the architect to use such, then the contractor shall train the architect and his staff to become competent with the system. This training shall take place at the architect's office and will require at least eight (8) hours of training.**

C. Submit actual samples specified materials/products which require a color/finish/texture selection.

D. Accompany submittals with transmittal letter (via email) containing:
1. Date
2. Project title and number
3. Contractor's name and address
4. The number of each shop drawing, project data, and sample submitted.
5. Notification of deviations from contract documents
6. Other pertinent data

E. Submittals shall include:
   1. Date and revision dates
   2. Project title and number
   3. The names of:
      a. Architect/Engineer
      b. Contractor
      c. Subcontractor
      d. Supplier
      e. Manufacturer
      f. Separate detailer when pertinent
   4. Identification of product or material
   5. Relation to adjacent structure or materials
   6. Field dimensions, clearly identified as such
   7. Specification selection number.

3.3 RESUBMISSION REQUIREMENTS

A. Shop Drawings:
   1. Revise initial drawings as required and resubmit as specified for initial submittal
   2. Indicate on drawings any changes which have been made other than those requested by the Architect/Engineer.

B. Project Data and Samples: Submit new data and samples as required for initial submission.

3.4 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

A. Distribute copies of shop drawings, material/product information, and project data which carry Architect/Engineer's stamp, or initialed approval to:
   1. Contractor's file
   2. Job site file
   3. Record documents file
   4. Other prime contractors
   5. Subcontractors
   6. Supplier
   7. Fabricator

B. Distribute samples as directed.

3.5 ARCHITECT/ENGINEER'S DUTIES

A. Review submittals with reasonable promptness, but each submittal shall be reviewed within fourteen (14) days of receipt.

B. Review for:
   1. Design concept of project
   2. Information given in contract documents

C. Review of separate item does not constitute review of an assembly in which item functions.

D. Affix stamp, initials, or signature certifying to review of submittal.

E. Return submittals to contractor for distribution via email.

END OF SECTION

SECTION 01 40 00 – QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Quality Control and control of installation.

B. Tolerances

C. References

D. Testing and inspection services.

E. Examination

F. Preparation

1.2 QUALITY CONTROL AND 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 manufacturer's instructions, including each step in sequence.

C. Should manufacturer's instructions conflict with Contract Documents, request clarification of Architect/Engineer 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. Perform Work by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on Ship Drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 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 manufacturer's tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

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

1.4 REFERENCES

A. ASTM E 329 – Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction.

B. ASTM C 1077 – Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.

C. ASTM D 3740 – Standard Practice for Minimum Requirements for Agencies Engaged in the Test and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

D. For products or workmanship specified by association, trade, or other consensus standards comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

E. Conform to reference standard by date of issue current on date for receiving bids, except where as specified date is established by code.

F. Obtain copies of standards where required by product specification sections.

G. Should specified reference standards conflict with Contract Documents, request clarification from the Architect/Engineer before proceeding.

H. Neither the contractual relationships, duties, or responsibilities of the parties in the Contract nor those of the Architect/Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.5 TESTING AND INSPECTION AGENCIES

A. As indicated in individual specification sections, Contractor shall employ and pay for services of an independent testing agency to perform specified testing.

B. Testing agency selected must be approved by the Owner/Architect.

C. Inspection Agency: Comply with requirements of ASTM D3740, ASTM E329, and ASTM C1077.

D. Laboratory: Authorized to operate in the State of Arkansas.

E. Laboratory Staff: Maintain a full time registered engineer on staff to review services.

F. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under and laboratory measurement quality assurance program.

G. Concrete Field Tests
   1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician Grade 1, According to ACI CP-1 or an equivalent certification program.

1.6 TESTING AND INSPECTION SERVICES

A. Contractor shall employ and pay for services of an independent testing agency or laboratory acceptable to the Owner to perform specified testing.
   1. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full time registered Engineer and responsible officer.
   2. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.

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

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

D. Reports will be submitted by the independent firm to the Architect/Engineer and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

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

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

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

H. Agency Responsibilities:
   1. Test Samples of mixes submitted by Contractor.
   2. Provide qualified personnel at site. Cooperate with Architect/Engineer 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/Engineer and Contractor or observed irregularities or non-conformance of Work or products.
   6. Perform additional tests required by Architect/Engineer.
   7. Attend preconstruction meetings and progress meetings.

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

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

K. Contractor's Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used which 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 or test samples.
4. Notify Architecture Plus and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified test laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

1.7 MANUFACTURER'S FIELD SERVICES

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

B. Submit qualifications of observer to Architect/Engineer 30 days in advance of required observations.

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

D. Refer to Section 01 33 23 - Submittals. Project Data, and Samples, manufacturer's field reports article.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new 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. Verify that utility services are available, of the correct characteristics, and in the correct locations.

3.2 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.

3.3 CONTROL OF INSTALLATION

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

B. Comply with manufacturer's instructions, including each step in sequence.

C. Should manufacturer's instructions conflict with Contract Documents, request clarification from Architect/Engineer 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. Perform Work 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, or disfigurement.

3.4 DEFECT ASSESSMENT

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

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

END OF SECTION

SECTION 01 41 00 - TESTING LABORATORY SERVICES (CONTRACTOR PAYS)

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included:
1. Cooperate with the selected testing agency and all others responsible for testing and inspecting the Work.
2. Provide such other testing and inspecting as are specified to be furnished by the Contractor in this Section and/or elsewhere in the Contract Documents.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Requirements for testing may be described in various Sections of these Specifications.
3. Where no testing requirements are described, but the Owner decides that testing is required, the Owner may require such testing to be performed under current pertinent standards for testing. Payment for such testing will be by the Owner.

1.2 QUALITY ASSURANCE

A. The testing laboratory will be qualified to the Architect and/or Owner's approval.

B. Testing, when required, will be in accordance with all pertinent codes and regulations, and with selected standards of the American Society for Testing and Materials.

C. Inspections, tests, and related actions specified in this Section and elsewhere in the Contract Documents are not intended to limit each and every Contractor's own quality control procedures which facilitate overall compliance with requirements of the Work.

1.3 ALLOWANCE

A. THE CONTRACTOR SHALL ENGAGE AND UTILIZE TESTING ALLOWANCE TO PAY FOR THE SERVICES OF AN INDEPENDENT AGENCY TO PERFORM INSPECTIONS AND TESTS THAT ARE SPECIFIED WITHIN SECTIONS OF THIS PROJECT MANUAL.

PART 2 - PRODUCTS

(Not applicable)

PART 3 - EXECUTION

(Not applicable)

END OF SECTION

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide temporary facilities and controls needed for the Work including, but not necessarily limited to:
1. Temporary utilities such as telephone; (construction manager to provide)
2. Field office for the Construction Manager's personnel; (construction manager to provide)
3. Sanitary facilities; (construction manager to provide)
4. Enclosures such as tarpaulins, barricades, and canopies; (construction manager to provide)
5. Project Sign (construction manager to provide)

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Except that equipment furnished by subcontractors shall comply with requirements of pertinent safety regulations, such equipment normally furnished by the individual trades in execution of their own portions of the Work are not part of this Section.
3. Permanent installation and hookup of the various utility lines are described in other Sections.

1.2 PRODUCT HANDLING

A. Maintain temporary facilities and controls in proper and safe condition throughout progress of the Work.

PART 2 - PRODUCTS

2.1 UTILITIES

A. Telephone:
1. Make necessary arrangements and pay costs for installation and operation of telephone service to the Construction Manager's office at the site.
2. Make the telephone available to the Architect for use in connection with the Work.
3. The telephone shall be hard-wired (cell phone is not acceptable) and capable of both local and long distance phone calling (receiving and sending).
4. There shall also be a fax machine, installed and paid for by the Contractor, which will be at the contractor's office at the site and capable of receiving and sending faxes 24 hours a day, seven days a week.

B. Water:
1. The Construction Manager shall install as necessary and/or provide temporary water distribution for needed work. Remove such temporary facilities upon completion of the Work.
2. The Owner will pay for water used in the construction.

C. Electricity:
1. The Electrical Contractor shall provide necessary temporary wiring and, upon completion of the Work, remove such temporary facility.
2. Provide area distribution boxes so located that the individual trades may furnish and use 100 foot maximum length extension cords to obtain power and lighting at points where needed for work, inspection, and safety.
3. The Owner will pay for electricity used in the construction.

D. Heating:
1. Provide, maintain and pay for all temporary heat necessary for proper conduct of operations needed in the Work.

2.2 FIELD OFFICES AND SHEDS

A. Construction Manager's facilities:
   1. Provide a field office building and sheds / storage trailer adequate in size and accommodation for offices, supply, and storage.

B. Contractor facilities:
   1. Contractors can have a field office building and / or storage trailer at the site, if acceptable to the Construction Manager and Owner.

C. Sanitary facilities:
   1. Provide temporary sanitary facilities in the quantity required for use by all personnel.
   2. Maintain in a safe and sanitary condition at all times.

2.3 ENCLOSURES

A. Provide and maintain for the duration of construction all scaffolds, tarpaulins, canopies, warning signs, steps, platforms, bridges, and other temporary construction necessary for proper completion of the Work in compliance with pertinent safety and other regulations.

B. Provide a positive barricade (orange, plastic safety fencing as a minimum) that is obvious to the public at the extents of the construction area.

2.4 PROJECT SIGNS

A. Provide and erect a job sign describing the project. Design of sign will be as provided by Architect and will not exceed 4' x 8' (plywood), with 4 colors. The information on the sign will include as a minimum: Project Name, Architect's Name, Engineers' Names, Construction Manager's Name, Owner's Name and Project / School logo.

B. Upon completion of the Work, remove the job sign.

C. No other signs will be permitted.

2.5 EROSION CONTROL DEVICES

A. Erect erosion control devices as described in the Drawings. If not described then as required by local and state (ADEQ) authority to control water and soil run-off from the Work area into existing or to be constructed storm drainage systems (open or closed systems).

B. Such devices shall remain in place for the duration of the Work and shall only be removed when approved by the local and state (ADEQ) authority and/or the Owner and Architect.

PART 3 - EXECUTION

3.1 MAINTENANCE AND REMOVAL

A. Maintain temporary facilities and controls as long as needed for safe and proper completion of the Work.

B. Remove such temporary facilities and controls as rapidly as progress of the Work will permit, or as directed by the Architect.

END OF SECTION

SECTION 01 60 00 - PRODUCT REQUIREMENTS

1.1 PRODUCT OPTIONS AND SUBSTITUTIONS

A. Provide Products that comply with Contract Documents, are undamaged and new at time of installation.

B. Provide Products complete with accessories, trim, finish, safety guards, and other devices and details needed for complete installation and intended use and effect.

C. Substitutions may be considered when Contractor becomes aware of a product or procedure that is more environmentally sensitive.

1.2 PRODUCT DELIVERY REQUIREMENTS

A. Transport and handle Products in accordance with manufacturer's instructions, using means and methods that will prevent damage, deterioration and loss, including theft.

B. Schedule Product delivery to minimize long-term storage at Project site and prevent overcrowding of construction spaces.

C. Coordinate Product delivery with installation schedule to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

D. Deliver Products to Project site in undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

E. Promptly inspect shipments to ensure that Products comply with project requirements, quantities are correct, Products are undamaged, and properly protected.

F. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.3 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store and protect Products in accordance with manufacturers' published instructions, with seals and labels intact and legible.

B. Store Products subject to damage by elements above ground, under cover in weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's published instructions.

C. For exterior storage of fabricated Products, place on sloped supports, above ground.

D. Provide off-site storage and protection when Project site does not permit on-site storage or protection.

E. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of Product.

F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

G. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

H. Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 64 00 - PRODUCT HANDLING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Additional procedures also may be prescribed in other Sections of these Specifications.

1.2 QUALITY ASSURANCE

A. Include within the Construction Manager's and Contractor's quality assurance program such procedures as are required to assure full protection of work and materials.

1.3 MANUFACTURERS' RECOMMENDATIONS

A. Except as otherwise approved by the Architect, determine and comply with manufacturers' recommendations on product handling, storage, and protection.

1.4 PACKAGING

A. Deliver products to the job site in their manufacturer's original container, with labels intact and legible.
1. Maintain packaged materials with seals unbroken and labels intact until time of use.
2. Promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the Owner.

B. The Architect may reject as non-complying such material and products that do not bear identification satisfactory to the Architect as to manufacturer, grade, quality, and other pertinent information.

1.5 PROTECTION

A. Protect finished surfaces, including jambs and soffits of openings used as passageways, through which equipment and materials are handled.

B. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.

C. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the Owner.

1.6 REPAIRS AND REPLACEMENTS

A. In event of damage, promptly make replacements and repairs to the approval of the Architect and at no additional cost to the Owner.

B. Additional time required to secure replacements and to make repairs will not be considered by the Architect to justify an extension in the Contract Time of Completion.

END OF SECTION

SECTION 01 70 50 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division - 1 Sections, apply to work of this Section.

1.2 SCOPE

A. Prior to final acceptance of project by Owner the following procedure shall be followed and the following work shall be accomplished.

1.3 SUBSTANTIAL COMPLETION

A. Construction Manager and Contractor(s) shall submit in writing notice that Project, or designated portion of Project, is substantially complete, accompanied by a list of major items to be completed or corrected as determined by the final inspection. Architect shall issue Certificate of Substantial Completion, AIA Form G704.

1.4 FINAL INSPECTION

A. Construction Manager and Contractor(s) shall submit written certification that:
1. Contract Documents have been reviewed;
2. Project has been inspected for compliance with Contract Documents;
3. Work has been completed in accordance with Contract Documents;
4. Equipment and systems have been tested in the presence of Owner's Representative and are operational;
5. Project is completed and ready for final inspection.

B. Architect will make final inspection within 7 days after receipt of certification.

C. Should Architect consider that work is finally complete in accordance with requirements of Contract Documents, he shall request Construction Manager and Contractor(s) to make Project Closeout submittals.

D. Should Architect consider that work is not finally complete, he shall so notify Construction Manager stating reasons. Construction Manager and Contractor shall take immediate steps to remedy the stated deficiencies and send second written notice to Architect certifying that work is complete. Architect will reinspect work.

1.5 REINSPECTION COSTS

A. SHOULD ARCHITECT BE REQUIRED TO PERFORM SECOND INSPECTION (OR SUBSEQUENT INSPECTION) BECAUSE OF FAILURE OF WORK TO COMPLY WITH ORIGINAL CERTIFICATIONS OF CONSTRUCTION MANAGER AND/OR CONTRACTOR, OWNER WILL COMPENSATE ARCHITECT AND HIS CONSULTING ENGINEER(S) FOR ADDITIONAL SERVICES AND DEDUCT THE AMOUNT PAID FROM THE FINAL PAYMENT TO THE CONSTRUCTION MANAGER AND/OR CONTRACTOR. SUCH COMPENSATION SHALL BE AT THE RATE OF $100.00 PER HOUR FOR EACH ARCHITECT AND/OR CONSULTANT, PLUS $0.57 PER MILE TRAVEL, PLUS EXPENSES.

1.6 CLOSEOUT SUBMITTALS

A. Prior to approval of Final Payment, the following documents shall be submitted to Architect.

1. PROJECT RECORD DOCUMENTS (As-Builts)
   a. One copy of the following, accompanied by a cover letter stating that they represent a complete and accurate record:
      Drawings
      Project Manual
      Addenda
      Shop Drawings
      Change Orders
   b. During the course of the work a copy of the Drawings shall be kept at the site and shall NOT be used for construction purposes. Changes shall be neatly marked on the documents with a RED marking pen. Each document shall be labeled "PROJECT RECORD" in 1" high printed letters.
   c. Drawings shall reflect the following information:
      Horizontal & vertical location of all underground and/or concealed utilities.
      Deviations of dimension(s) and/or detail(s).
      Changes made by Change Order.
2. OPERATION & MAINTENANCE MANUALS
   a. Three (3) copies of Manuals on the following items providing performance data, parts list, accessories, operating and maintenance instructions, warranties:
      HVAC Equipment and Controls
      Elevator Equipment
      Electrical Equipment
      Fire Alarm Equipment
      Fire Sprinkler Equipment
   b. Manuals shall be durable plastic loose-leaf binders for 8-1/2" material with Title on cover and Index of all materials as the first page.
3. SERVICE & MAINTENANCE AGREEMENT
   a. Two (2) copies of the following items:
      HVAC and Elevator Equipment - One (1) Year Service and Maintenance Agreement (at no charge) beginning on the date of Substantial Completion.
4. WARRANTIES OR BONDS
   a. Two (2) copies of Warranties for all items listed within specification sections requiring such.
   b. Letter from each and every Contractor stating that asbestos **FREE** materials, products and equipment were used in the completion of the work.
5. TRAINING
   a. Thoroughly instruct the Owner's personnel in the operations of the following as applicable:
      HVAC Equipment - Each system shall be operated for the Owner's personnel during the cooling season and during the heating season, including necessary adjustments. Furnish, where directed, a printed sheet (with transparent protective cover) containing brief operating instructions.
      Elevator Equipment
      Electrical Equipment
      Fire Alarm Equipment
      Fire Sprinkler Equipment
      Systems/Equipment not specifically listed but requested by the Owner.
6. FINAL PAYMENT
   a. Each Contractor shall submit Final Application in accordance with the Contract Documents.
   b. Should any portion of the listed Closeout Submittals not be submitted, the Contractor will have an amount equal to 0.001% of the Contractor's Bid Proposal withheld from the Final Payment. This amount will be withheld until each item is submitted.

1.7 POST-CONSTRUCTION INSPECTION

A. Prior to expiration of one (1) year from Date of Substantial Completion, Architect in company with Owner and Construction Manager will make visual inspection of Project to determine whether correction of work is required (of each Contractor), in accordance with provisions of the Contract Documents.

END OF SECTION

SECTION 01 73 00 - EXECUTION REQUIREMENTS

1.1 LAYOUT OF WORK

A. The Contractor must lay out its work from established base lines and benchmarks indicated on the drawings and is responsible for all measurements based on them. The Contractor must furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor as may be required in laying out any part of the work from the base lines and benchmarks established. The Contractor is responsible for the execution of the work to those lines and grades established.

1.2 CONTRACTOR'S TEMPORARY USE OF FACILITIES AND EQUIPMENT

A. No new facilities or equipment intended for the permanent installation, including materials-handling vehicles, may be used for temporary purposes unless specified in the contract or unless the Contractor has the written permission of the Owner.

1.3 CLEANING

A. Cleaning During Construction:
   1. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
   2. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
   3. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
   4. Collect and remove waste materials, debris, and rubbish from site as required in Section 01150 - Environmental Procedures.

B. Final Cleaning:
   1. Use cleaning materials and agents recommended by manufacturer or fabricator of surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property, or that might damage finished surfaces.
   2. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of Work to condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer's published instructions.
   3. Complete following cleaning operations before requesting Architect inspection for Substantial Completion.
      a. Clean Project Site, yard and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste materials, litter and foreign substances. Sweep paved areas broom clean. Remove petro-chemical spills, stains and other foreign deposits. Rake grounds that are neither planted nor paved, to a smooth even-textured surface.
      b. Remove tools, construction equipment, machinery and surplus material from Project Site.
      c. Remove snow and ice to provide safe access to building.
      d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
      e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.
      f. Broom clean concrete floors in unoccupied spaces.
      g. Provide final cleaning, waxing, and buffing of resilient tile, in accordance with manufacturer's requirements.
      h. Vacuum clean carpet and similar soft surfaces, removing debris and excess nap. Shampoo if required.
      i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
      j. Remove labels that are not permanent labels.
      k. Touch-up and otherwise repair and restore marred exposed finishes and surfaces. Replace finishes and surfaces that can not be satisfactorily repaired or restored, or that show evidence of repair or restoration. Do not paint over "UL" and similar labels, including mechanical and electrical name plates.

l. Wipe surfaces of mechanical and electrical equipment, and other similar equipment. Remove excess lubrication, paint and mortar droppings and other foreign substances.
m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
n. Replace air disposable filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills. Clean ducts, blowers, and coils if units were operated without filters during construction.
o. Clean light fixtures, lamps, globes and reflectors to function with full efficiency. Replace burned out bulbs, and defective and noisy starters in fluorescent and mercury vapor fixtures.
p. Leave Project clean and ready for occupancy.

4. Engage an experienced licensed exterminator to make a final inspection, and rid Project of rodents, insects, and other pests. Comply with regulations of local authorities having jurisdiction.
5. Remove temporary protection and facilities installed during construction to protect previously completed installations during remainder of construction.
6. Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from Project Site and dispose of in accordance with requirements of local authorities having jurisdiction.
   a. Where extra materials of value remain after completion of construction have become the Owner's property, store these materials as directed by the Owner.

END OF SECTION

SECTION 01 74 00 - CLEANING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Throughout the construction period, each Contractor and/or the Construction Manager shall maintain the buildings and site in a standard of cleanliness as described in this Section.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. In addition to standards described in this Section, comply with requirements for cleaning as described in pertinent other Sections of these Specifications.

1.2 QUALITY ASSURANCE

A. Conduct daily inspection, and more often if necessary, to verify that requirements for cleanliness are being met.

B. In addition to the standards described in this Section, comply with pertinent requirements of governmental agencies having jurisdiction.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS AND EQUIPMENT

A. Provide required personnel, equipment and materials needed to maintain specified standard of cleanliness.

2.2 COMPATIBILITY

A. Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

B. Contractors shall NOT use oil-based floor sweep prior to floorcovering installation.

PART 3 - EXECUTION

3.1 PROGRESS CLEANING

A. General
1. Retain stored items in an orderly arrangement allowing maximum access, not impeding traffic or drainage, and providing required protection of materials.
2. Do not allow accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
3. At least twice each month, and more often if necessary, completely remove all scrap, debris, and waste material from the job site.
4. Provide adequate storage for all items awaiting removal from the job site, observing requirements for fire protection and protection of the ecology.

B. Site:
1. Daily, and more often if necessary, inspect the site and pick up all scrap, debris, and waste material. Remove such items to the place designated for their storage.

2. Weekly, and more often if necessary, inspect all arrangements of materials stored on the site. Restack, tidy, or otherwise service arrangements to meet the requirements of subparagraph 3.1-A-1 above.
3. Maintain the site in a neat and orderly condition at all times.

C. Structures:
1. Weekly, and more often if necessary, inspect the structures and pick up all scrap, debris, and waste material. Remove such items to the place designated for their storage.
2. Weekly, and more often if necessary, sweep interior spaces clean.
   a. "Clean," for the purpose of this subparagraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and a hand-held broom.
3. As required preparatory to installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using equipment and materials required to achieve the necessary cleanliness.
4. Following the installation of finish floor materials, clean the finish floor daily (and more often if necessary) at all times while work is being performed in the space in which finish materials are installed.
   a. "Clean," for the purpose of this subparagraph, shall be interpreted as meaning free from foreign material which, in the opinion of the Architect, may be injurious to the finish floor material.

3.2 FINAL CLEANING

A. "Clean," for the purpose of this Article, and except as may be specifically provided otherwise, shall be interpreted as meaning level of cleanliness generally provided by skilled cleaners using commercial quality building maintenance equipment and materials.

B. Prior to completion of the Work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described in Article 3.1 above.

C. Site:
1. Unless otherwise specifically directed by the Architect, broom clean paved areas on the site and public paved areas adjacent to the site.
2. Completely remove resultant debris.

D. Structures:
1. Exterior:
   a. Visually inspect exterior surfaces and remove all traces of soil, waste materials, smudges, and other foreign matter.
   b. Remove all traces of splashed materials from adjacent surfaces.
   c. Remove paint droppings, spots, stains, and dirt from finished surfaces.
2. Interior:
   a. Visually inspect interior surfaces and remove all traces of soil, waste materials, smudges, and other foreign matter.
   b. Remove all traces of splashed materials from adjacent surfaces.
   c. Remove paint droppings, spots, stains, and dirt from finished surfaces.
3. Glass: Clean inside and outside.
4. Polished surfaces: To surfaces requiring routine application of buffed polish, apply the polish recommended by the manufacturer of the material being polished.

E. Schedule final cleaning as approved by the Architect to enable the Owner to accept a completely clean Work.

3.3 CLEANING DURING OWNER'S OCCUPANCY

A. Should the Owner occupy the Work or any portion thereof prior to its completion by the Contractor and acceptance by the Owner, responsibilities for interim and final cleaning shall be determined by the Construction Manager in accordance with the General Conditions of the Contract.

END OF SECTION

SECTION 01 78 00 - CLOSEOUT SUBMITTALS AND TRAINING

1.1 MANUALS

A. Purpose: Operation and maintenance manuals are the training of, and use by, facility employees in the operation and maintenance of the systems and related equipment as specified below. The manuals must consist of instruction on systems and equipment. A separate manual or chapter must be prepared for each of the following classes of equipment or system:
   1. Heating plants.
   2. Cooling plants.
   3. Air-conditioning systems.
   4. Heating systems (if separate from air-conditioning).
   5. Ventilating systems.
   6. Exhaust systems.
   7. Control systems.
   8. Plumbing systems.
   9. Fire protection and alarm systems.
   10. Electrical systems.
   11. Emergency systems.
   12. Miscellaneous building equipment and systems (such as compressed air systems, loading dock equipment, and vehicle maintenance equipment).

B. Content: Unless otherwise indicated, each chapter must contain the following, as applicable:
   1. Introduction.
   2. Table of contents.
   3. Description of system (including design intent and considerations).

C. Preparation: The outline below is intended as a general guide for preparing the manuals. The manuals must be prepared to provide for the optimum operation and maintenance of the various systems. The description of systems and general operating instructions for plumbing and electrical manuals may cover only complicated or unusual parts of these systems, such as sewage ejectors, transformers, high tension switchgear, and signal and alarm systems. Manufacturer's literature and data must be those of the actual equipment installed under contract for the particular facility. Further guidance is available in the ASHRAE Handbook, 1984, Systems Volume, Chapter 39, Mechanical Maintenance.

D. Suggested Outline for Operation and Maintenance (O&M) Manuals: This is a suggested outline, with general requirements of O&M manuals. The outline is presented to indicate the extent of material to be covered and the individual items required in manuals for major facilities. The outline may be modified to suit specific installations; however, the purpose of the manual must be fulfilled. The manual is not intended to duplicate manufacturers' data, but proper references must be made in the text of the O&M manual to indicate that that information is applicable and where it is located.
   1. Part I. Description and Design Intent
      a. Introduction
         1) Provide a brief description of project and purpose of the maintenance manual. The following statements must be included: "Operation and maintenance of this equipment must be performed in accordance with this manual and posted instructions, subject to compliance with applicable technical guides and standards. It is recognized that minor changes in control points and settings will be required, based on actual operating experience, to correct varying conditions and improve operation. When such changes appear necessary, they must be submitted to the chief operating engineer for consideration. Upon approval of any changes, the applicable portions of all copies of the manual and proposed instructions must be revised and reissued, and any change in operating procedure brought to the attention of all operating personnel."
         2) This manual is specifically developed to assist the District officials in charge at the facility to operate and maintain the building systems and equipment. Manufacturers' recommendations set forth for certain components must be followed during the complete warranty period for that equipment.

3) Contents of Manual. This portion of the introduction must explain that the manual is to contain complete operating, maintenance, and safety instructions for all equipment listed. It must also contain any other appropriate references as required to outline an explanation of the manuals and major categories of reference material required with the manuals.

b. Table of Contents
   1) The table of contents must list numbers and titles of chapters, sections, and main paragraphs, with their page numbers. Each volume in a set of manuals must contain its own table of contents. Publications containing 10 or more illustrations or tables must include a list of illustrations or tables, as applicable. These lists must show number, title, and page number of each illustration and table. Following is a typical table of contents:

c. Maintenance of Systems
   1) Space conditioning
   2) Heating
   3) Central chilled water and distribution
   4) Air distribution and ventilating
   5) Temperature control

d. Plumbing Systems
   1) Potable water
   2) Domestic hot water
   3) Roof and sanitary drains

e. Fire Protection System
   1) Water supply and distribution
   2) Exterior fire hydrants
   3) Sprinklers
   4) Fire Department connections
   5) Fire extinguishers
   6) Exit signs
   7) See "Electrical Systems" for Fire Alarm and Emergency Lighting Units

f. Electrical Systems
   1) Incoming service
   2) Electrical power distribution
   3) Lighting
   4) Intercom and paging
   5) Fire alarm
   6) Emergency lighting units

g. Miscellaneous Building Equipment
   1) Elevators
   2) Dock levelers, door operators
   3) Scales
   4) Vehicle maintenance equipment

2. Part II. Operating Sequence and Procedures
   a. Contents: Each chapter must describe the procedures necessary for facility personnel to operate the system and equipment covered in that chapter.
   b. Operating Procedures: The operating procedures must be divided into four subsections: Startup, Operation, Emergency Operation, and Shutdown.
      1) Startup: Give complete instructions for energizing the equipment and making initial settings and adjustments whenever applicable. If equipment is fully automatic, a statement to that effect is all that is required. If a specific sequence of steps must be performed, give step-by-step instructions in the proper sequence. If timing- (such as warm-up between power-on and adjustment) is important, clearly state the

         specific minimum time required at the proper point in the procedure. Refer to controls and indicators by panel; make references consistent with the nomenclature used in illustrations and tables of controls and indicators. If preliminary settings differ for different modes of operations, give procedures for each mode.

2) Operation: Give detailed instructions in proper sequence for each mode of operation. When, for a given action on the part of the operator, alternate equipment responses are possible, give the appropriate operation reaction to each.
3) Emergency Operation: If some functions of the equipment can be operated while other functions are disabled, give instructions for operations under these conditions. Include here only those alternate methods of operation (from normal) that the operator can follow when there is a partial failure or malfunctioning of components, or other unusual condition.
4) Shutdown: Include instructions for stopping and securing the equipment after operation. If a particular sequence is required, give step-by-step instructions in that order.

3. Part III. Maintenance Instructions and Requirements
   a. Contents: Each chapter must describe the procedures necessary for District personnel to perform the maintenance on the systems and equipment covered in that chapter. Emphasis must be placed on the method of mechanical control of systems and equipment from a maintenance standpoint. References must be made, as appropriate, to drawings, schematics, and sequences of operation included as part of the construction contract drawings and specifications that show piping and equipment arrangements and items of control. Prints of these drawings must be reduced to 11 inches x 17 inches for insertion in the manuals. Drawings must represent the "as-built" condition.
   b. Maintenance Procedures: The maintenance procedures must be divided into two categories: Preventive Maintenance and Corrective Maintenance.
      1) Preventive Maintenance
         i. Provide a schedule for preventive maintenance. State, preferably in tabular form, the recommended frequency of performance for each preventive maintenance task (cleaning, inspection, and scheduled overhauls).
         ii. Provide instruction and schedules for all routine maintenance cleaning and inspection, with recommended lubricants.
         iii. If periodic inspection of equipment is required for operation, cleaning, or other reasons, indicate the items to be inspected and give the inspection criteria for, but not limited to, the following:
            (a) Motors
            (b) Controls
            (c) Filters
            (d) Heat exchangers
         iv. Provide instruction for minor repairs or adjustments required for preventive maintenance routines. Minor repair and adjustment must be limited to repairs and adjustments that may be performed without special tools or test equipment and that require no special training or skills. Identify test points and give values for each.
      2) Corrective Maintenance
         i. Corrective Maintenance: Corrective maintenance instructions must be predicated upon a logical effect-to-cause troubleshooting philosophy and a rapid replacement procedure to minimize equipment downtime. Instructions and data must appear in the normal sequence of corrective maintenance, for example, troubleshooting first, repair and replacement of parts second, and then the parts list.
         ii. Troubleshooting: This information must describe the general procedure for locating malfunctions and must give, in detail, any specific remedial procedures or techniques. The data shown are intended to isolate only the most common equipment deficiencies. Troubleshooting tables, charts, or diagrams may be used to present specific procedures. A guide to this type must be a three-column chart. The columns must be entitled Malfunction, Probable Cause, and Recommended Action. The information must be alphabetically arranged by component, and each component must, in turn, list deficiencies that may be expected. Each deficiency must contain one or more problems with a recommended correction.
         iii. Repair and Replacement: Indicate the repair and replacement procedures most likely to be required in the maintenance of the equipment. Information included here must consist of step-by-step instructions for repair and replacement of defective items. Include all information required to accomplish repair or replacement, including information such as torque values. Identify all tools, special equipment, and materials that may be required. Identify uses for maintenance equipment. The paragraphs must contain headings to identify the topics covered.

iv. Safety Precautions: This subsection must comprise a listing of safety precautions and instructions to be followed before, during, and after repairs or adjustments are made or routine maintenance is performed.

c. Manufacturers' Brochures: Include manufacturers' descriptive literature covering devices used in the system, together with illustrations, exploded views, and renewal parts lists. This section must also include special devices manufactured by the electrical Contractor.
d. Special Maintenance: Provide information of a maintenance nature covering warranty items that have not been discussed elsewhere.
e. Shop Drawings: Provide a copy of all approved shop drawings covering approval of equipment for the project with the manufacturers' brochures.
f. Spare Parts Lists: Include a recommended spare parts list for all equipment furnished for the project. The parts list must include a tabulation of descriptive data for all the electrical-electronic spare parts and all the mechanical spare parts proposed for each type of equipment or system. Each part must be properly identified by part number and manufacturer.

E. Submittal
1. Preliminary Submittal: Two draft copies of the completed manuscript for items in this outline must be submitted to the Architect for review within 30 days after approval of equipment to be provided. One copy will be returned to the Contractor within 30 days after submittal and, if required, must be revised and resubmitted within 15 days.
2. Final Submittal: four complete sets of manuals must be furnished to the Architect not later than 30 days before completion of the project.

1.2 POSTED OPERATING INSTRUCTIONS

A. General. Operating instructions and diagrams must be prepared for posting near the equipment. Posted operating instructions must be photographic or equal non-fading reproductions framed under glass or encased in non-discoloring plastic and must be mounted in locations as directed. Copies of the posted operating instructions must also be used with the operating and maintenance manuals as a basis for training facility personnel in the operation and maintenance of systems and related equipment installed under contract at the facility.

B. Posted operating instructions must consist of simplified, consolidated equipment, control, and power diagrams graphically representing the entire system and actual equipment installed, including concise written instructions on how to start and stop systems, what settings and conditions are to be observed, and what control adjustments are to be made or maintained by the operation. Posted operating instructions must include, but are not limited to the following:
1. Boiler and burner controls.
2. Refrigeration controls.
3. Heating, ventilating, and air-conditioning controls for each system.
4. Controls for dust collection systems.
5. One-line schematic diagrams of water supply (plumbing).
6. One-line diagrams of steam distribution and hot water and chilled water systems, including risers, main shutoff valves, balancing cocks, and the like.
7. One-line isometric diagrams of sanitary drainage.

1.3 TRAINING

A. The Contractor must train facility personnel in the operation and maintenance of mechanical and electrical equipment. Coordination must be maintained with systems designers for developing the hours of instruction and scope of material to be covered. Training of facility personnel must not begin until the Architect has approved the final submittal copy of the operation and maintenance manual.

B. Schedule Submittal: The proposed scope of training and materials and instruction schedule must be submitted for review and approval approximately 30 days before the scheduled completion of the buildings. Mutually agreeable dates for training must be arranged with the Owner, but the training must be completed before final acceptance of the facility.

C. Time Period of Training: The minimum specific hours of training time required for each category of major equipment and systems is indicated below. Past experience indicates a workable ratio in the vicinity of approximately 25 percent classroom to 75 percent application, except that the ratio may be reversed for control systems. The Owner must have the option of redistributing the training times, subject to the total time specified. Training must be presented on an 8-hour per day, 5-day per week schedule, with all reading assignments and review to be within this period.

