

PROJECT MANUAL

**COMMUNITY HEALTH CENTER
of LOCKPORT**

100 MAIN STREET.
LOCKPORT, NEW YORK

July 15th, 2022

SA PROJECT NO. 21055.01

ARCHITECT

SILVESTRI ARCHITECTS, PC
1321 MILLERSPORT HIGHWAY, SUITE 101
AMHERST, NY 14221

STRUCTURAL CONSULTANT

PETRILLI STRUCTURAL & CONSULTING ENGINEERING, PC
245 KINSEY AVE., SUITE 100
KENMORE, NY 14217

MECHANICAL, PLUMBING AND ELECTRICAL CONSULTANT

EBS ENGINEERING, PC
2567 WALDEN AVE., SUITE 107
CHEEKTOWAGA, NY 14225

TABLE OF CONTENTS

CONDITIONS OF CONTRACT

General Conditions of the Contract AIA Document A201	A201-1 thru A201-41
Supplementary General Conditions	SGC-1 thru SGC-2

DIVISION 1 - GENERAL REQUIREMENTS

Section 011000 -	Summary	011000-1 thru 011000-3
Section 012500 -	Substitution Procedures	012500-1 thru 012500-3
Section 012600 -	Contract Modification Procedures	012600-1 thru 012600-2
Section 012900 -	Payment Procedures	012900-1 thru 012900-5
Section 013300 -	Submittal Procedures	013300-1 thru 013300-8
Section 014000 -	Quality Requirements	014000-1 thru 014000-7
Section 014200 -	References	014200-1 thru 014200-5
Section 015000 -	Temporary Facilities and Controls	015000-1 thru 015000-8
Section 016000 -	Product Requirements	016000-1 thru 016000-4
Section 017300 -	Execution	017300-1 thru 017300-9
Section 017700 -	Closeout Procedures	017700-1 thru 017700-6
Section 017823 -	Operations & Maintenance Data	017823-1 thru 017823-7
Section 017839 -	Project Record Documents	017839-1 thru 017839-3
Section 017900 -	Demonstration and Training	017900-1 thru 017900-2
Section 019113 -	General Commissioning Requirements	019113-1 thru 019113-3

DIVISION 2 – EXISTING CONDITIONS

Section 020500 -	Demolition	020500-1 thru 020500-4
	Allstate Environmental Resources	page 1 thru page 9
	Asbestos Building Material Chain	
	Of Custody	page 1 thru page 3
	IMS Laboratory Report	page 1 thru page 20

DIVISION 3 – CONCRETE

Refer also to Structural and Civil Drawings		
Section 035400 -	Cementitious Floor Underlayment	035400-1 thru 035400-4

DIVISION 4 – MASONRY

N/A

DIVISION 5 – METALS

Refer also to Structural Drawings		
Section 055000 -	Metal Fabrication	055000-1 thru 055000-9

DIVISION 6 - WOOD AND PLASTICS

Section 061000 -	Rough Carpentry	061000-1 thru 061000-5
Section 062000 -	Finish Carpentry and Millwork	062000-1 thru 062000-5

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

Section 072100 -	Sound Control Insulation	072100-1 thru 072100-3
Section 079000 -	Caulking and Sealants	079000-1 thru 079000-4

DIVISION 8 - DOORS AND WINDOWS

Section 081110 -	Steel Doors and Frames	081110-1 thru 081110-10
Section 081400 -	Wood Doors	081400-1 thru 081400-4
Section 084113 -	Aluminum Framed Entrances and Windows	084113-1 thru 084113-9
Section 087111 -	Door Hardware	087111-1 thru 087111-9
Section 087113 -	Automatic Door Operators	087113-1 thru 087113-8

DIVISION 9 - FINISHES

Section 092500 -	Metal Studs & Gypsum Wallboard	092500-1 thru 092500-7
Section 093000 -	Tile	093000-1 thru 093000-7
Section 095100 -	Acoustical Treatment	095100-1 thru 095100-4
Section 096500 -	Resilient Flooring	096500-1 thru 096500-6
Section 096800 -	Carpeting	096800-1 thru 096800-4
Section 097710 -	Special Wall Surfaces (FRP)	097710-1 thru 097710-5
Section 099000 -	Painting	099000-1 thru 099000-8

DIVISION 10 - SPECIALTIES

Section 101400 -	Specialty Signs	101400-1 thru 101400-4
Section 102800 -	Toilet & Bath Accessories	102800-1 thru 102800-2
Section 105220 -	Fire Extinguishers and Accessories	105220-1 thru 105220-4
Section 106700 -	Shelving	106700-1 thru 106700-2

DIVISION 11 – EQUIPMENT

N/A

DIVISION 12 – FURNISHINGS

Section 123000 -	Laminate Casework	123000-1 thru 123000-7
Section 124920 -	Manual Roller Shades	124920-1 thru 124920-4
Section 126700 -	Entrance Mats	126700-1 thru 126700-2

DIVISION 13 – SPECIAL CONSTRUCTION

N/A

DIVISION 14 – CONVEYING SYSTEMS

DIVISION 21 – FIRE SUPPRESSION

SEE FP DRAWINGS

DIVISION 22 – PLUMBING

SEE P DRAWINGS

DIVISION 23 – HVAC

SEE M DRAWINGS

DIVISION 25 – INTEGRATED AUTOMATION

N/A

DIVISION 26 – ELECTRICAL

SEE E DRAWINGS

DIVISION 27 – COMMUNICATIONS

SEE E DRAWINGS

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY	SEE E DRAWINGS
DIVISION 31 – EARTHWORK	N/A
DIVISION 32 – EXTERIOR IMPROVEMENTS	N/A
DIVISION 33 – SITE UTILITIES	N/A



AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

Community Health Center of Buffalo - Lockport
100 Main Street Lockport, NY

THE OWNER:

(Name, legal status and address)

Community Health Center of Buffalo
34 Benwood Avenue
Buffalo, NY 14214

THE ARCHITECT:

(Name, legal status and address)

Silvestri Architects, PC
1321 Millersport Highway, Suite 101, Amherst, NY 14221

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.

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.

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

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

Init.

Contractor's Employees
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

Init.

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**

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**

Init.

MISCELLANEOUS PROVISIONS

13

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, 2.3.3.2.4, 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

Init.

Project, Definition of
1.1.4
 Project Representatives
 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
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.

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

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

§ 1.1.3 The Work

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

§ 1.1.4 The Project

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

§ 1.1.5 The Drawings

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

§ 1.1.6 The Specifications

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

§ 1.1.7 Instruments of Service

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

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

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

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

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

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

§ 1.3 Capitalization

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

§ 1.4 Interpretation

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

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

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

§ 1.7 Digital Data Use and Transmission

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

§ 1.8 Building Information Models Use and Reliance

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

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

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

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

§ 2.2 Evidence of the Owner's Financial Arrangements

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

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

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

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

§ 2.3 Information and Services Required of the Owner

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

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

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

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

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

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

§ 2.4 Owner's Right to Stop the Work

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

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

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

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

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

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

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

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

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

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

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

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

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

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

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

§ 3.5 Warranty

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

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

§ 3.6 Taxes

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

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

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

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

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

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

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

§ 3.9 Superintendent

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

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

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

§ 3.10 Contractor's Construction and Submittal Schedules

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

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

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

§ 3.11 Documents and Samples at the Site

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

Init.

delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

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

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

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

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

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

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

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will

Init.

specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

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

§ 3.13 Use of Site

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

§ 3.14 Cutting and Patching

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

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

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

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

§ 3.16 Access to Work

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

§ 3.17 Royalties, Patents and Copyrights

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

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

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

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

§ 4.2 Administration of the Contract

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

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

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

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

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

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

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

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

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

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

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

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

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

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

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

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

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

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

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

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

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

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

§ 5.3 Subcontractual Relations

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

§ 5.4 Contingent Assignment of Subcontracts

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

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

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

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

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

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

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

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

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

§ 6.2 Mutual Responsibility

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

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

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

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

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

§ 6.3 Owner's Right to Clean Up

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

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

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

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

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

§ 7.2 Change Orders

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

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

§ 7.3 Construction Change Directives

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

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

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

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

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

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- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

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

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

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

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

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

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

§ 7.4 Minor Changes in the Work

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

ARTICLE 8 TIME

§ 8.1 Definitions

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

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

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

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

§ 8.2 Progress and Completion

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

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

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

§ 8.3 Delays and Extensions of Time

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

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

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

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

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

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

§ 9.2 Schedule of Values

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

§ 9.3 Applications for Payment

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

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

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

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

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

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

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

§ 9.5 Decisions to Withhold Certification

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

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;

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- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

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

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

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

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

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

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

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

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

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

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

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

§ 9.7 Failure of Payment

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

§ 9.8 Substantial Completion

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

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

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

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

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

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

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

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

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

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

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

§ 10.2 Safety of Persons and Property

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

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

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

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

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

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

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

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

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

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

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will

promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

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

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

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

§ 10.4 Emergencies

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

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

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

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

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

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

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

§ 11.2 Owner's Insurance

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

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

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

§ 11.3 Waivers of Subrogation

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

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

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

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

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

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

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

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

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

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

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

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

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

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

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

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

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

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

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

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

§ 13.4 Tests and Inspections

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

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approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

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

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

§ 13.5 Interest

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

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

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

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

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

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

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

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

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

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

§ 14.3 Suspension by the Owner for Convenience

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

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

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

§ 14.4 Termination by the Owner for Convenience

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

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

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

Init.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

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

§ 15.1.3 Notice of Claims

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

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

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

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

§ 15.1.5 Claims for Additional Cost

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

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

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

§ 15.1.7 Waiver of Claims for Consequential Damages

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

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

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

§ 15.2 Initial Decision

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

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

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

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

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

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

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

Init.

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

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

§ 15.3 Mediation

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

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

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

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

§ 15.4 Arbitration

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

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

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

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

§ 15.4.4 Consolidation or Joinder

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

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

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

Additions and Deletions Report for **AIA® Document A201® – 2017**

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

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PAGE 1

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Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, _____, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 12:15:44 ET on 06/06/2022 under Order No. 2114240940 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A201™ – 2017, General Conditions of the Contract for Construction, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

(Signed)

(Title)

(Dated)

SUPPLEMENTARY GENERAL CONDITIONS

1. PROTECTION OF PERSONS AND PROPERTY

- A. Amend Article 10 of the General Conditions by the addition of the following:

All items of work required for the protection of public, workmen, site and construction operation as required by the General Conditions and/or laws or regulations shall be completed before the work is started on the project.

2. EXECUTION, CORRELATION, INTENT OF DOCUMENTS

- A. Make no changes from Contract Documents without first receiving written permission from the Architect. Where detailed information is lacking, before proceeding with work, refer matter to Architect for information.

- B. If work is required in manner to make it impossible to produce first class work, or should discrepancies appear among Contract Documents, request interpretation before proceeding with work. If Contractor fails to make such request, no excuse will thereafter be entertained for failure to carry out work in satisfactory manner. Should conflict occur in or between drawings and specifications, Contractor is deemed to have estimated on more expensive way of doing Work unless he shall have asked for and obtained written decision before submission of proposal as to which method or materials will be required.

- C. Omissions from the drawings or specification, or the misdescription of details for work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work; but they shall be performed to complete the work as it is intended, without any gaps between the various subdivision of work or between the work of the Contractor and all subcontractors, as if fully and correctly set forth and described in the drawings and specifications.

3. SUBCONTRACTORS

- A. (Amend Article 5.2-1 of the General Conditions by the addition of the following):

Within 10 days after awarding of the contracts, the prime Contractors shall submit a list of suppliers and/or Subcontractors he or she proposes to employ in the construction of the project for approval to the architect.