1.4 TRAINING PERIOD

Item	Time (Hours)
1. Heating Plant Covers heat-generating equipment, such as heat exchangers, boilers, and burners; electric resistance heating; and related equipment, where applicable (including combustion testing), together with associated operation and safety controls.	8
2. Cooling Plant Covers the refrigeration plant, cooling tower (including water treatment), and related equipment, together with associated operating and safety controls.	8
3. Ventilation Covers air-handling units with heating and cooling coils, fans, and all other air-handling equipment, together with associated operating and limit controls.	8
4. Overall Control System Covers central control center, coordinating respective controls of heating, cooling, and ventilation systems, and shows how these controls work together to provide an integrated overall control of the complete air-conditioning system, both heating and cooling, as well as all other utility control systems.	8
5. Electrical System Covers all building services, lighting, and intercommunications, and security system.	N.A.
6. Elevators Covers operation of the different types installed, demonstrations in the machine room on the various operating and control equipment installed, and explanation of the use of the electric circuit diagrams (of sufficient size) to ensure proper operation and assistance in troubleshooting.	N.A.
7. Piping and Plumbing Includes, but is not limited to, domestic water supply, storm and sanitary drainage systems, cold-water supply systems, sprinkler systems, and the like.	N.A.
8. Miscellaneous Includes, but is not limited to, vehicle maintenance equipment, fire protection and alarm equipment, dust collection systems, compressed air systems, automatic door operators, dock levelers, truck scales, data collection center, and all other equipment not specifically covered above.	8

1.5 TRAINING PARTICIPATION SHEETS

A. Submit to the Owner sign-in sheets with the dates and names of all training participants. Training sheets must be reviewed and certified by an authorized facility manager.

1.6 OTHER CLOSEOUT SUBMITTALS

A. Additional requirements for Systems Manuals, Operating Instructions, Training and other deliverables are contained in individual Specification Sections. All closeout requirements must be provided to and accepted by the Owner prior to requesting final payment. Examples of additional closeout requirements include, but are not limited to, the following
   1. Final Punch-List with all items certified as complete.
   2. *Record "As Built" Drawings*, the Contractor shall submit certified As-Built Record Drawings and Specifications in the quantities and media specified.
   3. *Warranty*, the Contractor shall submit all transferable guarantees and warranties for equipment, materials and installations furnished by any manufacturer, supplier, or installer.

4. Signed Asbestos and Lead-Based Paint Certificate.
5. Material Safety Data Sheets
6. Signed and sealed Contractor Release of Claims.
7. Meter Test & Hydrostatic water pressure test report.
8. Sanitary Sewerage test report.
9. Gas Distribution test report.
10. Test reports for Earthwork, Concrete, HVAC TAB, Structural Steel.

END OF SECTION

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included:
1. Throughout progress of the Work, the Construction Manager and each Contractor shall maintain an accurate record of changes in the Contract Documents, as described in Article 3.2 below.
2. Upon completion of the Work, transfer the recorded changes to a set of Record Documents, as described in Article 3.2 below.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Other requirements affecting Project Record documents may appear in pertinent other Sections of these Specifications.

1.2 QUALITY ASSURANCE

A. Delegate the responsibility for maintenance of Record Documents to one person on the Construction Manager's staff as approved by the Architect.

B. Accuracy of records:
1. Thoroughly coordinate changes within the Record Documents, making adequate and proper entries on each page of Specifications and each sheet of Drawings and other Documents where such entry is required to show the change properly.

C. Make entries within 24 hours after receipt of information that the change has occurred.

1.3 PROJECT RECORD DOCUMENTS HANDLING

A. Maintain the job set of Record Documents completely protected from deterioration and from loss and damage until completion of the Work and transfer of all recorded data to the final Project Record Documents.

B. In the event of loss of recorded data, use means necessary to again secure the data to the Architect's approval.
1. Such means shall include, if necessary, in the opinion of the Architect, removal and replacement of concealing materials.
2. In such case, provide replacements to the standards originally required by the Contract Documents.

PART 2 - PRODUCTS

2.1 RECORD DOCUMENTS

A. Job set: Promptly following receipt of the Owner's Notice to Proceed, secure from the Architect at no charge to the Construction Manager one complete set of all Documents comprising the Contract.

B. Final Record Documents ("As-Builts"): At a time nearing the completion of the Work, secure from the Architect at no charge to the Construction Manager one complete set of reproducibles of all Drawings in the Contract.

PART 3 - EXECUTION

3.1 MAINTENANCE OF JOB SET

A. Immediately upon receipt of the job set described in Paragraph 2.1-A above, identity each of the Documents with the title, "RECORD DOCUMENTS - JOB SET."

B. Preservation:
1. Considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method for protecting the job set to the approval of the Architect.
2. Do not use the job set for any purpose except entry of new data and for review by the Architect, until start of transfer of data to final Project Record Documents.
3. Maintain the job set at the site of Work as that site is designated by the Architect.

C. Making entries on Drawings:
1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by graphic line and note as required.
2. Date all entries.
3. Call attention to the entry by a "cloud" drawn around the area or areas affected.
4. In the event of overlapping changes, use different colors for the overlapping changes.

D. Make entries in the pertinent other Documents as approved by the Architect.

E. Conversion of schematic layouts:
1. In some cases, on the Drawings, arrangements of conduits, circuits, piping, ducts, and similar items, is shown schematically and is not intended to portray precise physical layout.
   a. Final physical arrangement is determined by the Contractor, subject to the Architect's approval.
   b. However, design of future modifications of the facility may require accurate information as to the final physical layout of items which are shown only schematically on the Drawings.
2. Show on the job set of Record Drawings, by dimension accurate to within one inch, the centerline of each run of items such as are described in subparagraph 3.1-E-1 above.
   a. Clearly identify the item by accurate note such as "cast iron drain," "galv. water," and the like.
   b. Show, by symbol or note, the vertical location of the item ("under slab," "in ceiling plenum," "exposed," and the like).
   c. Make all identification sufficiently descriptive that it may be related reliably to the Specifications.
3. The Architect may waive the requirements for conversion of schematic layouts where, in the Architect's judgment, conversion serves no useful purpose. However, do not rely upon waivers being issued except as specifically issued in writing by the Architect.

F. If it is determined at any time during the construction that the Construction Manager and/or Contractor has failed or is neglecting to record as-built conditions, a reduction of the pay request may be made by the Owner and /or Architect until the condition is corrected.

3.2 FINAL PROJECT RECORD DOCUMENTS ("As-Builts")

A. The purpose of the final Project Record Documents is to provide factual information regarding all aspects of the Work, both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive site measurement, investigation, and examination.

B. Approval of recorded data prior to transfer:
1. Following receipt of the reproducibles described in Paragraph 2.1-B above, and prior to start of transfer of recorded data thereto, secure the Architect's approval of all recorded data.
2. Make required revisions.

C. Transfer of data to Drawings:
   1. Carefully transfer change data shown on the job set of Record Drawings to the corresponding reproducibles, coordinating the changes as required.
   2. Clearly indicate at each affected detail and other Drawing a full description of the changes made during construction, and the actual location of items described in subparagraph 3.1-E-1 above.
   3. Call attention to each entry by drawing a "cloud" around the area or areas affected.
   4. Make changes neatly, consistently, and with the proper media to assure longevity and clear reproduction.

D. Transfer of data to other Documents:
   1. If the Documents other than Drawings have been kept clean during progress of the Work, and if entries thereon have been orderly to the approval of the Architect, the job set of those Documents other than Drawings will be accepted final Record Documents.
   2. If any such Document is not so approved by the Architect, secure a new copy of that Document from the Architect at the Architect's usual charge for reproduction and handling, and carefully transfer the change data to the new copy to the approval of the Architect.

E. Review and submittal:
   1. Submit the completed set of Project Record Documents to the Architect as described in Paragraph 1.3-D above.
   2. Participate in review meetings as required.
   3. Make required changes and promptly deliver the final Project Record Documents to the Architect.

3.3 CHANGES SUBSEQUENT TO ACCEPTANCE

A. The Construction Manager and/or Contractor has no responsibility for recording changes in the Work subsequent to Final Completion, except for changes resulting from work performed under Warranty.

END OF SECTION

SECTION 02 41 10 - UTILITY DEMOLITION/RELOCATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section covers work required for the demolition and/or relocation of underground and above ground utilities and associated structures. All work is to be coordinated with the appropriate local utility company, and includes but is not limited to:

STORM DRAINAGE & SANITARY SEWER
WATER
GAS
ELECTRIC
ARKANSAS "ONE CALL" FOR UNDERGROUND UTILITY LOCATIONS 1-800-482-8998
TELEVISION - CABLE
TELEPHONE

B. **ANY AND ALL FEES OR CHARGES ASSOCIATED WITH ANY UTILITY DEMOLITION OR RELOCATION SHALL BE PAID FOR BY THE CONTRACTOR. THE CONTRACTOR IS TO INCLUDE ANY AND ALL FEES (TEMPORARY AND PERMANENT) IN HIS BASE BID AND IS TO THOROUGHLY DISCUSS ALL UTILITY DEMOLITION AND/OR RELOCATIONS WITH THE APPROPRIATE PUBLIC AND/OR PRIVATE UTILITY COMPANY PRIOR TO BIDDING.**

1.2 PROTECTION

A. Protection of Existing Improvements
1. Protection shall be provided to prevent damage to existing improvements indicated to remain in place on the Owner's property and adjoining properties.
2. Damaged existing improvements shall be restored to their original condition, as acceptable to parties having jurisdiction.
3. Land areas outside the limits of demolition performed under this contract shall be preserved in their present condition. The Contractor shall confine his demolition activities to areas defined for work on the drawings.

B. Protection of Existing Utilities
1. The Contractor shall verify all existing utility locations either shown or not shown on the drawings.
2. The Contractor shall immediately notify the Owner and applicable utility company of any damages to existing utilities.
3. Repairs to damaged utilities shall be made in accordance with the requirements of the Owner and applicable utility company at no extra cost to the Owner.
4. The Contractor shall coordinate with the Owner and the applicable utility company for shutoff of or connection to active utilities. Existing utility services shall not be interrupted except as authorized in writing by the Owner.

C. Protection of Open Excavations: Barricades or other type protectors shall be provided in accordance with current OSHA regulations.

1.3 JOB CONDITIONS

A. Traffic
1. Demolition operations and the removal of debris shall be conducted in a manner that will ensure minimum interference with roads, driveways, walks and other adjacent occupied or used facilities.
2. Roads, driveways, walks and other adjacent occupied or used facilities shall not be closed or obstructed without written permission from the Owner of the adjacent facilities.

B. Use of explosives shall not be permitted.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

B. Report in writing to Architect prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 UNDERGROUND UTILITY DEMOLITION/RELOCATION

A. Underground utility demolition/relocation shall include removal/relocation of electric, telephone, television, gas, water, sanitary sewer, storm sewer lines and appurtenances as shown on the Drawings.

B. Underground utilities to be demolished and/or relocated are shown on the drawings.

3.3 ABOVE GROUND UTILITY DEMOLITION/RELOCATION

A. Above ground utility demolition/relocation shall include the removal/relocation of electric, telephone, television lines and appurtenances as shown on the Drawings.

B. Above ground utilities to be demolished and/or relocated are shown on the Drawings.

3.4 DISPOSAL OF DEMOLISHED MATERIALS

A. The following shall become the property of the Contractor and shall be disposed of by the Contractor off the site:
1. Items which are not reused.

3.5 CLEANUP

A. On completion of demolition and after removal of all debris, site shall be left in a clean condition satisfactory to the Owner.

B. Cleanup shall include off-site disposal of all items and materials not required to be salvaged as well as all debris and rubbish resulting from demolition operations.

END OF SECTION

SECTION 02 41 13 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Carefully demolish and remove from the site those items shown on the Drawings or otherwise scheduled to be demolished and removed. Any items to be turned over to the Owner are noted on the Drawings.

B. Related work:
1. Documents affecting Work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

PART 2 - PRODUCTS

(No products are required in this Section)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

B. Report in writing to Architect prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.3 DEMOLITION

A. By careful study of the Contract Documents, determine the location and extent of selective demolition to be performed.

B. Prior to start of Work, in company with the Architect, visit the site and verify the extent and location of selective demolition required.
   1. Carefully identify limits of selective demolition.
   2. Mark interface surfaces as required to enable workmen also to identify items to be removed and items to be left in place intact.

C. Prepare and follow an organized plan for demolition and removal of items.
   1. Shut off, cap, and otherwise protect existing utility lines in accordance with the requirements of the agency or utility having jurisdiction.
   2. Completely remove items scheduled to be so demolished and removed, leaving surfaces clean, solid, and ready to receive new materials specified elsewhere.
   3. In all activities, comply with pertinent regulations of agencies having jurisdiction.

D. Demolished material shall be considered to be property of the Contractor (unless noted otherwise) and shall be completely removed from the job site.

E. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

F. **DEMOLISHED AREAS OF THE BUILDING THAT ARE EXPOSED TO THE WEATHER/NATURAL ELEMENTS SHALL BE MADE WEATHERPROOF AT ALL TIMES, PRIOR TO THE INSTALLATION OF NEW MATERIALS. ANY DAMAGE TO THE EXISTING CONDITIONS DUE TO THE WEATHER (ANY FORM OF THE WEATHER) SHALL BE REPAIRED/REPLACED AT CONTRACTOR'S EXPENSE, THIS INCLUDES FURNITURE, PERSONAL ITEMS, AND BUILDING MATERIALS.**

3.4 REPLACEMENTS

A. In the event of demolition of items not so scheduled to be demolished, promptly replace such items to the approval of the Architect and at the complete expense of the Contractor.

END OF SECTION

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide cast-in-place concrete where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections, in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Comply with the provisions of the following codes, specifications and standards, except as otherwise shown or specified:
   1. ACI 301 "Specifications for Concrete"
   2. ACI 302 "Construction of Concrete Floors"
   3. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete."
   4. ACI 315 "Details and Detailing of Concrete Reinforcement."
   5. ACI 318 "Building Code Requirements for Reinforced Concrete."
   6. CRSI "Manual of Standard Practice."
   7. AWS D1.4 "Standard Welding Code - Reinforcing Steel."

C. Employ at contractor's expense, testing laboratory to perform material evaluation tests.

1.3 SUBMITTALS: Within 35 days of receipt of Owner's Notice to Proceed, submit:

A. Submit two copies of reinforcing steel shop drawings. Shop drawings shall show all fabrication dimensions and locations for placing of reinforcement and accessories. One copy of drawings will be returned to the Contractor after review by the Architect. After the drawings have been corrected in accordance with the review comments, resubmit six copies, two of which will be retained by the Architect. Do not fabricate reinforcement until drawings have been reviewed and corrected. Bar marks used on the first submission must be used on subsequent submissions except that the marks of revised bars may be changed.

B. Submit six copies of product data for all items indicated by the letter (S) in the following articles. Two copies of data will be retained by the Architect. Do not install work in which these products are used until data has been reviewed and found to be acceptable.

C. If more than four copies of reinforcing steel shop drawings and submittal data are required by the Contractor, sub-contractors and material suppliers, a correspondingly greater number of copies shall be submitted.

D. Submit two copies of concrete mix design information as specified hereinafter. Do not place concrete until this data has been submitted and reviewed by the Architect.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

A. Forms for surfaces which will not be exposed to view shall be metal, lumber, or plywood of sufficient strength and stiffness to produce the required concrete configurations.

B. Form ties - factory fabricated rod type designed to snap off at least 3/4" inside of the wall surface.

C. Form coating - commercial formulation that will prevent absorption of moisture, will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent curing or treatment of concrete surfaces.

D. Fiberboard forms - Savway Carton Forms, Inc., Savway Carton Forms.

2.2 REINFORCEMENT MATERIALS

A. Reinforcing bars - ASTM A 615, Grade 60 including Supplementary Requirements S1.

B. Fibrous Reinforcement (S) - Fibermesh with 1/2" fiber length as manufactured by Fibermesh Company, Chattanooga, Tennessee, or equal.

C. Wire - ASTM A82

D. Bar supports - wire bar type conforming to CRSI Manual of Standard Practice recommendations. Use bar supports with sand plates for reinforcement in slabs on grade or drainage fill. Legs of other bar supports shall be stainless steel or plastic protected.

2.3 CONCRETE MATERIALS

A. Portland cement - ASTM C150, Type I.

B. Fine aggregate - ASTM C33.

C. Course aggregate - ASTM C33 with #467 or #57 gradation for 1-1/2" maximum size aggregate.

D. Water - fresh, clean and drinkable.

E. Air-entraining admixture (S) - ASTM C260.

F. Water-reducing admixture (S) - ASTM C494, Type A.

G. Water-reducing, retarding admixture (S) - ASTM C494, Type D.

H. High-range water-reducing admixture (S) - ASTM C494, Type F.

I. High-range water reducing and retarding admixture (S) - ASTM C494, Type G.

J. Fly ash - ASTM C618, Class C.Class F fly ash is NOT PERMITTED.

K. Storage and handling of concrete materials shall conform to the recommendations of ACI 304.

2.4 ACCESSORY MATERIALS

A. Bonding agent (S) - Larsen Products Company Weld-Crete.

B. Bonding admixture (S) - Larsen Products Company Acrylic Admix - 101.

C. Liquid curing compound (S) - ASTM C309, Type I, [Class A of type that will not inhibit bonding of floor covering, paint or other applied finishes.] **CURING COMPOUNDS MAY NOT CONTAIN SOAP, WAX, OIL OR SILICONE. A LETTER OF COMPATIBILITY SHALL BE PROVIDED FROM THE MANUFACTURER OF THE COMPOUND (ACI PUB. 302.1 R-96, "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION."**

D. Moisture-retaining cover (S) - waterproof paper conforming to ASTM C171.

E. Vapor barrier (S) - Stego Wrap, 15 mil. thick vapor barrier by Stego Industries, 877-464-7834, with vapor proofing seam tape, mastic and pipe boots, conforming to ASTM E 1745-97, ASTM E 154-98, ASTM E 96-95, and ASTM E 1643-98, no exceptions.

F. Metal joint form (S) - Heckmann Building Product, Inc., No. 95, 20 gauge tongue and groove joints.

G. Expansion joint filler (S) - W. R. Meadows, Inc. Sealtight Cork Expansion Joint Filler.

H. Expansion joint cap (S) - Greenstreak Plastic Products No. 842 Removable Top Expansion Joint Cap.

I. Joint sealant (S) - Lion Oil Company Lion D200 Elastomeric Sealant.

J. Expansion anchor (S) - Hilti Fastening Systems Kwik-Bolt.

K. Drainage Fill(s) - ASTM C33, No. 67 Gradation.

L. Concrete Sealer(s) - Refer to 3.11, F for additional information.

PART 3 - EXECUTION

3.1 FORMWORK

A. Use earth cuts to form vertical surfaces of foundation piers. Elsewhere use forms, wherever necessary, to confine the concrete and shape it to the required dimensions. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete, and shall have sufficient rigidity to maintain specified tolerances.

B. The design and engineering of formwork shall be the responsibility of the Contractor.

C. Forms shall be accurately built to provide smooth surfaces and the required dimensions, and they shall be sufficiently tight to prevent leakage. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.

D. Install 3/4" chamfer strips in external formed corners which will be exposed to view upon completion of construction.

E. Camber the formwork, as necessary, to compensate for deflections in the formwork prior to hardening of the concrete. Provide positive means of adjustment, such as wedges or jacks, for shores and struts so that settlement can be taken up during placing operations. Brace forms against lateral deflections.

F. Provide temporary openings at bases of wall forms and other points where necessary to facilitate cleaning and observation immediately before concrete is placed.

G. At construction joints overlap form material and hold securely against the hardened concrete to prevent offsets or leakage and to maintain a true surface.

H. Build into forms the required inserts, pipe sleeves, bolts and other equipment whether specified under this Section or other Sections of the Specifications.

I. Before placing concrete, clean all surfaces of forms and embedded materials of any mortar from previous concreting and of all other foreign material.

J. Before placing reinforcing steel or concrete, apply form coating to form surfaces in order to prevent absorption of moisture and to prevent bond with the concrete.

K. Construct formwork so that concrete surfaces will conform to the following tolerances:
1. Variations from plumb in lines and surfaces of pedestals, walls, and arrises, 1/4" in any 10' length, but not more than 1".
2. Variations from level or grade in slab soffits, and in arrises, 1/4" in any 10' of length; 3/8" in any 20' of length; and 3/4" maximum for entire length.
3. Variations of distance between walls and beams, 1/4" per 10' of distance, but not more than 1" total variation.
4. Variation from position of linear building lines from established position in plans, not more than 1".
5. Variation in sizes and locations of sleeves, floor openings, and wall openings, minus 1/4" and plus 1/2".
6. Variation in cross-sectional dimensions of pedestals and beams and thickness of slabs and walls, minus 1/4" and plus 1/2".
7. Variation in footing plan dimensions, minus 1/2" and plus 2"; misplacement or eccentricity, 2% of the footing width in direction of misplacement but not more than 2"; thickness reduction, minus 5% of indicated thickness.
8. Variation in steps; in a flight of stairs, 1/8" for rise and 1/4" for treads; in consecutive steps, 1/16" for rise and 1/8" for treads.

3.2 REMOVAL OF FORMS

A. Formwork for walls, and similar vertical surfaces may be removed as soon as the concrete has hardened enough that damage will not result from removal operations.

B. Formwork for slabs, and other surfaces which support the weight of the concrete shall be left in place until the concrete strength has reached its specified 28 day compressive strength.

C. To determine concrete strength for form removal purposes test cylinders in addition to those required for determining concrete acceptability may be made, cured under the same conditions as concrete in the structure, and tested at the appropriate time. Otherwise, concrete in the structure may be considered to have attained the same 28 day compressive strength as laboratory cured cylinders tested for concrete acceptability when it has been cured as specified for a period of 28 days, not necessarily consecutive, during which the temperature of air in contact with concrete surfaces is above 50 degrees F.

3.3 REINFORCEMENT

A. Detail, fabricate and place reinforcement in accordance with ACI 315, ACI 318 and requirements of the Drawings. Shop drawings used in fabricating and placing reinforcement shall have been reviewed by the Architect and corrected in accordance with review comments.

B. Reinforcement shall be accurately placed in the positions shown and secured against displacement by construction loads and the placing of concrete. Reinforcement for foundation beams shall be supported by concrete bricks. Other reinforcements shall be supported by metal bar supports and spacers located and installed as recommended by the CRSI Manual of Standard Practice.

C. At the time concrete is placed reinforcement shall be free from mud, oil, or other coatings that reduce or destroy bond. Reinforcement with rust, mill scale or a combination of both will be acceptable without cleaning or brushing, provided that the cross sectional area and height of deformations have not been reduced.

D. Welding of reinforcing bars will not be permitted.

E. Heating of reinforcing bars will not be permitted.

F. Do not bend reinforcement partially embedded in concrete.

G. Fabricating tolerances for reinforcement shall be accordance with ACI 315.

H. Reinforcing bars shall be placed to the following tolerances:
Clear distance to formed surfaces: +- 1/4".
Spacing: -1/4" and +1/2" between beam or pedestal, bars +-1" between ties, stirrups, wall bars and slab bars.
Height of top bars in slabs and beams: +-1/4" for members 8" and less and +-1/2" for members more than 8".
Longitudinal location of ends of bars: +-2" except at discontinuous ends of members where tolerance shall be +-1/2".

3.4 JOINTS AND EMBEDDED ITEMS

A. Construction joints not shown on the Drawings shall be made and located to least impair the strength of the structure. Locations shall be approved by the Architect; however, in general vertical joints shall be located near the middle of the spans of slabs and beams. Horizontal joints in walls shall be at the underside of slabs, and at the tops of foundation beams or floor slabs. Joints shall be perpendicular to the main reinforcement.

B. Unless shown otherwise continue reinforcement across joints and provide keyways as shown on the Drawings.

C. The surface of the concrete at all joints shall be thoroughly cleaned and all laitance removed prior to placing adjoining concrete.

D. Joints in grade slabs, walks and concrete pavement shall be located and made as shown on the Drawings. If saw-cut joints are required or permitted cutting shall be started as soon as the concrete has hardened sufficiently to prevent aggregate from being dislodged by the saw, and shall be completed before shrinkage stresses become sufficient to produce cracking. If saw-cut joints abut vertical surfaces already in place when the slab is installed, the length of the joint which is inaccessible to the saw shall be grooved while the concrete is still plastic. The groove shall be made with a removable hardboard strip of same width and depth as saw-cut.

E. Locate and install expansion joints as shown on the Drawings. Install expansion joint cap above joint filler. After concrete has hardened remove top of cap and install joint sealant in accordance with the manufacturer's recommendations.

F. Install all sleeves, inserts, anchors, and other embedded items prior to placing concrete, position them accurately and support them against displacement.

3.5 PROPORTIONING AND DESIGN OF CONCRETE MIXES

A. Select proportions of concrete ingredients in accordance with the requirements of ACI 318 to provide the specified properties and to produce workability and consistency that will permit concrete to be worked readily into the forms and around reinforcement under conditions of placement to be employed, without excessive segregation or bleeding.

B. Submit written reports of mix designs, determined in accordance with Section 03300, Subparagraph 3.5.A for each class of concrete. However, in any case do not begin production of concrete until mix design has been reviewed by the Architect.

C. 28 day concrete compressive strength shall be as shown on the Drawings. If not shown on the Drawings, then it shall be 3,500 PSI concrete.

D. Proportion and produce concrete to have a slump of 4" with a tolerance of -1" and +1/2". Concrete must produce the required compressive strength when the slump is at the upper limit of the permitted tolerance.

E. Add fibrous reinforcement to building interior grade slab concrete at the concrete batch plant at the minimum rate of 1-1/2 pounds per cubic yard. Mix the concrete in accordance with the fibrous reinforcement manufacturer's recommendations for uniform and complete distribution.

F. Fly ash may be used as a partial replacement for portland cement in the mixes. The weight of fly ash in a mix shall not exceed 20% of the weight of portland cement in the mix.

G. Concrete which will be exposed to the weather upon completion, shall be air-entrained. Other concrete may be air-entrained. Air content, by volume, shall be between 4 and 7 percent.

H. When the mean daily temperature is below 40 degrees F or when freezing temperatures are forecast within 24 hours after placement all concrete shall be air-entrained.

I. When the air temperature during placing operations is greater than 90 degrees F, all concrete shall contain a water-reducing, retarding admixture.

J. When the air temperature during placing operations is less than 90 degrees F, concrete may contain a water-reducing admixture.

K. High-range water-reducing admixture shall be used in concrete for all slabs. This admixture shall be added at the job site to concrete with a 4" slump, as required to produce concrete with a slump between 7" and 8-1/2". When the air temperature during placing operations is greater than 90 degrees F, high-range water-reducing and retarding admixture shall be used for this work.

L. The use of admixtures or materials not specified will not be permitted. Admixtures which are required or permitted shall be used in accordance with the manufacturer's directions.

3.6 PRODUCTION OF CONCRETE

A. All concrete shall be ready-mixed and shall be batched, mixed and transported in accordance with ASTM C94, except as specified otherwise herein.

B. In cold weather the minimum temperature of the concrete when delivered shall be 50 degrees F for sections with least dimension 12" or greater and 55 degrees F for sections with least dimension less than 12". However, cement shall not be mixed with water or with mixtures of water and aggregate having a temperature greater than 100 degrees F. When materials must be heated to produce the required minimum concrete temperatures, heating provided must be such that concrete temperatures are not greater than 10 degrees above the required minimum temperatures.

C. In hot weather if low slump, flash set or cold joints are encountered concrete ingredients shall be cooled before mixing, or flake ice or well-crushed ice of a size that will melt completely during mixing shall be substituted for all or part of the mixing water. When air temperature is above 90 degrees F mixing and delivery time shall not exceed 60 minutes.

D. Do not add water to the mix at the job except under conditions specifically permitted by the Architect.

3.7 CONCRETE PLACEMENT

A. THE ARCHITECT SHALL BE NOTIFIED AT LEAST 24 HOURS IN ADVANCE OF ALL PLACING OPERATIONS.

B. INSTALL ONE PLY OF VAPOR BARRIER, AS PER ASTM E 1643-98 AND MANUFACTURER'S INSTRUCTIONS, OVER ALL DRAINAGE FILL WHICH WILL RECEIVE GRADE SLABS, LAPPING JOINTS 6",

TAPE ALL JOINTS AND PENETRATIONS. INSTALL SCREEDS IN SUCH A MANNER THAT VAPOR BARRIER WILL NOT BE PUNCTURED.

C. SEE SECTION 09 67 00 POLYMER FLOOR SYSTEM FOR SUBFLOOR REQUIREMENTS AT FLOORS RECEIVING TROWELED FLOOR FINISH SYSTEM.

D. When concrete is placed, formwork shall have been completed; snow, ice, water, debris and other foreign materials shall have been removed; reinforcement shall have been secured in place; embedded items shall have been positioned; and the entire preparation shall have been inspected by the Architect. Sprinkle subgrade as required to eliminate suction. Do not place concrete on frozen or muddy ground.

E. Chutes, if used, shall be metal or metal lined and shall have a slope between 1 vertical to 2 horizontal and 1 vertical to 3 horizontal.

F. Pumping equipment, if used, shall have adequate pumping capacity. The loss of slump in pumping equipment shall not exceed 2". Concrete shall not be conveyed through pipe made of aluminum or aluminum alloy.

G. Deposit concrete continuously, or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the section. In any case the thickness of placement layers shall not exceed 2 feet. Placement shall be at such a rate that the concrete which is being integrated with fresh concrete is still plastic. Concrete which has partially hardened or has been contaminated by foreign materials shall not be deposited.

H. Do not begin placement of supported elements until concrete previously placed in walls is no longer plastic and has been in place at least 2 hours.

I. Deposit concrete as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to any procedure which will cause segregation. Deposit concrete in foundation piers through a hopper or other means that will permit concrete to drop naturally without striking forms, or sides of pier excavations.

J. Consolidate all concrete by mechanical vibration, supplemented by spading, tamping and rodding to secure a dense, homogeneous mass, thoroughly worked around reinforcement and embedded fixtures, and into corners of forms.

K. Vibrators shall have a minimum frequency of 8000 vibrations per minute and sufficient amplitude to consolidate the concrete effectively. They shall be operated by workmen experienced in their proper use.

L. Insert and withdraw vibrators at points approximately 18" apart. At each insertion, the duration shall be sufficient to consolidate the concrete but not sufficient to cause segregation, generally from 5 to 15 seconds. Where concrete is placed in layers, vibrators shall be inserted through the layer being placed and into the layer below.

M. A spare vibrator shall be kept on the job during all placing operation.

3.8 BONDING

A. Before depositing fresh concrete against hardened concrete, remove laitance and inferior surface concrete, clean surface of the hardened concrete, and clean forms and adjoining reinforcement of mortar and loose material.

B. Immediately prior to placing of fresh concrete dampen, but do not saturate, the hardened concrete of all joints between fresh and hardened concrete, except where joints are required to be coated with bond-breaker. Remove any standing water from horizontal joint surfaces.

3.9 REPAIR OF SURFACE DEFECTS

A. Defects which, in the opinion of the Architect, cannot be satisfactorily repaired by the provisions of this paragraph shall be repaired by the provisions of this paragraph shall be repaired as directed by the Architect or, if the Architect determines that repairs cannot be satisfactorily made by any method, the work shall be removed and replaced as specified by Section 03300, Subparagraph 3.14.H.

B. Repair other surface defects, including tie holes, immediately after form removal.

C. Remove all honeycombed and other defective material down to sound concrete. Make edges of cuts perpendicular to the concrete surfaces. Thoroughly clean and coat in the area to be patched with bonding agent applied in accordance with the manufacturer's recommendations. Install patching mortar after bonding agent has dried.

D. Patching mortar shall be 1 part cement to 2-1/2 parts sand by damp loose volume with the minimum quantity of mixing water required for handling and placing. Add bonding admixture in accordance with the manufacturer's directions. If surface will be exposed to view blend white portland cement with gray portland cement to produce a color matching the color of the surrounding concrete, as determined by a trial patch installed in an inconspicuous location. Thoroughly consolidate mortar into place and strike off slightly higher than the surrounding surface. Leave undisturbed for approximately one hour, then finish to match the surrounding surface. Keep the patched surface damp for seven days.

E. Cut form ties back at least 3/4". Clean and thoroughly dampen tie holes, then fill solid with patching mortar.

F. Repair defects in unformed surfaces as directed by the Architect.

3.10 FINISHING OF FORMED SURFACES

A. Repair defects of surfaces which will not be exposed to view in accordance with 3.09, then remove fins and other projections. No further finish is required for these surfaces.

B. Repair defects of surfaces which will be exposed to view in accordance with 3.09, remove fins and other projections, then provide grout cleaned finish as follows:
   1. Combine one part cement to 1-1/2" parts fine and by volume and mix with water and bonding admixture to consistency of thick paint. Add bonding admixture to water in accordance with the manufacturer's directions. Blend white and gray portland cements to produce a color matching the color of the surrounding concrete. Wet the surface of the concrete sufficiently to prevent absorption of water from the grout, then apply grout. Immediately after applying the grout, scrub the surface with a cork float or stone to coat the surface and fill small holes. While grout is still plastic, remove excess grout by scraping and rubbing with clean burlap, a rubber float or other means to produce a uniformly textured surface. Keep surface damp for at least 36 hours after rubbing. Complete any area in the same day it is started, with units of area being natural breaks in the finished surfaces. A trial patch of the finish shall be made to show color match and texture of finish. Trial patch shall be approved by the Architect before proceeding.

3.11 FINISHING OF UNFORMED SURFACES

A. After concrete has been placed, consolidated, struck off and leveled do not work further until ready for floating. When the water sheen has disappeared and the concrete has stiffened sufficiently to permit floating operations, float surface as required to compact it, remove surface imperfections and level the surface to a tolerance of 1/4" in 10' when tested with a 10' long straight edge. After leveling refloat the surface to a uniform sandy texture.

B. Trowel finish interior floor slabs after float-finishing. Trowel as required to produce a smooth uniform surface, free of trowel marks and other defects and plane to a tolerance of 1/4" in 10' when tested with a 10' straightedge. Grind surface imperfections which would telegraph through applied floor coverings.

C. Finish interior slabs which will receive terrazzo by drawing a broom across the surface immediately after float-finishing to produce a textured surface.

D. Finish all exterior slabs, including walks and pavement by drawing a broom across the surface immediately after trowel-finishing, to produce a uniformly textured surface. Broom line shall be parallel to direction of slope.

E. Tool exposed top edges of slabs with a round edging tool.

F. Finish interior slabs with concrete sealer Kure-n-Harden as manufactured by Sonneborn, or equal where exposed concrete is the final finish.

3.12 CURING AND PROTECTION

A. Beginning immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures and mechanical injury as specified herein.

B. Immediately after placement operations are complete, provide protection of unformed surfaces from premature drying by one of the following:
   1. Cover concrete surfaces with moisture retaining cover lapped 3" at joints and sealed with waterproof tape. Leave cover in place for at least 7 days. Immediately repair any holes or tears using cover material and waterproof tape.
   2. Apply curing compound in accordance with the manufacturer's recommendations. Immediately repair any damage to curing membrane which occurs within 7 days by the application of additional curing compound. Curing compound must be of a type that will not inhibit the bond of applied floor materials.

C. Keep wood forms continuously wet for 7 days unless they are removed earlier. If forms are removed earlier than 7 days apply curing compound as specified for unformed surfaces to provide a 7-day curing period. Curing compound must be of a type that will not inhibit the bond of applied finishes.

D. When the mean daily outdoor temperature is greater than 40 degrees F, concrete surfaces shall be protected from freezing for at least 24 hours after placement. When the mean daily outdoor temperature is less than 40 degrees F, maintain the temperature of the concrete between 50 degrees F and 70 degrees F for 7 days after placement. Make arrangements for protecting concrete in advance of placement operations. Use methods of protection that will maintain the required temperature without injury due to concentration of heat. Do not use combustion heaters during the first 24 hours after placement. After the required protection period, discontinue protective measures in such a way that the change in air temperature does not exceed 5 degrees F in any one hour period.

E. When weather conditions are such that plastic shrinkage cracking tends to appear and cold joints tend to form during placement use windbreaks, shading or fog spraying to prevent rapid drying of the concrete. Make arrangements for such measures in advance of placement operations.

F. Protect the concrete from heavy shock and vibration for not less than 28 days after placement.

3.13 TESTING

A. Make tests of concrete for each 100 cubic yards or fraction thereof of each mix design of concrete placed in any one day.