4. SUBSTANTIAL COMPLETION

- A. Amend Article 9.8 of the General Conditions by the addition of the following:

Substantial completion is defined as the point of time when the owner is able to use the facility in its entirety.

5. PROGRESS PAYMENTS

- A. Amend Article 9.6 of the General Conditions by the addition of the following:

Payments will be made on the basis of progress and will be made once a month. Application for Payment Form shall be submitted in triplicate on AIA Standard Form Document G702 by the thirtieth of each month for payment by the thirtieth of the following month.

Progress payments shall be made upon monthly requisitions from the contractor in the amount of ninety per cent, (90%), of the contract sum allocated to labor and materials and equipment stored on or off site for that monthly period.

6. CONTRACT

- A. The Form of Agreement Between the General Contractor and Sub Contractor, (Stipulated Sum), AIA Document A401, Standard Form of the American Institute of Architects, 1987 edition, pages 1 through 4, shall be used as the contract and shall form a part of these bidding documents.
- B. This document is kept on file in the architect's office and may be examined upon request by any of the bidders.

END OF SECTION

SECTION 011000 – SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Phased construction.
 - 4. Work by Owner.
 - 5. Work under separate contracts.
 - 6. Future work.
 - 7. Purchase contracts.
 - 8. Owner-furnished products.
 - 9. Contractor-furnished, Owner-installed products.
 - 10. Access to site.
 - 11. Coordination with occupants.
 - 12. Work restrictions.
 - 13. Specification and drawing conventions.
 - 14. Miscellaneous provisions.
- B. Related Requirements:
 - 1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:
 - 1. Interior renovation of an existing building for medical and business (B) Occupancy, Type IIB construction.
- B. Type of Contract:
 - 1. Project will be constructed under a single prime contract.

1.4 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- C. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Driveways, Walkways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.5 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.
- C. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows or outdoor-air intakes.
- D. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

1.6 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product, fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.

- g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied,

Architect will return requests without action, except to record noncompliance with these requirements:

- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution does not require extensive revisions to the Contract Documents.
 - b. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - c. Substitution request is fully documented and properly submitted.
 - d. Requested substitution will not adversely affect Contractor's construction schedule.
 - e. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides specified warranty.
 - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 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."

1.4 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. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 20 days, when not otherwise specified, 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.
 - e. Quotation Form: Use forms acceptable to Architect.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim 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 Section 016000 "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form acceptable to Architect.

1.5 CHANGE ORDER PROCEDURES

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

1.6 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 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. Items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
 - 3. Sub-schedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values coordinated with each phase of payment.
 - 4. Sub-schedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide sub-schedules showing values coordinated with each element.
 - 5. Sub-schedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide sub-schedules showing values coordinated with the scope of each design services contract as described in Section 011000 "Summary."
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
 - a. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling 10 percent of the Contract Sum and subcontract amount.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Submit Application for Payment to Architect by the 25 of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
 - 1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.
- D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- E. Application for Payment Forms: Use forms provided by Owner for Applications for Payment. Sample copies are included in Project Manual.
- F. Application for Payment Forms: Use forms acceptable to Architect and Owner for Applications for Payment. Submit forms for approval with initial submittal of schedule of values.
- G. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 - 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 - 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 - 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 - 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- H. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
 - 1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 - 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 - 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.

- b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- I. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.
 - 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- J. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
 - 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 - 2. When an application shows completion of an item, submit conditional final or full waivers.
 - 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 - 4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- K. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
 - 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 - 2. When an application shows completion of an item, submit conditional final or full waivers.
 - 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 - 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 - 5. Waiver Forms: Submit executed waivers of lien on forms, acceptable to Owner.
- L. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 - 1. List of subcontractors.
 - 2. Schedule of values.
 - 3. Contractor's construction schedule (preliminary if not final).
 - 4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
 - 5. Certificates of insurance and insurance policies.
 - 6. Data needed to acquire Owner's insurance.
- M. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- N. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. Evidence that claims have been settled.
 7. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 8. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples and other submittals.
- B. Related Requirements:
 - 1. Section 012900 - Payment Procedures.
 - 2. Section 017823 - Operation and Maintenance Data.
 - 3. Section 017839 - Project Record Documents.
 - 4. Section 017900 - Demonstration and Training.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values and Contractor's construction schedule.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will **not** be provided by Architect for Contractor's use in preparing submittals.

1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
 - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - b. Digital Drawing Software Program: The Contract Drawings are available in AutoCad.
 - c. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.
 - d. The following digital data files will be furnished for each appropriate discipline:
 - 1) Floor plans.
 - 2) Reflected ceiling plans.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review including time for resubmittals as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 4. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.

3. Submittal File Format: .pdf.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Name of firm or entity that prepared submittal.
 - g. Names of subcontractor, manufacturer, and supplier.
 - h. Category and type of submittal.
 - i. Submittal purpose and description.
 - j. Specification Section number and title.
 - k. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - l. Drawing number and detail references, as appropriate.
 - m. Location(s) where product is to be installed, as appropriate.
 - n. Related physical samples submitted directly.
 - o. Indication of full or partial submittal.
 - p. Transmittal number.
 - q. Submittal and transmittal distribution record.
 - r. Other necessary identification.
 - s. Remarks.
- E. Options: Identify options requiring selection by Architect.
- F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals and deviations from requirements in the Contract Documents including minor variations and limitations. Include same identification information as related submittal.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Submit electronic submittals via email as PDF electronic files.
 - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
 2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.
 6. Submit Product Data in the following format:
 - a. PDF electronic file.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.

- 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.
 5. Submit product schedule in the following format:
 - a. PDF electronic file.
- F. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."
- G. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."
- H. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- I. Maintenance Data: Comply with requirements specified in Section 017823 "Operation and Maintenance Data."
- J. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- K. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- L. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- M. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- N. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

- O. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- P. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- Q. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- R. Research Reports: Submit written evidence from a model code organization acceptable to authorities having jurisdiction that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- S. Preconstruction Test Reports: Submit reports written by a qualified testing agency on testing agency's standard form indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- T. Compatibility Test Reports: Submit reports written by a qualified testing agency on testing agency's standard form indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- U. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- V. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. Informational Submittals: Architect will review each submittal and will not return it or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- B. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- C. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- D. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, Commissioning Agent or authority having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that the actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

- A. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.
 - 5. Identification of test and inspection methods.
 - 6. Number of tests and inspections required.
 - 7. Time schedule or time span for tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.

1.6 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
1. Date of issue.
 2. Project title and number.
 3. Name, address, and telephone number of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of the technical representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:

- a. Provide test specimens representative of proposed products and construction.
- b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
- c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
- d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
- e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
- f. When testing is complete, remove test specimens, assemblies, mockups; do not reuse products on Project.

1.8 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
 3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Delivery of samples to testing agencies.
 - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
 - 1. Distribution: Distribute schedule to Owner, Architect, Commissioning Authority, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.9 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in Statement of Special Inspections attached to this Section, and as follows:
- B. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections and in Statement of Special Inspections attached to this Section, and as follows:
 - 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.

2. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect and Commissioning Authority with copy to Contractor and to authorities having jurisdiction.
3. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
4. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
5. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 014200 – REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. AABC - Associated Air Balance Council; www.aabc.com.
 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
 3. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 4. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
 5. AGA - American Gas Association; www.aga.org.
 6. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
 7. AIA - American Institute of Architects (The); www.aia.org.
 8. AISC - American Institute of Steel Construction; www.aisc.org.
 9. AISI - American Iron and Steel Institute; www.steel.org.
 10. ANSI - American National Standards Institute; www.ansi.org.
 11. APA - APA - The Engineered Wood Association; www.apawood.org.
 12. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
 13. ARI - American Refrigeration Institute; (See AHRI).
 14. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
 15. ASCE - American Society of Civil Engineers; www.asce.org.
 16. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
 17. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
 18. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
 19. ASSE - American Society of Safety Engineers (The); www.asse.org.
 20. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
 21. ASTM - ASTM International; (American Society for Testing and Materials International); www.astm.org.
 22. AWI - Architectural Woodwork Institute; www.awinet.org.
 23. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
 24. AWPA - American Wood Protection Association; (Formerly: American Wood-Preservers' Association); www.awpa.com.
 25. AWS - American Welding Society; www.aws.org.
 26. AWWA - American Water Works Association; www.awwa.org.

27. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
28. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
29. CSI - Construction Specifications Institute (The); www.csinet.org.
30. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
31. CWC - Composite Wood Council; (See CPA).
32. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
33. DHI - Door and Hardware Institute; www.dhi.org.
34. EIMA - EIFS Industry Members Association; www.eima.com.
35. FM Approvals - FM Approvals LLC; www.fmglobal.com.
36. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
37. GA - Gypsum Association; www.gypsum.org.
38. GANA - Glass Association of North America; www.glasswebsite.com.
39. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
40. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
41. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
42. ICBO - International Conference of Building Officials; (See ICC).
43. ICC - International Code Council; www.iccsafe.org.
44. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
45. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
46. IESNA - Illuminating Engineering Society of North America; (See IES).
47. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
48. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
49. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
50. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
51. ISO - International Organization for Standardization; www.iso.org.
52. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
53. ITU - International Telecommunication Union; www.itu.int/home.
54. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
55. LMA - Laminating Materials Association; (See CPA).
56. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
57. MIA - Marble Institute of America; www.marble-institute.com.
58. MMPA - Moulding & Millwork Producers Association; (Formerly: Wood Moulding & Millwork Producers Association); www.wmmpa.com.
59. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
60. NECA - National Electrical Contractors Association; www.necanet.org.
61. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
62. NEMA - National Electrical Manufacturers Association; www.nema.org.
63. NETA – Inter-National Electrical Testing Association; www.netaworld.org.
64. NFPA - NFPA; (National Fire Protection Association); www.nfpa.org.
65. NFPA - NFPA International; (See NFPA).
66. NHLA - National Hardwood Lumber Association; www.nhla.com.
67. NLGA - National Lumber Grades Authority; www.nlga.org.
68. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).

69. NRCA - National Roofing Contractors Association; www.nrca.net.
 70. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
 71. NSF - NSF International; (National Sanitation Foundation International); www.nsf.org.
 72. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
 73. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
 74. NWFA - National Wood Flooring Association; www.nwfa.org.
 75. PDI - Plumbing & Drainage Institute; www.pdionline.org.
 76. RFCI - Resilient Floor Covering Institute; www.rfci.com.
 77. SDI - Steel Door Institute; www.steeldoor.org.
 78. SMA - Screen Manufacturers Association; www.smainfo.org.
 79. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
 80. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
 81. SPIB - Southern Pine Inspection Bureau; www.spib.org.
 82. SSINA - Specialty Steel Industry of North America; www.ssina.com.
 83. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
 84. TCNA - Tile Council of North America, Inc.; (Formerly: Tile Council of America); www.tileusa.com.
 85. TMS - The Masonry Society; www.masonrysociety.org.
 86. TPI - Truss Plate Institute; www.tpinst.org.
 87. TPI - Turfgrass Producers International; www.turfgrasssod.org.
 88. TRI - Tile Roofing Institute; www.tilerroofing.org.
 89. UL - Underwriters Laboratories Inc.; www.ul.com.
 90. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
 91. WDMA - Window & Door Manufacturers Association; www.wdma.com.
 92. WI - Woodwork Institute; (Formerly: WIC - Woodwork Institute of California); www.wicnet.org.
 93. WPA - Western Wood Products Association; www.wwpa.org.
- C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.
1. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
 2. ICC - International Code Council; www.iccsafe.org.
 3. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.
- D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up-to-date as of the date of the Contract Documents.
1. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
 2. DOE - Department of Energy; www.energy.gov.
 3. EPA - Environmental Protection Agency; www.epa.gov.
 4. OSHA - Occupational Safety & Health Administration; www.osha.gov.
 5. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
 6. USPS - United States Postal Service; www.usps.com.
- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and

regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. FED-STD - Federal Standard; (See FS).
3. FS - Federal Specification; Available from Department of Defense Single Stock Point; <http://dodssp.daps.dla.mil>.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.
4. USAB - United States Access Board; www.access-board.gov.
5. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Owner will pay sewer-service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Owner will pay water-service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Owner will pay electric-power-service use charges for electricity used by all entities for construction operations.
- E. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- F. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- G. Sewer, Water, and Electric Power Service: Use charges are specified in Section 011200 "Multiple Contract Summary."