B. Sampling of concrete, slump tests, determination of air content and making of compressive test cylinders shall be performed in accordance with ASTM C172, C143, C231, and C31, respectively. The Contractor will be responsible for all costs in connection with concrete testing.

C. Make three compressive cylinders for each test, along with determination of slump. Field cure cylinders for 20-24 hours in accordance with ASTM C31; then ship to the laboratory. One cylinder will be tested at 7 days and two cylinders will be tested at 28 days. The average compressive strength of the two cylinders tested at 28 days constitute the test result. Cylinders will be tested in accordance with ASTM C39.

3.14 EVALUATION AND ACCEPTANCE OF CONCRETE WORK

A. Cylinder test results will be evaluated separately for each specified concrete mix design.

B. The strength level of the concrete will be considered satisfactory if the averages of all sets of three consecutive test results equal or exceed the specified strength and no individual test result falls below the specified strength by more than 500 pounds per square inch.

C. If the Contractor wishes to remove soffit forms earlier than 28 days, he may, at his own expense, have additional compressive strength tests made in the same manner as those made for concrete acceptability, except that they shall be field cured for the full curing period as required by ASTM C31.

D. When it appears the tests will fail to meet specified strength requirements the Contractor shall make such changes in the proportions of concrete for the remainder of the work as are necessary in order to meet the strength requirements. In addition, the Architect may also require additional curing of portions of the concrete already placed.

E. The Architect may also require tests from the hardened concrete in accordance with ASTM C42 when the concrete compressive cylinder tests fail to meet strength requirements. Such tests will be at the Contractor's expense.

F. In the event concrete cylinder tests and tests from the hardened concrete fail to meet strength requirements and structural analysis does not confirm the safety of the structure, the Architect may require load testing of the affected portions of the structure in accordance with Chapter 20 of ACI 318. Such testing will be at the Contractor's expense.

G. If concrete work is judged to be inadequate by the results of tests it shall be reinforced with additional construction if the Architect determines that this can be accomplished without impairing the usefulness of the structure. If structural analysis or the results of tests do not confirm the safety of the structure, and the Architect determines that reinforcing the structure cannot be done without impairing its usefulness, the affected concrete work shall be removed and replaced.

H. Concrete work which fails to meet drawing and specification requirements because of considerations other than concrete quality shall be repaired as directed by the Architect unless he determines that repairs cannot be accomplished satisfactorily, in which case the affected concrete work shall be removed and replaced.

I. Repairs or removal and replacement required because of failure to meet drawing and specification requirements shall be at the Contractor's expense.

END OF SECTION

SECTION 04 10 00 - MASONRY MORTAR AND GROUT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Pre-blended Mortar for unit masonry.
2. Pre-blended Grout for unit masonry.

1.2 SUBMITTALS

A. Section 01 33 23 - Submittal Procedures: Procedures for submittals.
1. Test Reports: Submit the following reports directly to Contracting Officer from Testing Laboratory, with copy to Contractor.
a. Conformance to Proportion specification of ASTM C 270.
b. Test and evaluation reports to ASTM C 780.
2. Submit all Products listed in this Section.

1.3 PROJECT CONDITIONS OR SITE CONDITIONS

A. Environmental Requirements:
1. Cold Weather Requirements: IMIAC - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.
2. Specific Cold Weather Requirements: When the ambient air temperature is below 40 degrees F, heat mixing water to maintain mortar temperature between 40 degrees F and 120 degrees F until placed. When the ambient air temperature is below 32 degrees F, heat the sand and water to maintain this mortar temperature.

PART 2 - PRODUCTS

2.1 PREBLENDED MORTAR MIXES, NON-COLORED MORTAR MIXES AND INTEGRAL WATER REPELLENT MORTAR MIXES.

A. Manufacturer:
1. SPEC MIX, Inc., www.specmix.com, 1-888-773-2649
2. Ash Grove Packaging Group, 10809 Executive Center Drive, Ste.321, Little Rock, AR, 72211
3. Or approved equal.

B. Proprietary Products/Systems: Dry, preblended mortar mixes, including the following:
1. SPEC MIX Pre-Blended Colored Mortar Mix:
a. Material: Preblended factory mix of Portland cement and hydrated lime, masonry cement or mortar cement and sand aggregate.
b. Mortar Type:Property Mixture Type N (for brick); Type S (for concrete block precast and cut stone)
c. Aggregate Type: Fine.
d. Material Standard for Aggregate: Comply with ASTM C144.
e. Material Standard for Portland Cement: Comply with ASTM C150.
f. Material Standard for Hydrate Lime: Comply with ASTM C207.
g. Material Standard for Masonry Cement: Comply with ASTM C91.
h. Material Standard for Mortar: Comply with ASTM C270.
i. Material Standard for Masonry Grout: Comply with ASTM C476.
j. Material Standard for Pigments: Comply with ASTM C979.
k. Material Standard for Mortar Cement: Comply with ASTM C1329.

2. SPECMIX, or Ashgrove/ IWR Mortar:
   a. Material Description: Dry preblended mortar mixes incorporating dry SPEC MIX Integral Water-Repellent Mortar Admixture.
   b. Water Penetration of Masonry (ASTM E154): No dampness reported
   c. Mortar Type: Property Mixture Type N
   d. Compressive Strength of Masonry Mortar (ASTM C1384): Greater than 95% of control mortar (containing no admixtures).
3. SPECMIX, or Ashgrove Promix Core Fill Grout, ASTM C476

2.2 PRODUCT SUBSTITUTIONS

A. Substitutions: Substitutions permitted, but all products/materials must be pre-blended within manufacturer's controlled environment.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

B. Report in writing to Architect prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 MANUFACTURER'S INSTRUCTIONS

A. Comply with the instructions and recommendations of the mortar manufacturer

B. Integral Water-Repellent Mortar:
   1. Installer shall use only concrete masonry units containing compatible integral water repellent CMU admixture for exterior wall construction.
   2. Installer shall use only mortar containing integral water repellent mortar admixture at the manufacturer's recommended addition rate and mixed according to the manufacturer's recommended instructions.

C. Pre-blended color Mortar Mix:
   1. Fill head and bed joints for full thickness of the face shells to provide the greatest resistance to water penetration.
   2. Tooling:
      a. Tool the mortar joints concave or to a V-profile to provide the greatest resistance to water penetration. Do not use raked, flush, extruded, struck, beaded, weathered or other joint profiles due to their reduced water resistance.
      b. Tool the mortar joints when they are thumbprint hard to provide the greatest resistance to water penetration and to help minimize hairline cracks between the mortar and the CMU.
   3. Cover the top of unfinished masonry work to protect it from the weather and to prevent accumulation of water in the cores of the CMU.
   4. Cleaning:
      a. Remove primary efflorescence from masonry walls exposed in the finished work in accordance with manufacturer's recommendations and NCMA TEK Bulletin #8-3A.
      b. Remove dirt or stains from masonry walls exposed in the finished work in accordance with the manufacturer's recommendations and NCMA TEK Bulletin #8-2A.
      c. Promptly remove excess wet mortar containing integral water repellent mortar admixture from the face of the masonry as the work progresses. Do not use strong acids, over-aggressive sandblasting or high pressure cleaning methods.

d. Comply with applicable environmental laws and restrictions.

3.3 INSTALLATION

A. After reinforcing of masonry is securely tied in place, plug cleanout holes with masonry units. Brace against wet grout pressure.

B. Install mortar and grout under provisions of Section 04200.

3.4 FIELD QUALITY CONTROL

A. Section 01450 - Quality Control: Procedures for testing.

B. Testing - Masonry Grout: Conduct strength tests in accordance with ASTM C 1019.

C. Testing - Masonry Mortar: Conduct strength tests in accordance with the following:
1. Spread mortar on the masonry units 1/2 inch to 5/8 inch thick, and allow to stand for one minute.
2. Remove mortar and place in a 2-inch by 4-inch cylinder in two layers, compressing the mortar into the cylinder using a flat-end stick or fingers. Lightly tap mold on opposite sides, level off and immediately cover molds and keep them damp until taken to the laboratory.
3. After 48 hours' set, have the laboratory remove molds and place them in the fog room until tested in damp condition.

3.5 CONSTRUCTION

A. Mix mortar using a mechanical mortar mixer to ensure homogeneity and workability. Hand mixing of the mortar is permitted only with written approval of the Architect/Specifier who will outline hand-mixing procedures.
1. Observe mixing times of 4-5 minutes, consistent from batch to batch.

B. Use clean, potable water; add the maximum amount consistent with optimum workability.
1. Maintain a uniform water/cement ratio.
2. At the end of the day, thoroughly rinse the mixer to avoid contamination of future mortar batches.

C. Retemper mortar by adding additional mixing water only to replace water lost due to evaporation.

D. Core Fill Grout
1. Preparatory Work
a. Core Fill Grout may be used in both low and high-lift applications. Special consideration should be given when selecting the type of grout for a particular application.
b. Handle and store product according to manufacturer's recommendations. Products shall be custom packaged to the specification and must be stored dry, covered and protected from weather and other damage.
2. Methods
a. Core Fill Grout may be placed by hand or by mechanical delivery. It should be consolidated upon placement and reconsolidated before initial set.
b. Course grout may be used in grout spaces in brick masonry, 2" (51 mm) or more in horizontal dimensions where no horizontal steel is in the grout space, and in the cells in block.
1. Do not retemper colored mortars.
c. Discard mortar 2.5 hours after initial mixing.
d. Tool mortar joints when surface in thumbprint hard.
1. Keep tooling time consistent
2. Do not strike joint too early or too late in order to maintain color consistency.
e. Cure mortar in a minimum of 28 days.
f. For masonry core fill grout applications, comply with the requirements of ASTM C476.

3.6 REPAIR/RESTORATION

A. Specify requirements for cleaning, repair or restoration of existing mortar or masonry work.

3.7 CLEANING

A. Cleaning Method:
   1. Clean masonry with the least aggressive cleaning solution and technique possible.
   2. Comply with cleaning procedure and recommendations of the manufacturers of both the cleaning solution and the unit masonry.
   3. Utilize the same cleaning procedure on the sample panel at selection and during construction.

3.8 PROTECTION

A. Protect installed work from damage due to subsequent construction activity on the site.

END OF SECTION

SECTION 04 20 00 - MASONRY (BLOCK and BRICK)

PART 1 - GENERAL

1.1 DESCRIPTION

A Work included: Provide masonry where shown on the Drawings, as specified herein, and as needed for a complete and proper installation. Clean and prep existing masonry for new paint finish.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 23.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.

1.4 QUALITY ASSURANCE

A. Qualifications:
1. Manufacturer: Company specializing in manufacturing Products specified with minimum 5 years documented experience.
2. Installer: Company specializing in performing the Work of this Section with minimum 5 years documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Section 01 64 00 - Product Handling: Transport, handle, store, and protect Products.

B. Materials shall be delivered and stored so as to avoid damage from breakage, moisture, staining or damage of any kind.

C. Storage of Materials: Store materials under cover in a dry place and in a manner to prevent damage or intrusion of foreign matter. During freezing weather protect all masonry units with tarpaulins or other suitable material. Store cement, lime and air-setting mortars in watertight sheds with elevated floors. Protect reinforcement from the elements; immediately before placing, reinforcement shall be free from loose rust, ice or other foreign coatings that will destroy or reduce the bond.

1.6 PROJECT CONDITIONS OR SITE CONDITIONS

A. Environmental Requirements:
1. No masonry work shall be installed in an atmosphere with temperature less than 40 degrees F. unless work is protected in a manner previously approved by the Architect.
2. Hot Weather construction - Protect masonry construction from direct exposure to wind and sun when

erected in an ambient air temperature of 99 degrees F. in shade with relative humidity less than 50 percent.

3. Cover work at end of each day's work with non-staining waterproof material so as to prevent entrance of excess water at top of wall.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

B. Brick: Provide Acme, or equal, modular size units where indicated on drawings, wire cut (velour) texture complying with ASTM C216, grade SW, Type FPS.

a. Colors: One color to match existing campus brick. Field verify.

C.. Concrete Masonry Units:

1. Provide hollow load-bearing concrete masonry units made from lightweight aggregates and meeting the requirements of ASTM C90 for Grade N-1 units. Use standard modular sizes as shown on the Drawings (8 x 8 x 16 and 4 x 8 x 16, smooth face and split face, are most typical sizes), cutting where required. Compressive strength on the average gross area will be a minimum of 800 psi for an individual unit and 1000 psi for an average of 3 units. Concrete masonry units shall have a shrinkage potential as defined in ASTM C90 of 0.04% or less. If requested submit certification as to shrinkage potential. Provide for lintels, bond beams, half high block, corners and other special conditions as shown on the Drawings.
2. Provide accessory shapes as indicated or otherwise required.
3. **PROVIDE UNITS WHICH MEET THE REQUIREMENTS FOR ONE, TWO, THREE, OR FOUR HOUR FIRE RATED WALLS WHERE NOTED ON THE DRAWINGS.**
4. **S**plit face CMU - 4" x 8" x 16" – paint.

D. Masonry Veneer Anchors Hohmann & Barnard, Inc. HB-213-2X Veneer Anchors, Standard Weight, 12 gauge Pintel with 14 gauge Plate. Install to exterior metal studs with hot dipped galvanized or stainless steel screws.

E. Concrete Masonry Unit Reinforcement: At concrete block and brick or stone veneer walls use Hohmann & Barnard, Inc. Ladder Type mesh assembly, hot dipped galvanized, ASTM 641, Class 1, extra heavy weight classification, or approved substitution. Cross rods to be a 16" on center, with a minimum of four (4) longitudinal rods. Use Hohmann & Barnard, Inc., Ladder-Type Assembly at concrete block walls without brick veneer. All CMU reinforcement to be one inch less than wall width in which it is placed.

F. Veneer Expansion Joint Material: 3/8" thick x one brick or stone wythe closed cell neoprene conforming to ASTM D1056 Class RE41 or 2A1 compressibility exceeds 50%.

G. Block and brick or Stone cavity wall expansion material: Factory extruded rubber conforming to ASTM D-2000 2AA-805 with a Durometer hardness of 80 when tested in accordance with ASTM D2240. Use 11-1/8" wide material for 12" concrete masonry units.

I. Mesh Wall Ties: ½" square, hot dipped galvanized wire, 16 ga., 24" long x 1-1/2" less nominal width of wall. Place at four feet (4') on center vertically at all vertical expansion joints in stone veneer and/or stone and block cavity walls.

J. Membrane Flashing:

1. Flashing embedded in masonry walls (base of wall at weeps, all door heads, all window heads and sills and all other locations noted on the Drawings) shall be Nervastral Seal-Pruf H-D, 20 mils thick, as manufactured by Rubber & Plastics Compound Company, Inc. or approved substitution.
2. Furnish in long lengths of proper widths with bonded 4-inch lapped joints. Extend flashing to within one

inch of exterior wall face.

K. Weep-holes: Mortar Net Weep Vents, color selected by Architect. 2.5" x 3.5" x .5", 100% recycled polyester with 90% open mesh, with Mortar Net Drainage System, 1" x 10" x 5', or equal.

L. Masonry Cleaner: All masonry work shall be thoroughly cleaned with Vana Trol Sure Klean as manufactured by the Process Solvent Company, Inc. (Prosoco) or approved substitution. (Other products as manufactured by Prosoco may be required to be used as cleaner and their selection and use are the Contractor's responsibility at no cost to the Owner.)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 73 00 - Execution Requirements: verification of existing conditions before starting work.

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

C. Report in writing to Architect prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 INSTALLATION OF REINFORCED CONCRETE UNIT MASONRY

A. General: the installation provisions of paragraphs 1.1 through 3.3 apply to the installation of reinforced concrete unit masonry except where in conflict with the following requirements. Stack bond shall be used for both reinforced CMU walls and unreinforced CMU walls.

B. Position reinforcement accurately at the spacing indicated. Support and secure vertical bars against displacement. Horizontal reinforcement may be placed as the masonry work progresses. Where vertical bars are shown in close proximity, provide a clear distance between bars of not less than the nominal bar diameter or 1" (whichever is greater). Locate horizontal bars on the same side of vertical bar.

C. Splice reinforcement bars where shown; do not splice at other points unless acceptable to the Architect. Provide lapped splices, unless otherwise indicated. In splicing vertical bars or attaching to dowels, lap ends, place in contact and wire tie.

D. Maintain vertical continuity of core or cell cavities, which are to be reinforced and grouted, to provide minimum clear dimension indicated and to provide minimum clearance and grout coverage for vertical reinforcement bars. Keep cavities free of mortar. Solidly bed webs in mortar where adjacent to reinforced cores or cells.

E. Where horizontal reinforced beams (bond beams) are shown, use special units or modify regular units to allow for placement of continuous horizontal reinforced bars. Place small mesh expanded metal lath or wire screening in mortar joints under bond beam courses over cores or cells or non-reinforced vertical cells, or provide units with solid bottoms.

F. Use fine or course grout as specified as required to completely fill all space intended to be grouted.

G. Grouting Technique: Low-lift grouting technique subject to requirements which follow.
1. Provide minimum clear dimension of 2" and clear area of 8 sq. In. In vertical cores to be grouted.
2. Place vertical reinforcement prior to layout of CMU. Extend above elevation of maximum pour height as required for splicing. Support in position at vertical intervals not exceeding 192 bar diameters nor 10 ft.

3. Lay CMU to maximum pour height. Do not exceed 5' height, or if bond beam occurs below 5' height, stop our at course below bond beam.
4. Pour grout using chute or container with spout. Rod or vibrate grout during placing. Place grout continuously; do not interrupt pouring of grout for more than one hour. Terminate grout pour 1-1/2" below top course of pour.
5. Bond Beams: Stop grout in vertical cells 1-1/2" below bond beam course. Place horizontal reinforcement in bond beams; lab at corners and intersections as shown. Place grout in bond beam course before filing vertical cores above bond beam.

3.4 JOINTS

A. Nominal thickness shall be 3/8" and uniform at brick or stone and precast concrete.

B. Shove vertical joints tight.

C. Strike joints flush in exposed brick vertical surfaces and all precast concrete joints.

D. Tool joints slightly concave in exposed brick, concrete block or precast concrete surfaces.

E. Tool joints slightly flush in exposed brick or concrete block to be painted.

3.5 BUILT-UP WORK

A. Cooperate with other trades in building in items in masonry work.

B. Grout solid around built-in items and in door frames.

3.6 LINTELS

A. Install rebars and grout solid as indicated. Provide temporary shoring for openings wider than 36".

B. Lintels shall extend into side walls at jambs, minimum of 4".

C. Coordinate steel lintels with Section 05500.

3.7 FLASHING, WEEPHOLES, VENTS

A. General: Install embedded flashing and weepholes in masonry at shelf angles, lintels, ledges, other obstructions to the downward flow of water in the wall, and where indicated.

B. Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing at all lintels and shelf angles, and as follows:
1. Space weep holes 24 inches o.c., maximum.
2. At all cavities with flashing place Mortar Dropping Net continuous within cavity and placed on top of thru-wall flashing and exterior sheathing.

3.8 REPAIR, POINTING AND CLEANING

A. Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar or grout, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point-up all joints including corners, openings and adjacent work to provide a neat uniform appearance, prepared for application of sealants.

C. Final Cleaning: After mortar is thoroughly set and cured, clean masonry as follows: (Follow manufacturers recommendations, but as a minimum perform the following.)
   1. Remove large mortar particles by hand with wooden paddles and non-metallic scrape hoes or chisels.
   2. Test cleaning methods on sample wall panel; leave ½ panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
   3. Protect adjacent non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film or waterproof masking tape.
   4. Saturate wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clear water.
   5. Use bucket and brush hand cleaning method described in BIA "Technical Note No. 20 Revised" to clean brick masonry made from clay or shale, except use masonry cleaner indicated under Part 2 - Products.
   6. **APPLY MASONRY CLEANER AND CLEAN WALLS AS MANY TIMES AS REQUIRED TO REMOVE ALL EXCESS MORTAR, EFFLORESCENCE, LAITTANCE, OR ANY OTHER ITEM ON THE SURFACE OF THE MASONRY TO THE SATISFACTION OF THE OWNER AND/OR ARCHITECT. (I.E. MULTIPLE CLEANINGS OF THE WALLS MAY BE REQUIRED AND ARE CONSIDERED A PART OF THE WORK AT NO ADDITIONAL COST.)**

D. Protection: Provide final protection and maintain conditions in a manner acceptable to Installer, which ensures unit masonry work being without damage and deterioration at time of substantial completion.

3.9 APPLICATION OF EXTERIOR MASONRY SEALER

A. Existing masonry shall be painted. See section 09 90 00.

END OF SECTION

SECTION 05 50 00 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide miscellaneous metal work shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Perform shop and/or field welding required in connection with the work of this Section in strict accordance with pertinent requirements of the American Welding Society.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 23.

B. Product Data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Shop Drawings in sufficient detail to show fabrication, installation, anchorage and interface of the Work of this Section with the work of adjacent trades.
4. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used in the Work.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

PART 2 - PRODUCTS

2.1 MATERIALS

A. In fabricating items which will be exposed to view, limit materials to those which are free from surface blemishes, pitting, rolled trade names and roughness.

B. Comply with the following standards, as pertinent:
1. Steel plates, shapes and bars: ASTM A36;
2. Steel plates to be bent or cold-formed: ASTM A283, grade C;
3. Steel tubing (hot-formed, welded or seamless): ASTM A501.
4. Steel bars and bar-size shapes: ASTM A306, grade 65 or ASTM A36;
5. Cold-finished steel bars: ASTM A108;
6. Cold-rolled carbon steel sheets: ASTM A336;

7. Galvanized carbon steel sheets: ASTM A526, with G90 zinc coating in accordance with ASTM A525.
8. Stainless steel sheets: AISI type 302 or 304, 24 gauge with number 4 finish.
9. Gray iron castings: ASTM A48, class 10;
10. Malleable iron castings: ASTM A47;
11. Steel pipe: ASTM A53, grade A, schedule 40, black finish unless otherwise noted;
12. Concrete inserts:
    a. Threaded or wedge type galvanized ferrous castings of malleable iron complying with ASTM A27;
    b. Provide required bolts, shims, and washers, hot-dip galvanized in accordance with ASTM A153.

2.2 FASTENERS

A. General:
1. For exterior use and where built into exterior walls, provide zinc-coated fasteners.
2. Provide fasteners of type, grade and class required for the particular use.

B. Comply with the following standards as pertinent:
1. Bolts and nuts: Provide hexagon-head regular type complying with ASTM A307, grade A;
2. Lag bolts: Provide square-head type complying with Federal Spec FF-B-561;
3. Machine screws: Provide cadmium plated steel type complying with Federal Spec FF-S-111;
4. Washers:
    a. Plain washers: Comply with Federal Spec FF-W-92, round, carbon steel;
    b. Lock washers: Comply with Federal Spec FF-W-84, helical spring type carbon steel;
5. Toggle bolts: Provide type, class and style needed but complying with Federal Spec FF-B-588;
6. Anchorage devices: Provide expansion shield complying with Federal Spec FF-S-325.

2.3 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

2.4 SHOP PAINT

A. Primer: Apply one (1) shop coat of manufacturer's standard red or gray primer paint. Primer paint shall be rust inhibitive.

B. For repair of galvanizing, use a high zinc-dust content paint complying with MIL-P-21035.

2.5 FABRICATION

A. Except as otherwise shown on the Drawings, use materials of size, thickness and type required to produce reasonable strength and durability in the Work of this Section.

B. Fabricate with accurate angles and surfaces which are true to the required lines and levels, grinding exposed weld smooth and flush, forming exposed connections with hairline joints, and using concealed fasteners wherever possible.

C. Prior to shop painting or priming, properly clean metal surfaces as required for the applied finish and for the proposed use of the item.

D. On surfaces inaccessible after assembly or erection, apply two coats of the specified primer. Change color of second coat to distinguish it from the first.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

B. Report in writing to Architect prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.3 COORDINATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the Work of this Section.

3.4 INSTALLATION

A. General:
1. Set work accurately into position, plumb, level, true and free from rack, and as per any manufacturer instructions.
2. Anchor firmly into position.
3. When field welding is required, comply with AWS recommended procedures of manual-shielded metal-arc welding for appearance and quality of weld and for methods to be used in correcting weld work.
4. Grind exposed welds smooth and touch up shop prime coats.
5. Do not cut, weld, or abrade surfaces which have been hot-dip galvanized after fabrication and which are intended for bolted or screwed connections.

B. Immediately after erection, clean the field welds, bolted connections and abraded areas of shop priming. Paint the exposed areas with the same material used for shop priming.

C. Paint all exposed interior and exterior metal as per Section 09 90 00 - Paint.

END OF SECTION

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide wood, nails, bolts, screws, framing anchors and other rough hardware, and other items needed, and perform rough carpentry for the construction shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
   1. Miscellaneous wood framing and sheathing.
   2. Miscellaneous furring for wall finishes.
   3. Miscellaneous blocking, cants and curbs for roofing systems, related metal flashings and roof mounted equipment/accessories.
   4. Behind wall wood blocking for support of toilet accessories, wall cabinets, wainscots and miscellaneous other wall-hung/attached accessories.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in division 1 of these Specifications.
   2. Division 5 - Metals
   3. Section 07 41 00 - Preformed Metal Roofing and Wall Panels

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Codes and standards:
   1. In addition to complying the pertinent codes and regulations of governmental agencies having jurisdiction, unless otherwise specifically directed or permitted by the Architect comply with:
      a. "Product Use Manual" of the Western Wood Products Association for selection and use of products included in that manual;
      b. "Plywood Specification and Grade Guide" of the American Plywood Association;
      c. "Standard Specifications for Grades of California Redwood Lumber" of the Redwood Inspection Bureau for Redwood, when used.

1.3 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

B. Protection:
   1. Deliver the materials to the job site and store, in a safe area, out of the way of traffic, and shored up off the ground surface.
   2. Identify framing lumber as to grades, and store each grade separately from other grades.
   3. Protect metals with adequate waterproof outer wrapping.
   4. Use extreme care in off loading of lumber to prevent damage, splitting, and breaking of materials.

PART 2 - PRODUCTS

2.1 GRADE STAMPS

A. Identify framing lumber by the grade stamp of the Southern Pine Inspection Bureau, or such other grade stamp as is approved in advance by the Architect.

B. Identify plywood as to species, grade, and glue type by the stamp of the American Plywood Association.

C. Identify other materials of this Section by the appropriate stamp of the agency approved in advance by the Architect.

2.2 MATERIALS

A. Provide materials in the quantities needed for the Work shown on the Drawings, and meeting or exceeding the following standards of quality: All materials to be new, not previously used for any other purpose.
   1. Miscellaneous framing and blocking: Southern pine or fir, #3 minimum. (Pressure treated where noted on Drawings.)
   2. Plywood:
      (1) Backer board at telephone and computer/data equipment: APA rated sheathing, exposure 1, 3/4" fire retardant.
      (2) Floor Sheathing/Decking: APA rated sheathing, exposure I, 1 1/8", tongue and groove, fire retardant.

2.3 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

B. Report in writing to Architect prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.3 DELIVERIES

A. Stockpile materials sufficiently in advance of need to assure their availability in a timely manner for this Work.

B. Make as many trips to the job site as are needed to deliver materials of this Section in a timely manner to ensure

orderly progress of the Work.

3.4 COMPLIANCE

A. Do not permit materials not complying with the provisions of this Section to be brought onto or to be stored at the job site.
B. Promptly remove non-complying materials from the job site and replace with materials meeting the requirements of this Section.

3.5 WORKMANSHIP

A. Produce joints which are tight, true, and well nailed, with members assembled in accordance with the Drawings and with pertinent codes and regulations.

B. Selection of lumber pieces:
1. Carefully select the members.
2. Select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing, and will allow making of proper connections.
3. Cut out and discard defects which render a piece unable to serve its intended function.
4. Lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.

C. Do not shim any framing component.

3.6 GENERAL FRAMING

A. General:
1. In addition to framing operations normal to the fabrication and erection indicated on the Drawings, install wood blocking and backing required for the work of other trades.
2. Set horizontal and sloped members with crown up.
3. Do not notch, cut, or bore members for piped, ducts, or conduits, or for other reasons except as shown on the Drawings or as specifically approved in advance by the Architect.

B. Bearings:
1. Make bearings full unless otherwise indicated on the Drawings.
2. Finish bearing surfaces on which structural members are to rest so as to give sure and even support.
3. Where framing members slope, cut or notch the ends as required to give uniform bearing surface.

3.7 BLOCKING AND BRIDGING

A. Install blocking as required to support items of finish (millwork, cabinets, accessories, etc.) and to cut off concealed draft openings, both vertical and horizontal, between ceiling and floor areas.

B. Bridging:
1. Install wood cross bridging (not less than 2" x 3" nominal), metal cross bridging of equal strength, or solid blocking between joists where the span exceeds 8'-0".
2. Provide maximum distance of 8'-0" between a line of bridging and a bearing.
3. Cross bridging may be omitted for roof and ceiling joists where the omission is permitted by code, except where otherwise indicated on the Drawings.
4. Install solid blocking between joists at points of support and wherever sheathing is discontinuous. Blocking

may be omitted where joists are supported on metal hangers.

3.8 ALIGNMENT

A. On framing members to receive a finished surface align the finish subsurface to vary not more than 1/8" from the plane of surfaces of adjacent furring and framing members.

3.9 INSTALLATION OF PLYWOOD SHEATHING

A. Placement:
   1. Place plywood with face grain perpendicular to supports and continuously over at least two supports, except where otherwise shown on the Drawings.
   2. Center joints accurately over supports, unless otherwise shown on the Drawings at roof sheathing, all joints not centered over supports shall be attached with metal panel clips at 2'-0" o.c. maximum.

B. Protect plywood from moisture by use of waterproof coverings until the plywood in turn has been covered with the next succeeding component or finish.

3.10 FASTENING

A. Nailing:
   1. Provide common wire nails or spikes with penetration into the piece receiving the point of not less than 1/2 the length of the nail or spike, provided, however, that 16d nails may be used to connect two pieces of 2" (nominal) thickness.
   2. Nail without splitting wood.
   3. Prebore as required.
   4. Remove split members and replace with members complying with the specified requirements.
   5. Nailing Schedule

CONNECTION	NAILING
1. Joist to sill or girder, toenail	3 - 8d
2. Bridging to joist, toenail each end	2 - 8d
3. Bottom Plate to joist or blocking, face nail	16d at 16 inches o.c.
4. Top plate to stud, end nail	2-16d
5. Stud to bottom plate	4-8d, toenail or 2-16d, end nail
6. Double studs, face nail	16d at 24 inches o.c.
7. Double top plates, face nail	16d at 16 inches o.c.
8. Top plates, laps and intersections, face nail	2 - 16d
9. Continuous header, two pieces	16d at 16 inches o.c.along each edge
10. Ceiling joists to plate, toenail	3 - 8d
11. Continuous header to stud, toenail	4 - 8d
12. Ceiling joists, laps over partitions, face nail	3 - 16d
13. Ceiling joists to parallel rafters, face nail	3 - 16d
14. Rafter to plate, toenail	3 - 16d
15. Built-up corner studs	16d at 24 inches o.c.
16 Built-up beams top and bottom staggered	20d at 32 inches o.c. at 2 - 20d at ends and at each splice

B. Bolting:
   1. Drill holes 1/16" larger in diameter than the bolts being used.
   2. Drill straight and true from one side only.
   3. Do not bear bolt threads on wood, but use washers under head and nut where both bear on wood, and use washers under all nuts.

C. Screws:

1. For lag screws and wood screws, prebore holes same diameter as root of threads, enlarging holes to shank diameter for length of shank.

3.11 MISCELLANEOUS ITEMS

A. Install all items of this Section at the locations shown on the Drawings and in accordance with the approved Shop Drawings.

B. Install all items in strict accordance with manufacturers written installation and cleaning instructions.

END OF SECTION

SECTION 06 19 00 - WOOD TRUSSES

PART 1- GENERAL

1.1 DESCRIPTION

A. Work included: Provide wood trusses where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 06 10 00: Rough Carpentry

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 23.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Shop Drawings showing species, sizes, and stress grades of lumber proposed to be used; pitch, span, camber configuration, and spacing of trusses (framing plan); connector type, thickness, size, location, and design value; and bearing details; **PROVIDE THE SERVICES OF A STRUCTURAL ENGINEER (CONTRACTOR PAYS),REGISTERED TO PRACTICE IN THE STATE OF ARKANSAS, TO DESIGN THE WOOD TRUSSES AND THE ENTIRE TRUSSED SYSTEM TO SUSTAIN THE INDICATED LOADS FOR THE SPANS, PROFILES, AND ARRANGEMENTS SHOWN ON THE DRAWINGS.**
4. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

PART 2 - PRODUCTS

2.1 WOOD TRUSSES

A. Design:
1. **PROVIDE THE SERVICES OF A STRUCTURAL ENGINEER (CONTRACTOR PAYS), REGISTERED TO PRACTICE IN THE STATE OF ARKANSAS, TO DESIGN THE WOOD TRUSSES AND THE ENTIRE TRUSSED SYSTEM TO SUSTAIN THE INDICATED LOADS FOR THE SPANS, PROFILES, AND ARRANGEMENTS SHOWN ON THE DRAWINGS.** Comply with pertinent provisions of:
   a. "Timber Construction Standards" of the American Institute of Timber Construction;
   b. "Quality Control Manual" of the Truss Plate Institute;
   c. The building code having jurisdiction.
2. The structural engineer shall apply his registration seal to each wood truss and to the entire wood truss system.
3. Truss fabricator to specify and furnish hurricane ties for all bearing points at trusses. Ties to be Simpson

Strong-Tie #LTS, MTS, LGT2, as noted on the Drawings, and/or as required for field conditions.

B. Fabrication:
   1. Prefabricate in strict accordance with the Shop Drawings and other data approved by the Architect and/or Structural Engineer.

2.2 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this section.

B. Install the work of this Section in strict accordance with the original design (original Construction Documents), the approved Shop Drawings, pertinent requirements of governmental agencies having jurisdiction, and the manufacturer's recommended installation procedures as approved by the Architect, and/or Structural Engineer, anchoring all components firmly into position for long life under hard use.
   1. Hoist the trusses into position with proper bracing secured at designated lifting points.
   2. Exercise care to keep out-of-place bending of trusses to a minimum.
   3. Install temporary horizontal and cross bracing to hold trusses plumb and in safe condition until permanent bracing is installed.
   4. Install permanent bracing and related components prior to application of loads to trusses.
   5. Tighten loose connectors.
   6. Restrict construction loads to prevent overstressing of truss members.
   7. Do not cut or remove truss members.

END OF SECTION

SECTION 070160 - FLASHING AND SHEET METAL

PART 1- GENERAL

1.1 DESCRIPTION

A. Work included: Provide flashing and sheet metal not specifically described in other Sections of these Specifications but required to prevent penetration of water through the exterior shell of the building.

B. Related work:
1. Documents affecting Work of this Section include, but are not necessarily limited to General Conditions, Supplementary Conditions and Section in Division 1 of these Specifications.
2. Section 061000 – Rough Carpentry
3. Section 062000 – Finish Carpentry
4. Section 074113 – Metal Roof, Wall and Soffit Panels
5. Section 077200 – Roof Accessories

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

B. In addition to complying with pertinent codes and regulations, comply with pertinent recommendations contained in current edition of "Architectural Sheet Metal Manual" published by the Sheet Metal and Air Conditioning Contractors National Association (SMACNA).

C. Standard items may be used for flashing, trim, reglets, and similar purposed provided such item meet or exceed the quality standards specified.

1.3 SUBMITTALS: Comply with Section 013323

A. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Shop Drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the work of adjacent trades;
4. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 016000.

PART 2 - PRODUCTS

2.1 MATERIALS AND GAGES

A. Where sheet metal is required and no material or gage is indicated on the Drawings, provide the highest quality and gage commensurate with the referenced standards.

B. Where shown on the Drawings at locations noted "metal flashing", or "counter flashing" including all parapet wall flashing, provide a non-rusting metal equal to .040" mill finish aluminum.

C. Where shown on the Drawings at locations noted "flashing", "metal valley flashing", or similar "flashing" note provide 24 gauge steel, pre-finished (Kynar 500 coating) metal equal to Colorklad.

D. Where shown on the Drawings at locations noted "copper flashing" provide 16 oz. (0.0216" thick) ASTM 8370 cold rolled copper except where soft temper is required for forming.

E. Gutters and Downspouts: Factory Prefinished .027 aluminum, 6" seamless gutters 5" x 4" downspouts. Color to be selected from manufacturers standard color line.

F. Metal Drip Edge: Factory prefinished .024" thick aluminum, color to be selected from manufacturer's standard color line.

G. Nails, Rivets and Fasteners:
   1. Fasteners: Hard copper, brass or bronze.
   2. Nails for wood and nailing concrete: flathead, barbed, wire slating nails not less than No. 12 gage, 1" long.
   3. Screws and bolts: Round heads.

H. Solder: ASTM B32; 50% tin, 50% lead.

I. Flux: Rosin, muriatic acid neutralized with zinc or approved equal.

J. Roofing Underlayment: Tamko TW Metal and tile underlayment, 75 mil, self-adhering, fiberglass reinforced, rubberized asphalt, or equal.

K. Flashing Fabric: As specified in Section 042000 (materials and installation).

L. Air Infiltration Barrier (A.I.B. on drawing): See section 061000 for materials and installation.

2.2 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Install flashing at all locations as shown on Drawings. Install all materials as per Manufacturer's Recommendations.

C. Where an exposed face dimension of the metal exceeds 6", it shall have a "crimp along the length of the entire face to avoid "oil-canning. Two (2) crimps shall be installed when the exposed face dimension exceeds 11".

3.2 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps with roller. Cover underlayment within 14 days.

3.3 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement so that completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
   1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
   2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
   3. Space cleats not more than 12 inches (300 mm) apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
   4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
   5. Install sealant tape where indicated.
   6. Torch cutting of sheet metal flashing and trim is not permitted.

B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.
   1. Coat back side of uncoated aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
   2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of **10 feet (3 m)** with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with sealant concealed within joints.

D. Fastener Sizes: Use fasteners of sizes that will penetrate wood sheathing and/or substrate not less than 1-1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for wood screws, and for metal decking not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

E. Seal joints as shown and as required for watertight construction.

F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except reduce pre-tinning where pre-tinned surface would show in completed Work.
   1. Do not solder metallic-coated steel and aluminum sheet.
   2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
   3. Stainless-Steel Soldering: Tin edges of uncoated sheets using solder recommended for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.
   4. Copper Soldering: Tin edges of uncoated copper sheets using solder for copper.

G. Rivets: Rivet joints in uncoated aluminum where indicated and where necessary for strength.

3.4 ROOF DRAINAGE SYSTEM INSTALLATION

A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.

B. Hanging Gutters: Join sections with riveted and soldered joints or with lapped joints sealed with sealant. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchored gutter brackets and/or straps spaced not more than 36 inches (900 mm) apart. Provide end closures and seal watertight with sealant. Slope to downspouts.
   1. Install gutter with expansion joints at locations indicated, but not exceeding, **50 feet (15.24 m)** apart. Install expansion-joint caps.
   2. Install continuous gutter screens on gutters with noncorrosive fasteners, removable for cleaning gutters.

C. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches (1500 mm) o.c. in between.

D. Splash Pans: Install where downspouts discharge on low-slope roofs. Set in adhesive material compatible with the roofing.

E. Parapet Scuppers: Install scuppers where indicated through parapet. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.

F. Conductor Heads: Anchor securely to wall with elevation of conductor head rim 1 inch (25 mm) below scupper discharge.

G. Expansion-Joint Covers: Install expansion-joint covers at locations and of configuration indicated. Lap joints a minimum of 4 inches (100 mm) in direction of water flow.

3.5 ROOF FLASHING INSTALLATION

A. General: Install sheet metal flashing and trim to comply with performance requirements of sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in SMACNA's "Architectural Sheet Metal Manual" and as indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at staggered 3-inch (75-mm) centers.

C. Copings: Anchor to resist uplift and outward forces according to recommendations in SMACNA's "Architectural Sheet Metal Manual" and as indicated.
   1. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 24-inch (600-mm) centers.
   2. Anchor interior leg of coping with washers and screw fasteners through slotted holes at 24-inch (600-mm) centers.

D. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending a minimum of 4 inches (100 mm) over base flashing. Install stainless-steel draw band and tighten.

E. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches (100 mm) over base flashing. Lap counterflashing joints a minimum of 4 inches (100 mm) and bed with sealant.

F. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

3.6 WALL FLASHING INSTALLATION

A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

B. Through-Wall Flashing: Installation of through-wall flashing is specified in Division 04 Section 04 20 00 – Masonry.

C. Reglets: Installation of reglets is specified in Division 03 Section 03 30 00 - Cast-in-Place Concrete, and/or Division 04 Section 04 20 00 - Masonry.

D. Opening Flashings in Frame Construction: Install continuous head, sill, jamb, and similar flashings to extend 4 inches, minimum beyond wall openings.

3.7 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder and sealants.

C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

3.8 TESTS

A. Upon request of the Architect, demonstrate by hose or standing water that the flashing and sheet metal are completely watertight.

END OF SECTION

SECTION 07 21 00 - BUILDING INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide building insulation where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
1. Documents affecting Work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Upon completion of this portion of the Work, complete and post a certificate of insulation compliance in accordance with pertinent requirements of governmental agencies having jurisdiction.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 23.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.

1.4 PRODUCT HANDLING

A. Comply with pertinent provision of Section 01 64 00.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide the following building insulation where shown on the Drawings or otherwise needed to achieve the degree of insulation required under pertinent regulations of governmental agencies having jurisdiction. Provide products by listed manufacturer or approved substitution.

1. Batt Insulation:
   a. Interior Rooms: locations as noted on Drawings. Owens Corning Sonobatts (or equal)6 ½" thick R-19, Flame Spread 25 maximum, installed over entire area over all ceilings.
   b. Classroom and etc. Interior Metal Stud Walls: Unfaced fiberglass, sound batt, 3½" thick.
   c. Roof trusses- Faced fiberglass, 12" thick (or thickness as required to achieve R-38 minimum).

2. Concrete Masonry Unit Insulation (Exterior Walls): PolyMaster Plastic Foam Insulation, as manufactured by PolyMaster, Inc., 1-800-580-3626 or equal.

3. Vapor and Air Barrier at Exterior Concrete Masonry Unit Walls, Receiving Brick or Block Veneer: ProCor Fluid Applied Membrane as manufactured by Grace Construction Products, or equal.

4. Rigid Insulation at exterior CMU walls with brick or CMU veneer: Owens Corning 1" Foamular CW15 Extruded Polystyrene Insulation

5. 2" Rigid insulation at foundation walls and perimeter insulation shall be Owens Corning Foamular 250 extruded polystyrene.

6. Mechanical and Plumbing Insulation: See "M" and "P" sheets.

2.2 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Remove, or protect against, projections in construction framing which may damage or prevent proper insulation.

3.2 INSTALLATION

A. Install the work of this Section in strict accordance with the Drawings, requirements of governmental agencies having jurisdiction, and the manufacturer's recommended installation procedures as approved by the Architect, anchoring all components firmly into position.

END OF SECTION

SECTION 074100 - PREFORMED METAL ROOFING and WALL PANELS and SNOW GUARDS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Manufactured exterior and interior metal wall and roofing panels including underlayment and all materials necessary for attachment.

B. Related Work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 DESCRIPTION OF WORK

A. Extent of each type of preformed roofing and siding is indicated on the drawings and by provisions of this section. Preformed roofing/siding is hereby defined to include panels which are structurally capable of spanning between supports spaced as indicated.

B. Types of panels required include the following:
1. Formed sheet panels, intended for lapped-seam installation.
2. Acoustical liner panels.

1.3 QUALITY ASSURANCE

A. Performance Test Standards: Provide preformed panel systems which have been pretested and certified by manufacturer to provide specified resistance to air and water infiltration and structural deflection and failure when installed as indicated and when tested in accordance with AAMA 501, "Methods of Test for Metal Curtain Walls."

B. Field Measurements: Where possible, prior to fabrication of prefabricated panels, take field measurements of structure or substrates to receive panel system. Allow for trimming panel units where final dimensions cannot be established prior to fabrication.

1.4 SUBMITTALS

A. Product data: within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Manufacturer's product specifications, standard details, certified product test results, installation instructions and general recommendations, as applicable to materials and finishes for each component and for total system of preformed panels.
2. Samples: Submit 2 samples 12" square, of each product and exposed finish material.
3. Shop Drawings: Submit small-scale layouts of panels on walls and roofs, and large-scale details of edge conditions, joints, corners, custom profiles, supports, anchorages, trim, flashings, closures, and special details. Distinguish between factory and field assembly work.
   a. Delete above for plain, normal installations which are fully covered by manufacturer's published details.
   b. When desired, insert warranty article on performance of exterior metal finish (10-20 year special product warranty).

1.5 WARRANTY

A. Metal roof and wall system manufacturer, upon final acceptance of the work, furnish a warranty covering paint finish against cracking, checking, blistering, peeling, flaking, chipping, chalking and fading for a period of twenty (20) years for panels coated with premium fluorocarbon coating produced with Kynar 500 or Hylar 500 resin.

B. Weathertightness warranty by the roofing manufacturer, for a period of twenty (20) years. Roofing manufacturer shall have sole and exclusive obligation for all warranty work. The total liability of the roofing manufacturer is two (2) times the cost of the roofing manufacturer's roofing system as invoiced to roofing manufacturer's customer.

C. Contractor shall guarantee all work against defects in workmanship for a period of two (2) years following final

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering preformed roofing and siding products which may be incorporated in the work include, but are not limited to, the following:
1. McElroy Metal
2. MBCI - Metal Roofing and Wall Systems.
3. Varco Pruden - Metal Roofing and Wall Systems.

2.2 STEEL FOR PAINTING/COATING

A. Hot-dip zinc coated steel sheet, ASTM A 446, Grade A except where higher strength required for performance, G90 zinc coating, surface treated for maximum coating performance.

2.3 METAL FINISHES

A. General: Apply coatings either before or after forming and fabricating panels, as required by coating process and as required for maximum coating performance capability. Protect coating promptly after application and cure, by application of strippable film or removable adhesive cover, and retain until installation has been completed. Provide colors or color matches as indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.

B. Fluoropolymer Coating: Full-strength 70% "Kynar 500" coating baked-on for 15 minutes at 450° F (232° C), in a dry film thickness of 1/0 mil, 30% reflective gloss (ASTM D 523), over minimum 0.2 mil baked-on modified epoxy primer.
1. Durability: Provide coating which has been field tested under normal range of weathering conditions for minimum of 20 years without significant peel, blister, flake, chip, crack or check in finish, and without chalking in excess of 8 (ASTM D 659), and without fading in excess of 5 NBS units.

2.5 MISCELLANEOUS MATERIALS

A. Fasteners: Manufacturer's standard non-corrosive types. With exterior heads gasketed, if exposed fastening system.

B. Underlayment: 30 lb. asphalt impregnated roofing felt, ASTM D4869, Type II. (Provide underlayment under all metal roofing).

C. Ice and Water Shield: Install 40 mil ice and water shield at all metal roofing area.

D. Accessories: Except as indicated as work of another specification section, provide components required for a complete roofing/siding system, including trim, copings, fascias, gravel stops, mullions, sills, corner units, ridge closures, clips, seam covers, battens, flashings, gutters, louvers, sealants, gaskets, fillers, closure strips and similar items. Match materials / finishes of preformed panels.

E. Bituminous Coating: Cold applied asphalt mastic, SSPC paint 12, compounded for 15 mil dry film thickness per coat.

2.6 PANEL FABRICATION; PERFORMANCES

A. General: Fabricate and finish panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, and as required to fulfill indicated performance requirements which have been demonstrated by factory testing. Comply with indicated profiles and dimensional requirements, and with structural requirements.

B. **Metal roof panels** noted as "Prefinished Standing Seam Metal Roof" on the drawings, shall be McElroy Metal 16" wide x 1 3/4" deep, 24 gauge, striated profile, ASTM A792 50 ksi steel as manufactured by McElroy Metal, Inc. or equal AZ50 painted - Fluoropolymer (Kynar 500) paint system. Color shall match existing metal roof panel color.

C. **Metal Wall and Soffit Panels** noted as **"Prefinished Metal Wall Panel" and "Prefinished Metal Soffit"**, on Drawings shall be McElroy Metal, Inc., FW Panel 12" cover width x 1 ½" deep, 24-gauge steel, ASTM A792 (50 ksi) steel as manufactured by McElroy Metal, Inc., or equal, with Fluoropolymer (Kynar 500 PVDF resin-based) paint system. Color shall be as selected by the Owner – anticipating to match existing campus metal wall panel color. **NOTE: MATCH EXISTING BUILDING METAL WALL PANEL PROFILE.**

D. Prefinished metal gutter, downspouts, and rake trim
   1. Standard Box style gutter 4 3/4" deep x 6" high at back, 24 gauge with Kynar 500 finish system.
      -Color of gutter and rake trim – match roof color.
      -Downspouts – match Wall panel color".

E. Required Performances: Fabricate panels and other components of roof/wall system for the following installed-as-indicated performances:
   1. Wall Loading: 20 lbs. per square foot inward; 15 lbs. per square foot.
   2. Roofing Loading: 40 lbs. per square foot inward; 15 lbs. per square foot outward.
   3. Water Penetration: No significant, uncontrolled leakage at 4 lbs. per square foot pressure with spray test.
   4. Air Infiltration: 0.02 CFM per square foot for gross roof/wall areas, with 4 lbs. per square foot differential pressure.
   5. Sound Transmission: STC rating of 28.
   6. Sound Absorption, Interior Surfaces: Coefficient of 0.75. Where sound absorption requirement is indicated, fabricate interior liner panels with approximately 1000 uniformly spaced 1.8" diameter holes per square foot. Cover insulation with polyethylene film and provide inserts of wire mesh to form acoustical spacer grid.

F. Apply bituminous coating or other permanent separation materials on concealed panel surfaces where panels would otherwise be in direct contact with substrate materials which are non-compatible or could result in corrosion or deterioration of either material or finishes.

G. Fabricate panel joints with captive gaskets or separator strips, which provide a tight seal and prevent metal-to-metal contact in a manner which will minimize noise from movements within panel system.

H. Condensation: Fabricate panels for control of condensation, including vapor inclusion of seals and provisions for breathing, venting, weeping and draining.

2.7 SNOW GUARDS

A. Prefabricated, non-corrosive units designed for compatibility with metal roof panels. Install snow guards where indicated on roof plan. Snow guards shall be "ColorGard®" and mounted to roof panels with S-5!@SPE clamp applicable to roof panel type. Aluminum snow guards shall be as approved by Metal Roof Panel manufacturer with color to match roof panel color(s). See Product Data at the end of this section.

PART 3 - EXECUTION

3.1 GENERAL: Comply with panel fabricator's and material manufacturers' instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the work securely in place, with provisions for thermal/structural movement.

A. Install panels with concealed fasteners, at all roof panels.

3.2 INSTALLATION TOLERANCES

A. Shim and align panel units within installed tolerance of 1/4" in 20'-0" on level/plumb/slope and location/line as indicated, and within 1/8" offset of adjoining faces and of alignment of matching profiles.

3.3 JOINT SEALERS

A. Install gaskets, joint fillers and sealants where indicated and where required for weatherproof performances of panel systems. Provide types of gaskets and sealants/fillers indicated or, if not otherwise indicated, types recommended by panel manufacturer.

3.4 CLEANING AND PROTECTION

A. Damaged Units: Replace panels and other components of the work which have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.

B. Cleaning: Remove temporary protective coverings and strippable films (if any) as each panel is installed. Upon completion of panel installation, clean finished surfaces as recommended by panel manufacturer, and maintain in a clean condition during construction.

END OF SECTION

S-5!®

The Right Way!

The right way to attach almost anything to metal roofs!

Installation Instructions

Stop! Has your ColorGard® system been designed properly with the assistance of a distributor or the online ColorGard calculator? If not, see our Calculator and Load Table at www.S-5.com, or ask your distributor!

Notice to S-5!® users: Specific layout and assembly schematics for S-5! products are the responsibility of the user or project designer. Due to the many variables involved with specific panel products, climates, snow melt phenomena, and job particulars, the manufacturer cannot and does not express any opinions as to the suitability of any S-5! assembly for any specific application and assumes no liability with respect thereto. S-5! clamps are tested for ultimate holding strength on various seam types and materials. This information is available from the S-5! website: **www.S-5.com**. This document is an installation guide only and the photographs and drawings herein are for the purpose of illustrating installation, tools and techniques, not system designs. Information contained within is intended to apply to the document as a whole. Clamp spacing should never exceed 32" with ColorGard® snow retention assemblies (contact your distributor for products to accommodate a seam spacing greater than 32").

Tools Needed

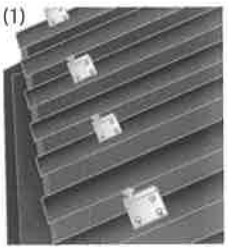
- Electric Screw Gun*
- Box End Wrench, 1/2" Drive Impact Wrench, or Ratchet
- Electric reciprocating saw to cut ColorGard crossmember
- Tin Snips
- String Line
- Torque Wrench
- Pliers or Vice Grip Pliers

***For time saving tool recommendations contact S-5!**

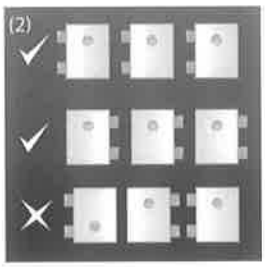
To Install ColorGard®

1. **Before You Start:** First, use a string line across the top of the panel seams at the desired location to establish a true line for installation of the S-5! clamps. Individually measuring from the eave to determine each clamp location is not recommended (1). **Before continuing, please take a moment to read the important notice about SnoClip™ on the back side of these installation instructions.**

(1)

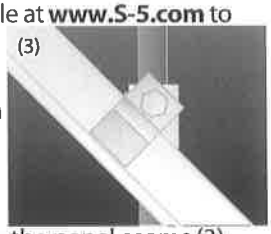


(2)



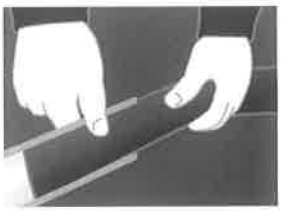
2. **Preparing The Clamps:** If the ColorGard assembly utilizes the VersaClip™ for attachment of the ColorGard crossmember, the bolt hole in the clamp should be at the upslope end of the clamp. If the assembly uses punched ColorGard without VersaClip, the hole should be at the downslope end of the clamp. When using the S-5-U, determine which side of the clamp to load the setscrews into, and thread the setscrews into all clamps, being careful that the bolt hole will be in the correct (upslope or downslope) orientation, with the setscrews on the correct side of the seam. Both setscrews must be on the same side of the clamp (2).
3. **Installing The Clamps:** S-5! clamps are installed differently depending upon clamp model and seam style. Please see the installation instructions included with your clamps. For maximum holding strength, setscrews should compresses. Screw tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel and between 130 and 150 inch pounds for all other metals and thinner gauges of steel. Please visit our load table at **www.S-5.com** to determine the proper screw tensions and holding strength. **Using VersaClip:™** When seam spacing is not divisible by 4", when panels are not laid up true-to-dimension, or when ColorGard is installed askew to the panel seams (3) (e.g. parallel with the line of a valley), the VersaClip facilitates installation. The VersaClips are inserted into the ColorGard prior to placement of ColorGard on the clamps. Align clips with S-5! clamp. VersaClip can be used with punched or unpunched ColorGard.

(3)

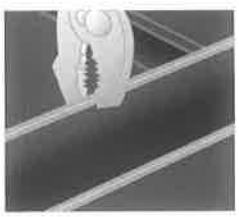


4. **Installing The ColorGard:** To maintain color conformity over time, ColorStrips should be sheared from the same pre-finished metal as the roof panels (supplied by others). Shear strips to exactly 2" wide (8' or 10' long). Slide the ColorStrip into the ColorGard crossmember as shown (4a). If the strip length is 8', it may be pre-assembled into the ColorGard crossmember. If the strip is 10' long, it will be assembled to the ColorGard as installation progresses. Joints in the ColorGard should be concealed by offsetting the joints of the ColorStrip from the joints of the ColorGard. The joints of the ColorStrips can be overlapped about 1/2" if desired. Each ColorStrip should be secured to the ColorGard somewhere along its length. This is done by pinching the retainer lip of the ColorGard with an ordinary pair of pliers (4b). It can be done at one end of

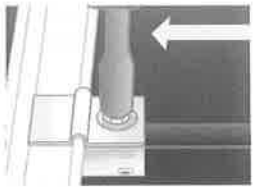
(4a)

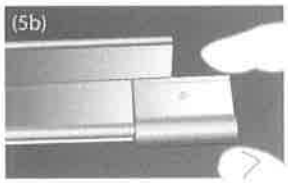


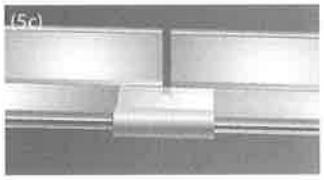
(4b)



5. **Bolt ColorGard® to Clamps:** Attach ColorGard to clamps with the stainless bolts provided. Bolts can be tightened with a 1/2" (13 mm) box-end wrench, or ratchet (5a). On larger jobs, a 1/2" drive electric impact will expedite this work. Tension bolts to a minimum of 13 ft-lbs. (18 Nm). Add Splice pieces at each ColorGard joint as shown below (5b). The "dimple" in the Splice piece will automatically provide a 1/8" space between adjoining sections (5c) to allow for linear thermal expansion of the ColorGard. Trim ColorGard at the end of the assembly, being sure it does not cantilever more than 4" beyond the last clamp of an assembly. Any trimmed piece of ColorGard must be attached with at least two clamps.

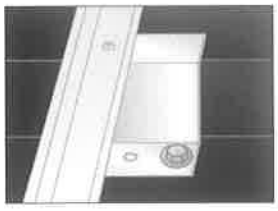






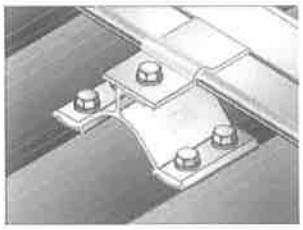
ColorGard® Cutting Tip: If it is necessary to field cut ColorGard, such as at the end of an assembly, it can be done with a hack saw or electric reciprocating saw with a fine-tooth metal cutting blade. A power mitre saw with a fine tooth carbide tip blade also works well.

Using VersaBracket™



1. Install the bracket. See installation instructions that were included with your bracket.
2. Fasten unpunched ColorGard to the top flange of the bracket using a 1/4-14 stainless steel self drilling screw.

Using CorruBracket™



1. Install the bracket. See installation instructions that were included with your bracket. The threaded hole closest to the edge of bracket should be oriented upslope for unpunched ColorGard & downslope for punched ColorGard. When using VersaClip see step 3 on front page.
2. Fasten ColorGard to the bracket in the same fashion as step 5.

Using SnoClip™

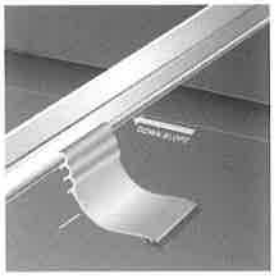


SnoClip II

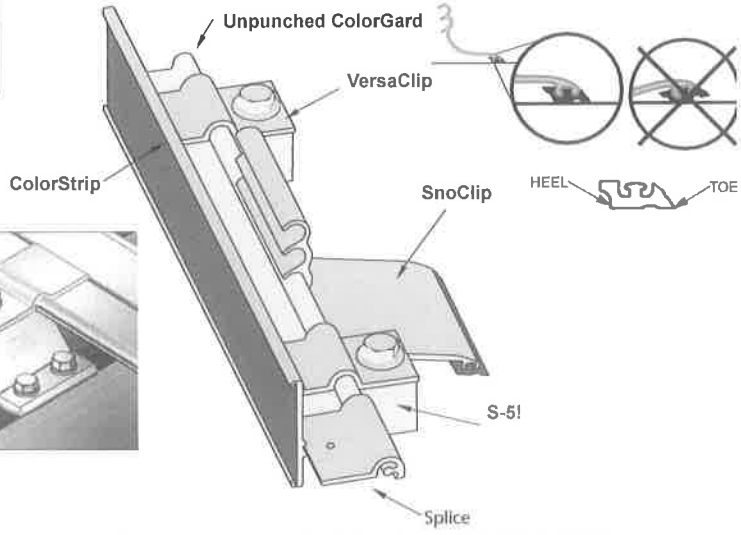


SnoClip III





IMPORTANT NOTICE! — SnoClip™ design has changed. SnoClip™ must now slide on from the end of the ColorGard®crossmember. Be sure to slide SnoClip onto assembly before attaching crossmember to clamps (a new Retro-Fit SnapClip™ is also available from your authorized S-5!® distributor.) One SnoClip is used between seams (in rare cases two SnoClips may be desired; see www.S-5.com for details). Mount the SnoClip to the back of the ColorGard using the lock that results with the rubber "foot" resting properly on the panel surface. When applying downward pressure on the part, the "toe" should engage the surface of the panel just before the "heel". Periodic maintenance over time may be necessary to ensure that the SnoClips maintain the appropriate positioning, as snow weight may sometimes flip the clip up slightly. Should crosswise panel deflection be excessive and allow the SnoClip to rotate under the ColorGard, then SnoClips should not be used.



Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel, and between 130 and 150 inch pounds for all other metals and thinner gauges of steel. Consult the S-5! website at www.S-5.com for published data regarding holding strength.

SECTION 07 84 00 - FIRESTOPPING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide thorough-penetration firestopping in fire rated construction, construction-gap firestopping at connections of the same or different materials in fire rated construction, construction-gap firestopping occurring within fire rated wall, floor or floor-ceiling assemblies, construction-gap firestopping occurring at the top of fire rated walls, through-penetration smoke-stopping in smoke partitions where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
1. Section 09 26 00 - Gypsum Wallboard and Metal Stud System
2. Division 23 - Mechanical
3. Division 26 - Electrical

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
1. Acceptable to or licensed by manufacturer, State or local authority where applicable.
2. At least 2 years experience with systems.
3. Successfully completed at least 5 comparable scale projects using this system.

B. Local and state regulatory requirements: Submit forms or acceptance for proposed assemblies not conforming to specific UL Firestop System numbers, or UL classified devices.

C. Materials shall have been tested to provide fire rating at least equal to that of the construction.

D. References
1. Underwriters Laboratories - U.L. Fire Resistant Directory
   a. Through-penetration firestop devices (XHCR)
   b. Fire resistance ratings (BXUV)
   c. Through-penetration firestop systems (XHEZ)
   d. Fill, void, or cavity material (XHHW)
2. American Society for Testing and Materials standards:
   a. ASTM E814 - 88: Standard Test Method for Fire Tests of Through-Penetration Firestops.

E. Definitions
1. Assembly: Particular arrangement of materials specific to given type of construction described or detailed in referenced documents.
2. Barriers: Time rated fire walls, smoke barrier walls, time rated ceiling/floor assemblies and structural floors.
3. Firestopping: Methods and materials applied in penetrations and unprotected openings to limit spread of heat, fire, gasses and smoke.
4. Penetration: Opening or foreign material passing through or into barrier or structural floor such that full thickness of rated materials is not obtained.
5. Construction Gaps: Gaps between adjacent sections of walls, exterior walls, at wall tops between top of wall and ceiling, and structural floors or roof decks; and gaps between adjacent sections of structural floors
6. System: specific products and applications, classified and numbered by Underwriters Laboratories, Inc. to close specific barrier penetrations.

7. Sleeve: Metal fabrication or pipe section extending through thickness of barrier and used to permanently guard penetration. Sleeves are described as part of penetrating system in other sections and may or may not be required.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 23.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

B. Packing and shipping:
1. Deliver products in original unopened packaging with legible manufacturer's identification.
2. Coordinate delivery with scheduled installation date, allow minimum storage at site.

C. Storage and protection: Store materials in a clean, dry, ventilated location. Protect from soiling, abuse, moisture and freezing when required. Follow manufacturer's instructions.

1.5 PROJECT CONDITIONS

A. Existing Conditions:
1. Verify existing conditions and substrates before starting work. Correct unsatisfactory conditions before proceeding.
2. Proceed with installation only after penetrations of the substrate and supporting brackets have been installed.

B. Environmental requirements:
1. Furnish adequate ventilation if using solvent.
2. Furnish forced air ventilation during installation if required by manufacturer.
3. Keep flammable materials away from sparks or flame.
4. Provide masking and drop cloths to prevent contamination of adjacent surfaces by firestopping materials.
5. Comply with manufacturing recommendations for temperature and humidity conditions before, during and after installation of firestopping.

1.6 GUARANTEE

A. Submit copies of written guarantee agreeing to repair or replace joint sealers which fall in joint adhesion, co-adhesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, stain resistance, or general durability or appear to deteriorate in any other manner not clearly specified by submitted manufacturer's data as an inherent quality of the material for the exposure indicated. The guarantee period shall be one year from date of substantial completion.

PART 2 - PRODUCTS

2.1 THROUGH-PENETRATION FIRESTOPPING OF FIRE-RATED CONSTRUCTION

A. Systems or devices listed in the U.L. Fire Resistance Directory under categories XHCR and XHEZ may be used, providing that it conforms to the construction type, penetrant type, annular space requirements and fire rating involved in each separate instance, and that the system be symmetrical for wall applications. Systems or devices must be asbestos-free.
   1. Additional requirements: Withstand the passage of cold smoke either as an inherent property of the system, or by the use of a separate product, included as a part of the U.L. system or device, and designed to perform this function.
   2. Acceptable manufacturers and products;
      a. Those listed in the U.L. Fire Resistance directory for the U.L. System involved.
   3. All firestopping products must be from a single manufacturer. All trades shall use products form the same manufacturer.

2.2 CONSTRUCTION-GAP FIRESTOPPING OF FIRE-RATED CONSTRUCTION

A. Firestopping at construction gaps between edges of floor slabs and exterior wall construction.

B. Firestopping at construction gaps between tops of partitions and underside of structural systems.

C. Firestopping at construction gaps between tops of partitions and underside of ceiling or ceiling assembly.

D. Firestopping of control joints in fire-rated masonry partitions.

E. Firestopping expansion joints.

F. Acceptable manufacturers and products - those listed in the U.L. Fire Resistance Directory for the U.L. System involved.

2.3 SMOKE-STOPPING AT SMOKE PARTITIONS

A. Through-penetration smoke-stopping: Any system complying with the requirements for Applications Schedule in Part 3.06 of this Section, is acceptable, provided that the system includes the specified smoke seal or will provide a smoke seal. The length of time of the fire resistance may be disregarded.

B. Construction-gap smoke-stopping: Any system complying with the requirements for construction-gap firestopping in fire-rated construction is acceptable, provided that the systems includes the specified smoke seal or will provide a smoke seal. The length of time of the fire resistance may be disregarded.

2.4 ACCESSORIES

A. Fill, void or cavity materials: As classified under category XHHW in the U.L. Fire Resistance Directory.

B. Forming materials: As classified under category XHKU in the U.L. Fire Resistance Directory.

2.5 OTHER MATERIALS

A. Provide other materials, not specifically described by required for a complete and proper installation, as selected by the Contractor, subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions

detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

1. Verify barrier penetrations are properly sized and in suitable conditions for application of materials.

3.2 PREPARATION

A. Clean surfaces to be in contact with penetration seal materials, of dirt, grease, oil, loose materials, rust or other substances that may affect proper fitting, adhesion, or the required fire resistance.

3.3 INSTALLATION

A. Install penetration seal materials in accordance with printed instructions of the U.L. Fire Resistance Directory and in accordance with manufacturer's instruction.

B. Seal holes or voids made by penetrations to ensure an effective smoke barrier.

C. Where floor openings without penetrating items are more than four inches in width and subject to traffic or loading, install firestopping materials capable of supporting same loading as floor.

D. Protect materials from damage on surfaces subject to traffic.

E. Place firestopping in annular space around fire dampers before installation of damper's anchoring flanges which are installed in accordance with fire damper manufacturers recommendations.

F. Where large openings are created in walls or floors to permit installation of pipes, ducts, cable tray, bus duct or other items, close unused portions of opening with firestopping material tested for the application. See U.L. Fire Resistance Directory.

G. Install smoke stopping as specified for firestopping.

H. Where rated walls are constructed with horizontally continuous air space, double width masonry or double stud frame construction, provide vertical, 12 inch wide fiber dams for full thickness and height of air cavity at maximum 15 foot intervals.

3.4 FIELD QUALITY CONTROL

A. Examine penetration sealed areas to ensure proper installation before concealing or enclosing areas.

B. Keep areas of work accessible until inspection by applicable code authorities.

C. Perform under this section patching and repairing of firestopping caused by cutting or penetration by other trades.

3.5 ADJUSTING AND CLEANING

A. Clean up spills of liquid components.

B. Neatly cut and trim materials as required

C. Remove equipment, materials and debris, leaving area in undamaged, clean condition.

END OF SECTION

SECTION 07 92 00 - SEALANTS AND CAULKING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Throughout the Work, seal and caulk joints where shown on the Drawings and elsewhere as required to provide a positive barrier against passage of moisture and passage of air.

B. Related Requirements:
1. Applicable portions of the Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to the execution of the Contract, other documents listed in the Agreement, and Modifications issued after the execution of the Contract shall apply to this Section. The General Requirements for this work are located in Division 01 of the Specifications.
2. Section 03 30 00 - Cast in Place Concrete
3. Section 04 20 00 – Masonry (CMU and Brick)

1.2 QUALITY ASSURANCE

A. Applicator Qualifications: Employ personnel qualified by the sealant manufacturer by training, field experience, or both.

B. Manufacturer's Field Representative Qualifications: Employee or agent of sealant manufacturer who is authorized to provide specified field services.

1.3 PRECONSTRUCTION TESTING

A. Before installing sealants, arrange for sealant manufacturer to test each combination of sealant, substrate, and joint backing for adhesion, and substrate staining (silicone sealants only).
1. Allow sufficient time for testing and analyzing test results without delaying the Work.
2. Deliver to manufacturer recommended number and sizes of substrate samples representative of those being installed.
3. Report manufacturer's recommendations for satisfactory sealant adhesion including use of primers, substrate preparation techniques, or both.
4. Testing is not required if manufacturer provides data showing previous testing, not older than 24 months, that indicates satisfactory adhesion and absence of staining.

B. Adhesion Testing: Utilize ASTM C 794 (laboratory), ASTM C 1521 (field), or both to determine whether primer is required for cured sealants to achieve an optimum bond to substrates.

C. Stain Testing: Utilize ASTM C 1248 to determine the potential of staining where silicone sealants contact stone and masonry substrates.

1.4 SUBMITTALS

A. Comply with pertinent provisions of Section 013323.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit the following:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements; Manufacturer's recommended installation procedures

C. Samples: Accompanying the submittal described above, submit three Samples in manufacturer's standard size of each sealant, each backing material, and each bond breaker proposed to be used.

D. Preconstruction Test Reports: Indicate which joint sealant and primer combinations resulted in satisfactory sealant adhesion to joint substrates. Indicate whether silicone sealants stained representative substrates.

E. Qualifications Statements: For applicator and manufacturer's field representative.

F. Warranties: Submit samples of manufacturer's warranties.

1.5 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

B. Do not retain at the job site material which has exceeded the shelf life recommended by its manufacturer.

1.6 WARRANTY

A. Manufacturer Warranty: Provide manufacturer's standard warranty against defective materials of the following terms:
1. Silicone Sealants: 20 years; include coverage against staining porous stone.
2. Polyurethane Sealants: 5 years.
3. Acrylic Latex Sealants: 2 years.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS

A. Except as specifically otherwise approved by the Architect, use only the types of joint sealants described in this Article.

B. Type JS-1 - Non-staining Silicone Sealant: Single component, non-staining, non-sag, gun grade product meeting ASTM C 920, Type S, Grade NS, Class 100/50, and current SWRI Validation.
1. Pecora Corporation: 890NST, 890FTS, or both.
2. Approved equal.