1.4 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- D. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.
 - 1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
 - 2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
 - 3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
- E. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
 - 1. Locations of dust-control partitions at each phase of work.
 - 2. HVAC system isolation schematic drawing.
 - 3. Location of proposed air-filtration system discharge.
 - 4. Waste handling procedures.
 - 5. Other dust-control measures.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Fencing: Contractor's option to adequately protect the construction site.
- B. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.

- C. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction and marked for intended location and application.
- C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- E. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- F. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- G. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
 - 1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.
- H. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- I. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Connect temporary service to Owner's existing power source, as directed by Owner.
- J. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
 - 2. Install lighting for Project identification sign.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
 - 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after

Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.
 - 1. Provide dust-control treatment that is nonpolluting and non-tracking. Reapply treatment as required to minimize dust.
- C. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
 - 1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
 - 2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Civil Drawings and specifications.
 - 3. Recondition base after temporary use, including removing contaminated material, regrading, proof-rolling, compacting and testing.
 - 4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Civil Drawings and specifications.
- D. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- E. Parking: Provide temporary parking areas for construction personnel.
- F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- G. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 - 3. Maintain and touchup signs so they are legible at all times.
- H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."
- I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- J. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
1. Comply with work restrictions specified in Section 011000 "Summary."
- C. Temporary Erosion and Sedimentation Control: Refer to Civil Drawings.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Refer to Civil Drawings.
- F. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- G. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
- H. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- I. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- J. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations and similar activities. Provide temporary weathertight enclosure for building exterior.
1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

- K. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
1. Prohibit smoking in construction areas.
 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
1. Protect porous materials from water damage.
 2. Protect stored and installed material from flowing or standing water.
 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 4. Remove standing water from decks.
 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 2. Keep interior spaces reasonably clean and protected from water damage.
 3. Periodically collect and remove waste containing cellulose or other organic matter.
 4. Discard or replace water-damaged material.
 5. Do not install material that is wet.
 6. Discard, replace, or clean stored or installed material that begins to grow mold.
 7. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.

3.6 OPERATION, TERMINATION AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 014200 "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed

comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

- a. Form of Approval: As specified in Section 013300 "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products using means and methods that will prevent damage, deterioration and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
1. Store products to allow for inspection and measurement of quantity or counting of units.
 2. Store materials in a manner that will not endanger Project structure.
 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation and weather-protection requirements for storage.
 6. Protect stored products from damage and liquids from freezing.

7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Descriptive, performance and reference standard requirements in the Specifications establish salient characteristics of products.
 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
 1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 3. Basis-of-Design Product: Where Specifications name a product or refer to a product indicated on Drawings and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches the sample.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 017300 – EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
- B. Related Requirements:
 - 1. Section 011000 - Summary.
 - 2. Section 013300 - Submittal Procedures.
 - 3. Section 017700 - Closeout Procedures.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 - 2. Products: List products to be used for patching and firms or entities that will perform patching work.
 - 3. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- B. Certified Surveys: Submit two copies signed by land surveyor.
- C. Final Property Survey: Submit 2 copies showing the Work performed and record survey data.

1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
 - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Mechanical systems piping and ducts.
 - e. Control systems.
 - f. Communication systems.
 - g. Fire-detection and -alarm systems.
 - h. Conveying systems.
 - i. Electrical wiring systems.
 - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Piping, ductwork, vessels and equipment.
 - 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to the in-place materials. For exposed surfaces, use materials that visually match the adjacent materials in-place surfaces.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are

indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish limits on use of Project site.
 - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 4. Inform installers of lines and levels to which they must comply.
 - 5. Check the location, level and plumb, of every major element as the Work progresses.
 - 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- E. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines and levels of Project are accurately positioned as shown on the survey.
1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
 2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or will produce a load in excess of what was expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
- K. All work shall be performed in strict accordance with the Contract Documents as prepared by Silvestri Architects, P.C., 1321 Millersport Highway, Suite 101, Amherst, New York 14221.
 - 1. Unless otherwise specifically provided in the specifications, all equipment, materials and articles incorporated in the work are to be new and the best grade of their respective kinds for the purpose.
 - 2. Wherever in the specifications a particular brand, make of material, device or equipment is shown or specified, such a brand or make is to be regarded as a standard. Other brands, makes, materials, or equipment which are not on the list and match or exceed the specified quality, workmanship, and suitability for the purpose intended will be considered for use by the Architect. All such requests must be submitted prior to the date set for receiving bids, allowing the Architect enough time to evaluate the product. See Supplemental Conditions for procedures that must be met when submitting manufacturers.
 - 3. When materials or devices are listed in this specification, or other approved submissions, the manufacturer's recommendations and specifications for installation and workmanship shall automatically become a part of the specifications, unless noted by exception.
 - 4. Workmanship shall be performed only by personnel skilled in their trades and recognized for same by the manufacturer of the products being used.
 - 5. All work shall be in compliance with applicable laws, regulations and building codes.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- F. Patching: Patch construction by filling, repairing, refinishing, closing-up and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 - 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture and appearance.

Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

- a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. Section 017300 - Execution.
 - 2. Section 017823 - Operation and Maintenance Data.
 - 3. Section 017839 - Project Record Documents.
 - 4. Section 017900 - Demonstration and Training.

1.3 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.
 5. Submit test/adjust/balance records.
 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 3. Complete startup and testing of systems and equipment.
 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
 6. Advise Owner of changeover in heat and other utilities.
 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements, including touchup painting.
 10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
 1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.
 4. Submit list of incomplete items in the following format:
 - a. MS Excel or compatible electronic file. Architect will return annotated file.
 - b. PDF electronic file. Architect will return annotated file.
 - c. Three paper copies. Architect will return two copies.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
 - 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

- c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
- d. Remove tools, construction equipment, machinery, and surplus material from Project site.
- e. Remove snow and ice to provide safe access to building.
- f. 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.
- g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
- h. Sweep concrete floors broom clean in unoccupied spaces.
- i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
- j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
- k. Remove labels that are not permanent.
- l. Wipe surfaces of mechanical and electrical equipment and 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 disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
- o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 - 1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.
- p. Clean light fixtures, lamps, globes and reflectors to function with full efficiency.
- q. Leave Project clean and ready for occupancy.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to the specified condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces and other damaged transparent materials.

2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Operation manuals for systems, subsystems, and equipment.
 - 4. Product maintenance manuals.
 - 5. Systems and equipment maintenance manuals.
- B. Related Requirements:
 - 1. Section 013300 - Submittal Procedures.
 - 2. Section 019113 - General Commissioning Requirements.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect and Commissioning Authority will comment on whether content of operations and maintenance submittals are acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
 - 1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.
 - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
 - b. Enable inserted reviewer Comments on draft submittals.
 - 2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect will return two copies.

- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect and Commissioning Authority will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect and Commissioning Authority will return copy with comments.
 - 1. Correct or revise each manual to comply with Architect's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's and Commissioning Authority's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:
 - 1. List of documents.
 - 2. List of systems.
 - 3. List of equipment.
 - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- B. Title Page: Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.

4. Date of submittal.
 5. Name and contact information for Contractor.
 6. Name and contact information for Construction Manager.
 7. Name and contact information for Architect.
 8. Name and contact information for Commissioning Authority.
 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.

3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Performance and design criteria if Contractor has delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
 1. Product name and model number. Use designations for products indicated on Contract Documents.
 2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.
 7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
 1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.

- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.

- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training video recording, if available.

- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

- B. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.

2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
1. Do not use original project record documents as part of operation and maintenance manuals.
 2. Comply with requirements of newly prepared record Drawings in Section 017839 "Project Record Documents."
- E. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Product Data.
- B. Related Requirements:
 - 1. Section 017300 - Execution.
 - 2. Section 017700 - Closeout Procedures.
 - 3. Section 017823 - Operation and Maintenance Data.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
- B. Record Product Data: Submit one paper copy of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.

- c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Annotated PDF electronic file with comment function enabled.
 2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 3. Refer instances of uncertainty to Architect for resolution.
 4. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
 - a. See Section 013300 "Submittal Procedures" for requirements related to use of Architect's digital data files.
 - b. Architect will provide data file layer information. Record markups in separate layers.
- C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
 2. Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- D. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2. Format: Annotated PDF electronic file with comment function enabled.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
- B. Format: Submit record Product Data as scanned PDF electronic file(s) of marked-up paper copy of Product Data.
 1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION

SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.

1.3 QUALITY ASSURANCE

- A. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.

1.4 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."

3.2 INSTRUCTION

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Owner will furnish Contractor with names and positions of participants.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with Owner, through Architect, with at least seven days' advance notice.
- C. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

END OF SECTION

SECTION 019113 - GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. OPR and BoD documentation are included by reference for information only.

1.2 SUMMARY

- A. Section includes general requirements that apply to implementation of commissioning without regard to specific systems, assemblies or components.

1.3 DEFINITIONS

- A. BoD: Basis of Design. A document that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.
- B. Commissioning Plan: A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the commissioning process.
- C. CxA: Commissioning Authority.
- D. OPR: Owner's Project Requirements. A document that details the functional requirements of a project and the expectations of how it will be used and operated. These include Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.
- E. Systems, Subsystems, Equipment, and Components: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, equipment and components.

1.4 COMMISSIONING TEAM

- A. Members Appointed by Contractor(s): Individuals, each having the authority to act on behalf of the entity he or she represents, explicitly organized to implement the commissioning process through coordinated action. The commissioning team shall consist of, but not be limited to, representatives of Contractor, including Project superintendent and subcontractors, installers, suppliers and specialists deemed appropriate by the CxA.
- B. Members Appointed by Owner:
 - 1. CxA: The designated person, company, or entity that plans, schedules, and coordinates the commissioning team to implement the commissioning process. Owner will engage the CxA under a separate contract.
 - 2. Representatives of the facility user and operation and maintenance personnel.
 - 3. Architect and engineering design professionals.

1.5 OWNER'S RESPONSIBILITIES

- A. Provide the OPR documentation to the CxA and Contractor for information and use.
- B. Assign operation and maintenance personnel and schedule them to participate in commissioning team activities.
- C. Provide the BoD documentation, prepared by Architect and approved by Owner, to the CxA and Contractor for use in developing the commissioning plan, systems manual and operation and maintenance training plan.

1.6 CONTRACTOR'S RESPONSIBILITIES

- A. Contractor shall assign representatives with expertise and authority to act on its behalf and shall schedule them to participate in and perform commissioning process activities including, but not limited to, the following:
 - 1. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
 - 2. Cooperate with the CxA for resolution of issues recorded in the Issues Log.
 - 3. Attend commissioning team meetings held on a variable basis.
 - 4. Integrate and coordinate commissioning process activities with construction schedule.
 - 5. Review and accept construction checklists provided by the CxA.
 - 6. Complete electronic construction checklists as Work is completed and provide to the Commissioning Authority on a weekly basis.
 - 7. Review and accept commissioning process test procedures provided by the Commissioning Authority.
 - 8. Complete commissioning process test procedures.