C. Type JS-2 - Nonstaining, Mildew-Resistant Silicone Sealant: Single component, non-sag, gun grade product meeting ASTM C 920, Type S, Grade NS, Class 25 or better
1. Pecora Corporation: 898NST.
2. Approved equal.

D. Type JS-3 - Acrylic Latex Sealant: General purpose, gun grade, non-sag, paintable, non-staining latex sealant complying with ASTM C 834.
1. Pecora Corporation: AC-20 + Silicone.
2. Tremco: Acrylic Latex.
3. Approved equal.

E. Type JS-4 - Polyurethane Sealant: Single-component, non-sag, paintable, polyurethane joint sealant meeting ASTM C 920, Type M, Grade NS, Class 25, Use NT, M, G, A, O.
1. BASF: MasterSeal NP 1.
2. Pecora Corporation: Dynatrol I-XL
2. Approved equal.

F. Type JS-5 - Traffic-grade, Polyurethane Sealant: Single component, pourable polyurethane joint sealant meeting ASTM C 920, Type S, Grade P, Class 25; Use T.
1. BASF: MasterSeal SL 1
2. Pecora Corporation: NR-201.
3. Approved equal.

2.2 ACOUSTICAL SEALANT

A. Type JS-6 - Acoustical Sealant: General purpose, gun grade, nonsag, paintable, nonstaining latex sealant complying with ASTM C834 and capable of reducing airborne sound transmission through perimeter joints and openings in building construction as determined per ASTM E 90 based on installation per ASTM C 919.
   1. Pecora Corporation: AC-20 FTR or AIS-919.
   2. Tremco: Tremco Acoustical Sealant.
   3. US Gypsum: Sheetrock Acoustical Sealant.

2.3 SEALANT PRIMERS

A. As recommended by sealant manufacturer based on results of preconstruction testing, field experience, or both.

2.4 BACKUP MATERIALS

A. Backer Rod: Nonstaining, flexible, compressible, cylindrical, open-cell, closed-cell, or bi-cellular material approved by sealant manufacturer for applications indicated and meeting ASTM C 1330.

B. Concrete Expansion Joint Filler: W.R. Meadows, Inc. Sealtight Fibre Expansion Joint Filler, or equal. (Thickness and heights as shown on the Drawings.)

2.5 MISCELLANEOUS MATERIALS

A. Joint Cleaner: Noncorrosive, nonstaining type recommended by sealant manufacturer for joint surfaces to be cleaned.

B. Masking Materials: Noncorrosive, nonstaining to materials to which they contact.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Prepare surfaces to receive sealants in accordance with joint sealant manufacturer's written instructions.

B. Clean joint surfaces by one or a combination of the following methods:
   1. Porous Substrates: Clean concrete, masonry, unglazed tile or glass-reinforced concrete by brushing, grinding or mechanical abrading.
   2. Non-porous Substrates: Clean metal, glass and other non-porous surfaces using razor knife, followed by solvent wipe.
   3. Exterior Insulation and Finish System (EIFS) Substrates: Remove contaminants using method recommended by EIFS manufacturer. Use of abrasive cleaning methods is not permitted.

C. Remove frost, dust, loose particles and other foreign materials from joint substrates by vacuuming or blowing out with oil-free compressed air; make as many passes as required to result in clean joints.

D. Remove frost, dust, loose particles and other foreign materials from joint substrates by vacuuming or blowing out with oil-free compressed air; make as many passes as required to result in clean joints.

E. Joint Priming: Apply joint sealant primer to sides of joints in accordance with manufacturer's instructions.

F. Apply masking tape where required to prevent contact of sealant primer or joint sealants with adjoining surfaces. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF BACKUP MATERIAL

A. Compress the backup material 25% to 30% to achieve a positive and secure fit.

B. Install sealant backing in continuous unbroken lengths; do not stretch, twist, or braid rod stock.

3.4 PRIMING

A. Use primer recommended by the sealant manufacturer, based on results of preconstruction adhesion testing.

3.5 BOND-BREAKER INSTALLATION

A. Provide bond-breaker tape where recommended by the manufacturer of the sealant, in shallow joints or to prevent three-sided adhesion.

3.6 INSTALLATION OF SEALANTS

A. Apply joint-sealants per ASTM C 1193 and joint sealant manufacturer's instructions.

B. **GENERAL: PLACE SEALANTS AT ALL INTERIOR AND EXTERIOR LOCATIONS WHERE DISSIMILAR MATERIALS, AND/OR SIMILAR MATERIALS, MEET AND AT JOINTS AND/OR ABUTMENTS THAT DO NOT CLOSE TIGHT. USE AT EXTERIOR AND INTERIOR DOOR AND WINDOW OPENINGS. USE AT EXISTING TO NEW CONSTRUCTION JOINTS.**

C. Prior to start of installation in each joint, verify the joint type according to details on the Drawings, or as otherwise directed by the Architect, and verify that the required proportion of width of joint to depth of joint has been secured.

D. Equipment:
1. Apply sealant under pressure with power-actuated or hand gun, or by other appropriate means.
2. Use guns with nozzle of proper size, and providing sufficient pressure to completely fill the joints as designed.

E. Thoroughly and completely mask joints where the appearance of sealant on adjacent surfaces would be objectionable.

F. Install the sealant in strict accordance with the manufacturer's recommendations as approved by the Architect, thoroughly filling joints to the recommended depth.

G. Tool joints to concave profile, unless indicated otherwise.

H. Cleaning up:
1. Remove masking tape immediately after sealant has been tooled.
2. Clean adjacent surfaces free from sealant as the installation progresses, using solvent or cleaning agent recommended by the manufacturer of the sealant used.

3.7 JOINT SEALANT SCHEDULE

A. Exterior Traffic-bearing Joints in Concrete, Brick, and Stone Paving: JS-5.

B. Exterior Weather Seal Joints in Vertical and Non-traffic-bearing Horizontal Surfaces: Type JS-1.
   1. Control and expansion joints.
   2. Window and door perimeters.
   3. Other exterior joints

C. Vertical Joints between Exterior Wall and Interior Construction: JS-4.

D. Interior Mildew-resistant Joints: JS-2.
   1. Plumbing fixture perimeters.
   2. Joints in countertops.
   3. Control and expansion joints in tile.
   4. Floor and wall joints in wet areas.
   5. Other joints indicated.

E. Interior Acoustical Joints: JS-6.
   1. Perimeters of acoustically-rated partitions and ceilings.
   2. Between wall surface and acoustical ceiling L-shaped perimeter trim.
   3. Perimeters of grilles, registers, and diffusers in acoustically-rated walls and ceilings.
   4. Other locations indicated.

F. Interior Joints Where Little to No Movement is Expected: JS-3.
   1. Interior joints for which another type of sealant is not indicated.

END OF SECTION

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Standard and custom hollow metal doors and frames.
2. Steel sidelight, borrowed lite and transom frames.
3. Louvers installed in hollow metal doors.
4. Light frames and glazing installed in hollow metal doors.

B. Related Sections:

1. Division 01 Section "General Conditions".
2. Division 04 Section "Unit Masonry" for embedding anchors for hollow metal work into masonry construction.
3. Division 08 Section "Glazing" for glass view panels in hollow metal doors.
4. Division 08 Section "Door Hardware".
5. Division 09 Sections "Exterior Painting" and "Interior Painting" for field painting hollow metal doors and frames.

C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI/SDI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
2. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frames Anchors and Hardware Reinforcing.
3. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
4. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
5. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames.
6. ASTM A1008 - Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
7. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
8. ASTM A924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
9. ASTM C 1363 - Standard Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.
10. ANSI/BHMA A156.115 - Hardware Preparation in Steel Doors and Frames.
11. ANSI/SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
12. ANSI/NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.
13. ANSI/NFPA 105: Standard for the Installation of Smoke Door Assemblies.
14. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
15. UL 10C - Positive Pressure Fire Tests of Door Assemblies.

16. UL 1784 - Standard for Air Leakage Tests of Door Assemblies.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, hardware reinforcements, profiles, anchors, fire-resistance rating, and finishes.

B. Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the steel door and frame supplier in order to prepare the doors and frames to receive the finish hardware items.

C. Shop Drawings: Include the following:

1. Elevations of each door design.
2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of anchorages, joints, field splices, and connections.
6. Details of accessories.
7. Details of moldings, removable stops, and glazing.
8. Details of conduit and preparations for power, signal, and control systems.

D. Samples for Verification:

1. Samples are only required by request of the architect and for manufacturers that are not current members of the Steel Door Institute.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain hollow metal doors and frames through one source from a single manufacturer wherever possible.

B. Quality Standard: In addition to requirements specified, furnish SDI-Certified manufacturer products that comply with ANSI/SDI A250.8, latest edition, "Recommended Specifications for Standard Steel Doors and Frames".

C. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to UL10C (neutral pressure at 40" above sill) or UL 10C.

1. Oversize Fire-Rated Door Assemblies Construction: For units exceeding sizes of tested assemblies, attach construction label certifying doors are built to standard construction requirements for tested and labeled fire rated door assemblies except for size.
2. Temperature-Rise Limit: Where indicated and at vertical exit enclosures (stairwell openings) and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.
3. Smoke Control Door Assemblies: Comply with NFPA 105.

    a. Smoke "S" Label: Doors to bear "S" label, and include smoke and draft control gasketing applied to frame and on meeting stiles of pair doors.

D. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257. Provide labeled glazing material.

E. Pre-Submittal Conference: Conduct conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for installing hollow metal doors and frames and to verify installation of electrical knockout boxes and conduit at frames with electrified or access control hardware.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity.

1. Provide minimum 1/4-inch space between each stacked door to permit air circulation. Door and frames to be stacked in a vertical upright position.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.7 COORDINATION

A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

B. Building Information Modeling (BIM) Support: Utilize designated BIM software tools and obtain training needed to successfully participate in the Project BIM processes. All technical disciplines are responsible for the product data integration and data reliability of their Work into the coordinated BIM applications.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

B. Warranty includes installation and finishing that may be required due to repair or replacement of defective doors.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide steel doors and frames from a SDI Certified manufacturer:

1. CECO Door Products (C).
2. Curries Company (CU).

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

C. Frame Anchors: ASTM A 653/A 653M, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

2.3 HOLLOW METAL DOORS

A. General: Provide 1-3/4 inch doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8 and ANSI/NAAMM HMMA 867.

B. Interior Doors (Energy Efficient): Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A366 or 620. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

1. Design: Flush panel.
2. Core Construction: Steel stiffened laminated core with fiberglass filler with no stiffener face welds, in compliance with HMMA 867 "Laminated Core".

    a. Provide 22 gauge steel-stiffeners at 6 inches on-center internally welded at 5" on- center to integral core assembly, No stiffener face welding is permitted.
    b. Acoustical sound transmission rating shall be no less than STC 38 complying with ASTM E 90 and must be visible on factory applied labels.

3. Level/Model: Level 2 and Physical Performance Level A (Heavy Duty), Minimum 18 gauge (0.042 inch - 1.1-mm) thick steel, Model 2.
4. Vertical Edges: Vertical edges-to be mechanically interlocked with hairline seam. Beveled Lock Edge, 1/8 inch in 2 inches (3 mm in 50 mm).
5. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.
6. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9".
7. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

C. Interior Doors: Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A 1008/A 1008M. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

1. Design: Flush panel.
2. Core Construction: Manufacturer's standard vertical steel-stiffener core. Minimum 22 gauge steel-stiffeners at 6 inches on-center construction attached by spot welds spaced not more than 5" on centers. Spaces between stiffeners filled with fiberglass insulation (minimum density 0.8#/cubic ft.).

    a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.

3. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet.
4. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
5. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

D. Manufacturers Basis of Design:

1. Curries Company (CU) - Energy Efficient - 777 Trio-E Series.

2.4 HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.

B. Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/A 1008M.

1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
2. Frames: Minimum 16 gauge (0.053-inch -1.3-mm) thick steel sheet.
3. Manufacturers Basis of Design:

a. Curries Company (CU) - M Series.

C. Fire rated frames: Fabricate frames in accordance with NFPA 80, listed and labeled by a qualified testing agency, for fire-protection ratings indicated.

D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, formed from A60 metallic coated material, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
2. Stud Wall Type: Designed to engage stud and not less than 0.042 inch thick.

B. Floor Anchors: Floor anchors to be provided at each jamb, formed from A60 metallic coated material, not less than 0.042 inches thick.

C. Mortar Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.6 LIGHT OPENINGS AND GLAZING

A. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints at fabricator's shop. Fixed and removable stops to allow multiple glazed lites each to be removed independently. Coordinate frame rabbet widths between fixed and removable stops with the type of glazing and installation indicated.

B. Moldings for Glazed Lites in Doors and Loose Stops for Glazed Lites in Frames: Minimum 20 gauge thick, fabricated from same material as door face sheet in which they are installed.

C. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated. Provide fixed frame moldings and stops on outside of exterior and on secure side of interior doors and frames.

D. Preformed Metal Frames for Light Openings: Manufacturer's standard frame formed of 0.048-inch-thick, cold rolled steel sheet; with baked enamel or powder coated finish; and approved for use in doors of fire protection rating indicated. Match pre-finished door paint color where applicable.

2.7 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.8 FABRICATION

A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. When shipping limitations so dictate, frames for large openings are to be fabricated in sections for splicing or splining in the field by others.

B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.

C. Hollow Metal Doors:

1. Glazed Lites: Factory cut openings in doors with applied trim or kits to fit. Factory install glazing where indicated.

D. Hollow Metal Frames:

1. Shipping Limitations: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
2. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

    a. Welded frames are to be provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and are not to be used to size the frame opening.

3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated for removable stops, provide security screws at exterior locations.
4. Mortar Guards: Provide guard boxes at back of hardware mortises in frames at all hinges and strike preps regardless of grouting requirements.
5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
6. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

        1) Two anchors per jamb up to 60 inches high.
        2) Three anchors per jamb from 60 to 90 inches high.
        3) Four anchors per jamb from 90 to 120 inches high.
        4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.

b. Stud Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

1) Three anchors per jamb up to 60 inches high.
2) Four anchors per jamb from 60 to 90 inches high.
3) Five anchors per jamb from 90 to 96 inches high.
4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
5) Two anchors per head for frames above 42 inches wide and mounted in metal stud partitions.

E. Hardware Preparation: Factory prepare hollow metal work to receive template mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
2. Reinforce doors and frames to receive non-template, mortised and surface mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.

2.9 STEEL FINISHES

A. Prime Finishes: Doors and frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces of the door and frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; and compatible with substrate and field-applied coatings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. General Contractor to verify the accuracy of dimensions given to the steel door and frame manufacturer for existing openings or existing frames (strike height, hinge spacing, hinge back set, etc.).

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove welded in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Prior to installation, adjust and securely brace welded hollow metal frames for square, level, twist, and plumb condition.

C. Tolerances shall comply with SDI-117 "Manufacturing Tolerances Standard Steel Doors and Frames."

D. Drill and tap doors and frames to receive non-template, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11 and NFPA 80 at fire rated openings.

1. Set frames accurately in position, plumbed, leveled, aligned, and braced securely until permanent anchors are set. After wall construction is complete and frames properly set and secured, remove temporary braces, leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.
3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar.
4. Grout Requirements: Do not grout head of frames unless reinforcing has been installed in head of frame. Do not grout vertical or horizontal closed mullion members.

C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:

a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.
c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

D. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from hollow metal work immediately after installation.

C. Prime-Coat and Painted Finish Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat, or painted finishes, and apply touchup of compatible air drying, rust-inhibitive primer, zinc rich primer (exterior and galvanized openings) or finish paint.

END OF SECTION

SECTION 081216 - ALUMINUM ENTRANCE, FIXED FRAMES, and WINDOWS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide aluminum entrances and fixed frames where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, Labor Standards, Contract for Construction and Sections in Division 1 of these Specifications.
2. Section 08 80 00: Glazing

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 23.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Shop Drawings in sufficient detail to show fabrication, installation, anchorage and interface of the Work of this Section with the work of adjacent trades.
4. Color and Finish sample(s).
5. Hardware schedule with door references as per the Architectural Drawings.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 60 00.

PART 2 - PRODUCTS

2.1 EXTERIOR ALUMINUM ENTRANCES AND FIXED FRAMES

A. Provide aluminum door and frame in the dimensions and arrangements shown on the Drawings. Reference numbers and manufacturer are to establish product design and do not preclude equal products of another manufacturer.

1. Acceptable Manufacturers: Tubelite, Kawneer, Oldcastle Building Envelope (OBE), or equal.

a. Fixed Frames:
i. Tubelite T14000 Series Storefront Framing center set thermally broken with a two part chemically curing, unfilled polyurethane casting resin poured in place tube framing.

b. Entrance door:
i. Medium stile entrances with 10" high bottom rail and 7-1/2" mid-rail and 4" stiles at exterior doors, sizes as shown on Drawings, color and finish to match frames.

2. FINISHES

a. Finish: Two-step electrolytic anodized color
i. Typical frames – Two-step electrolytic anodizing process – Class II Clear Anodized Aluminum.

See aluminum frame elevations on drawings.

2.2 FINISH HARDWARE

A. Door cylinder lock is furnished by hardware supplier per Specification Section 087100. Balance of door hardware is by aluminum door supplier.

B. Install the following selected manufacturer's door hardware at all exterior aluminum doors. All exposed items shall match aluminum frame where noted.
1. Hinges: Continuous Gear Hinge, Tubelite #P1584.
2. Door closer: Tubelite #P4041, surface overhead closer (LCN 4040/4041 super smoothee)
3. Pull set: Tubelite #P1564 wire pull handle
4. Panic Bar: Pull 1564 with P3792 Panic
5. Weatherstrip: Tubelite P1275, 1276, and 1277 with E2058 threshold, set x size required at exterior doors.
6. Door Sweep: Tubelite P1275, 1276 and 1277. at exterior doors.
7. Mullion: Manufacturer standard, locking, removable center Mullion at all pairs of doors. Finish to match aluminum frames.
8. Threshold: Aluminum frame depth x ½" x frame width x clear aluminum at exterior doors. Threshold to have neoprene gasket dam and shall be handicapped accessible.

C. Procedures
1. Perform all fitting of finish hardware to doors and frames at the factory; except do not drill or tap for surface mounted items until time of installation at the site.
2. Comply with finish hardware manufacturer's instructions and template requirements.
3. use concealed fasteners to the maximum extent practicable.

2.3 EXTERIOR ALUMINUM WINDOWS

A. Provide aluminum window in dimensions and arrangements shown on Drawings. Reference numbers and Manufacturer are to establish product design and do not preclude equal products of another manufacturer.

1. Acceptable Manufacturers: Tubelite, Kawneer, OBE, or Equal

a. Fixed Frames:
i. Tubelite T1400 series flush glaze thermally broken with a two part chemically curing, unfilled polyurethane casting resin placed tube framing.

2. FINISHES
a. Two-step electrolytic anodized color
i. Typical frames – Two-step electrolytic anodizing process – Class II Clear Anodized Aluminum.

2.2 FABRICATION

A. Fabricate in strict accordance with the manufacturers' specifications and Shop Drawings as approved by the Architect, prefabricating in the shop to the maximum extent practicable.

B. Provide hairline fit at joints, with smooth continuity of line and accurate relation of planes and angles. Securely fasten.

PART 3 – EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 COORDINATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the Work of this Section.

B. Make measurements as required in the field to assure proper fit.

3.3 INSTALLATION

A. Install the work of this Section in strict accordance with the original design, the approved Shop Drawings, pertinent requirements of governmental agencies having jurisdiction, and the manufacturer's recommended installation procedures as approved by the Architect, anchoring all components firmly into position for long life.

B. Remove protective coating completely from exposed surfaces as soon as progress of the Work will permit with safety.

C. Provide the types of glass required and glaze in accordance with pertinent provisions of Section 088000 of these Specifications.

3.4 ADJUST AND CLEAN

A. Adjust doors and operators for proper operation. Proper operation shall meet ADA / ANSI A117. 1-2003 Requirements.

B. Wash down exposed surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

C. Remove excess sealant by method acceptable to sealant manufacturer.

D. Protect finishes until Substantial Completion.

END OF SECTION

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Solid core doors with wood veneer faces.
2. Factory finishing wood doors.
3. Factory fitting wood doors to frames and factory machining for hardware.
4. Light frames and glazing installed in wood doors.

B. Related Sections:
1. Division 01 Section "General Conditions".
2. Division 08 Section "Door Schedule".
3. Division 08 Section "Hollow Metal Doors and Frames".
4. Division 08 Section "Glazing".
5. Division 08 Section "Door Hardware".

C. Standards and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ANSI A208.1 – Wood Particleboard.
3. Intertek Testing Service (ITS Warnock Hersey) - Certification Listings for Fire Doors.
4. NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.
5. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
6. UL 10C - Positive Pressure Fire Tests of Door Assemblies; UL 1784 - Standard for Air Leakage Tests of Door Assemblies.
7. Window and Door Manufacturers Association - WDMA I.S.1-A Architectural Wood Flush Doors.

1.3 SUBMITTALS

A. Product Data: For each type of door indicated. Include details of core and edge construction, louvers, trim for openings, and WDMA I.S.1-A classifications. Include factory finishing specifications.

B. Shop Drawings shall include:

1. Indicate location, size, and hand of each door.
2. Indicate dimensions and locations of mortises and holes for hardware.
3. Indicate dimensions and locations of cutouts.
4. Indicate requirements for veneer matching.
5. Indicate location and extent of hardware blocking.

6. Indicate construction details not covered in Product Data.
7. Indicate doors to be factory finished and finish requirements.
8. Indicate fire protection ratings for fire rated doors.

C. Samples for Initial Selection: For factory finished doors.

1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.

2. Corner sections of doors, 8 by 10 inches, with door faces and edges representing actual materials to be used.

   a. Provide samples for each species of veneer and core material.
   b. Finish veneer faced door samples with same materials proposed for factory finished doors.

3. Frames for light openings, 6 inches long, for each material, type, and finish required.

D. Warranty: Provide sample of manufacturer's warranty.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer wherever possible.

B. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, latest edition, "Industry Standard for Architectural Wood Flush Doors'.

C. Fire Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing at positive pressure according to NFPA 252 (neutral pressure at 40" above sill) or UL10C.

1. Oversize Fire Rated Door Assemblies: For units exceeding sizes of tested assemblies provide manufacturer's construction label, indicating compliance to independent 3rd party certification agency's procedure, except for size.

2. Temperature Rise Limit: Where required and at vertical exit enclosures (stairwell openings) and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire test exposure.

3. Smoke Control Door Assemblies: Comply with NFPA 105.

   1) Smoke "S" Label: Doors to bear "S" label, and include smoke and draft control gasketing applied to frame and on meeting stiles of pair doors.

D. Pre-Submittal Conference: Conduct conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for receiving, handling, and installing flush wood doors.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package pre-finished doors individually in plastic bags and wrap bundles of doors in plastic sheeting.

C. Mark each door on top rail with opening number used on Shop Drawings.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weather tight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.7 WARRANTY

A. Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
b. Telegraphing of core construction in wood face veneers exceeding 0.01 inch in a 3-inch span.

2. Warranty includes installation and finishing that may be required due to repair or replacement of defective doors.

3. Warranty Period for Solid Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 DOOR CONSTRUCTION – GENERAL

A. WDMA I.S.1-A Performance Grade: Extra Heavy Duty; Aesthetic Grade: Premium.

B. Fire Rated Doors: Provide construction and core as needed to provide fire ratings indicated.

1. Category A Edge Construction: Provide fire rated door edge construction with intumescent seals concealed by outer stile (Category A) at 45, 60, and 90 minute rated doors. Comply with specified requirements for exposed edges.

2. Pairs: Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.

a. Provide fire retardant stiles that are listed and labeled for applications indicated without formed steel edges and astragals.

b. Where required for concealed hardware, provide formed steel edges and astragals with intumescent seals. Finish steel edges and astragals with baked enamel.

2.2 CORE CONSTRUCTION

A. Particleboard Core Doors:

1. Particleboard: Wood fiber based materials complying with ANSI A208.1 Particleboard standard. Grade LD-2.

2. Adhesive: Fully bonded construction using Polyurethane (PUR) glue.

3. Blocking: As indicated under article "Blocking".

B. Fire Resistant Composite Core Doors:

1. Core: Non-combustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire protection rating indicated.

2. Blocking: As indicated under article "Blocking".

3. Edge Construction: At hinge stiles, provide laminated edge construction with improved screw holding capability and split resistance. Comply with specified requirements for exposed edges.

2.3 BLOCKING

A. Non-Fire-Rated Doors:

1. Provide blocking as indicated below:

a. HB2: 5 inch bottom rail blocking, in doors indicated to have kick plates.
b. HB6: 5 inch mid-rail blocking in doors indicated to have exit devices.

B. Fire Rated Doors:

1. Provide blocking as indicated below:

a. HB1: 5 inch in doors indicated to have closers and overhead stops.
b. HB6: 5 inch mid-rail blocking in doors indicated to have exit devices.

2.4 VENEERED DOORS FOR TRANSPARENT FINISH

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Graham
2. Mohawk
3. VT Industries
4. Eggers

B. Interior Solid Core Doors:

1. Grade: Premium.

2. Faces: Veneer grades as noted below; veneer minimum 1/50-inch (0.5mm) thickness at moisture content of 12% or less.

a. Basis of Design - VT Industries Architectural Wood doors – Plain Sliced Select White Birch, Color to be selected from manufacturer's standard colors.

3. Match between Veneer Leaves: Book match.

4. Assembly of Veneer Leaves on Door Faces:

a. Running Match.

5. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.

6. Transom Match: Continuous match.

7. Vertical Edges: Matching same species as faces. Wood or composite material, one piece, laminated, or veneered. Minimum requirements per WDMA section P-1, Performance Standards for Architectural Wood Flush Doors.

8. Horizontal Edges: Solid wood or structural composite material meeting the minimum requirements per WDMA section P-1, Performance Standards for Architectural Wood Flush Doors

9. Construction: Five plies. Stiles and rails are bonded to core, then entire unit sanded before applying face veneers.

10. At doors over 40% of the face cut-out for lights and or louvers, furnish engineered composite lumber core.

2.5 LOUVERS

A. Metal Louvers: Door manufacturer's standard metal louvers unless otherwise indicated.

1. Blade Type: Vision proof inverted V or inverted Y.
2. Metal and Finish: Galvanized steel, 0.040 inch thick, factory primed for paint finish with baked enamel or powder coated finish.

2.6 LIGHT FRAMES AND GLAZING

A. Wood Beads for Light Openings in non-rated Wood Doors:

1. Wood Species: Same species as door faces.
2. Profile: Lipped.

B. Metal Light Kits for fire rated Wood Doors:
1. Veneer Wrapped metal frames with matching wood species: Same species as door faces.
2. Profile: Similar to manufacturers Lipped bead on non-rated doors.

C. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with the flush wood door manufacturer's written instructions.

2.7 FABRICATION

A. Factory fit doors to suit frame opening sizes indicated.
1. Comply with requirements in NFPA 80 for fire rated doors.
2. Undercut: As required per manufacturer's templates and sill condition.

B. Factory machine doors for hardware that is not surface applied. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.

1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.

2. Metal Astragals: Factory machine astragals and formed steel edges for hardware for pairs of fire rated doors.

C. Openings: Cut and trim openings through doors in factory.

1. Light Openings: Trim openings with moldings of material and profile indicated.
2. Glazing: Comply with applicable requirements in Division 08 Section "Glazing."
3. Louvers: Factory install louvers in prepared openings.

D. Electrical Raceways: Provide flush wood doors receiving electrified hardware with concealed wiring harness and standardized Molex™ plug connectors on both ends to accommodate up to twelve wires. Coordinate connectors on end of the wiring harness to plug directly into the electrified hardware and the through wire transfer hardware or wiring harness specified in hardware sets in Division 08 "Door Hardware". Wire nut connections are not acceptable.

2.8 FACTORY FINISHING

A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.

1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.

B. Transparent Finish: Provide a clear protective coating over the wood veneer allowing the natural color and grain of the selected wood species to provide the appearance specified. Stain is applied to the wood surface underneath the transparent finish to add color and design flexibility.

1. Finish: Meet or exceed WDMA I.S. 1A TR8 UV Cured Acrylated Polyester finish performance requirements.
2. Staining:

a. VT Industries Architectural Wood Doors – Plain Sliced Select White Birch. Stain finish to be selected from manufacturer standard stains.

3. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and installed door frames before hanging doors.

1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
2. Reject doors with defects.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Hardware: For installation, see Division 8 Section "Door Hardware."

B. Installation Instructions: Install doors and frames to comply with manufacturer's written instructions and the referenced quality standard, and as indicated.

1. Install fire rated doors in corresponding fire rated frames according to NFPA 80.

C. Factory Fitted Doors: Align in frames for uniform clearance at each edge.

D. Factory Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

E. Field modifications to doors shall not be permitted, except those specifically allowed by manufacturer or fire rating requirements.

3.3 ADJUSTING

A. Operation: Re-hang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION

SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.

C. Related Sections:

1. Division 08 Section "Hollow Metal Doors and Frames".
2. Division 08 Section "Aluminum-Framed Entrances and Storefronts".

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:

1. ANSI/BHMA Certified Product Standards - A156 Series.
2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
3. ANSI/UL 294 - Access Control System Units.
4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."

2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.

3. Content: Include the following information:

   a. Type, style, function, size, label, hand, and finish of each door hardware item.
   b. Manufacturer of each item.
   c. Fastenings and other pertinent information.
   d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
   e. Explanation of abbreviations, symbols, and codes contained in schedule.
   f. Mounting locations for door hardware.
   g. Door and frame sizes and materials.
   h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

D. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage and software.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning, and demonstration procedures

H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:

1. Ten years for mortise locks and latches.
2. Five years for exit hardware.
3. Twenty five years for manual overhead door closer bodies.

1.8 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:

a. Two Hinges: For doors with heights up to 60 inches.
b. Three Hinges: For doors with heights 61 to 90 inches.
c. Four Hinges: For doors with heights 91 to 120 inches.
d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:

a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

4. Hinge Options: Comply with the following:

a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

5. Manufacturers:

   a. McKinney (MK).

B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:

   a. Pemko (PE).

2.3 DOOR OPERATING TRIM

A. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
1. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
2. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.

3. Manufacturers:

   a. Rockwood (RO).

2.4 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.

1. Manufacturers:

   a. Match Existing, Field Verify.
   b. No Substitution.

C. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:

1. Threaded mortise cylinders with rings and cams to suit hardware application.
2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
4. Tubular deadlocks and other auxiliary locks.
5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
6. Keyway: Match Facility Standard.

D. Keying System: Each type of lock and cylinders to be factory keyed.

1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. Existing System: Field verify and key cylinders to match Owner's existing system.

E. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Two (2)
2. Master Keys (per Master Key Level/Group): Five (5).

F. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.5 MECHANICAL LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.

1. Manufacturers:

a. Corbin Russwin Hardware (RU) - ML2000 Series.
b. Sargent Manufacturing (SA) - 8200 Series.

2.6 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.7 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.

2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.

3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.

4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.

5. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.

   a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
   b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.

6. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.

7. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.

8. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.

9. Rail Sizing: Provide exit device rails factory sized for proper door width application.

10. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.

1. Manufacturers:

   a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
   b. Sargent Manufacturing (SA) - 80 Series.

2.8 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.

2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.

3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.

4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.

5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.

1. Manufacturers:

   a. Corbin Russwin Hardware (RU) - DC8000 Series.
   b. Norton Rixson (NO) - 9500 Series.
   c. Sargent Manufacturing (SA) - 281 Series.

C. Door Closers, Surface Mounted (Unitrol): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted closers with door stop mechanism to absorb dead stop shock on arm and top hinge. Hold-open arms to have a spring loaded mechanism in addition to shock absorber assembly. Arms to be provided with rigid steel main arm and secondary arm lengths proportional to the door width.

1. Manufacturers:

   a. Corbin Russwin Hardware (RU) - Unitrol Series.
   b. Norton Rixson (NO) - Unitrol Series.

2.9 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.

2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.

3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.

4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:

   a. Stainless Steel: 300 grade, 050-inch thick.

5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.

6. Manufacturers:

   a. Rockwood (RO).

2.10 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

   a. Rockwood (RO).

2.11 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. Pemko (PE).

2.12 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.13 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.5 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.6 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

1. Quantities listed are for each pair of doors, or for each single door.
2. The supplier is responsible for handing and sizing all products.
3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. Manufacturer's Abbreviations:

1. MK - McKinney
2. PE - Pemko
3. RU - Corbin Russwin
4. RO - Rockwood
5. NO - Norton
6. OT - Other

Hardware Sets

Set: 1.0

Doors: A101A, A101B, A101C

2	Continuous Hinge	CFM83SLI or F-HD1		PE
1	Mullion	CR910KM x Match Facility Keying		RU
2	Rim Exit Device, Nightlatch	ED5200 K157ET x Match Facility Keying	630	RU
2	Pull	RM201 Mtg-Type 1XHD	US32D	RO
2	Surface Closer	UNI9500 SN-134	689	NO
1	Threshold	As Req'd Per Flooring / Opening Conditions		PE
1	Mullion Gasketing	5110BL 120"		PE
2	Sweep	315CN		PE
1	Balance of weatherstrip by the	Aluminum Door Supplier		OT

Set: 2.0

Doors: A102, A107

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Storeroom Lock	ML2057 NSA x Match Facility Keying	626	RU
1	Surface Closer	9500 SN-134	689	NO
1	Wall Stop	409	US32D	RO
1	Gasketing	S88D		PE

Set: 3.0

Doors: A103, A104, A105, A109, A110, A111

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Classroom Lock	ML2055 NSA x Match Facility Keying	626	RU
1	Surface Closer	9500 SN-134	689	NO
1	Kick Plate	K1050 10" x Width Req'd CSK BEV	US32D	RO
1	Wall Stop	409	US32D	RO
1	Gasketing	S88D		PE

Set: 4.0

Doors: A106, A108

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Passage Latch	ML2010 NSA	626	RU
1	Surface Closer	9500 SN-134	689	NO
1	Kick Plate	K1050 10" x Width Req'd CSK BEV	US32D	RO
1	Wall Stop	409	US32D	RO
1	Gasketing	S88D		PE

END OF SECTION 087100

SECTION 08 80 00 - GLAZING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide glazing and glazing accessories where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 08 11 00 - Metal Doors and Frames
3. Section 08 14 00 - Wood Doors
4. Section 08 12 16 - Aluminum Entrance, Fixed Frames, Windows, and Display Cases (and shelves in display cases).

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Manufacturer, Supplier, and Installer must each have at least five (5) years experience with all products / requirements of this section.

1.3 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

B. During storage and handling of glass, provide cushions at edges to prevent impact damage.

1.4 Submittals

A. Comply with pertinent provisions of Section 01 33 23.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedure used on the work.
4. Complete samples of all glass, tints, and etc. proposed under this Section.

PART 2 - PRODUCTS

2.1 GLASS

A. General:
1. For all glass, provide the type and thickness shown on the Drawings or specified herein.
2. Where type or thickness, or both, are not shown on the Drawings or specified herein, provide type and thickness directed by the Architect.

B. Plate or float glass: Comply with Fed Spec DD-G-451, type I, class 1, quality q3.
   1. Where plate glass is called for, 1/4" clear plate glass or float glass may be used.

C. Safety glass: (Insulated and tinted where noted on Drawings.)
   1. Provide tempered or heat-strengthened glass where indicated on the Drawings, and elsewhere as required by governmental agencies having jurisdiction. Tint shall be selected by Architect from Manufacturer's Standard color / tints.
   2. Glass for tempering:
      a. For plate glass or float glass, use type I, class 1, quality q3.
   3. Sizes and cutting:
      a. Prior to tempering or heat treating, cut glass to required sizes as determined by accurate measurements of the openings to be glazed, making allowances for required edge clearances.
      b. Cut and process edges in accordance with the glass manufacturer's recommendations.
      c. Do not cut or treat edges in the field.
   4. Fully tempered glass:
      a. Comply with Fed Spec DD-G-1403 and ANSI Z97.1.
      b. Wherever possible, locate tong marks along an edge which will be concealed in the glazing system.
      c. Permit minimum warpage practicable.

D. Insulating Glass
   1. Where noted as "insulating glass" on the Drawings, provide provide Oldcastle (OBE) or equal with 1/4" tinted on the exterior, and 1/4" clear on the interior with ½" air space. **Typical tint shall be: PPG Solarban 60 on Solarbronze low-E** #2.
      a. Outboard Substrate – Bronze
      b. Inboard Substrate- Clear
      c. Exterior appearance – Bronze
      d. Transmittance 42%; Reflect Out 7%; Reflect in 11%; U-value .29; SHGC .28; LSG 1.5.
   2. All insulating glass shall be supplied by one manufacturer as approved by the Architect.

E. Fire Rated Glazing
   1. Where noted on drawings as "Fire Rated Glass", provide Fire-rated glass ceramic laminated clear and
      a. Thickness: 5/16 inch overall
      b. Weight: 4 lbs/sq. ft.
      c. Approximate Visible Transmission: 85 percent
      d. Approximate Visible Reflection: 9 percent
      e. Fire-rating: As shown on drawings (20 minutes to 3 hours for doors)
      f. Impact Safety Resistance: ANSI Z97.1 and CPSC 16CFR1201 (Cat. I and II)
      g. STC Rating: Approximately 38 dB
      h. Surface Finish: Standard Grade
      i. Positive Pressure Test: UL 10C, UBC 7-2 and -4

F. Window Security Film –
   1. Where noted on drawings provide 3M™ Scotchshield™ Safety & Security Window Film Ultra Prestige Series.

2.2 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Clean glazing channels, stops, and rabbets to receive the glazing materials, making free from obstructions and deleterious substances which might impair the work.
   1. Remove protective coatings which might fail in adhesion or interfere with bond of sealants.
   2. Comply with manufacturers' instructions for final wiping of surfaces immediately prior to application of primer and glazing compounds or tapes.
   3. Prime surfaces to receive glazing compounds in accordance with manufacturers' recommendations.

3.2 INSTALLATION

A. Inspect each piece of glass immediately prior to start of installation.
   1. Do not install items which are improperly sized, have damaged edges, or are scratched, abraded, or damaged in any other manner.
   2. Do not remove labels from glass until so directed by the Architect.
   3. Install glass so distortion waves, if present, run in the horizontal direction.

B. Locate setting blocks at sills one quarter of the width of the glass in from each end of the glass, unless otherwise recommended by the glass manufacturer.
   1. Use blocks of proper size to support the glass in accordance with the manufacturer's recommendations.
   2. Provide spacers for all glass sizes larger than 50 united inches, to separate glass from stops; except where continuous glazing gaskets or felts are provided.
      a. Locate spacers no more than 24" apart, and no closer than 12" to a corner.
      b. Place spacers opposite one another.
      c. Make bite of spacer on glass ½" or more.

C. Set glass in a manner which produces the greatest possible degree of uniformity in appearance.

D. Do not use two different glazing materials in the same joint system unless the joint use is approved in advance by the Architect.

E. Mask, or otherwise protect, surfaces adjacent to installation of sealants.

F. Miter-cut and seal the joints of glazing gaskets in accordance with the manufacturer's recommendations, to provide watertight and airtight seal at corners and other locations where joints are required.

3.3 PROTECTION AND CLEANING

A. Protect glass from breakage after installation by promptly installing streamers or ribbons, suitably attached to the framing and held free from glass. Do not apply warning markings, streamers, ribbons, or other items directly to the glass except as specifically directed by the Architect.

B. Remove nonpermanent labels and clean all surfaces with products as recommended by manufacturer.

C. Remove and replace glass that is broken, chipped, cracked, or abraded, or that is damaged from natural causes, accidents, and vandalism during construction.

END OF SECTION

SECTION 09 26 00 - GYPSUM WALLBOARD AND METAL STUD SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide gypsum wallboard, metal studs, vinyl-covered gypsum board gypsum wallboard texture and accessories where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Standards:
1. American Iron and Steel Institute (AISI) Design of Cold Formed Steel Structural Members, 1980.
2. American Institute of Steel Construction (AISC) Manual of Steel Construction, 8th edition.
3. All pertinent Federal, State and Local codes.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 23.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedure used on the work.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

PART 2 - PRODUCTS

2.1 GYPSUM PANELS

A. General:
1. Provide gypsum panels complying with Fed Spec SS-L-30D, in 48" widths and in such lengths as will result in a minimum of joints. **NO HORIZONTAL JOINTS SHALL OCCUR BETWEEN FLOOR LINE AND CEILING LINE, WHERE CEILING IS 10' OR LESS ABOVE FINISHED FLOOR.**
   a. Gypsum Wallboard at walls: Provide USG 5/8" thick VHI (Very High Impact) abuse resistant gypsum fiber interior panels or approved equal, tapered edge, 5/8" thick at walls and as shown on drawings.
   b. Gypsum Wallboard at ceilings or furrdowns: Sheetrock brand Firecode Core Gypsum Interior Type X Panels or approved equal, tapered edge, complying with ASTM C1396 Type X. All wallboard shall be "Firecode" 1-hour.

2.2 METAL TRIM

A. Form from zinc-coated steel not lighter than 26 gauge, complying with Fed Spec QQ-S-775, type I, class d or e.

B. Corner beads: Provide angle shapes with wings not less than 7/8" wide and perforated for nailing and joint treatment, or with combination metal and paper wings bonded together, not less than 1-1/4" wide and suitable for joint treatment.

2.3 JOINTING SYSTEM

A. Provide a jointing system, including reinforcing tape and compound, designed as a system to be used together and as recommended for this use by the manufacturer of the gypsum wallboard approved for use on this Work.

B. Jointing compound may be used for finishing if so recommended by its manufacturer.

2.4 FASTENING DEVICES

A. For fastening gypsum wallboard in place on metal studs and metal channels, use flat head screws, shouldered, specially designed for use with power-driven tools, not less than 1" long, with self-tapping threads and self-drilling points.

2.5 METAL STUDS AND BRIDGING

A. All framing members shall be manufactured and supplied by Dale/Incor or approved equal, of the sizes as shown on the Drawings (where a gage is not shown on the Drawings, the following applies):
1. 7/8" to 2-1/2" - 20 gauge
2. 6" studs above CMU- 600S200-43 (6" x 2" x 18 ga) at 16" o.c. Good to 30 feet stud height above CMU
3. 6" studs at Furrdowns >12'tall- 600S200-43 (6" x 2" x 18 ga) at 16" o.c. Good to 30 feet stud
4. 3-5/8" studs above CMU and at furrdowns - 362S137-33 (3-5/8" x 1-3/8" x 20 ga) at 16" o.c. Good to 16 ft
5. Interior Partitions (Non-Load Bearing)
   3 5/8" and 6" Structural Metal Studs at 16" o.c. (Max. 12' tall); 20 Gauge
6. Provide triple studs at jambs of openings.
7. 7/8" Channels - 20 gauge for ceiling gypsum wallboard attachment. Suspended with 18 gage galvanized wire.
8. Exterior wall framing - any stud "exposed" to the exterior - 6" - 18 gauge structural

B. Bridging:
1. Provide 2-1/2" x 18 gage channel welded to each stud, with spacing 5'-0" maximum.
2. When stud length is less than 10'-0", provide 1 row of bridging.
3. When stud length is greater than 10'-0", provide 2 rows of bridging.

C. Galvanized Materials:
1. All galvanized 18 and 20 gage studs; all galvanized track, bridging, end closures and accessories shall be formed from steel that corresponds to the requirements of ASTM A446, Grade D with a minimum yield of 33,000 psi.
2. All galvanized 12, 14 and 16 gage studs and accessories shall be formed from steel that corresponds to the requirements of ASTM A446, Grade D with a minimum yield of 50,000 psi.
3. All galvanized studs, track, bridging and accessories shall be formed from steel having a G-60 galvanized coating meeting the requirements of ASTM A525.

2.6 CONTROL JOINTS

A. Walls: Provide E-Z Strip Expansion Joint by Gold Bond, every 35 feet (maximum) of corridor(s) length and at all abutments between gypsum board headwalls and gypsum board walls (all 4 corners of headwalls). Install at one side of door jambs, extending from door head to ceiling and as coordinated with Architect. Install at gypsum board ceilings and furr-downs where noted on Drawings as control joint,

or expansion joint. (If not shown on Drawings for ceilings, then install at 10' o.c. each way).

2.7 DRYWALL TEXTURE

A. Wall Spray Texture as manufactured by Gold Bond, or equal. Texture to be a medium orange peel, as reviewed and approved by the Architect. (Contractor to prepare samples for review/approval.)

2.8 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 METAL STUD AND METAL SUPPORT SYSTEM

A. General:
1. Metal stud framing components may be preassembled into panels prior to erecting. Prefabricated panels shall be square, with components attached in a manner to prevent racking.
2. All framing components shall be cut squarely for attachment to perpendicular members, or as required for angular fit against abutting members. Members shall be held positively in place until properly fastened.
3. Provide insulation equal to that specified in Section 07210 in all double jamb studs and all double header members which will not be accessible to the insulation contractor.

B. Installation:
1. Comply with installation standards of ASTM C754.
2. Isolate stud system from transfer of structural loading to system. Provide slip or cushioned type joints to attain lateral support and avoid axial loading at all structural beam-to-metal stud connections.
3. Install runner tracks at floors, ceiling and structural walls and columns where gypsum drywall system abuts other work.
4. Install supplemental framing, blocking and bracing at terminations in the work and for support of fixtures, equipment, heavy trim, grab bars, toilet accessories, furnishings and similar work.
5. Comply with manufacturer's recommendations for horizontal bridging for height and gage of studs.
6. Extend interior partition studs, which are not noted to go to underside of decking or other structure, through ceilings, anchoring using diagonal bracing to the structural system above the ceiling.
7. Space studs at 16" O.C., unless noted otherwise on the Drawings.
8. Ceiling Support Suspension System shall have main runners at 4'-0" o.c. with space hangers (wire) at 3'-0" o.c. and furring members at 16" o.c.

3.3 GYPSUM WALLBOARD

A. General:
1. Install the gypsum wallboard in accordance with the Drawings and with the separate boards in moderate contact but not forced into place.
2. At internal and external corners, conceal the cut edges of the boards by the overlapping covered edges of the abutting boards.
3. Stagger the boards so that corners of any four boards will not meet at a common point except in vertical corners.

B. Suspended Ceilings:
   1. Install the gypsum wallboard to ceiling with the long dimension of the wallboard at right angles to the supporting members.
   2. Wallboard may be installed with the long dimension parallel to supporting members that are spaced 16" on centers when attachment members are provided at end joints.
   3. Ceilings are to comply with Metal Support Installation Standard: ASTM C754.

C. Walls:
   1. Install the gypsum wallboard to studs at right angles to the furring or framing members.
   2. Make end joints, where required, over framing or furring members.

3.4 JOINT TREATMENT

A. General:
   1. Inspect areas to be joint treated, verifying that the gypsum wallboard fits snugly against supporting framework.
   2. In areas where joint treatment and compound finishing will be performed, maintain a temperature of not less than 55 degrees for 24 hours prior to commencing the treatment, and until joint and finishing compounds have dried.
   3. Apply the joint treatment and finishing compound by machine or hand tool.
   4. Provide a minimum drying time of 24 hours between coats, with additional drying time in poorly ventilated areas.

B. Embedding compounds:
   1. Apply to gypsum wallboard joints and fastener heads in a thin uniform layer.
   2. Spread the compound not less than 3" wide at joints, center the reinforcing tape in the joint, and embed the tape in the compound. Then spread a thin layer of compound over the tape.
   3. After this treatment has dried, apply a second coat of embedding compound to joints and fastener heads, spreading in a thin layer of compound over the tape.
   4. Sand between coats as required.
   5. When thoroughly dry, sand to eliminate ridges and high points.

C. Finishing compounds:
   1. After embedding compound is thoroughly dry and has been completely sanded, apply a coat of finishing compound to joints and fastener heads.
   2. Feather the finishing compound to not less than 12" wide.
   3. When thoroughly dry, sand to obtain a uniformly smooth surface, taking care to not scuff the paper surface of the wallboard.

D. DRYWALL TEXTURE - ALL WALLS AND CEILINGS TO RECEIVE PAINT:
   1. PROVIDE "WALL SPRAY TEXTURE" AS MANUFACTURED BY GOLD BOND, OR EQUAL. TEXTURE TO BE A MEDIUM ORANGE PEEL FINISH. (PROVIDE SAMPLES FOR ARCHITECT'S APPROVAL.)

3.5 CORNER TREATMENT

A. Internal corners: Treat as specified for joints, except fold the reinforcing tape lengthwise through the middle and fit neatly into the corner.

B. External corners:
   1. Install the specified corner bead, fitting neatly over the corner and securing with the same type fasteners used for installing the wallboard.
   2. Space the fasteners approximately 6" on centers, and drive through the wallboard into the framing or furring member.
   3. After the corner bead has been secured into position, treat the corner with joint compound and reinforcing tape as specified for joints, feathering the joint compound out from 8" to 10" on each side of the corner.

3.6 OTHER METAL TRIM

A. General:
   1. The drawings do not purport to show all locations and requirements for metal trim.
   2. Carefully study the Drawings and the installation, and provide all metal trim normally recommended by the manufacturer of the gypsum wallboard approved for use in this Work.

3.7 CLEANING UP

A. In addition to other requirements for cleaning, use necessary care to prevent scattering gypsum wallboard scraps and dust, and to prevent tracking gypsum and joint finishing compound onto floor surfaces.

B. At completion of each segment of installation in a room or space, promptly pick up and remove from the working area all scrap, debris, and surplus material of this Section.

END OF SECTION

SECTION 095000 – CONCRETE SLAB MOISTURE TESTING

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work included: Provide testing of all concrete slabs, at all floor levels for moisture within slabs.

1.2 QUALITY ASSURANCE

A. Testing shall be accomplished by a qualified independent testing agency.

B. All testing shall be performed to meet ASTM F 1869 (calcium Chloride) and ASTM F2170 (Relative Humidity) and ASTM F710 (pH)

1.3 SUBMITTALS

A. Submit qualifications of testing agency.

B. Submit all tools/instruments to be used for testing

C. Submit reporting and mapping method, and/or examples, to be used.

PART 2 – PRODUCTS

N.A.

PART 3 – EXECUTION

3.1 PROCESS

A. Type of Testing to be Done – ASTM F 1869 and ASTM F 2170 moisture tests and pH testing per ASTM F 710

B. Number of Tests – Three tests for the first 1,000 SF and one test for each 1,000 SF thereafter for each floor.

C. Timing of Testing – The temperature and humidity conditions are important for new construction, thus, testing should be done after the building is enclosed and the HVAC system is up and running. For a renovation and new construction, the testing should be done at least a month prior to the scheduled floor covering installation, so there is adequate time for corrective measures to be taken if they are necessary.

D. Reporting – Test reports should contain as much information as possible about the interior and exterior conditions at the time of testing, methodology of testing and test results. The owner, general contractor and architect shall receive the report.

E. Mapping – Show the test results on a map (floor plans) of the facility, which can help the construction team identify problem areas in the floor.

F. Repair Options – The report should include options for repairing a floor that exceeds the manufacturer's limits.

END OF SECTION

SECTION 09 51 00 - ACOUSTICAL CEILING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide acoustical ceiling where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen, manufacturer, and supplier who are thoroughly trained and experienced with at least five (5) years of similar systems, in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 23.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section:
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
3. Samples of items to be used in colors listed.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

1.5 EXTRA STOCK

A. Deliver to the Owner for his use in future modifications, an extra stock of approximately 5% of each type of acoustical material installed, packaging each type of material separately, distinctly marked, and adequately protected against deterioration.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Grid System:
1.Lay-in acoustical tile grid system: 15/16" wide - 2' x 4' grid with intermediate duty "T" bars. Color: White. Install at all rooms shown to receive 2' x 4' acoustical ceiling tile as shown on the Drawings. Armstrong, Prelude MX at all rooms, or equal.

B. Acoustical Ceiling Tile:
1. Acoustic Tile “A” - 2' x 4' x 5/8" Armstrong, No. 795, School Zone Georgian, square lay-in, or equal. Install at all rooms receiving 2' x4' ceiling grid system, except as noted in “C” below.

C. Acoustic Tile “B” - 2' x 4' x 5/8" Armstrong, No. 2911, random fissured, non-perforated, square edge, or equal. Install at Boys 106 and Girls 108**.**

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION, GENERAL

A. Except as modified by requirements of governmental agencies having jurisdiction, recommendations of the manufacturer as approved by the Architect, or specific directions of the Architect, install in accordance with ASTM C636 and the pertinent UL design requirements.

B. Lateral bracing:
   1. Provide lateral bracing as required by pertinent codes and regulations.
   2. Secure lateral bracing to structural members. Secure at right angles to the direction of the partition and four ways in large ceiling areas.

C. Install all grid level within a tolerance of one in 1000 and straight within a tolerance of one in 1000.

D. PROVIDE HANGER WIRE AT EACH OF THE (4) CORNERS OF LAY-IN TROFFER LIGHTING FIXTURES.

E. Coordinate all ceiling heights with all gypsum board coffered ceilings.

3.3 INSTALLATION OF ACOUSTICAL MATERIALS

A. If acoustical ceiling tile has linearity of pattern, install facing as directed by Architect.

3.4 CLEANING

A. In addition to other stipulated requirements for cleaning, completely remove finger prints and traces of soil from the surfaces of grid and acoustical materials, using only those cleaning materials recommended for the purpose by the manufacturer of the material being cleaned.

END OF SECTION

SECTION 09 65 00 - RESILIENT FLOORING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide resilient flooring and accessories where shown on the Drawings, as specified herein, and as needed for complete and proper installation.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen, manufacturer, and supplier who are thoroughly trained and experienced, with at least five (5) years experience with all products of this sections, and in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 23.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit;
   1. Materials list of items proposed to be provided under this Section;
   2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
   3. Samples of each item, color, and pattern available in the specified grades from the proposed manufacturers.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

1.5 EXTRA STOCK

A. Deliver to the Owner for his use in future modifications an extra stock of approximately 5% of each color and pattern in each material installed under this Section, packaging each type of material separately, clearly marked with item identification, and adequately protected against deterioration.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Provide colors and patterns as specified in the Color and Material Schedule in the Drawings.

B. Adhesives: Provide waterproof and stabilized adhesive as recommended by the manufacturer of the material being installed. Asphaltic emulsions and other non-waterproof adhesives will not be acceptable.
   1. Vinyl Composition Tile - as recommended by manufacturer
   2. Rubber base - as recommended by manufacturer

C. Concrete slab primer: Provide non-staining type as required and as recommended by the manufacturer of the material being installed.

2.2 RESILIENT MATERIALS

A. Rubber Base:
1. Roppe (or equal), 4" high, standard top set cove, 1/8" thick, with site mitered external and internal corners. Continuous lengths to be used, 4' sections will not be accepted. Colors: To be selected from manufacturer standard colors.

B. Vinyl Composition Tile (VCT on Drawings)
1. Johnsonite/Tarkett Tarkett VCT (formerly Azrock), colors to be selected by Architect from manufacturer standard colors. For bidding purposes plan for use of three (3) VCT colors.
NOTE: FINAL VCT SELECTION IS STILL TO BE DETERMINED. USE THIS PRODUCT FOR BIDDING PURPOSES. ALLOW FOR THREE (3) COLORS TO BE USED – IN THE CLASSROOMS ONE THIRD SHALL BE FIELD COLOR WITH REMAINING SPLIT EQUALLY AS TWO ACCENT COLORS. CORRIDOR SHALL USE ONE COLOR VCT IN MAIN CORRIDOR AREA WITH SECOND VCT COLOR AT NICHE ENTRANCES TO BOYS AND GIRLS RESTROOMS (APPROXIMATELY 5'-4" X 5'-4" SF AREA EACH).
FINAL PATTERN TO BE DETERMINED.

B. Rubber Flooring Transitions:
1. Solid rubber edge strip matching color range of resilient flooring and carpet, profile(s) as required by conditions. Profile(s) and color(s) to be selected by Architect from manufacturer's standard profile and color line.
2. **Reducer strips to be used at transition of all dissimilar flooring materials, edges or termination points. (Such as VCT-to-sheet vinyl, VCT-to-Carpet, and etc.)**

2.3 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of floor coverings.

B. Concrete Substrates: Prepare according to ASTM F 710.
1. Verify that substrates are dry and free of curing compounds, sealers and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
4. Moisture Testing: Perform one (or both if one fails) tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
A. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb. of water/100 SF (1.36 kg of water/92.9 sq. m) in 24 hours.
B. Perform relative humidity test using in situ probes, ASTM F 1869. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement. Notify Architect/Designer of

results.

C. Fill cracks, holes and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
D. Do not install floor coverings until they are the same temperature as space where they are to be installed.
   1. Move floor coverings and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
E. Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation.

3.3 INSTALLATION

A. General:
   1. Install materials only after finishing operations, including painting, have been completed and after permanent heating system is operating.
   2. Verify that moisture content of concrete slabs, building air temperature, and relative humidity are within the limits recommended by the manufacturer(s) of the materials used.
   3. Maintain reference markers, holes, and openings that are in place or plainly marked for future cutting by repeating on the finish surface as marked in the subfloor. Use chalk or other non-permanent marking device.
   4. Install as per layout plan shown on the Drawings.

B. Installing Vinyl Composition Tile: Install in strict accordance with manufacturer's written instructions.

C. Installing base:
   1. Install base where scheduled on the Drawings.
   2. Miter cut both field formed external and internal corners.

3.4 CLEANING AND PROTECTING

A. Remove excess adhesive and other blemishes from exposed surfaces, using neutral cleaner recommended by the manufacturer of the resilient materials.

B. Wax all VCT floors with three (3) coats minimum, or as recommended by manufacturer with manufacturer's suggested wax floor finish. Allow each coat to dry thoroughly.

C. Wax, buff and/or polish floors as per manufacturer's recommendations for new flooring installations. Submit proof of this work to Owner.

END OF SECTION

SECTION 09 67 00 – POLYMER FLOOR SYSTEMS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Seamless resinous troweled flooring.

B. Coved seamless troweled wall base.

1.2 RELATED SECTIONS

A. The Contract Documents, as defined in Section 01 01 00-Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

B. Section-033000-Cast-in-Place Concrete.

C. Section-042000-Masonry

1.3 SUBMITTALS

A. Surfacing applicator shall submit samples of color and textures for Design Professional's approval.

B. Prior to commencing work, at Design Professional's discretion, applicator shall install a 100 square foot sample on the job of desired color and texture and when approved, this will serve as the standard for the entire project.

C. Conform to requirements of Section 01 33 23 Submittals and Substitutions and Section 01 70 50 Project Closeout.

D. Product Data
1. Provide product sheet, including product description and use, for each product proposed for use.
2. Provide Material Safety Data Sheets (MSDS) for each product proposed for use.
3. Product Data should indicate coating conforms to federal, state, and local regulations, including VOC compliance with the requirements of this Section.

E. Closeout Submittals
1. Provide list of all products provided including:
   a. Manufacturer
   b. Product name/number
   c. Gloss
   d. Color name/number

F. Work Schedule
1. Provide schedule indicating proposed phasing of painting in occupied areas. Coordinate schedule with Owner and Construction Manager.

1.4 QUALITY ASSURANCE

A. All materials must be recommended and manufactured by a single supplier to insure compatibility and proper chemical and mechanical bond.

B. Surfacing shall be applied by a surfacing applicator approved by the Architect, with a minimum of seven (7) years experience installing the brand of surfacing in similar size and function projects. A list of ten (10) completed projects using the specified materials must be submitted proving seven (7) years experience by the

lead mechanic.

C. Surfacing applicator shall provide to the Architect a completed list of jobs including the names of the Architect, General Contractor, Owner, telephone numbers of all concerned, materials used, quantity installed and date completed on similar projects.

D. Surfacing applicator must provide a written guarantee for materials and workmanship between applicator and surfacing manufacturer for one (1) year.

E. Surfacing applicator or manufacturer seeking approval of products other than what is specified must supply samples, full product information, technical data with specifications, certification from an independent testing laboratory that the product being submitted for approval meets all requirements of the performance properties specified within this specification, installation instructions and comply with the above quality assurances in writing fourteen (14) days before bid letting. Omission of any item will result in an automatic rejection.

F. Bidders will be notified by addendum of substitute surfacing materials, if approved.

1.5 PRODUCT STORAGE AND ENVIRONMENTAL CONDITIONS

A. Material temperatures shall be a minimum of 55°F before use.

B. Work on seamless flooring shall not commence until the building can be maintained at a minimum temperature of 55°F for 48 hours before, during and 48 hours after application. Areas shall also be broom clean and reasonably dust free and shall have adequately controlled ventilation with bright, uniform lighting.

1.6 PROJECT CONDITIONS

A. Before commencing work, ensure environmental and site conditions are suitable for application and curing.

B. Surfaces shall be acceptable in accordance with flooring manufacturer's recommendations.

C. Notify Architect and Contractor in writing of unsuitable surfaces and conditions. Commencement of work shall imply acceptance of surfaces and working conditions.

D. Recommended Moisture Vapor Transmission Considerations:
1. Placement of on-grade slabs over a Class A vapor retarder as defined by ASTM E-145.
2. A water cement ratio of 0.45 and 0.5.
3. Curing by ASTM C-171 sheet materials for curing concrete.
4. A slump in the range of 3 to 4 inches, which can be increased by the use of Super plasticizers.

E. Substrate requirements (See Appendix A).

1.7 PROTECTION

A. Protect adjacent surfaces from damage resulting from work of this trade. If necessary, mask and/or cover adjacent surfaces, fixtures, cabinet work, equipment, etc. by suitable means.

1.8 WARRANTY

A. Applicator shall notify manufacturer of project requirements before bidding. Manufacturer shall provide written statement before bidding to the Architect that they accept single source warranty for entire installation including labor for one year. Warranty shall include removal and replacement if proven defective. Defective items are, but not limited to debonding, regionalized discoloration, excessive wear and staining by bodily fluids. Non-acceptance in writing by manufacturer is grounds for rejection of product.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Troweled Floor Covering where called for on the drawings (TF), install a **Desco Granite** Floor manufactured by Desco Coatings, Inc. **1-800-426-4164.**
   1. Color to be determined but shall be made up of maximum of four (4) color chips.

B. Provide 4" high turned up coved base with 1" radius cove and metal edge as indicated on drawings.

C. Provide elastomeric waterproof membrane.

D. Binder and all successive grout and top coats shall be 100% solids clear/epoxy resin. Ceramic coated quartz aggregates as supplied by Desco Coatings are to be used to achieve all color. No pigmented epoxy base or top coats allowed.

E. Minimum Performance Characteristics:

1. Compressive Strength (ASTM C-579)	10,700-11,000 psi
2. Tensile Strength (ASTM C-307)	2,250 psi
3. Flexural Strength	4,000 psi
4. Shore D Hardness (ASTM D-2240)	85-90
5. Bond Strength (ASTM D-4541)	425 psi
6. Abrasion Resistance (ASTM D-4060)	0.08 gm
7. Pot Life	35 min
8. Cure Time @ 77° F	10-12 hours
9. Flammability (ASTM D-635)	35-40 passes
10. Impact Resistance (MIL-D-3135)	160 in/lb
11. Indention (MIL-D-3134)	2,000 psi
12. Tabor Abrasion w/aluminum oxide	25-30 mg loss

Epoxy top coats shall produce no color shift after exposure to fluorescent lighting on the "b" axis yellow index after 3 weeks exposure.

20% Hydrochloric Acid	10% Lactic Acid
Urine	Tea
Coffee	Mustard
Ethyl Alcohol	Mercurochrome
	Betadyne

PART 3 – EXECUTION

3.1 TESTING OF CONCRETE SUBSTRATE

One of the following three methods shall be used to determine moisture content of slab at time of application. These tests only measure the specific area tested at the time of the test and are not predictors of future substrate conditions.

A. Using a Tramax concrete moisture detection device, firmly apply the test apparatus to concrete that has had sealers or other subsequent coatings removed. The readings shall be 4.2% or less. If readings are higher, use ASTM F-2170 for non-conditional spaces and/or ASTM F1869 for conditioned spaces.

B. ASTM F-2170 in site Relative Humidity Test. Follow test procedures of manufacturer of testing equipment. Reading should be below 80%. If above 80%, use the next test method below.

C. ASTM F-1869 Calcium Chloride Moisture Vapor Transmission Test. Follow test procedures of manufacturers of MVT kits. Results should be below 3 to 4 lbs/1,000 square feet/24 hours. (Only if space is conditioned.)

3.2 FLOORING PREPARATION

A. Surface must be clean, sound and dry.

B. Effectively remove concrete laitance on accessible floor surfaces by mechanical shot blast. Acid etching is not acceptable.

C. Areas where there is existing flooring must be cleaned to remove all floor material, grease or any residue that might retard interfacial adhesion between substrate and surfacing.

3.3 FLOORING APPLICATION

A. Apply flooring in accordance with manufacturer's printed instructions, employing lead mechanic qualified under the quality assurance portion of this specification, using equipment specifically designed for this purpose.

B. Desco Quartz Cremona TG is a hand troweled grade 11 Desco quartz aggregate with 20% of grade 28 as a filler. The system should be hand troweled to 3/16" thickness over epoxy primer. **Final slip resistance will be determined in the field.**

C. Install integral cove base to height of 4" with 1" radius cove with metal edge at top.
1. Trowel apply vertical cove base.
2. Hand sand cove base.
3. Apply three coats of resin to assure a smooth surface and cove.
4. Do not allow resin to puddle in cove.

D. **Install waterproof membrane to a dry mil thickness of 20 mils.**

E. Finished work shall match approved samples; be uniform in thickness, sheen, color, pattern, and texture; and be free from defects detrimental to performance.

3.4 PROTECTION

A. After completion of flooring the General Contractor/Owner shall protect flooring from damage by other trades.

END OF SECTION

APPENDIX A

GENERAL SUBFLOOR REQUIREMENTS

CONCRETE -- Section 03 30 00

1. Concrete should have been designed and installed to minimize random cracking and slab deflections; provide sufficient control joints and isolation joints.
2. Placement of on-grade slabs over a Class A vapor retarder as defined by ASTM E-1745.
3. A water cement ratio of 0.45 and 0.5.
4. Curing by ASTM C-171 sheet materials for curing concrete.
5. A slump in the range of 3 t o 4 inches which can be increased by the use of super plasticizers.
6. Variation in plane shall be determined by the specifier and be in accordance with ACI 302, Guide for Concrete Floor and Slab, as well as ASTM E 1155-87, Determining floor Flatness and Levelness Using the F Number System.
7. Proper slope to drain(s) must be maintained.
8. Steel trowel finish, but not burnished to a high sheen
9. Concrete to be clean, crack free, sound and durable (minimum compressive strength of 3,000 psi) and dry (3% maximum moisture content by mass.)
10. Concrete must be free of hydrostatic and/or capillary moisture pressure and should not be in direct contact with the ground. An effective vapor barrier and properly engineered soil are required.
11. Allow concrete to cure 28 days minimum before applying floor system.
12. Concrete after surface preparation is to be free from sealers or membrane curing agents.
13. Light weight and insulating concrete not recommended under flooring system. (See applicator and manufacturer for alternate recommendations.)

CONTROL JOINTS

1. Install control and expansion joints in accordance with standard practice per ACI-501.
2. The floor contractor may fill non-moving control joint(s) with approved elastomeric sealant or full depth semi-rigid two-component epoxy joint filler, designed specifically for this purpose (use full depth joint filler when reinforcement of the joint edges is desirable), or two-component epoxy and filler (epoxy to be same material as flooring). Movement may crack surfacing unless proper detailing has been done.
3. Filling of moving isolation joints or expansion joints is not recommended.
4. Filling of non-moving isolation joints with elastomeric caulking and sealants or with a semi-rigid epoxy joint filler or two-component epoxy and filler is acceptable. Movement may crack surfacing unless proper detailing has been done.
5. Joint identified by owner/designer or contract manager as moving joints shall be treated by terminating flooring on each side of joint. After flooring is completed, joint shall then be filled by sealant contractor.

BACKING FOR COVE BASE

Surface to receive cove and/or base shall be strong, durable and dry. Suitable backings include; concrete, cement plaster, standard light-weight block, clay, sand-lime, cement bricks and drywall with a toe plate. Masonry surface(s) to be free of voids, irregularities and recessed joints (if present, fill with recommended epoxy plaster).

SECTION 09 90 00 - PAINTING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Paint and finish the exterior and interior exposed surfaces listed on the Painting Schedule in Part 3 of this Section, as specified herein, and as needed for a complete and proper installation.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, and Sections in Division 1 of these Specifications.
2. Priming or priming and finishing of certain surfaces may be specified to be factory-performed or installer performed under pertinent other Sections.
3. Division 5 - Metals

C. Work not included:
1. Unless otherwise indicated, painting is not required on surfaces in concealed areas and inaccessible areas such as furred spaces, foundation spaces, utility tunnels, pipe spaces, and duct shafts.
2. Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, and similar finished materials will not require painting under this Section except where indicated.
3. Do not paint moving parts of operating units; mechanical or electrical parts such as valve operators; linkages, sensing devices; and motor shafts, unless otherwise indicated.
4. Do not paint over required labels or equipment identification, performance rating, name, or nomenclature plates, including labels on fire-rated doors.
5. Do not paint concrete which has been sandblasted.
6. Do not paint rubber door silencers at hollow metal frames.

D. Definitions:
1. "Paint," as used herein, means coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

B. Paint coordination:
1. Provide finish coats which are compatible with the prime coats actually used.
2. Review other Sections of these Specifications as required, verifying the prime coats to be used and assuring compatibility of the total coating system for the various substrata.
3. Upon request, furnish information on the characteristics of the specific finish materials to assure that compatible prime coats are used.
4. Provide barrier coats over incompatible primers, or remove the primer and reprime as required.
5. Notify the Architect in writing of anticipated problems in using the specified coating systems over prime coatings supplied under other Sections.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 23.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section, referenced to the Painting Schedules.
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
3. Manufacturer's complete color samples for both interior and exterior stains and paints.

4. Coating Maintenance Manual: Upon conclusion of the project, the Contractor or paint manufacturer/supplier shall furnish a coating maintenance manual, such as Sherwin-Williams "Custodian Project Color and Product Information" report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions, touchup procedures, and color samples of each color and finish used.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

1.5 JOB CONDITIONS

A. Do not apply solvent-thinned paints when the temperature of surfaces to be painted and the surrounding air temperatures are below 45 degrees F, unless otherwise permitted by the manufacturers' printed instructions as approved by the Architect.

B. Weather conditions:
   1. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85%; or to damp or wet surfaces, unless otherwise permitted by the manufacturers' printed instructions as approved by the Architect.
   2. Applications may be continued during inclement weather only within the temperature limits specified by the paint manufacturer as being suitable for use during application and drying periods.

1.6 EXTRA STOCK

A. Upon completion of the work of this Section, deliver to the Owner an extra stock equaling 5% of each color, type, and gloss of paint used in the Work, tightly sealing each container, and clearly labeling with contents and location where used.

PART 2 - PRODUCTS

2.1 PAINT MATERIALS

A. Acceptable materials:
   1. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
      a. Glidden Coatings and Resins, Division of SCM Corporation (Glidden)
      b. Benjamin Moore and Co. (Moore)
      c. Polomyx Industries, Inc.
      d. PPG Industries, Pittsburgh Paints (Pittsburgh)
      e. The Sherwin-Williams Company (SW)

B. Undercoats and thinners:
   1. Provide undercoat paint produced by the same manufacturer as the finish coat.
   2. Use only the thinners recommended by the paint manufacturer and use only to the recommended limits.
   3. Insofar as practicable, use undercoat, finish coat, and thinner material as parts of a unified system of paint finish.

2.2 COLOR SCHEDULE

A. The Architect will prepare, during construction, a Color Schedule with samples for guidance in painting.

B. The Architect may select, allocate, and vary colors on different surfaces throughout the Work, subject to the following:
   1. Exterior work: A maximum of three (3) different colors will be used, with variations for trim, doors, miscellaneous work, and metal work.