1.7 CxA'S RESPONSIBILITIES

- A. Organize and lead the commissioning team.
- B. Provide commissioning plan.
- C. Convene commissioning team meetings
- D. Provide Project-specific construction checklists and commissioning process test procedures.
- E. Verify the execution of commissioning process activities using random sampling. The sampling rate may vary from 1 to 100 percent. Verification will include, but is not limited to, equipment submittals, construction checklists, training, operating and maintenance data, tests, and test reports to verify compliance with the OPR. When a random sample does not meet the requirement, the CxA will report the failure in the Issues Log.
- F. Prepare and maintain the Issues Log.
- G. Prepare and maintain completed construction checklist log.

- H. Witness systems, assemblies, equipment, and component startup.
- I. Compile test data, inspection reports, and certificates; include them in the systems manual and commissioning process report.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 020500 - DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

- A. Extent of demolition is indicated on drawings and in provisions of this section.
- B. Execute removals, extractions, demolition or portions of existing building(s) required for renovation work as indicated on drawings.
- C. Erect temporary dust barriers, temporary fire rated barriers, protection barriers, as specified and/or as required for proper execution of work.
- D. Remove demolition debris from site.

1.3 QUALITY ASSURANCE:

- A. Regulatory Agencies: Conform to applicable regulations, codes, statutes of agencies having jurisdiction over work and transportation incidental thereto. Include but do not limit to following:
 - 1. State Department of Labor.
 - 2. State Department of Health.
 - 3. OSHA.

1.4 PROTECTION:

- A. Erect barriers, fences, guard rails, enclosures and shoring to protect personnel, structure and utilities.
- B. Protect designated trees and shrubs from damage.

1.5 SHORING AND BRACING SYSTEM:

- A. General: Engineer, design, fabricate and erect shoring and bracing system to protect existing buildings, streets, walkways, utilities and other improvements and excavation against loss of ground, caving embankments or collapse. Design system to withstand loads from winds, gravity, structural movement including movement thermally induced and to resist in-service use conditions that the building will experience including exposure to the weather without failure.

1.6 SUBMITTALS:

- A. Professional engineer's certificate prepared and signed by a Professional Engineer, legally authorized to practice in the State, verifying that the shoring and bracing system meets applicable loading requirements and codes of authorities having jurisdiction.
 - 1. Calculations: Submit calculations stamped by a professional engineer registered in the State for the design of the shoring and bracing system.

2. Layout Drawings: Provide layout drawings for shoring and bracing system and other data prepared and stamped by a professional engineer registered in the State for the structural design of the shoring and bracing system.

PART 2 – PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Verify that demolition indicated on drawings can be accomplished without damage to remaining portions of building(s) or other improvements indicated to remain.
- B. Report to Architect any conditions in building or environs appearing to prevent demolition conforming to these specifications.
- C. Do not proceed with execution until unsatisfactory conditions are corrected.

3.2 PREPARATION:

- A. Prior to Start and During Execution of Demolition Work:
 1. Protect adjacent buildings and property against damage which might occur from falling debris or other causes.
 2. Provide protection against damage to existing roof areas on portions of buildings below and/or adjacent to areas where demolition work is required. Assume responsibility for satisfactory repair to existing roof areas damaged by reason of work under this section, without additional cost to Owner.
 3. Take precautions against movement or settlement of buildings. Provide, place bearing or shoring necessary or proper in connection therewith. Be responsible for safety, support of such buildings. Be liable for any such movement or settlement, any damage or injury caused thereby or resulting therefrom. If at any time safety of buildings appears to be endangered, cease operation. Notify Architect. If Architect considers additional bracing, or shoring necessary to safeguard, prevent such movement or settlement, install bracing or shoring upon Architect's order. If contractor fails to comply promptly with such order, bracing and shoring may be placed by Architect at contractor's expense.
 4. During demolition operations, install dust barriers as required to prevent infiltration of dust to parts of building not effected by demolition work.
 5. At existing interior areas of building requiring renovation and at transitions between existing and new construction, erect a temporary one-hour wall constructed between work area(s) and the remainder of functioning area(s).
 - a. Any openings required in these walls shall have a solid core wood door with positive latching and closer hardware.
 - b. Hold-open devices and/or wedges to hold door open will not be permitted.
 6. In areas where existing structures and chimney are indicated to be demolished, provide protection of adjacent structures, erect barricades, establish zones of demolition and any additional precautions necessary in accordance with requirements set forth in the State Department of Labor Rules and Regulations.
 - a. Conform to Section No. 23-3.2 "General Requirements, Industrial Code Rule 23, for Preparations Required Prior to Demolition of Existing Structures".

7. Where existing materials are removed from scheduled openings in exterior walls, provide necessary protection for such openings as required for security and to prevent infiltration caused by inclement weather.

3.3 DEMOLITION:

- A. Condition of Premises: Accept premises as found; perform demolition work indicated. Owner assumes no responsibility for condition of existing building(s) at site nor continuation of condition existing at time of proposal invitation or thereafter.
- B. Materials forming permanent part of building requiring demolition become contractor's property and shall be removed from site unless scheduled to be relocated or reinstalled. Sale of salvaged material at site will not be allowed.
- C. Demolish walls and slabs in small sections, remove, lower carefully, structural steel, metal framing or other structural members.
- D. Where removal of existing bearing walls affects bearing of structures or concrete slabs above, install new beam or other support of sufficient size to carry load previously imposed on wall.
- E. Repair damage done to Owner's property or any other person or persons on or off premises by reason of required work without additional cost to Owner.
- F. With exception of structures required to be demolished, any utility line, cable or pipe damaged during demolition shall be repaired and left in complete working condition. Plug or cap any lines no longer required. Work on damaged utilities shall be done by skilled workmen.
 1. All utility lines, in and beneath existing concrete floor slab to be removed shall remain intact and new slab poured over.
 2. All utility lines in existing walls being removed shall be relocated to new partitions and remain in service. Appropriate trade shall relocate at no additional cost to Owner.
- G. Carefully extract items of equipment scheduled to be retained by Owner and store where directed by Owner.
- H. Examine contract documents carefully for requirements indicating various existing building materials forming parts of building scheduled for demolition that shall be relocated, reinstalled or reused in work required on this project. It is imperative that contractor exercise caution during demolition operations to retain said material intact and to salvage and carefully store materials as required for reuse.
- I. Work involving use of noise producing tools and machinery (air hammer, power tools, and any other similar item) shall be coordinated with Owner before proceeding with work.
- J. Any blasting work to be performed shall be coordinated with Owner before proceeding with work.
- K. Hazardous Materials
 1. Refer to the attached reports provided by the Owner. The removal will be by others prior to the start of work.
 2. If additional or other suspicious materials are encountered, notify Architect.

3.4 SPECIAL REQUIREMENTS:

- A. Do not block or interfere with designated access to building for emergency vehicles and/or personnel.
- B. Do not interfere with designated ingress and egress to existing building(s) required to function normally day to day.
- C. Do not interfere with use of designated existing parking lots.
- D. Where cranes and/or similar equipment are employed on project, it will be required that operations be licensed as required by governing laws of State of Wisconsin.

3.5 CLEANING:

- A. Remove excess debris as it accumulates from demolition operations. Do not store or permit debris to accumulate on site.
- B. Transport demolition debris to lawful off-site disposal area.

END OF SECTION



July 5, 2021

Community Health Center of Buffalo
34 Benwood Avenue
Buffalo, NY 14214

Asbestos Inspection: June 30, 2021
Date of Report: July 5, 2021
Subject Property: 100 Main Street, Lockport, NY 14094
Contact: Jonathan Mohr

To whom it may concern,

Per your request, an asbestos inspection was conducted at the above referenced property by certified asbestos inspector Mr. Randy S Lynch to locate, sample and identify suspect asbestos containing materials(ACM). Various suspect materials were sampled and only one identified surface was shown **to contain** asbestos as follows:

Visual Observations:

Upon entering, the inspector was asked to sample all suspect material that would be impacted through demolition and renovation of the commercial property and outsource building. Exact sample locations will be located in the floor plan diagrams provided.

Purpose

The purpose of the asbestos inspection was to identify and quantify the types of asbestos containing building materials (ACBM) in areas of planned renovations. Samples of the suspect materials were collected for analysis by an independent laboratory (EMSL Analytical), and the condition of each material noted in relation to its potential to be disturbed.

Executive Summary

The scope of services included the identification of suspect asbestos containing building materials in areas of planned renovations; sampling and analysis of the suspect materials; and identifying the locations, estimated quantities, and condition of the confirmed asbestos containing materials. Sampling and analysis of the suspect materials under Polarized Light Microscopy (PLM), and where necessary, under Transmission Electron Microscopy (TEM), revealed the following materials as asbestos containing building materials (ACBM):

Please note:

New York State asbestos regulations (12 NYCRR 56-5) require that asbestos surveys are conducted in order to determine whether or not the building or structure, or portion(s) thereof to be demolished, renovated, remodeled, contains asbestos containing building materials (ACBM), or presumed asbestos containing materials (PACM). These regulations also require that a copy of the pre-renovation survey be forwarded to the local New York State Department of Labor (NYSDOL) Asbestos Control Bureau immediately upon completion of the survey (Buffalo Office: 65 Court Street, Rm. 405, Buffalo, NY 14202).

Sampling:

HA	Sample	Material	Location	Results	Quantity	Type	F/NF	Condition/ Assessment
1	A1	Caulk sealant/ gray	Main building exterior window- rear	ND	704 LF	S	NF	Damaged
2	A2	Caulk sealant/ gray	Main building exterior window- left	ND	704 LF	S	NF	Damaged
3	A3	Caulk sealant/ gray	Main building exterior window- front	ND	704 LF	S	NF	Damaged
4	B1	Countertop surface-dark gray	Teller workspace-rear	ND	99 SF	M	NF	Damaged
5	B2	Countertop surface-dark gray	Teller workspace-front	ND	99 SF	M	NF	Damaged
6	C1	Countertop formica/mastic-red	Teller workspace-front	ND	422 SF	M S	NF	As intended
7	C2	Countertop formica/mastic-red	Teller workspace-rear	ND	422 SF	M S	NF	As intended
8	D1	Vinyl base molding/mastic-black	Workspace lobby-rear	ND	224 LF	M S	NF	Damaged
9	D2	Vinyl base molding/mastic-black	Workspace lobby-left	ND	224 LF	M S	NF	Damaged
10	D3	Vinyl base molding/mastic-black	Workspace lobby-front	ND	224 LF	M S	NF	Damaged