2. Interior work: A maximum of five (5) different paint and two (2) different stain colors will be used, with variations for trim, wall surfaces and ceiling surfaces.

2.3 APPLICATION EQUIPMENT

A. For application of the approved paint, use only such equipment as is recommended for application of the particular paint by the manufacturer of the particular paint, and as approved by the Architect.

B. Prior to use of application equipment, verify that the proposed equipment is actually compatible with the material to be applied, and that integrity of the finish will not be jeopardized by use of the proposed equipment.

2.4 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 MATERIALS PREPARATION

A. General:
1. Mix and prepare paint materials in strict accordance with the manufacturers' recommendations as approved by the Architect.
2. When materials are not in use, store in tightly covered containers.
3. Maintain containers used in storage, mixing, and application of paint in a clean condition, free from foreign material and residue.

B. Stirring:
1. Stir materials before application, producing a mixture of uniform density.
2. Do not stir into the material any film which may form on the surface, but remove the film and, if necessary, strain the material before using.

3.3 SURFACE PREPARATION

A. General:
1. Perform preparation and cleaning procedures in strict accordance with the paint manufacturers' recommendations as approved by the Architect.
2. Remove removable items which are in place and are not scheduled to receive paint finish; or provide surface-applied protection prior to surface preparation and painting operations.
3. Following completion of painting in each space or area, reinstall the removed items by using workmen who are skilled in the necessary trades.
4. Clean each surface to be painted prior to applying paint of surface treatment.
5. Remove oil and grease with clean cloths and cleaning solvent of low toxicity and flash point in excess of 200 degrees F, prior to start of mechanical cleaning.
6. Schedule the cleaning and painting so that dust and other contaminants from the cleaning process will not fall onto wet newly painted surfaces.

B. Preparation of wood surfaces:
   1. Clean wood surfaces until free from dirt, oil, and other foreign substance.
   2. Smooth finished wood surfaces exposed to view, using the proper sandpaper. Where so required, use varying degrees of coarseness in sandpaper to produce a uniformly smooth and unmarred wood surface.

C. Preparation of metal surfaces:
   1. Thoroughly clean surfaces until free from dirt, oil, and grease.
   2. On galvanized surfaces, use solvent for the initial cleaning, and then treat the surface thoroughly with phosphoric acid etch. Remove etching solution completely before proceeding.
   3. Allow to dry thoroughly before application of paint.

3.4 PAINT APPLICATION

A. General:
   1. Touch up shop-applied prime coats which have been damaged and touch up bare areas prior to start of finish coats application.
   2. Slightly vary the color of succeeding coats.
      a. Do not apply additional coats until the completed coat has been inspected and approved.
      b. Only the inspected and approved coats of paint will be considered in determining the number of coats applied.
   3. Sand and dust between coats to remove defects visible to the unaided eye from a distance of five feet.
   4. On removable panels and hinged panels, paint the back sides to match the exposed sides.

B. Drying:
   1. Allow sufficient drying time between coats, modifying the period as recommended by the material manufacturer to suit adverse weather conditions.
   2. Consider oil-base and oleo-resinous solvent-type paint as dry for recoating when the paint feels firm, does not deform or feel sticky under moderate pressure of the thumb, and when the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

C. Brush applications:
   1. Brush out and work the brush coats onto the surface in an even film.
   2. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, and other surface imperfections will not be acceptable.

D. Spray application:
   1. Except as specifically otherwise approved by the Architect, confine spray application to metal framework and similar surfaces where hand brush work would be inferior.
   2. Where spray application is used, apply each coat to provide the hiding equivalent of brush coats.
   3. Do not double back with spray equipment to build up film thickness of two coats in one pass.

E. Miscellaneous surfaces and procedures:
   1. Exposed mechanical items:
      a. Finish electric panels, access doors, conduits, pipes, ducts, grilles, registers, vents, and items of similar nature to match the adjacent wall and ceiling surfaces, or as directed.
      b. Paint visible duct surfaces behind vents, registers, and grilles flat black.
      c. Wash metal with solvent, prime, and apply two coats of alkyd enamel.

   2. Exposed pipe and duct insulation:
      a. Apply one coat of latex paint on insulation which has been sized or primed under other Sections; apply two coats on such surfaces when unprepared.
      b. Match color of adjacent surfaces.
      c. Remove band before painting and replace after painting.

   3. Hardware: Paint prime coated hardware to match adjacent surfaces.

4. Wet areas:
   a. In toilet rooms and contiguous areas, add an approved fungicide to paints.
   b. For oil based paints, use 1% phenolmercuric or 4% tetrachlorophenol.
   c. For water emulsion and glue size surfaces, use 4% sodium tetrachlorophenate.
5. Interior: Use "stipple" finish where enamel is specified.
6. Exposed vents: Apply two coats of heat-resistant paint approved by the Architect.

F. **Identification of Fire Rated Partitions:**

1. As described in the Arkansas Fire Prevention Code, Para. 703.7, fire walls, fire barriers, fire partitions, smoke barriers, and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling. All interior partitions noted as fire rated walls on the Drawings shall have the following identification:

Option a. Permanently affixed signs constructed of a permanent material such as plastic or metal with 3" minimum height lettering with minimum 3/8 inch stroke contrasting with the signage background. Signage shall have the following text (or approved equivalent):

Typical:	**FIRE AND SMOKE BARRIER - PROTECT ALL OPENINGS**
1-Hour:	**1-HOUR FIRE WALL – PROTECT ALL OPENINGS**

Signage shall be located in accessible concealed floor, floor-ceiling or attic spaces and located within 15 feet of the end of each wall and at intervals not exceeding 30 feet measured horizontally along the wall or partition.

Option b. A rectangular painted background with contrasting stenciled lettering, such as red lettering on a white rectangle meeting criteria above may be used in lieu of permanent signage at the Contractor's option..

3.5 EXTERIOR PAINTING SCHEDULE

A. Provide the following finishes with materials manufactured by Sherwin-Williams or equal products by manufacturers listed in 2.1, A.1 of this Section.

B. Ferrous Metal (Misc. Steel, Doors and Frames, Handrails and Bollards)
   1. Painted (GLOSS FINISH/Acrylic Base) Wide Range of Color
      a. 1st coat: Pro-Cryl Universal Primer, B66-1300 Series (5.0-10.0 mils wet, 2.0-4.0 mils dry)
      b. 2nd coat: Pro Industrial Acrylic Gloss, B66-600 Series (6.0-12.0 mils wet, 2.5-4.0 mils dry)
      c. 3rd coat: Pro Industrial Acrylic Gloss, B66-600 Series (6.0-12.0 mils wet, 2.5-4.0 mils dry)

C. Galvanized Metal
   1. Painted (Gloss Finish/Acrylic Base)
      a. 1st coat: Pro-Cryl Universal Primer, B66-1300 Series (5.0-10.0 mils wet, 2.0-4.0 mils dry)
      b. 2nd coat:Pro Industrial Acrylic Gloss, B66-600 Series (6.0-12.0 mils wet, 2.5-4.0 mils dry)
      c. 3rd coat: Pro Industrial Acrylic Gloss, B66-600 Series (6.0-12.0 mils wet, 2.5-4.0 mils dry)

D. Concrete Masonry Units (Block)
   1. Painted (Flat Finish/Latex Base)
      a. 1st coat: PrepRite Block Filler, B25W25 (16 mils wet, 8.0 mils dry)
      b. 2nd coat: A-100 Exterior Latex Flat, A06-Series (4.0 mils wet, 1.3 mils dry)
      c. 3rd coat: A-100 Exterior Latex Flat, A06-Series (4.0 mils wet, 1.3 mils dry)

E. Wood (Trim / Panel)
   1. Painted (Flat Finish/Latex Base)
      a. 1st coat: Exterior Oil-Based, Y24W08020 (4 mils wet, 2.3 mils dry)
      b. 2nd coat: A-100 Exterior Latex Satin, A82-Series (4.0 mils wet, 1.4 mils dry)
      c. 3rd coat: A-100 Exterior Latex Satin, A82-Series (4.0 mils wet, 1.4 mils dry)

3.6 INTERIOR PAINTING SCHEDULE

A. Provide the following finishes with materials manufactured by Sherwin-Williams or equal products by manufacturers listed in 2.1, A.1 of this Section.

B. Wood and Plywood: Miscellaneous trim noted "Paint" on Drawings.
   1. Painted (Semi-Gloss Finish/Alkyd Base) Color Answers: Interior
      a. 1st coat: Premium Wall & Wood Primer, B28W811 (4.0 mils wet, 1.8 mils dry)
      b. 2nd coat: Solo 100% Acrylic Semi-Gloss, A76 Series (4.0 mils wet, 1.5 mils dry)
      c. 3rd coat: Solo 100% Acrylic Semi-Gloss, A76 Series (4.0 mils wet, 1.5 mils dry)

C. Gypsum Wallboard: Walls - Typical
   1. Painted (SEMI-GLOSS FINISH/Acrylic Base) Color Answers: Interior
      a. 1st coat: ProMar 200 Zero VOC Latex Wall Primer, B28W2600 (4.0 mils wet, 1.5 mils dry)
      b. 2nd coat: ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series (4.0 mils wet, 1.6 mils dry)
      c. 3rd coat: ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series (4.0 mils wet, 1.6 mils dry)

D. Gypsum Wallboard Walls - At Restrooms, Toilets, or Janitor rooms
   1. Painted (Gloss Finish/Acrylic Epoxy) Wide Range of Color
      a. 1st coat: PrepRite Block Filler, B25W25 (16.0 mils wet, 8.0 mils dry)
      b. 2nd coat: Water Based Catalyzed Epoxy, B73-300 Series (7.0 mils wet, 3.0 mils dry)
      c. 3rd coat: Water Based Catalyzed Epoxy, B73-300 Series (7.0 mils wet, 3.0 mils dry)

E. Gypsum Wallboard: Ceilings
   1. Painted (Flat Finish/LATEX BASE) Color Answers: Interior
      a. 1st coat: ProMar 200 Zero VOC Latex Wall Primer, B28W2600 (4.0 mils wet, 1.5 mils dry)
      b. 2nd coat: ProMar 200 Zero VOC Latex Flat, B30-2600 Series (4.0 mils wet, 1.6 mils dry)
      c. 3rd coat: ProMar 200 Zero VOC Latex Flat, B30-2600 Series (4.0 mils wet, 1.6 mils dry)

F. Ferrous Metal (Hollow Metal Frames; Misc. Metal, Structural Steel)
   1. Painted (SEMI-GLOSS FINISH/Acrylic Base) Color Answers: Interior
      a. 1st coat: Pro-Cryl Universal Primer, B66-1300 Series (5.0-10.0 mils wet, 2.0-4.0 mils dry)
      b. 2nd coat: Pro Industrial Acrylic Semi-Gloss, B66-650 Series (6.0-12.0 mils wet, 2.5-4.0 mils dry)
      c. 3rd coat: Pro Industrial Acrylic Semi-Gloss, B66-650 Series (6.0-12.0 mils wet, 2.5-4.0 mils dry).

G. Interior Exposed Structural Steel and Ceiling Deck
      a. Spot Prime: B66-1300 – PI PROCRYL. PR OF W
      b. 1st coat: B42W00001 – Waterborne Acrylic Dry Fall Flat
      c. 2nd coat: B42W00001 – Waterborne Acrylic Dry Fall Flat

H. CMU Walls - Not at Restrooms / Locker Rooms, Toilets, or Janitor rooms
   1. Painted Eg-Shell Finish/Acrylic Base) Color Answers: Interior
      a. 1st coat: PrepRite Block Filler, B25W25 (16.0 mils wet, 8.0 mils dry)
      b. 2nd and 3rd coat: ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series (4.0 mils wet, 1.7 mils dry)

I. CMU Walls - At Restrooms / Locker Rooms, Toilets, or Janitor rooms.
   1. Painted (Gloss Finish/Acrylic Epoxy) Wide Range of Color
      a. 1st coat: PrepRite Block Filler, B25W25 (16.0 mils wet, 8.0 mils dry) or Pro Industrial Heavy Duty Block Filler
      b. 2nd coat: Water Based Catalyzed Epoxy, B73-300 Series (7.0 mils wet, 3.0 mils dry)
      c. 3rd coat: Water Based Catalyzed Epoxy, B73-300 Series (7.0 mils wet, 3.0 mils dry)

END OF SECTION

SECTION 10 15 50 – TOILET PARTITIONS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Solid high density polyethylene (solid plastic) toilet compartments.

1.2 RELATED SECTIONS

A.
B. Section 10 90 00 - Miscellaneous.

1.3 REFERENCES

A. ANSI/ICC A117.1 - Accessible and Usable Buildings and Facilities.

B. ASTM A 167 - Standard Specification for Stainless and Heat Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

C. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 23.

B. Product Data: Manufacturer's product data for materials, fabrication, and installation including catalog cuts of anchors, hardware, fastenings, and accessories., including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Shop Drawings:
   1. Provide shop drawings for fabrication and installation of compartment assemblies that are not fully described by architectural drawings.
   2. Provide template layouts and installation instructions for anchorage devices built into other work.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns. Submit manufacturer's standard color selector.

E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches square, representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 5 years manufacturing toilet partitions.

B. Installer Qualifications: Minimum 2 years experience installing toilet partitions.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 PROJECT 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. Manufacturers storage and handling instruction shall be reviewed and maintained.

B. Field Measurements: Take field measurements prior to component fabrication to ensure proper fitting of work.

C. Coordination: Furnish inserts and anchorages that will be built into other work for installation of toilet compartments and related items.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: Eclipse Scranton; or equal products by ASI Accurate; Ampco Products, LLC Metpar, Hadrian, or approved equal

2.2 COMPARTMENTS AND SCREENS

A. General: Doors, panels, screens, and pilasters assembled into complete compartment system, with cutouts and drilled holes to receive hardware as indicated; processed and fabricated in a craftsmanlike manner; complying with ANSI/ICC A117.1, Americans with Disabilities Act (ADA), and as follows:

B. Toilet Compartments: Overhead braced.
   1. Compartment Depth and Width: As indicated on drawings.
   2. Door Width: 24 inches (610 mm), minimum; at wheelchair accessible compartments, 32 inches (813 mm), inside clear minimum.
   3. Doors and Panels:
      a. Top at 72 inches (1778 mm) above finished floor.
      b. Bottom at 10 inches (305 mm) above finished floor. (door/panel height 62 inches for "High Privacy")
      c. Edges: Shiplap
   4. Pilaster Width: As required to fit space; minimum 3 inches (76 mm).
   5. Pilaster Height: 82.75 inches (2083 mm) including head rail.

C. Urinal Screens:
   1. Style: Floor mounted.
   2. Depth: 24 inches (457 mm).
   3. Height: Top at 60 inches (1524 mm) and bottom at 18 inches (458 mm) above finished floor.

2.3 SOLID POLYETHYLENE (SOLID PLASTIC) PANEL COMPONENTS

A. Doors, Panels, and Pilasters: High density polyethylene solid plastic; polymer resin construction; water and graffiti resistant; each panel one-piece construction without seams; homogenous color throughout; seamless piece; edges free of milling marks.
   1. Color: To be selected from manufacturer's standard colors.
   2. Doors, Panels Thickness: 1 inch (25 mm). Nominal.
   3. Height: 62 inches net.
   4. Heat sinc shall be attached as standard to the bottom of all doors and panels

B. Fabrication:
   1. Furnish standard doors, panels, screens and stiles fabricated for compartment system. Furnish units with cutouts and drilled holes to receive compartment hardware as indicated.
   2. Solid Plastic, High Density Polyethylene: Polymer resin material shall be one seamless piece. All edges shall be free of milling marks.

C. Hardware Set - Stainless Steel:
   1. Brackets: Continuous heavy duty aluminum clear satin anodized inserted into slotted panel and fastened to panels with stainless steel tamper resistant screws. Double Ear bracket 61 inches long (verify with panel length).
   2. Hinges: Edge-mounted helix style Continuous stainless steel. Allows doors to fully close for any outswing or handicapped accessible compartments. Inswing doors shall remain open at 20 degrees in rest position.
   3. Occupancy Indicator Latch and Housing: Satin stainless steel; occupancy indicator; slide bolt and button
   4. Coat Hook: Type 304 cast stainless steel with Number 4 finish; combination hook and bumper on inswinging doors.
   5. Door Pull: Chrome plated Zamak.
   6. Pilaster Shoes: Hidden Shoe: One piece molded polyethylene invisible shoe inserted into metal post and secured to metal post with stainless steel tamper resistant screw; adjustable to level headrail to finished floor.
   7. Metal Posts: 82.75 inches high, heavy duty extruded aluminum, clear anodized finish, fastened to foot with stainless steel tamper resistant screws.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. General: Install in accordance with manufacturer's instructions.
   1. Install compartment units rigid, straight, plumb and level.
   2. Provide clearance of not more than 1/2 inch (12 mm) between stiles and panels and not more than 1 inch (25 mm) between panels and walls.
   3. Secure panels to walls with not less than two brackets attached near top and bottom of panel.
   4. Locate wall brackets so holes for wall anchorages occur in masonry or tile joints.
   5. Secure panels to stiles with not less than two brackets located to align with brackets at wall.
   6. Secure panels in position with manufacturer's recommended anchoring devices.
   7. Level, plumb, and tighten installation with devices furnished.

B. Overhead Braced Compartments:
   1. Secure stile to floor.

2. Secure overhead brace to each stile with fasteners supplied.
3. Hang doors and adjust so tops of doors are parallel with overhead brace when doors are in closed position.

C. Screens:
   1. Attach with anchoring devices as recommended by manufacturer to suit supporting structure.
   2. Set unit to provide support and to resist lateral impact.
D. Hardware Adjustment: Adjust and lubricate hardware for proper operation. Set hinges on inswing doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on out-swing doors (and entrance swing doors) to return to fully closed position.

3.4 ADJUSTING AND CLEANING

A. Hardware Adjustment: Adjust and lubricate hardware for proper operation. Set hinges on in-swing doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on out-swing doors (and entrance swing doors) to return to fully closed position.

B. Clean and Protect: Clean exposed surfaces of compartment systems using materials and methods recommended by manufacturer, and provide protection as necessary to prevent damage during remainder of construction period.

END OF SECTION

SECTION 10 90 00 - MISCELLANEOUS SPECIALTIES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide miscellaneous specialty items where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

1.4 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 23.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
   1. Materials list of items proposed to be provided under this Section;
   2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements, including fire ratings;
   3. Samples of the full range of colors and patterns available from the proposed manufacturer in the specified products.

PART 2 - PRODUCTS

2.1 FIRE EXTINGUISHER CABINETS AND FIRE EXTINGUISHERS

A. Where noted "FEC" on Floor Plan, J.L. Industries, (or equal) Cosmopolitan Series #1837V10 (Provide Fire-FX fire rated tub for use in fire rated walls), semi-recessed 3" rolled edge, stainless steel cabinet door and trim with Cosmic Extinguisher, 10E. (Mount bottom of cabinet at 2'-6" above finished floor.)

2.2 BUILDING SIGNAGE (IDENTIFYING DEVICES)

A. The Architect will select and advise Contractor of exterior and interior building signage, as scheduled below.

   2. Interior:
      a. Interior signage to be wall mounted, ImPact Series Thermoformed ADA signs by DFI Architectural Signs, North Little Rock, AR or equal. Restroom signs shall be sized to accommodate verbiage and symbol. Signs shall be engraved with room name and braille. Room signs - one sign shall be furnished and installed at each room shown on the Plans. (Two or three signs required at rooms having 2 or 3 doors.) Sign size shall be standard shape, 8-1/2" w x 6-1/2" h with one window, Raised Characters (room name and room number), Braille. Colors to be determined from manufacturer standard colors. Interior signage shall meet accessibility guidelines as to raised letter, san serif,

Grade 2 Domed Braille, mounted on wall at strike side of door – braille at 60" AFF and etc. Wall Mounting – concealed, double sided foam tape. A final Signage Schedule with final room names and numbers will be provided prior to release of shop drawings.

b. Plaque: Cast Metal Plaque 24"x32" as manufactured by A.R.K. RAMOS, Oklahoma City, OK, 1-800-725-7266,

1.Plaque Material	-	Cast Bronze
2. Plaque Size	-	24" x 32"
3. Letter Style	-	Condensed Classic
4. Border Style _	-	512
5. Background Texture	-	Matte
6. Plaque Finish	-	BR 400 Satin bronze raised areas with dark oxidized background
7. Plaque Mounting	-	1 (Verify with wall type)

Plaque to have name of school, superintendent, school board members, Architect, Contractor, date, school logo as a minimum.

2.3 TOILET AND CLOSET ACCESSORIES

A. Provide items per the following schedule, as manufactured by Bobrick, ASI, American Specialties, Inc. or approved equal. See Sheet A4 for mounting heights. See plans for location of accessories.

Mark	Description	Bobrick	ASI, American Specialties, Inc.
GB-1	18" Grab Bar - Vertical	B5806 x 18	10-3701-18
GB-2	36" Grab Bar	B5806 x 36	10-3701-36
GB-3	42" Grab Bar	B5806 x 42	10-3701-42
M	18" x 36" Frame Mirror	B290-1836	10-0620-B1836
MBH	Mop and Broom Holder	B-223	10-8215-3

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install all materials in this Section in strict accordance with manufacturer's instructions.

END OF SECTION

SECTION 12 21 13 - WINDOW TREATMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide window treatments as scheduled below and where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
   1. Documents affecting Work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

1.3 SUBMITTALS

A. Comply with pertinent provision of Section 01 33 23.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
   1. Materials list of items proposed to be provided under this Section;
   2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
   3. Samples of the slats, showing colors available in the products proposed to be used.
   4. Manufacturer's recommended installation procedure which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used in the Work.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01 64 00.

PART 2 - PRODUCTS

2.1 HORIZONTAL BLINDS (MINI-BLINDS)

A. At each exterior window and where noted "MB" on the Drawings, provide 1" metal, 0.08" thick horizontal mini-blinds, with valance and control rod as manufactured by SWF Contract or approved equal. Color shall be selected from manufacturer's standard colors.

2.2 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

B. Report in writing to Architect prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 SURFACE CONDITIONS

A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.3 INSTALLATION

A. Install window treatment items in accordance with manufacturer's recommendations.

B. Install the work of this Section in strict accordance with the manufacturer's recommendations as approved by the Architect, anchoring all components firmly into position, plumb, level, and in proper operating condition.

C. Upon completion of the installation, put each operating component through at least five complete cycles, adjusting as required to achieve optimum operation.

D. Touch up scratches and abrasions to be completely invisible to the unaided eye from a distance of five feet.

END OF SECTION

SECTION 230100 - BASIC MECHANICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Piping materials and installation instructions common to most piping systems.
2. Dielectric fittings.
3. Vibration Isolators
4. Mechanical sleeve seals.
5. Sleeves.
6. Escutcheons.
7. Grout.
8. Mechanical demolition.
9. Equipment installation requirements common to equipment sections.
10. Concrete bases.
11. Supports and anchorages.

1.2 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.3 SUBMITTALS

A. Submit for approval, Manufacturer's technical data sheets including performance specifications for all equipment and air devices shown on the schedules. Also, provide data on all system accessories and all materials. Include all piping, ductwork and insulation materials. Accessories to be submitted on shall include valves and all piping accessories, and all ductwork accessories including extractors, turning vanes, control dampers and balancing dampers.

B. Submit for approval, contractor's original shop drawings of all assemblies of manufactured items including control diagrams. Submit all items called out in individual sections, in addition to those called for in this section.

C. Indicate all pertinent dimensions on scale drawings necessary for clarity and/or coordination of the installation between trades.

D. Provide complete electrical wiring diagrams.

E. Make submittals for all work contained in Division 15 at one time except by special permission.

F. Bind submittals in durable covers with contents conveniently organized and properly indexed with index tabs.

G. Obtain approval on product manufacturers not specifically named prior to making bidding.

H. Each mechanical section contains a listing of required submittals only for convenience.

I. Submit for approval a schedule of nameplates and manufacturer's data sheets and shop drawings on special supports and seals.

J. Provide performance data on all substituted items to demonstrate equality to those scheduled. Include all sound levels, rpm, velocity and other data as applicable.

K. Submit proposed changes in ducts, piping, and equipment layout before ordering or fabrication as stated below under intent.

1.4 INTENT

A. It is intended that the contractor provide a complete and operating mechanical system including all incidental items and connections necessary for proper operation or customarily included even though each and every item may not be indicated.

B. The drawings indicate the general layout requirements for equipment, fixtures, piping, ductwork, etc. Final layout will be governed by actual field conditions with all measurements verified at the site. Contractor shall verify that all equipment, piping, ducts and other components will fit in the space provided before fabrication or ordering. Contractor shall submit any proposed changes to the Engineer for approval before fabrication or ordering.

C. It is intended that the mechanical installation be safe, reliable, energy efficient, and easily maintained with adequate provisions allowed for access to equipment.

D. It is intended that the mechanical system operate quietly with noise levels below the criteria recommended for the application by ASHRAE. Provide corrective action as required to reduce objectionable noise or vibration.

1.5 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Electrical Characteristics for Mechanical Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit

breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

PART 2 - PRODUCTS

2.1 PRODUCT REQUIREMENTS

A. Furnish only new standard products of a manufacturer regularly engaged in the production of said products.

B. Support all products by service organizations with adequate spare parts inventory and personnel located reasonably close to the site.

C. Where multiple units of the same type or class of product are required, provide all units of the same manufacturer.

D. Store products in the original containers and shelter in a suitable environment at an approved location. Make readily accessible for inspections and inventory accounting.

E. For products specified by generic reference standard, select any product meeting such standard.

F. For products specified by naming one or more products or manufacturers, select any named. Submit request, in writing, for substitution of any product or manufacturer not specifically named and obtain approval at least five working days prior to bid date.

G. Provide all information to support claim of equality of product proposed for substitution. Substitutions will be considered only if equivalent in quality, efficiency, performance, size, weight, reliability, appearance, and ease of maintenance to the specified product.

H. Where approved product substitutions alter the design, space requirements, electrical requirements, connections, etc. include all work necessary to provide a complete installation of quality equal to or better than that which would have been achieved with products or manufacturers as specified.

2.2 MECHANICAL IDENTIFICATION

A. Identify each major component as to manufacturer's name, address, model and serial number, and pertinent ratings on a durable nameplate attached to the component in a conspicuous place.

B. Identify each major component as it is named on the drawings or referred to herein with engraved nameplates made from laminated plastic sheets.

C. Identify each valve, except obvious equipment isolation valves, with black filled coded numbers engraved on brass nametags attached with brass jack chains. Provide typewritten legend of numbered valves.

D. Identify each pipe or exposed duct in equipment rooms or above accessible ceilings with permanent markers as manufactured by Seton. Indicate fluid conveyed and direction of flow. Install on each pipe or duct where it enters or leaves a wall or floor and at other intervals not to exceed 20 feet.

E. Identify each major outdoor underground line with continuous strips of plastic utility marker tape as manufactured by Seton stating at regular intervals "CAUTION (identify utility) PIPE BELOW". Install one foot directly above pipe before backfilling to grade.

2.3 AIR FILTRATION

A. Filter media shall be blend of polypropylene/polyethylene fibers, multi-layered incorporating mechanical efficiency and a post-manufacturer electric charge. The media shall be formed in a radial pleat design to ensure full utilization of the media area. When tested in accordance with ASHRAE standard 52.2-1999, the filter shall have a minimum efficiency reporting value (MERV) of 8. When tested in accordance with ASHRAE Standard 52.1-1992, the filter shall have a dust spot efficiency of 25-30%, arrestance of 90-92%, and a minimum dust holding capacity of 170 grams.

2.4 VIBRATION ISOLATORS

A. Double deflection neoprene mounting shall have a minimum static deflection of 0.35 inches. All metal surfaces shall be neoprene covered to avoid corrosion and have friction pads both top and bottom so they need not be bolted to the floor. Bolt holes shall be provided for these areas where bolting is required. On equipment such as small vent sets and close coupled pumps, steel rails shall be used above the mountings to compensate for the overhang. Mountings shall be type ND or rails type DNR as manufactured by Mason Industries.

B. Spring type isolators shall be free standing and laterally stable without any housing and complete with ¼" neoprene acoustical friction pads between base plate and support. All mountings shall have leveling bolts that must be rigidly bolted to the equipment. Spring diameters shall be no less than 0.8 of the compressed height of the spring at rated load. Springs shall have a minimum additional travel to solid equal to 50% of the rated deflection. Submittals shall include spring diameters, deflections, compressed spring height and solid spring height. Mounting shall be type SLF as manufactured by Mason Industries.

C. Vibration Hangers shall contain a steel spring and 0.3" deflection neoprene element in series. The neoprene element shall be molded with a rod isolation bushing that passes through the hanger box. Spring diameters and hanger box lower hole sizes shall be large enough to permit the hanger rod to swing through a 30 degree arc before contacting the hole and short circuiting the spring. Springs shall have a minimum additional travel to solid equal to 50% of the rated deflection. Hangers shall be type 30N as manufactured by Mason Industries.

D. Install vibration isolators on all motor driven equipment.

2.5 PIPE, TUBE, AND FITTINGS

A. Refer to individual Division 15 piping Sections for pipe, tube, and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.6 JOINING MATERIALS

A. Refer to individual Division 15 piping Sections for special joining materials not listed below.

B. Pipe-Flange Gasket Materials: ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.

C. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

E. Brazing Filler Metals: AWS A5.8, BCuP Series or BAg1, unless otherwise indicated.

F. Welding Filler Metals: Comply with AWS D10.12.

G. Solvent Cements for Joining Plastic Piping:

1. ABS Piping: ASTM D 2235.
2. CPVC Piping: ASTM F 493.
3. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
4. PVC to ABS Piping Transition: ASTM D 3138.

2.7 DIELECTRIC FITTINGS

A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.

B. Insulating Material: Suitable for system fluid, pressure, and temperature.

C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F.

D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.

E. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.

F. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.

2.8 MECHANICAL SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

B. Sealing Elements: EPDM interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.

C. Pressure Plates: Stainless steel. Include two for each sealing element.

D. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.9 SLEEVES

A. Galvanized-Steel Sheet: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

C. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

D. PVC Pipe: ASTM D 1785, Schedule 40.

E. Molded PE: Reusable, PE, tapered-cup shaped, and smooth-outer surface with nailing flange for attaching to wooden forms.

2.10 ESCUTCHEONS

A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

2.11 GROUT

A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.

1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi, 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 MECHANICAL DEMOLITION

A. Refer to Division 1 Sections "Cutting and Patching" and "Selective Demolition" for general demolition requirements and procedures.

B. Disconnect, demolish, and remove mechanical systems, equipment, and components indicated to be removed.

1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
2. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
3. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
4. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
5. Equipment to Be Removed: Disconnect and cap services and remove equipment.
6. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
7. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.2 MANUFACTURER'S DIRECTIONS

A. Handle, install, connect, test, and operate all products, assemblies, and systems in accordance with manufacturer's recommendations.

B. In case of conflicting requirements between the manufacturer's directions and the Contract Documents, obtain specific instructions before proceeding with any work.

3.3 WORKMANSHIP

A. Keep the premises clean and free from debris, dirt, etc. Upon completion of work, clean and polish all fixtures, equipment, etc.

B. Seal all ductwork during construction to prevent construction dust from entering ductwork.

C. Perform all work in accordance with best practices of the trade and provide a "neat" installation by mechanics skilled in their respective trades and properly licensed.

D. Accurately install piping, ductwork and other equipment plumb, level and true to line with runs parallel or perpendicular to building lines. Make bends and offsets uniform.

E. Do not cut any structural members without specific approval. Do not cut mechanical or electrical lines that may be concealed.

F. Coordinate with other trade's work and install all work so that systems and components can be easily maintained and can be removed for replacement in the future.

3.4 FAN SHUTDOWN CONTROLS

A. Provide fan shutdown control smoke detector in the return duct of units greater than 2000 cfm. The detector shall be installed prior to mixing with outside air. The smoke detectors shall shut down the respective unit.

B. This building contains a fire alarm system, the smoke detectors shall be furnished by the fire alarm supplier. The smoke detectors shall also signal the fire alarm control panel.

C. The mechanical contractor shall install the smoke detector in the ductwork as appropriate. The controls contractor shall provide a dry contact on the outside of each unit to shut the unit down. The fire alarm contractor shall wire the detector to the dry contacts and to his own system. Mechanical contractor shall provide the smoke detectors if they are not provided by the fire alarm contractor.

3.5 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements and Division 15 Sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

F. Install piping to permit valve servicing.

G. Install piping at indicated slopes.

H. Install piping free of sags and bends.

I. Install fittings for changes in direction and branch connections.

J. Install piping to allow application of insulation.

K. Select system components with pressure rating equal to or greater than system operating pressure.

L. Install escutcheons for penetrations of walls, ceilings, and floors.

M. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.

N. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Install steel pipe for sleeves smaller than 6 inches in diameter.
2. Install cast-iron "wall pipes" for sleeves 6 inches and larger in diameter.
3. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

O. Underground, Exterior-Wall Pipe Penetrations: Install cast-iron "wall pipes" for sleeves. Seal pipe penetrations using mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

P. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials.

Q. Verify final equipment locations for roughing-in.

R. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.6 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 15 Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.

E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

G. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.

H. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

I. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

1. Comply with ASTM F 402, for safe-handling practice of cleaners, primers, and solvent cements.
2. ABS Piping: Join according to ASTM D 2235 and ASTM D 2661 Appendixes.
3. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.
4. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
5. PVC Nonpressure Piping: Join according to ASTM D 2855.
6. PVC to ABS Nonpressure Transition Fittings: Join according to ASTM D 3138 Appendix.

J. Plastic Pressure Piping Gasketed Joints: Join according to ASTM D 3139.

K. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D 3212.

L. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.

1. Plain-End Pipe and Fittings: Use butt fusion.
2. Plain-End Pipe and Socket Fittings: Use socket fusion.

M. Fiberglass Bonded Joints: Prepare pipe ends and fittings, apply adhesive, and join according to pipe manufacturer's written instructions.

3.7 PIPING CONNECTIONS

A. Make connections according to the following, unless otherwise indicated:

1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.
3. Dry Piping Systems: Install dielectric unions and flanges to connect piping materials of dissimilar metals.
4. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.8 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.

B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.

C. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

D. Install equipment to allow right of way for piping installed at required slope.

3.9 CONCRETE BASES

A. Concrete Bases: Anchor equipment to concrete base according to equipment manufacturer's written instructions and according to seismic codes at Project.

1. Construct concrete bases of dimensions indicated, but not less than 4 inches larger in both directions than supported unit.
2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of the base.
3. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.
4. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
5. Install anchor bolts to elevations required for proper attachment to supported equipment.
6. Install anchor bolts according to anchor-bolt manufacturer's written instructions.
7. Use 3000-psi, 28-day compressive-strength concrete and reinforcement as specified in Division 3.

3.10 GROUTING

A. Mix and install grout for mechanical equipment base bearing surfaces, pump and other equipment base plates, and anchors.

B. Clean surfaces that will come into contact with grout.

C. Provide forms as required for placement of grout.

D. Avoid air entrapment during placement of grout.

E. Place grout, completely filling equipment bases.

F. Place grout on concrete bases and provide smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout.

3.11 POST CONSTRUCTION SUBMITTALS

A. Deliver special tools, lubricants, and other products necessary for proper operation and maintenance of the mechanical system.

B. Deliver spare parts called for under other mechanical sections contained herein or on drawings.

C. Submit project record documents indicating all changes made during construction.

D. Submit certificates of Final Inspection from the administrative authority.

E. Submit Operations and Maintenance manuals covering all phases of equipment and systems provided. Include complete spare parts data. With a source of supply. Include a copy of the shop drawings required in the "Pre-Construction Submittals".

F. Submit extended warranties in excess of the standard one year construction warranty where required by other mechanical sections.

G. Submit Test, Adjust and Balance (TAB) report on approved record forms.

3.12 INSTRUCTIONS TO OWNER

A. Provide competent instruction to Owner's personnel covering operation and maintenance of all mechanical systems. Provide specialized training by manufacturer's technical representatives when required.