11	E1	Vinyl base molding/mastic-brown	Office front	ND	113 LF	M S	NF	As intended
12	E2	Vinyl base molding/mastic-brown	Office rear	ND	113 LF	M S	NF	As intended
13	E3	Vinyl base molding/mastic-brown	Lounge rear	ND	113 LF	M S	NF	As intended
14	F1	Vinyl base molding/mastic-tan	Teller-right	ND	93 LF	M S	NF	As intended
15	F2	Vinyl base molding/mastic-tan	Walk through room at safe-right	ND	93 LF	M S	NF	As intended
16	F3	Vinyl base molding/mastic-tan	Teller-right front	ND	93 LF	M S	NF	As intended
17	G1	Carpet/mastic-blue	Teller-right	ND	983 SF	M S	NF	Damaged
18	G2	Carpet/mastic-blue	Lobby-rear	ND	983 SF	M S	NF	Damaged
19	H1	Vinyl floor tile/ mastic-tan	Safe floor (other Homogeneous areas include: Safe walk through room and Mechanical room)	D 13% chrysotile	505 SF Accum	M S	NF	Damaged
20	H2	Vinyl floor tile/ mastic-tan	Lounge-left (other Homogeneous areas include: Safe walk through room and Mechanical room)	D 15% chrysotile	505 SF Accum	M S	NF	Damaged
21	I1	Ceramic floor tile/grout/ mastic tan-brown-yellow	Lobby-rear	ND	1827 SF	M S	F NF	Significantly Damaged
22	I2	Ceramic floor tile/grout/ mastic tan-brown-yellow	Lobby-front	ND	1827 SF	M S	F NF	Significantly Damaged
23	J1	Ceiling tile rough finish-gray	Private room-front	ND	1632 SF	M	NF	As intended
24	K1	Ceiling tile smooth finish-white	Lobby-rear	ND	1632 SF	M	NF	As intended
25	L1	Ceiling insulation yellow-gray	Attic space	ND	3264 SF	M	F	As intended
26	M1	Plaster skim coat/ base coat/wallboard white-gray-tan	Kitchen closet	ND	5418 SF Accum	M	F	Significantly Damaged
27	M2	Plaster skim coat/ base coat/wallboard white-gray-tan	Lobby-left center	ND	5418 SF Accum	M	F	Significantly Damaged
28	M3	Plaster skim coat/ base coat/wallboard white-gray-tan	Front-right center	ND	5418 SF Accum	M	F	Significantly Damaged

29	N1	Bead foam insulation-white	Interior outside wall-left	ND	2511 SF Accum	M	F	Damaged
30	N2	Bead foam insulation-white	Interior outside wall-right front	ND	2511 SF Accum	M	F	Damaged
31	O1	Wallpaper-blue	Lobby-left	ND	4572 SF Accum	M	NF	Significantly Damaged
32	O2	Wallpaper-red	Kitchen-rear	ND	4572 SF Accum	M	NF	Significantly Damaged
33	O3	Wallpaper-tan	Entrance-front-right	ND	4572 SF Accum	M	NF	Significantly Damaged
34	P1	Ceramic tile mastic Tan-gold	Womens lav-under sink	ND	846 SF	M S	F NF	As intended
35	Q1	Wallboard with paper white-tan-blue	Drive thru building wall-left	ND	480 SF	M	F	Significantly Damaged
36	Q2	Wallboard with paper white-tan-blue	Drive thru building wall-rear	ND	480 SF	M	F	Significantly Damaged
37	R1	Asphalt membrane roofing black	Exterior breezeway roof-front	ND	2090 SF	S	NF	Significantly Damaged
38	R2	Asphalt membrane roofing black	Exterior breezeway roof-rear-right	ND	2090 SF	S	NF	Significantly Damaged
39	R3	Asphalt membrane roofing black	Exterior breezeway roof-right-front	ND	2090 SF	S	NF	Significantly Damaged

KEY

HA=Homogenous Area

SF=Square feet,

ND=Non detect,

F= Friable,

NF=non friable

<1%= less than 1% or trace amounts.

CA= Composite analysis

Chry= Chrysotile

Accum=Accumulative

TYPE

T= Thermal system insulator (TSI)

S= Surfacing

M= Miscellaneous

*Sampling in this report used the EPA's "Simplified Sampling Scheme for Friable Surfacing Material" for guidance in collecting samples.

2414 Niagara Road, NY 14304 Phone: 716-731-9621 Cell 716-597-4193

www.AllstateHomeEnvironmental.com

NYS Asbestos Inspector #18-47557

Asbestos Handling License #170769

Friable is defined as any material that can be pulverized or reduced to powder with normal hand pressure.
Non-friable is defined as any material which when dry cannot be pulverized or reduced to powder with normal hand pressure.

****Assessment classification reference below:**

- 1) IV.F.2.a. Damaged or significantly damaged thermal system insulation ACM.
- 2) IV.F.2.b. Damaged friable surfacing ACM.
- 3) IV.F.2.c. Significantly damaged friable surfacing ACM.
- 4) IV.F.2.d. Damaged or significantly damaged friable miscellaneous ACM.
- 5) IV.F.2.e. ACBM with potential for damage.
- 6) IV.F.2.f. ACBM with potential for significant damage.
- 7) IV.F.2.G. Any remaining friable ACBM or suspect friable ACBM.

Conclusion

- Sampling was provided with the understanding that mechanical demolition was not the objective, but major renovations within the existing structures, including window removal and replacements, are the intent for future plans.
- Materials labeled as “significantly damaged” are common to water-related deterioration or microbial growth contamination.
- The attic area was visually accessed and noted metal girders and metal ribbed roofing panels.

Response action:

The following response action was formulated by applying the guidelines of the EPA's Asbestos Hazard Emergency Response Act (AHERA), which regulates the handling of asbestos-containing materials in schools.

- **Asbestos was detected in the 12” vinyl flooring material sampled. All vinyl flooring within the building is a homogenous area (kitchen, lounge, safe room and mechanical room).**
- **The mastic used in the vinyl flooring application identified NO asbestos when sampled.**

The samples taken were representative of the suspect material. ***AER does not make any guarantees or assume any liabilities regarding asbestos content in areas other than where samples were taken.***

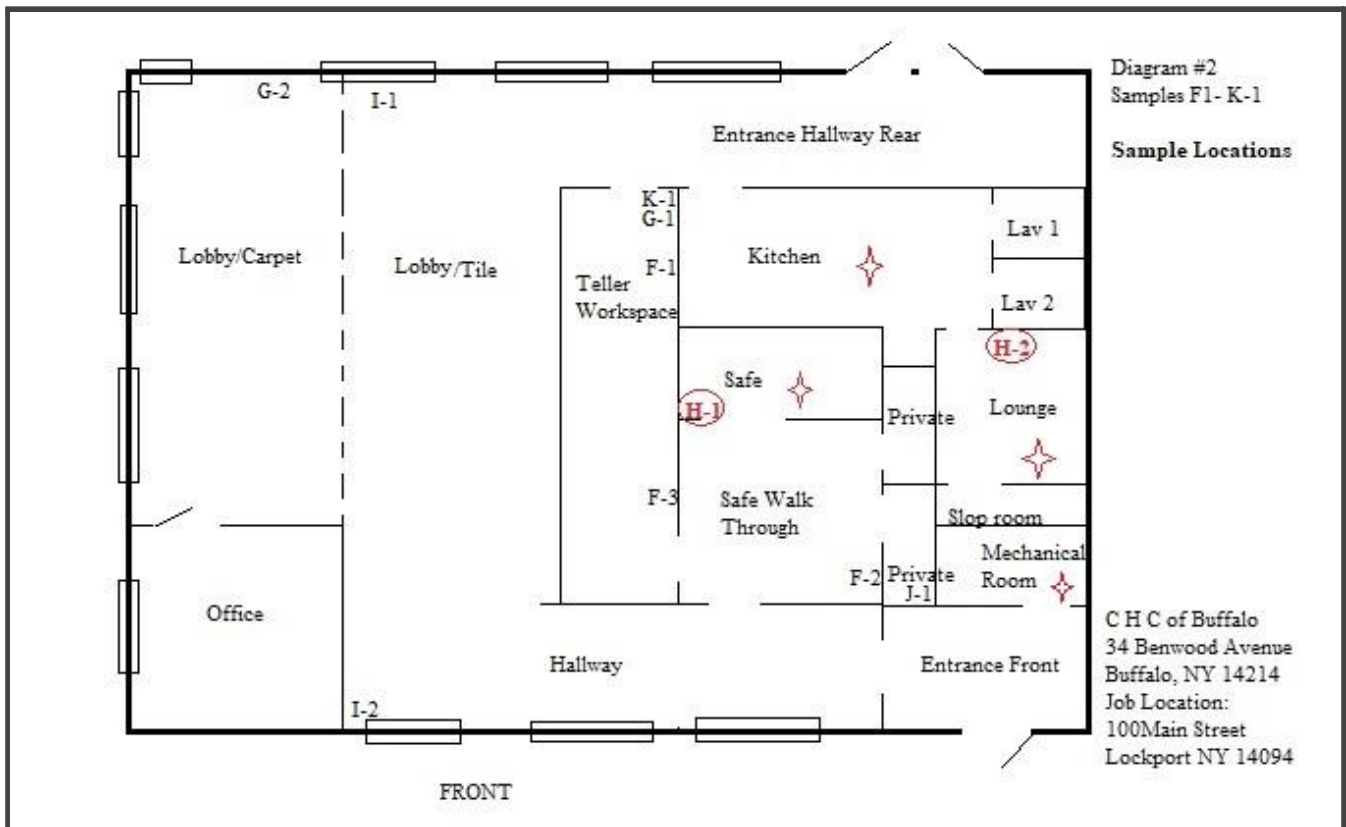
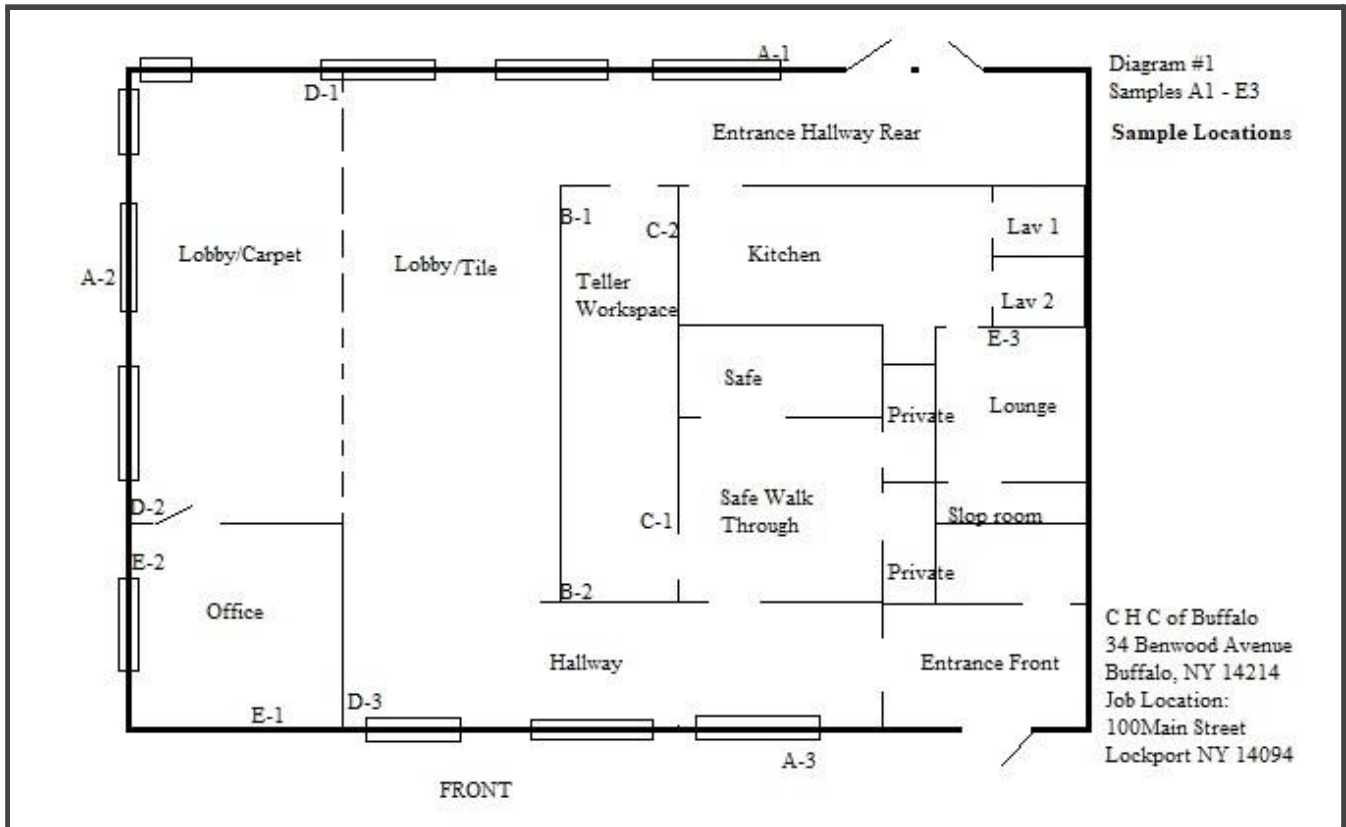
We appreciate the opportunity to perform this inspection for you. If you have any questions or if I can be of further assistance, please call.

Sincerely,

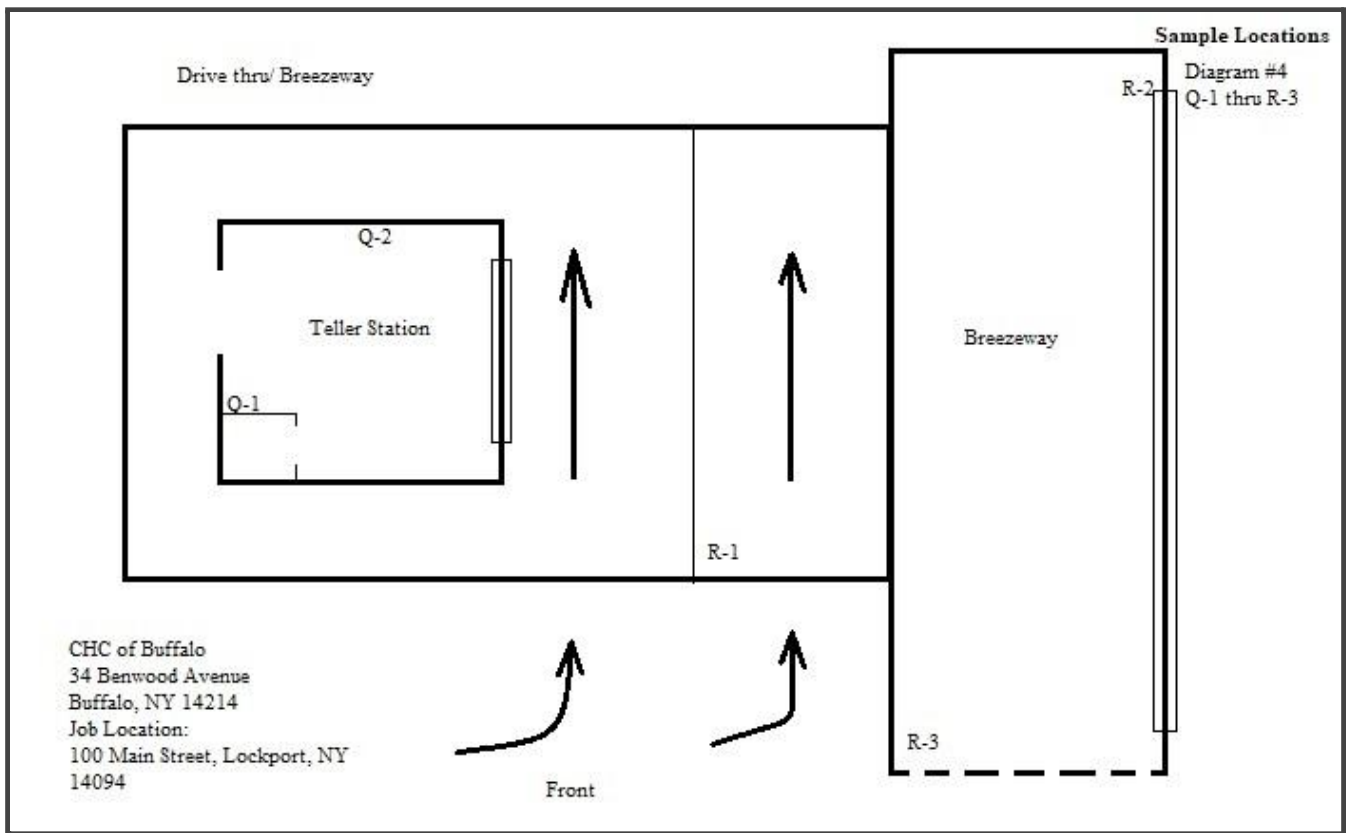
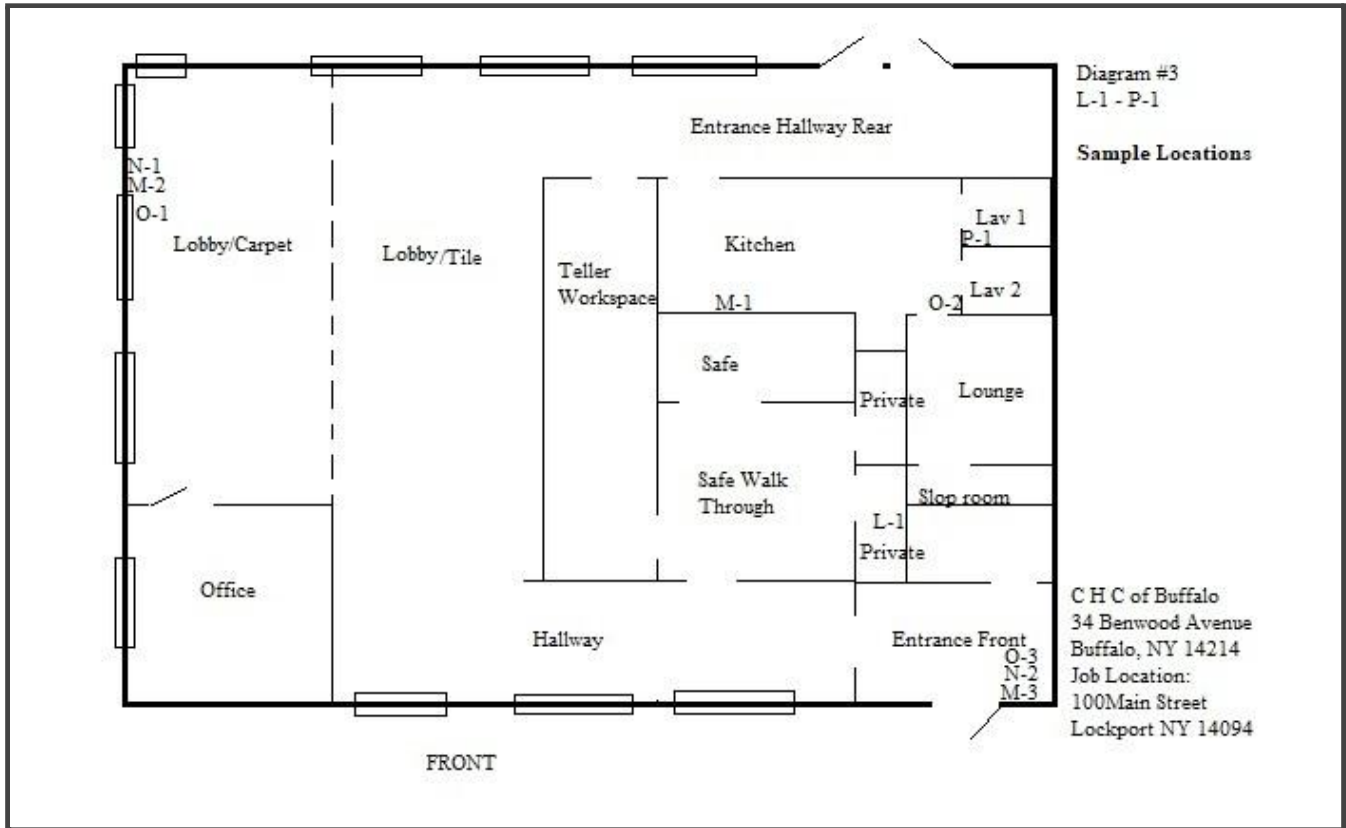
Randy S Lynch

NYS-Certified Asbestos Inspector #18-47557
NYS-Asbestos Handling License #170769



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STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE



RANDY S LYNCH
CLASS(EXPIRES)
D INSP(12/21)

CERT# 18-47557
DMV# 593269386

MUST BE CARRIED ON ASBESTOS PROJECTS



01213 005845206 11

EYES BRO
HAIR BRO
HGT 5' 09"

IF FOUND RETURN TO:
NYS DOL - L&C UNIT
ROOM 161A BUILDING 12
STATE OFFICE CAMPUS
ALBANY NY 12240

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Asbestos Handling License #170769

New York State – Department of Labor
Division of Safety and Health
License and Certificate Unit
State Campus, Building 12
Albany, NY 12240

ASBESTOS HANDLING LICENSE

Randy S. Lynch dba Allstate Home Inspection &
Household Environmental Testing of WNY


2414 Niagara Road
Niagara Falls, NY 14304

FILE NUMBER:
LICENSE NUMBER: 170769
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 08/28/2020
EXPIRATION DATE: 08/31/2021

Duly Authorized Representative – Randy Lynch:

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.



Eileen M. Franko, Director
For the Commissioner of Labor

SH 432 (8/12)

2414 Niagara Road, NY 14304 Phone: 716-731-9621 Cell 716-597-4193
www.AllstateHomeEnvironmental.com
NYS Asbestos Inspector #18-47557
Asbestos Handling License #170769



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

142102382

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-5974

Company: <u>Allstate Environmental Resources</u>		EMSL-Bill to: <input type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: <u>2414 Niagara Road</u>		Third Party Billing requires written authorization from third party	
City: <u>Niagara Falls</u>	State/Province: <u>NY</u>	Zip/Postal Code: <u>14304</u>	Country: <u>USA</u>
Report To (Name): <u>Randy S. Lynch</u>		Telephone #: <u>716-731-9621</u>	
Email Address: <u>ENV1261@Aol.com</u>		Fax #:	Purchase Order:
Project Name/Number:		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
U.S. State Samples Taken: <u>New York</u>		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	
Turnaround Time (TAT) Options* - Please Check			
<input type="checkbox"/> 3 Hour	<input type="checkbox"/> 6 Hour	<input type="checkbox"/> 24 Hour	<input checked="" type="checkbox"/> 48 Hour
<input type="checkbox"/> 72 Hour	<input type="checkbox"/> 96 Hour	<input type="checkbox"/> 1 Week	<input type="checkbox"/> 2 Week
*For TEM Air 3 hr through 6 hr, please call ahead to schedule. There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.			
PLM - Bulk (reporting limit)		TEM - Bulk	
<input type="checkbox"/> PLM EPA 600/R-93/116 (<1%)	<input type="checkbox"/> PLM EPA NOB (<1%)	<input type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1	<input checked="" type="checkbox"/> NY ELAP Method 198.4 (TEM)
Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	<input type="checkbox"/> Chatfield Protocol (semi-quantitative)	<input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2
<input type="checkbox"/> NIOSH 9002 (<1%)	<input checked="" type="checkbox"/> NY ELAP Method 198.1 (friable in NY)	<input type="checkbox"/> TEM Qualitative via Filtration Prep Technique	<input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique
<input checked="" type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY)	<input type="checkbox"/> OSHA ID-191 Modified	Other	
<input type="checkbox"/> Standard Addition Method	<input type="checkbox"/>		
<input type="checkbox"/> Check For Positive Stop - Clearly Identify Homogenous Group		Date Sampled: <u>6-30-2021</u>	
Samplers Name: <u>Randy S. Lynch</u>		Samplers Signature: <u>[Signature]</u>	
Sample #	HA #	Sample Location	Material Description
1	A1	<u>Main Building Exterior Window - Rear</u>	<u>Caulk Sealant - Gray</u>
2	A2	<u>Main Building Exterior Window - Left</u>	<u>Caulk Sealant - Gray</u>
3	A3	<u>Main Building Exterior Window - Front</u>	<u>Caulk Sealant - Gray</u>
4	B1	<u>Teller Workspace - Rear</u>	<u>Counter Top - Dark Gray</u>
5	B2	<u>Teller Workspace - Front</u>	<u>Counter Top - Dark Gray</u>
6	C1	<u>Teller Workspace - Front</u>	<u>Counter Formica/Mastic - Red</u>
7	C2	<u>Teller Workspace - Rear</u>	<u>Counter Formica/Mastic - Red</u>
8	D1	<u>Workspace Lobby - Rear</u>	<u>Vinyl Base Molding/Mastic - Black</u>
9	D2	<u>Workspace Lobby - Left</u>	<u>Vinyl Base Molding/Mastic - Black</u>
10	D3	<u>Workspace Lobby - Front</u>	<u>Vinyl Base Molding/Mastic - Black</u>
Client Sample # (s):		Total # of Samples: <u>39</u>	
Relinquished (Client): <u>[Signature]</u>		Date: <u>7-1-2021</u>	Time: <u>1:21 pm</u>
Received (Lab): <u>[Signature]</u>		Date: <u>7/1/2021</u>	Time: <u>1:24 pm</u>
Comments/Special Instructions:			