B. Make provisions to record all Owner instruction in video form, and provide three sets of the video training the Owner.

END OF SECTION 230100

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Testing, adjustment, and balancing of air systems.
2. Measurement of final operating condition of HVAC systems.
3. Sound measurement of equipment operating conditions.
4. Vibration measurement of equipment operating conditions.

B. Related Documents: The Contract Documents, as defined in Section 01110 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.

1.2 REFERENCES

A. Associated Air Balance Council (AABC):
1. AABC - National Standards for Total System Balance.

B. National Environmental Balancing Bureau (NEBB).

1.3 SUBMITTALS

A. Section 01330 - Submittal Procedures: Procedures for submittals.
1. Assurance/Control Submittals:
a. Test Reports:
1) Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
2) Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for inclusion in operating and maintenance manuals.
3) Provide reports in binder manuals, complete with index page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.
4) Indicate data on AABC National Standards for Total System Balance forms.
b. Certificates: Manufacturer's certificate that Products meet or exceed specified requirements.
c. Qualification Documentation: Submit documentation of experience indicating compliance with specified qualification requirements.

B. Section 01780 - Closeout Submittals: Procedures for closeout submittals.
1. Project Record Documents: Accurately record the following:
a. Actual locations of balancing valves and rough setting.

1.4 QUALITY ASSURANCE

A. Qualifications:
1. Company specializing in testing, adjusting, and balancing. Company to be certified by one of the following.
a. AABC Certified Independent Testing and Balancing Agency.
b. National Environmental Balancing Bureau Certified Independent Agency. (NEBB).

B. Testing, Adjusting, and Balancing Reports: Use testing, adjusting, and balancing Agent's standard forms.

PART 2 - PRODUCTS

(Not Used.)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:
1. Systems are started and operating in a safe and normal condition.
2. Temperature control systems are installed complete and operable.
3. Proper thermal overload protection is in place for electrical equipment.
4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
5. Duct systems are clean of debris.
6. Fans are rotating correctly.
7. Fire and volume dampers are in place and open.
8. Air coil fins are cleaned and combed.
9. Access doors are closed and duct end caps are in place.
10. Air outlets are installed and connected.
11. Duct system leakage is minimized.

3.2 PREPARATION

A. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Contracting Officer to facilitate spot checks during testing.

B. Provide additional balancing instruments as required.

3.3 INSTALLATION TOLERANCES

A. Air Handling Systems: Adjust to within plus or minus 5 percent of design for supply systems and plus or minus 10 percent of design for return and exhaust systems.

B. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.

3.4 ADJUSTING

A. Ensure recorded data represents actual measured or observed conditions.

B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.

C. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.

D. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

E. At final inspection, recheck random selections of data recorded in report. Recheck points or areas as selected and witnessed by Contracting Officer.

F. Check and adjust systems approximately six months after final acceptance and submit report.

3.5 AIR SYSTEM PROCEDURE

A. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities. Perform this work with cooling system energized where applicable to obtain the extra resistance of wet coils.

B. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.

C. Measure air quantities at air inlets and outlets.

D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.

E. Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices.

F. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.

G. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.

H. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.

I. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions.

J. Measure temperature conditions across outside air, return air, and exhaust dampers to check leakage.

END OF SECTION 230593

SECTION 230700 - HVAC INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Insulation Materials:

a. Cellular glass.
b. Flexible elastomeric.
c. Foam/vinyl.
d. Polystyrene.

B. Systems Included:
1. Exterior duct wrap insulation.
2. Refrigerant piping insulation.
3. Cooling condensate drain insulation.

1.2 SUBMITTALS

A. Product Data: Submit for each type of insulation to be used.

1.3 QUALITY ASSURANCE

A. Perform installation in accordance with MICA, Commercial and Industrial Insulation Standards.

B. Follow manufacturer's directions on adhesive application, fastener spacing, etc.

C. Fire-Test-Response Characteristics: Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing and inspecting agency.

1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

A. Flexible fiberglass exterior duct wrap equal to FRK-25.

1. K-Factor no greater than 0.3.
2. ¾ pound density.
3. Foil reinforced kraft (FRK) vapor barrier.

B. Products shall not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

B. Coordinate insulation installation with the trade installing heat tracing. Comply with requirements for heat tracing that applies to insulation.

C. Mix insulating cements with clean potable water; if insulating cements are to be in contact with stainless-steel surfaces, use demineralized water.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment and piping including fittings, valves, and specialties.

B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of equipment and pipe system as specified in insulation system schedules.

C. Install insulation with longitudinal seams at top and bottom of horizontal runs.

D. Install multiple layers of insulation with longitudinal and end seams staggered.

E. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

F. Keep insulation materials dry during application and finishing.

G. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

H. Install insulation with least number of joints practical.

I. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.

1. Install insulation continuously through hangers and around anchor attachments.
2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.

J. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

K. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

L. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

M. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

N. For above ambient services, do not install insulation to the following:

1. Vibration-control devices.
2. Testing agency labels and stamps.
3. Nameplates and data plates.
4. Manholes.
5. Handholes.
6. Cleanouts.

O. Provide aluminum sheet metal over insulation exposed outdoors above grade. Use rivets and seal joints watertight.

P. Ducts 18" upstream and 30" downstream of electric resistance and fuel-burning heaters located within duct system will be wrapped externally with fiberglass duct wrap.

Q. All supply and return air duct systems installed in any unconditioned space shall be insulated with a minimum of 2" thickness, ¾ lb. density wrap.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.4 INSULATION SCHEDULE

A. Refer to the drawings.

END OF SECTION 230700

SECTION 233113 – METAL DUCTWORK

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes metal, rectangular ducts and fittings for supply, return, outside, and exhaust air-distribution systems in pressure classes from minus 2- to plus 10-inch wg.

1.2 SUBMITTALS

A. Shop Drawings: Show fabrication and installation details for metal ducts.

1. Penetrations through fire-rated and other partitions.
2. Duct accessories, including access doors and panels.

1.3 QUALITY ASSURANCE

A. NFPA Compliance:

1. NFPA 90A, "Installation of Air Conditioning and Ventilating Systems."
2. NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

A. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

B. Galvanized Sheet Steel: Lock-forming quality; complying with ASTM A 653/A 653M and having G60 coating designation; ducts shall have mill-phosphatized finish for surfaces exposed to view.

C. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts.

D. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.2 SEALANT MATERIALS

A. Joint and Seam Tape: 2 inches wide; glass-fiber-reinforced fabric.

B. Flange Gaskets: Butyl rubber or EPDM polymer with polyisobutylene plasticizer.

2.3 HANGERS AND SUPPORTS

A. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

1. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches thick.
2. Exception: Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches thick.

B. Hanger Materials: Galvanized sheet steel or threaded steel rod.

1. Hangers Installed in Corrosive Atmospheres: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.
2. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for steel sheet width and thickness and for steel rod diameters.

C. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

D. Trapeze and Riser Supports: Galvanized-steel shapes and plates complying with ASTM A 36/A 36M.

E. Gripple Cable Hanger System for Air Distribution.

2.4 RECTANGULAR DUCT FABRICATION

A. Fabricate ducts, elbows, transitions, offsets, branch connections, and other construction according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" and complying with requirements for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals.

1. Lengths: Fabricate rectangular ducts in lengths appropriate to reinforcement and rigidity class required for pressure class.
2. Deflection: Duct systems shall not exceed deflection limits according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."

B. Transverse Joints: Prefabricated slide-on joints and components constructed using manufacturer's guidelines for material thickness, reinforcement size and spacing, and joint reinforcement.

C. Formed-On Flanges: Construct according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible," Figure 1-4, using corner, bolt, cleat, and gasket details.

D. Cross Breaking or Cross Beading: Cross break or cross bead duct sides 19 inches and larger and 0.0359 inch thick or less, with more than 10 sq. ft. of nonbraced panel area unless ducts are lined.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION

A. Construct and install ducts according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible," unless otherwise indicated.

B. Install ducts with fewest possible joints.

C. Install fabricated fittings for changes in directions, size, and shape and for connections.

D. Install couplings tight to duct wall surface with a minimum of projections into duct. Secure couplings with sheet metal screws. Install screws at intervals of 12 inches, with a minimum of 3 screws in each coupling.

E. Install ducts, unless otherwise indicated, vertically and horizontally and parallel and perpendicular to building lines; avoid diagonal runs.

F. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

G. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.

H. Conceal ducts from view in finished spaces. Do not encase horizontal runs in solid partitions unless specifically indicated.

I. Coordinate layout with suspended ceiling, fire- and smoke-control dampers, lighting layouts, and similar finished work.

J. Seal all joints and seams. Apply sealant to male end connectors before insertion, and afterward to cover entire joint and sheet metal screws.

K. Electrical Equipment Spaces: Route ducts to avoid passing through transformer vaults and electrical equipment spaces and enclosures.

L. Non-Fire-Rated Partition Penetrations: Where ducts pass through interior partitions and exterior walls and are exposed to view, conceal spaces between construction openings and ducts or duct insulation with sheet metal flanges of same metal thickness as ducts. Overlap openings on 4 sides by at least 1-1/2 inches.

M. Fire-Rated Partition Penetrations: Where ducts pass through interior partitions and exterior walls, install appropriately rated fire dampers, sleeves, and firestopping sealant. Fire and smoke dampers are specified in Division 23 Section "Duct Accessories."

N. Protect duct interiors from the elements and foreign materials until building is enclosed.

3.2 SEAM AND JOINT SEALING

A. Seal duct seams and joints according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for duct pressure class indicated.

B. Seal ducts before external insulation is applied.

3.3 HANGING AND SUPPORTING

A. Support horizontal ducts within 24 inches of each elbow and within 48 inches of each branch intersection.

B. Support vertical ducts at maximum intervals of 16 feet and at each floor.

C. Install upper attachments to structures with an allowable load not exceeding one-fourth of failure (proof-test) load.

D. Install concrete inserts before placing concrete.

E. Install powder-actuated concrete fasteners after concrete is placed and completely cured.

1. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches thick.

3.4 CONNECTIONS

A. Make connections to equipment with flexible connectors.

B. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

END OF SECTION 233113

SECTION 233300 - DUCT ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Backdraft and Volume dampers.
2. Fire dampers (including ceiling fire dampers).
3. Turning vanes.
4. Duct-mounting access doors.
5. Flexible connectors.
6. Flexible ducts.
7. Duct accessory hardware.

1.2 SUBMITTALS

A. Product Data: For the following:

1. Backdraft and Volume dampers.
2. Fire dampers.
3. Turning vanes.
4. Duct-mounting access doors.
5. Flexible connectors.
6. Flexible ducts.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, required clearances, method of assembly, components, and location and size of each field connection.

1. Special fittings.
2. Manual-volume damper installations.
3. Fire-damper installations, including sleeves and duct-mounting access doors.
4. Wiring Diagrams: Power, signal, and control wiring.

1.3 QUALITY ASSURANCE

A. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

A. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated.

B. Galvanized Sheet Steel: Lock-forming quality; complying with ASTM A 653/A 653M and having G60 coating designation; ducts shall have mill-phosphatized finish for surfaces exposed to view.

C. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts; compatible materials for aluminum and stainless-steel ducts.

D. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.2 BACKDRAFT DAMPERS

A. Description: Multiple-blade, parallel action gravity balanced, with center-pivoted blades of maximum 6-inch width, with sealed edges, assembled in rattle-free manner with 90-degree stop, steel ball bearings, and axles; adjustment device to permit setting for varying differential static pressure.

2.3 VOLUME DAMPERS

A. General Description: Factory fabricated, with required hardware and accessories. Stiffen damper blades for stability. Include locking device to hold single-blade dampers in a fixed position without vibration. Close duct penetrations for damper components to seal duct consistent with pressure class.

B. Standard Volume Dampers: Multiple- or single-blade, parallel- or opposed-blade design as indicated, standard leakage rating, with linkage outside airstream and suitable for horizontal or vertical applications.

1. Steel Frames: Hat-shaped, galvanized sheet steel channels, minimum of 0.064 inch thick, with mitered and welded corners; frames with flanges where indicated for attaching to walls and flangeless frames where indicated for installing in ducts.
2. Roll-Formed Steel Blades: 0.064-inch- thick, galvanized sheet steel.
3. Blade Axles: Galvanized steel.
4. Bearings: Molded synthetic.
5. Tie Bars and Brackets: Galvanized steel.

C. Jackshaft: 1-inch-diameter, galvanized-steel pipe rotating within pipe-bearing assembly mounted on supports at each mullion and at each end of multiple-damper assemblies.

1. Length and Number of Mountings: Appropriate to connect linkage of each damper in multiple-damper assembly.

D. Damper Hardware: Zinc-plated, die-cast core with dial and handle made of 3/32-inch-thick zinc-plated steel, and a 3/4-inch hexagon locking nut. Include center hole to suit damper operating-rod size. Include elevated platform for insulated duct mounting.

2.4 FIRE DAMPERS

A. Manufacturers:
1. Ruskin Company.
2. Nailor Industries.
3. United Enertech.

B. Fire dampers shall be labeled according to UL 555.

C. Fire Rating: 1-1/2 hours.

D. Frame: Curtain type with blades inside airstream; fabricated with roll-formed, 0.034-inch-thick galvanized steel; with mitered and interlocking corners.

E. Mounting Sleeve: Factory- or field-installed, galvanized sheet steel.

1. Minimum Thickness: 0.052 or 0.138 inch thick as indicated and of length to suit application.
2. Exceptions: Omit sleeve where damper frame width permits direct attachment of perimeter mounting angles on each side of wall or floor, and thickness of damper frame complies with sleeve requirements.

F. Mounting Orientation: Vertical or horizontal as indicated.

G. Blades: Roll-formed, interlocking, 0.034-inch-thick, galvanized sheet steel. In place of interlocking blades, use full-length, 0.034-inch-thick, galvanized-steel blade connectors.

H. Horizontal Dampers: Include blade lock and stainless-steel closure spring.

I. Fusible Links: Replaceable, 165 deg F rated.

2.5 TURNING VANES

A. Fabricate to comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for vanes and vane runners. Vane runners shall automatically align vanes.

B. Acoustic Turning Vanes: Fabricate airfoil-shaped aluminum extrusions with perforated faces and fibrous-glass fill.

2.6 DUCT-MOUNTING ACCESS DOORS

A. General Description: Fabricate doors airtight and suitable for duct pressure class.

B. Door: Double wall, duct mounting, and rectangular; fabricated of galvanized sheet metal with insulation fill and thickness as indicated for duct pressure class. Include vision panel where indicated. Include 1-by-1-inch butt or piano hinge and cam latches.

1. Frame: Galvanized sheet steel, with bend-over tabs and foam gaskets.

C. Door: Double wall, duct mounting, and round; fabricated of galvanized sheet metal with insulation fill and 1-inch thickness. Include cam latches.

1. Frame: Galvanized sheet steel, with spin-in notched frame.

D. Seal around frame attachment to duct and door to frame with neoprene or foam rubber.

E. Insulation: 1-inch- thick, fibrous-glass or polystyrene-foam board.

2.7 FLEXIBLE CONNECTORS

A. General Description: Flame-retardant or noncombustible fabrics, coatings, and adhesives complying with UL 181, Class 1.

B. Flexible Connector Fabric: Glass fabric double coated with neoprene.

1. Minimum Weight: 26 oz./sq. yd.
2. Tensile Strength: 480 lbf/inch in the warp and 360 lbf/inch in the filling.
3. Service Temperature: Minus 40 to plus 200 deg F.

2.8 FLEXIBLE DUCTS

A. Noninsulated-Duct Connectors: UL 181, Class 1, multiple layers of aluminum laminate supported by helically wound, spring-steel wire.

1. Pressure Rating: 10-inch wg positive and 1.0-inch wg negative.
2. Maximum Air Velocity: 4000 fpm.
3. Temperature Range: Minus 20 to plus 210 deg F.

B. Insulated-Duct Connectors: UL 181, Class 1, 2-ply vinyl film supported by helically wound, spring-steel wire; fibrous-glass insulation; polyethylene vapor barrier film.

1. Pressure Rating: 10-inch wg positive and 1.0-inch wg negative.
2. Maximum Air Velocity: 4000 fpm.
3. Temperature Range: Minus 10 to plus 160 deg F.

C. Flexible Duct Clamps: Stainless-steel band with cadmium-plated hex screw to tighten band with a worm-gear action, in sizes 3 through 18 inches to suit duct size.

2.9 DUCT ACCESSORY HARDWARE

A. Instrument Test Holes: Cast iron or cast aluminum to suit duct material, including screw cap and gasket. Size to allow insertion of pitot tube and other testing instruments and of length to suit duct insulation thickness.

B. Adhesives: High strength, quick setting, neoprene based, waterproof, and resistant to gasoline and grease.

PART 3 - EXECUTION

3.1 APPLICATION AND INSTALLATION

A. Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for metal ducts.

B. Provide duct accessories of materials suited to duct materials; use galvanized-steel accessories in galvanized-steel, stainless-steel accessories in stainless-steel ducts, and aluminum accessories in aluminum ducts.

C. Install backdraft dampers on exhaust fans or nearest to outside and where indicated.

D. Install volume dampers in ducts with liner; avoid damage to and erosion of duct liner.

E. Provide balancing dampers at points on supply, return, and exhaust systems where branches lead from larger ducts as required for air balancing. Install at a minimum of two duct widths from branch takeoff.

F. Install fire dampers, with fusible links, according to manufacturer's UL-approved written instructions.

G. Install duct access doors to allow for inspecting, adjusting, and maintaining accessories and terminal units as follows:

1. On both sides of duct coils.
2. Downstream from volume dampers and equipment.
3. Adjacent to fire or smoke dampers, providing access to reset or reinstall fusible links.
4. On sides of ducts where adequate clearance is available.

H. Install flexible connectors immediately adjacent to equipment in ducts associated with fans and motorized equipment supported by vibration isolators.

I. For fans developing static pressures of 5-inch wg and higher, cover flexible connectors with loaded vinyl sheet held in place with metal straps.

J. Connect terminal units to supply ducts with maximum 12-inch lengths of flexible duct. Do not use flexible ducts to change directions.

K. Connect diffusers or light troffer boots to low pressure ducts with maximum 60-inch lengths of flexible duct clamped or strapped in place.

L. Connect flexible ducts to metal ducts with adhesive.

3.2 ADJUSTING

A. Adjust duct accessories for proper settings.

B. Adjust fire and smoke dampers for proper action.

C. Final positioning of manual-volume dampers is specified in Division 23 Section "Testing, Adjusting, and Balancing."

END OF SECTION 233300

SECTION 260500 – GENERAL ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sleeves for raceways and cables.
2. Sleeve seals.
3. Grout.
4. General electrical installation requirements.

1.2 PRE-CONSTRUCTION SUBMITTALS

A. Submit for approval Manufacturer's technical data sheets including performance specifications for all equipment, major materials and other manufactured items. Obtain approval on product manufacturers not specifically names prior to making submittals.

B. Bind submittals in durable covers with contents conveniently organized and properly indexed.

C. Make submittals on all work in Division 26 at one time, except by special permission.

1.3 INTENT

A. It is intended that the contractor provide a complete and operating electrical system including all incidental items and conditions necessary for proper operation or customarily included even though each and every item may not be indicated.

B. The drawings indicate the general layout requirements for equipment, fixtures, conduit, devices, etc. Final layout will be governed by actual field conditions with all measurements verified at the site.

C. Conduit and wiring shown on the drawings is diagrammatic unless otherwise noted, and is intended to indicate switching and branch circuit arrangements, phase balance, and general wiring connection requirements.

D. It is intended that the electrical installation be safe, reliable, energy efficient and easily maintained with adequate provisions for access to equipment.

E. It is intended that the electrical system operate with noise levels below the criteria recommended by NEMA. Provide corrective action to reduce objectionable hum or vibration.

F. Isolated ground circuits as well as circuits serving non-linear loads and those serving ground fault circuit breakers must have their own neutral or isolated ground.

1.4 TEMPORARY LIGHTING AND POWER

A. Provide general and task lighting for construction activity as required for adequate illumination. Provide 5 foot candles minimum for general illumination. Protect lamps with wire guards or tempered glass enclosures. Provide exterior type fixtures where exposed to weather or moisture.

B. Provide general purpose outlets and special outlets for construction activities. Provide circuits of proper sizes and ratings for each use required. Install wiring where least exposed to damage. Provide rigid steel conduit to protect wiring on grade, floors or decks.

C. Provide 20 amp, 4-gang receptacle outlets, equipped with ground fault circuit interrupters, reset button and pilot light, spaced so that a 100 foot extension cord can reach each area of work.

D. Provide warning signs at outlets that are other than 20 amp, 120 volt.

1.5 COORDINATION

A. The contractor is cautioned to examine all drawings and specifications relating to other trades of work, and he shall make proper provisions to review all other work.

B. The architectural, structural and civil plans and specifications, including the General Conditions and all supplements issued thereto, information to bidders, and other pertinent documents issued by the Engineer, are a part of these specifications and the accompanying electrical plans, and shall be complied with in every respect. All of the above is included herewith, and shall be examined by all bidders. Failure to comply shall not relieve the contractor of responsibility or be used as a basis for additional compensation due to omission of architectural, structural or civil details from the electrical drawings.

PART 2 - PRODUCTS

2.1 PRODUCT REQUIREMENTS

A. All materials and equipment used in carrying out these specifications to be American made unless approved otherwise by the Engineer and to be new and have UL listing, or listing by other recognized testing laboratory when such listings are available. Specifications and drawings indicate name, type, or catalog numbers of materials and equipment to be used as standards. Proposals shall be based on these standards. Contractor may use materials and equipment equivalent to those specified, subject to Engineer approval.

B. Furnish only new standard products of a manufacturer regularly engaged in the production of said products.

C. Support all products by service organizations with spare parts inventory and personnel located reasonably close to the site.

D. Where multiple units of the same type or class are required, provide all units of the same manufacturer.

2.2 PRODUCT HANDLING

A. Store products in their original containers and shelter in a suitable environment.

B. Make products readily available for inspections and inventory.

2.3 SUBSTITUTIONS

A. For products specified by generic reference, select any product meeting such standard.

B. For products specified by naming one or more products or manufacturers, select any named. Submit request in writing for substitution of any manufacturer not specifically named and obtain approval at least 5 days prior to bidding.

C. Provide all information required to support claim of equality of product proposed for substitution. Substitutions will be considered only if equivalent in quality, efficiency, performance, size, weight, reliability, appearance and ease of maintenance to specified product.

D. Where approved substitutions alter the design, space requirements, electrical requirements, connections, cooling loads, etc. include all work necessary to provide a complete installation of quality equal to or better than that obtained with product or manufacturer specified.

2.4 SLEEVES FOR RACEWAYS AND CABLES

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

2.5 SLEEVE SEALS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
2. Pressure Plates: Plastic. Include two for each sealing element.
3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.6 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.

B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.

C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

E. Right of Way: Give to piping systems installed at a required slope.

3.2 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

E. Cut sleeves to length for mounting flush with both surfaces of walls.

F. Extend sleeves installed in floors 2 inches above finished floor level.

G. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.

H. Seal space outside of sleeves with grout for penetrations of concrete and masonry

1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.

I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.

J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials.

K. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

L. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

M. Underground, Exterior-Wall Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing mechanical sleeve seals.

3.3 SLEEVE-SEAL INSTALLATION

A. Install to seal exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.4 FIRESTOPPING

A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly.

3.5 MANUFACTURER'S DIRECTIONS

A. Handle, install, connect, test and operate all products and systems in accordance with manufacturer's recommendations. In case of conflicting requirements between manufacturer's directions and contract documents, obtain instructions before proceeding with work.

3.6 INSPECTIONS

A. Arrange with administrative authority for inspections of all work and obtain approval prior to concealing or proceeding. Give adequate notice before concealing any work for inspections by Owner's representatives.

3.7 CLEANING

A. Keep premises free and clean of dirt, debris, etc. Upon completion of work clean and polish all fixtures, equipment, etc.

3.8 WORKMANSHIP

A. No person shall perform electrical work without possessing a Master or Journeyman License from the state electrical examiner's board. All electrical work and apprentices shall be supervised by a Master or Journeyman electrician.

B. Carefully perform all cutting, drilling, digging, etc. and patch or refinish disturbed area to the condition of adjoining or similar surfaces. Do not cut any structural members.

C. Conceal conduit in chases, furrings, or above ceilings unless otherwise noted. Flush mount equipment in finished walls wherever possible.

3.9 FLAME AND SMOKE CONSIDERATIONS

A. In enclosures or plenums used for transporting environmental air, use only products conforming to NFPA and UL classifications not exceeding 25 for flame spread and 50 for smoke developed ratings, or install in conduit. This requirement applies to all materials.

B. Completely seal all penetrations through fire and/or smoke rated walls, ceilings, floors or other barriers with UL listed material to preserve the rating of the barrier.

3.10 COORDINATION

A. Coordinate the electrical work with the work of all other trades. Piping or equipment requiring slope or specific mounting height will have right of way over conduit and other products whose elevation can be changed.

3.11 EQUIPMENT CONNECTIONS

A. Make all required electrical connections to each item of equipment shown or specified including equipment furnished by Owner, and make operational.

3.12 PROTECTION REQUIREMENTS

A. Locate existing utility lines and identify and protect during excavation and installation.

B. Protect all work including building finishes against damage due to dirt, water, chemicals, handling, theft, etc. Close all openings in conduit and equipment during installation.

C. Provide warning devices around all exposed "live" parts or high temperature surfaces.

3.13 PAINTING

A. Paint conduit, equipment, etc. exposed in finished areas to match adjacent surfaces. Touch up scratches in factory finished surfaces with a paint to match.

B. All exposed exterior conduit and equipment shall be painted for a uniform appearance. If exposed through grilles or other openings, paint conduit flat black.

C. Paint plywood backboards used for mounting equipment.

3.14 TESTING AND ADJUSTING

A. Test the completed electrical system and prove free of short circuits, poor connections, and improper grounding. Test all systems to assure safe operation.

B. Verify proper taps on motors and transformers for rated performance.

3.15 POST CONSTRUCTION SUBMITTALS

A. Submit project record documents indicating all changes to contract documents made during construction.

B. Submit certificates of final inspection from administrative authority or manufacturer.

C. Deliver all special tools and spare parts necessary for proper operation and maintenance and as called for in other electrical sections.

D. Submit operations and maintenance (O&M) manuals covering all phases of equipment and systems provided. Include complete spare parts data and copy of manufacturing data sheets and shop drawings required in pre-construction submittals.

E. Submit extended warranties required in excess of one year.

F. Assemble all closeout documents for electrical system in 3-ring binders with divider tabs labeled and properly indexed. Submit the number of sets as required by the Architect.

3.16 INSTRUCTIONS TO OWNER

A. Provide competent instruction to the Owner's personnel covering operation and maintenance of all electrical systems. Provide specialized instruction by manufacturer's technical representative when required.

3.17 USE OF EQUIPMENT

A. The contractor shall not use the permanent electrical system for construction activity except by special permission. If permitted, the contractor's use of any equipment shall not reduce the warranty time specified for any equipment.

3.18 GENERAL WARRANTY

A. Warrant the electrical installation against defects for a period of one year from the date of substantial completion in accordance with Architect's specifications. Provide all labor, replacement parts, services, transportation and incidental costs necessary for proper operation of electrical systems during the warranty period. Make good any damage to the building or grounds or other equipment resulting from defects in products and/or workmanship during the warranty period.

END OF SECTION 260500

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Copper building wire rated 600 V or less.
2. Metal-clad cable, Type MC, rated 600 V or less is not allowed except for 6-foot whips to light fixtures.
3. Connectors, splices, and terminations rated 600 V and less.

PART 2 - PRODUCTS

2.1 COPPER BUILDING WIRE

A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.

B. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. RoHS compliant.
3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

C. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with **ASTM B 8** for stranded conductors.

D. Conductor Insulation:

1. Type NM: Comply with UL 83 and UL 719.
2. **Type THHN and Type THWN-2**: Comply with UL 83.
3. **Type THW and Type THW-2**: Comply with NEMA WC-70/ICEA S-95-658 and UL 83.
4. Type XHHW-2: Comply with UL 44.

2.2 METAL-CLAD CABLE, TYPE MC

A. Description: A factory assembly of one or more current-carrying insulated conductors in an overall metallic sheath.

B. Limited to 6-foot lengths at final connection to light fixtures.

2.3 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

B. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Feeders: Copper for feeders No. 4 AWG and larger. Retain one of two "Branch Circuits" paragraphs below.

C. Power-Limited Fire Alarm and Control: Solid for No. 12 AWG and smaller.

3.2 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

3.3 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Wiring at Outlets: Install conductor at each outlet, with at least **6 inches** of slack.

3.4 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies.

3.5 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly.

END OF SECTION 260519

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal conduits and fittings.
2. Nonmetallic conduits and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Surface raceways.
6. Boxes and enclosures.

B. Related Requirements:

PART 2 - PRODUCTS

2.1 METAL CONDUITS AND FITTINGS

A. Metal Conduit:
1. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. GRC: Comply with ANSI C80.1 and UL 6.
3. IMC: Comply with ANSI C80.6 and UL 1242.
4. PVC-Coated Steel Conduit.
    a. Comply with NEMA RN 1.
    b. Coating Thickness: 0.040 inch, minimum.
5. EMT: Comply with ANSI C80.3 and UL 797.
6. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

B. Metal Fittings: Comply with NEMA FB 1 and UL 514B.
1. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. Fittings, General: Listed and labeled for type of conduit, location, and use.
3. Fittings for EMT:
    a. Material: **Steel**.
    b. Type: **Setscrew or compression**.
4. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
5. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch, with overlapping sleeves protecting threaded joints.

2.2 NONMETALLIC CONDUITS AND FITTINGS

A. Nonmetallic Conduit:

B. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1. ENT: Comply with NEMA TC 13 and UL 1653.
2. LFNC: Comply with UL 1660.

C. Nonmetallic Fittings:
1. Fittings, General: Listed and labeled for type of conduit, location, and use.
2. Fittings for ENT and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.
3. Fittings for LFNC: Comply with UL 514B.
4. Solvents and Adhesives: As recommended by conduit manufacturer.

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Description: Sheet metal, complying with UL 870 and NEMA 250, **Type 1** unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.4 NONMETALLIC WIREWAYS AND AUXILIARY GUTTERS

A. Listing and Labeling: Nonmetallic wireways and auxiliary gutters shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Description: PVC, extruded and fabricated to required size and shape, and having snap-on cover, mechanically coupled connections, and plastic fasteners.

C. Fittings and Accessories: Couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings shall match and mate with wireways as required for complete system.

D. Solvents and Adhesives: As recommended by conduit manufacturer.

2.5 BOXES, ENCLOSURES, AND CABINETS

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.

D. Metal Floor Boxes:

1. Material: **Cast metal**.

2. Type: **Fully adjustable**.
3. Shape: Rectangular.
4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

E. Nonmetallic Floor Boxes: Nonadjustable, **round or rectangular**.

1. Listing and Labeling: Nonmetallic floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

F. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

G. Paddle Fan Outlet Boxes: Nonadjustable, designed for attachment of paddle fan weighing 70 lb.

1. Listing and labeling: Paddle fan outlet boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

H. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

I. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: **GRC** or **RNC, Type EPC-40-PVC**.
2. Concealed Conduit, Aboveground: **GRC, IMC**, or **RNC, Type EPC-40-PVC**.
3. Underground Conduit: RNC, **Type EPC-40-PVC**.
4. Boxes and Enclosures, Aboveground: NEMA 250, **Type 3R**.

B. Indoors: Apply raceway products as specified below unless otherwise indicated.

1. Exposed, Not Subject to Physical Damage: **EMT**.
2. Exposed, Not Subject to Severe Physical Damage: **EMT**.
3. Exposed and Subject to Severe Physical Damage: **GRC**. Raceway locations include the following:

   a. Loading dock.
   b. Mechanical rooms.
   c. Gymnasiums.

4. Concealed in Ceilings and Interior Walls and Partitions: **EMT**.
5. Damp or Wet Locations: **GRC**.

C. Minimum Raceway Size: **3/4-inch** trade size.

D. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.

E. Install surface raceways only where indicated on Drawings.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Do not fasten conduits onto the bottom side of a metal deck roof.

C. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

D. Arrange stub-ups so curved portions of bends are not visible above finished slab.

E. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

F. Make bends in raceway using large-radius preformed ells. Field bending shall be according to NFPA 70 minimum radii requirements. Use only equipment specifically designed for material and size involved.

G. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

H. Support conduit within 12 inches of enclosures to which attached.

I. Raceways Embedded in Slabs:

1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support. Secure raceways to reinforcement at maximum 10-foot intervals.
2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
3. Arrange raceways to keep a minimum of **2 inches** of concrete cover in all directions.
4. Do not embed threadless fittings in concrete unless specifically approved by Architect for each specific location.

J. Stub-ups to Above Recessed Ceilings:

1. Use EMT, IMC, or RMC for raceways.
2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.

K. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

L. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

M. Locate boxes so that cover or plate will not span different building finishes.

N. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

O. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

P. Set metal floor boxes level and flush with finished floor surface.

Q. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit.
2. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction.

3.4 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies.

3.5 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies.

3.6 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 313116 - TERMITE CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide soil poisoning to control subterranean termites as specified herein and needed for a complete and proper treatment.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 310513 - Earthwork.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Qualifications of subcontractor:
1. Properly licensed to provide such services by governmental agencies having jurisdiction.
2. Not less than five years successful experience in soil treatment for subterranean termites.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 013323.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.4 WARRANTY

A. Upon completion of the Work, and as a condition of its acceptance, deliver to the Architect two copies of a Warranty signed by an authorized representative of the installing subcontractor, and co-signed by the Contractor, agreeing:
1. To make an inspection of the Work once each year for a total period of five years following Date of Substantial Completion for the purpose of detecting termite infestation;
2. If termite infestation is found during that five year period, to retreat in accordance with prevailing practices of the trade and within ten calendar days after such infestation is discovered;
3. To repair damage to the Work caused by subterranean termites during that five year period, to a maximum cost of $5,000;
4. To make such inspections, retreatment, and repairs at no additional cost to the Owner.

1.5 PRODUCT HANDLING

A. Comply with pertinent provision of Section 016400.

PART 2 - PRODUCTS

2.1 MATERIALS

A. To the extent approved by governmental agencies having jurisdiction, use working solutions containing the following chemical at the listed minimum concentration:

1. Dragnet SFR Termiticide/Insecticide; active ingredient: Permenthrin. Meeting U>S OSHA Hazard Communication Standard 29 CFR 1910. 1200.
2. Talstar P Professional Termiticide/Insecticide
3. Fuse Termiticide/Insecticide

B. If combinations of toxicants are approved by governmental agencies having jurisdiction, provide toxicants having such approval and in the maximum strength so approved, at no additional cost to the Owner.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

B. Report in writing to Architect prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.3 APPLICATION: Apply as per manufacturers's instructions, if in conflict with information stated below.

A. Begin soil poisoning only after all preparation for slab placement is complete.

B. Slabs on grade:
1. Apply toxicant as an overall treatment at the minimum rate of one gallon of toxicant to each 10 square feet of area under slabs on grade within building lines.

C. Utility entrances:
1. Apply toxicant at the rate of two gallons of toxicant per five lineal feet at critical locations such as where utilities pass through exterior walls and through floor slabs.
2. Extend treatment not less than 48" from wall into trench.

D. Walls:
1. Apply toxicant at the rate of two gallons of toxicant per five lineal feet along both sides of all foundation walls, cross walls, and grade beams, after all nearby excavation has been completed.
2. Apply toxicant at the rate of one gallon of toxicant per five lineal feet to voids in masonry walls.

E. Miscellaneous: Apply toxicant at the rate of two gallons of toxicant per five lineal feet at the following areas:
1. Immediately below expansion joints, control joints, and all areas where slab will be penetrated by construction features.
2. Where exterior facings or veneers extend below grade level along the exterior side of all foundation walls.
3. Where unit masonry foundation construction is used.

F. If soil is disturbed after treatment, retreat disturbed areas.

END OF SECTION