EMSL ANALYTICAL, INC.
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Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

142102382

PHONE:
FAX:

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
11 - E1	Office Front / Vinyl Base Molding / Mastic - Brown		
12 - E2	Office Left / Vinyl Base Molding / Mastic - Brown		
13 - E3	Lounge Rear / Vinyl Base Molding / Mastic - Brown		
14 - F1	Teller Right / Vinyl Base Molding / Mastic - Tan		
15 - F2	Walk Through at Safe - Right / Vinyl Base Molding / Mastic - Tan		
16 - F3	Teller Right Front / Vinyl Base Molding / Mastic - TAN		
17 - G1	Teller Right / Carpet / Mastic - Blue		
18 - G2	Lobby Rear / Carpet / Mastic - Blue		
19 - H1	Safe Floor / Vinyl Floor Tile / Mastic - Tan		
20 - H2	Lounge Left / Vinyl Floor Tile / Mastic - Tan		
21 - I1	Lobby Rear / Ceramic Floor Tile / Grout / Mastic - Tan, Brown, Yellow		
22 - I2	Lobby Front / Ceramic Floor Tile / Grout / Mastic - Tan, Brown, Yellow		
23 - J1	Private Room Front / Ceiling Tile Rough Finish - Gray		
24 - K1	Lobby Rear / Ceiling Tile Smooth Finish - White		
25 - L1	Attic Space / Ceiling Insulation - Yellow, Gray		
26 - M1	Kitchen Closet / Plaster Skim Coat, Base, Wall Board - White, Gray, Tan		
27 - M2	Lobby Left Center / Plaster Skim Coat, Base, Wall Board - White, Gray, Tan		
28 - M3	Front Right Entrance / Plaster Skim Coat, Base, Wall Board - White, Gray, Tan		
29 - N1	Interior Outside Wall Left / Bead Foam Insulation - White		
30 - N2	Interior Outside Wall Right Front / Bead Foam Insulation - White		
31 - O1	Lobby Left / Wallpaper - Blue		
32 - O2	Kitchen Rear / Wallpaper - Red		
33 - O3	Entrance Front Right / Wallpaper - Tan		

*Comments/Special Instructions:



3130 Old Farm Lane, Suite 1
Commerce Twp., MI 48390

877-665-3373

Laboratory Report

Prepared Exclusively For:

Allstate Environmental Resources
Randy Lynch
2414 Niagara Road
Niagara Falls, NY 14304
716-731-9621
env1261@aol.com



Project: Community Health Ctr of Buffalo - 100 Main St

Project # 61621-9 Lab # E160742

Report Date: 06/18/2021

Sampled: 06/16/2021

Received: 06/17/2021

Analyzed: 06/18/2021



Report Prepared For: Allstate Environmental Resources
Project Name: Community Health Ctr of Buffalo - 100 Main St
Project Number: 61621-9
Report Date: 06/18/2021
Lab Number: E160742

Table of Contents

- 1 Laboratory Results**
 - *Laboratory results from the samples collected at the site.*
- 2 Spore Trap Comparison Chart**
 - *Side by side comparison of air samples sorted by organism identified.*
- 3 Sample Comparison Graph**
 - *Graphical comparison of air samples sorted by organism identified.*
- 4 Background Comparison Graph**
 - *Graphical comparison of air samples sorted by sample location.*
- 5 Understanding Laboratory Results**
 - *Detailed summary of how to understand the analytical results from the samples including interpretive guidelines.*
- 6 Sample Identification Definitions**
 - *Information about the organisms identified in the samples analyzed.*
- 7 Glossary of Terms**
 - *Definitions of frequently used terms.*
- 8 Warranties, Legal Disclaimers, and Limitations**



Report Prepared For: Allstate Environmental Resources
 Project Name: Community Health Ctr of Buffalo - 100 Main St
 Project Number: 61621-9
 Report Date: 06/18/2021
 Lab Number: E160742

1 - Laboratory Results

Location: Kitchen

Sample # E160742 - 1	Sample Identification	Raw Count	Spores/cu. m	Percent(%)	
Medium Type: Gel-Imaction Slide Serial # #1-61621 Exposure: 20.00 l/min. for 5.00 min. Reporting Limit: 10 Spores/cu. m	- Fungi -				
	Basidiospores	7	70	46.67%	
	Cladosporium	6	60	40.00%	
	Smuts/Periconia/Myxomycetes	2	20	13.33%	
	Total Fungi	15	150	100.00%	
	- Other -				
	Hyphal Fragment	1	10	100.00%	
	Background Item	Level			
	Dust / Debris	Medium			
	Hyphal Fragments	Very Low			
Opaque Particles	Low				

Location: Lounge Wall

Sample # E160742 - 2	Sample Identification	Prevalence
Medium Type: Tape Lift Serial # #2-61621	- Fungi -	
	Cladosporium	Present on 26 - 50% of sample area.
	Pen/Asp group	Present on 26 - 50% of sample area.
	Stachybotrys	Present on less than 5% of sample area.
	Background Item	Level
Dust / Debris	Medium	
Hyphal Fragments	Low	
Opaque Particles	Low	

Location: Lobby Rear

Sample # E160742 - 3	Sample Identification	Raw Count	Spores/cu. m	Percent(%)
Medium Type: Gel-Imaction Slide Serial # #3-61621 Exposure: 20.00 l/min. for 5.00 min. Reporting Limit: 10 Spores/cu. m	- Fungi -			
	Basidiospores	8	80	50.00%
	Pen/Asp group	6	60	37.50%
	Alternaria	1	10	6.25%
	Cladosporium	1	10	6.25%
	Total Fungi	16	160	100.00%
	- Other -			
	Hyphal Fragment	1	10	100.00%

- Sample data continued on next page -



Report Prepared For: Allstate Environmental Resources
 Project Name: Community Health Ctr of Buffalo - 100 Main St
 Project Number: 61621-9
 Report Date: 06/18/2021
 Lab Number: E160742

Background Item	Level
Dust / Debris	Medium
Hyphal Fragments	Very Low
Opaque Particles	Low

Location: Workspace

Sample # E160742 - 4

Medium Type: Tape Lift
 Serial # #4-61621

Sample Identification	Prevalence
- Fungi -	
Cladosporium	Present on less than 5% of sample area.
Pen/Asp group	Present on less than 5% of sample area.

Background Item	Level
Dust / Debris	Medium
Opaque Particles	Low

Location: Lobby Front

Sample # E160742 - 5

Medium Type: Gel-Impaction Slide
 Serial # #5-61621
 Exposure: 20.00 l/min. for 5.00 min.
 Reporting Limit: 10 Spores/cu. m

Sample Identification	Raw Count	Spores/cu. m	Percent(%)
- Fungi -			
Pen/Asp group	15	150	60.00%
Cladosporium	6	60	24.00%
Basidiospores	2	20	8.00%
Smuts/Periconia/Myxomycetes	2	20	8.00%
Total Fungi	25	250	100.00%
- Other -			
Hyphal Fragment	1	10	100.00%

Background Item	Level
Dust / Debris	Medium
Hyphal Fragments	Very Low
Opaque Particles	Low

Location: Safe Room Wall

Sample # E160742 - 6

Medium Type: Tape Lift
 Serial # #6-61621

Sample Identification	Prevalence
- Fungi -	
Cladosporium	Present on 51 - 75% of sample area.
Pen/Asp group	Present on 51 - 75% of sample area.

Background Item	Level
Dust / Debris	Low
Hyphal Fragments	Low
Opaque Particles	Very Low



Report Prepared For: Allstate Environmental Resources
 Project Name: Community Health Ctr of Buffalo - 100 Main St
 Project Number: 61621-9
 Report Date: 06/18/2021
 Lab Number: E160742

Location: Safe Room

Sample # E160742 - 7	Sample Identification	Raw Count	Spores/cu. m	Percent(%)
Medium Type: Gel-Impaction Slide Serial # #7-61621 Exposure: 20.00 l/min. for 5.00 min. Reporting Limit: 10 Spores/cu. m	- Fungi -			
	Pen/Asp group	15	150	31.91%
	Cladosporium	13	130	27.66%
	Smuts/Periconia/Myxomycetes	8	80	17.02%
	Basidiospores	7	70	14.89%
	Stachybotrys	3	30	6.38%
	Chaetomium	1	10	2.13%
	Total Fungi	47	470	100.00%
	- Other -			
	Hyphal Fragment	2	20	66.67%
	Pollen	1	10	33.33%
	Total Other	3	30	100.00%

Background Item	Level
Dust / Debris	Medium
Hyphal Fragments	Very Low
Opaque Particles	Low

Location: Safe Room Door Panel

Sample # E160742 - 8	Sample Identification	Prevalence
Medium Type: Tape Lift Serial # #8-61621	- Fungi -	
	Cladosporium	Present on 51 - 75% of sample area.
	Pen/Asp group	Present on 5 - 25% of sample area.

Background Item	Level
Dust / Debris	Medium
Hyphal Fragments	Low
Opaque Particles	Low

Location: Exterior

Sample # E160742 - 9	Sample Identification	Raw Count	Spores/cu. m	Percent(%)
Medium Type: Gel-Impaction Slide Serial # #9-61621 Exposure: 20.00 l/min. for 5.00 min. Reporting Limit: 10 Spores/cu. m	- Fungi -			
	Cladosporium	17	170	53.13%
	Smuts/Periconia/Myxomycetes	11	110	34.38%
	Basidiospores	3	30	9.38%
	Ganoderma	1	10	3.13%
	Total Fungi	32	320	100.00%
	- Other -			
	Hyphal Fragment	3	30	75.00%

- Sample data continued on next page -



Report Prepared For: Allstate Environmental Resources
Project Name: Community Health Ctr of Buffalo - 100 Main St
Project Number: 61621-9
Report Date: 06/18/2021
Lab Number: E160742

Pollen	1	10	25.00%
Total Other	4	40	100.00%

Background Item	Level
Dust / Debris	Medium
Hyphal Fragments	Very Low
Opaque Particles	Low

Analytic Methods and Formulas:

Calculated results may include one more significant figure than is mathematically justified in order to accommodate the client's needs.

IMS Analytical Method: 2.6.1 (method for analyzing abundant organisms tape lift)

IMS Laboratory Analytical Method: 2.3 (method for analyzing spore trap)

Spores per cubic meter is determined by: $\text{Total Spore Count} \times 1000 / (\text{sampling rate} \times \text{sampling time})$

Note that this report may use mold-specific units of measure, such as Spores/cu. m and CFU/cu. m, for Sample Identifications which are not mold. Examples include pollen, fabric and fiberglass fibers, insect particles, and ash. In this context, "CFU" and "Spore" refer to individual pieces of the identified material.

IMS Laboratory, LLC is accredited through the AIHA-LAP, LLC and participates in Environmental Microbiology Proficiency Testing, EMPAT #172958. Data is provided in compliance with AIHA-LAP, LLC policy modules and ISO/IEC 17025:2017 guidelines.



Kathryn C. Langley 06/18/2021

Kathryn C. Langley, Laboratory Manager



Report Prepared For: Allstate Environmental Resources
 Project Name: Community Health Ctr of Buffalo - 100 Main St
 Project Number: 61621-9
 Report Date: 06/18/2021
 Lab Number: E160742

2 - Spore Trap Comparison Chart

SAMPLING LOCATIONS

- | | |
|----------------|--------------|
| 1: Kitchen | 4: Safe Room |
| 2: Lobby Rear | 5: Exterior |
| 3: Lobby Front | |

Spores per Cubic Meter

Mold Name \ Location #	1	2	3	4	5
<i>Alternaria</i>		10			
<i>Arthrinium</i>					
Ascospores					
Basidiospores	70	80	20	70	30
<i>Bipolaris / Drechslera group</i>					
<i>Chaetomium</i>				10	
<i>Cladosporium</i>	60	10	60	130	170
<i>Curvularia</i>					
<i>Erysiphe/Oidium</i>					
<i>Fusarium</i>					
<i>Ganoderma</i>					10
Mitospores					
Pen/Asp group		60	150	150	
<i>Pithomyces</i>					
<i>Polythrincium</i>					
Rust					
<i>Smuts/Periconia/Myxomycetes</i>	20		20	80	110
<i>Stachybotrys</i>				30	
<i>Stemphylium</i>					
<i>Torula</i>					
Unknown Fungi					
FUNGAL TOTAL	150	160	250	470	320
Hyphal Fragment	10	10	10	20	30
Pollen				10	10

Please refer to the Laboratory Results section for additional details.

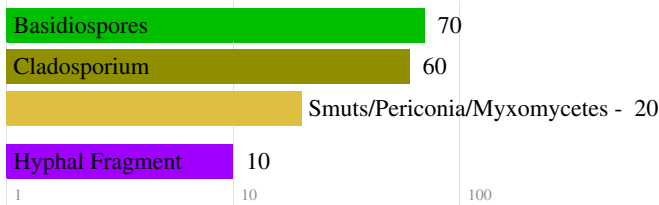


Report Prepared For: Allstate Environmental Resources
 Project Name: Community Health Ctr of Buffalo - 100 Main St
 Project Number: 61621-9
 Report Date: 06/18/2021
 Lab Number: E160742

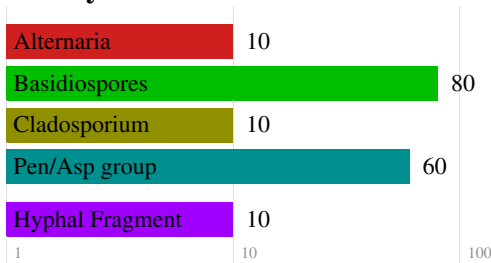
3 - Sample Comparison Graph

Spore Trap Samples - Spores per Cubic Meter

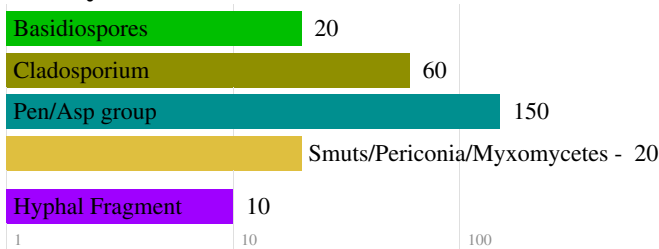
Kitchen



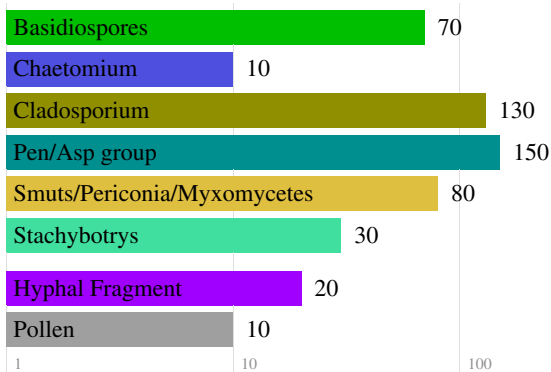
Lobby Rear



Lobby Front



Safe Room

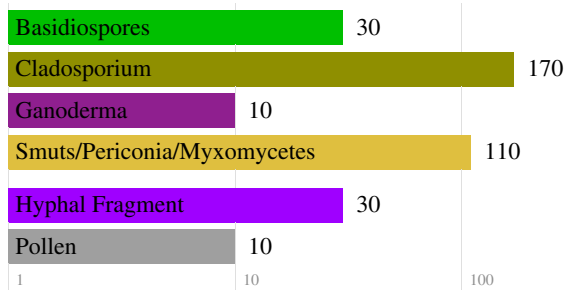




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Project Name: Community Health Ctr of Buffalo - 100 Main St
Project Number: 61621-9
Report Date: 06/18/2021
Lab Number: E160742

Spore Trap Samples - Spores per Cubic Meter

Exterior

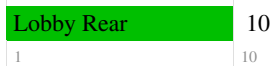




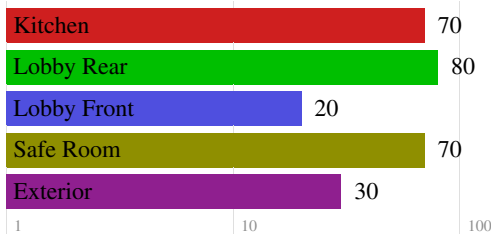
4 - Background Comparison Graph

Spore Trap Samples - Spores per Cubic Meter

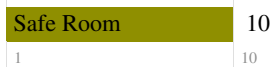
Alternaria



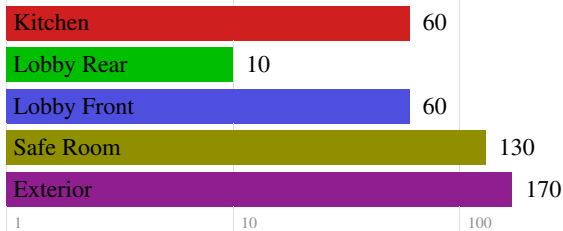
Basidiospores



Chaetomium



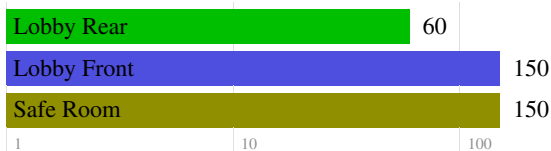
Cladosporium



Ganoderma



Pen/Asp group

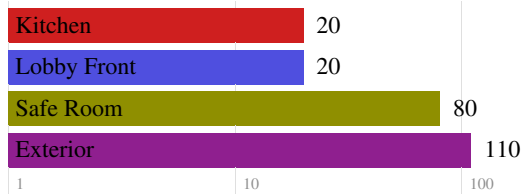




Report Prepared For: Allstate Environmental Resources
Project Name: Community Health Ctr of Buffalo - 100 Main St
Project Number: 61621-9
Report Date: 06/18/2021
Lab Number: E160742

Spore Trap Samples - Spores per Cubic Meter

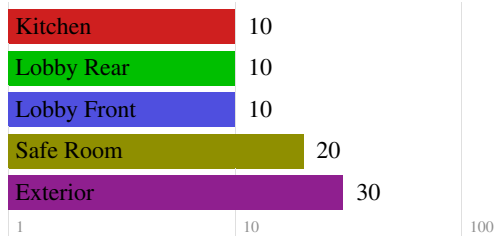
Smuts/Periconia/Myxomycetes



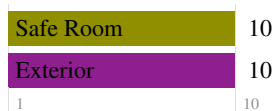
Stachybotrys



Hyphal Fragment



Pollen





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Lab Number: E160742

5 - Understanding Laboratory Results

Laboratory findings must only be considered as part of an overall mold investigation. The interpretation of the findings must only be made by a qualified individual after reviewing all relevant data. Visual information and environmental conditions measured during the site assessment are crucial to any final interpretation of the results. A very good reference book which covers sampling and data interpretation has been published by The American Conference of Governmental and Industrial Hygienists and is entitled *Bioaerosols: Assessment and Control*, 1999.

Numerical guidelines cannot be used as the primary determinant as to whether a mold problem may exist. Concentrations of mold in the air will vary depending on weather conditions, building air flow, time of day and time of year. Comparisons between indoor and outdoor mold levels, types of mold found, visual information and environmental conditions are more important in interpreting results than reliance on specific numeric thresholds.

In *Indoor Air Quality in Office Buildings: A Technical Guide*, Health Canada, Revised 1995 (Pages 49-50), Health Canada set forth guidelines which can be used to better understand air testing results. The guidelines included these general principles. Significant numbers of certain pathogenic fungi should not be present in indoor air (e.g. *Aspergillus fumigatus*, *Histoplasma*, and *Cryptococcus*). Bird or bat droppings in air intakes, ducts or rooms should be assumed to contain these pathogens. The persistent presence of significant numbers of toxigenic fungi (e.g. *Stachybotrys atra*, toxigenic *Aspergillus*, *Penicillium* and *Fusarium* species) indicate that further investigation and action should be taken. The confirmed presence of one or more fungal species occurring as a significant percentage of a sample in indoor air samples and not similarly present in concurrent outdoor samples is evidence of a fungal amplifier. The "normal" air mycoflora is qualitatively similar and quantitatively lower than that of outdoor air. The significant presence of fungi in humidifiers and diffuser ducts and on moldy ceiling tiles and other surfaces requires investigation and remedial action regardless of the airborne mold concentrations.

Generally, mold spores are present everywhere. As a general rule, "normal" air mycoflora is qualitatively similar and quantitatively lower than that of outdoor air. When the converse is true, it is likely that an indoor source of mold may exist. However, even this most basic rule may produce misleading results. Airborne mold spore levels vary widely due to factors such as weather conditions and activity levels. For example, in a "normal" home, indoor mold spore levels may be elevated above outdoor spore levels after vacuuming (when airborne indoor levels could be unusually high) or after a heavy snow (when outdoor levels could be unusually low).



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Report Date: 06/18/2021
Lab Number: E160742

Surface Sampling primarily identifies the types and relative proportions of mold on a surface. Viable surface sampling will identify living mold, while nonviable surface sampling will identify all mold (but cannot distinguish between living or dead mold). Surface sampling may confirm that a substance is mold or identify the types of mold present on the surface. Because mold is everywhere, there is a high probability that a surface sample from a "clean" surface will still identify mold on that surface.

There are currently no state or federal standards or guidelines regarding results of fungal samples. There are no levels, which are typical or permissible. There are no recommended exposure limits, no permissible exposure limits, no threshold limit values and no short term exposure limits.

These guidelines are not intended, nor should they be used, for health evaluation purposes or to evaluate the safety of an occupied space. A physician should be consulted regarding health and/or safety questions.



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6 - Sample Identification Definitions

Alternaria

A genus of fungi that is extremely widespread and ubiquitous. It is commonly found in outdoor samples and may be isolated from samples of soil, seeds, and plants. Alternaria is also often found in carpets, textiles, window frames, and on horizontal surfaces in building interiors. It is both a plant pathogen and human pathogen. Alternaria produces large spores, suggesting that the spores from this fungus are deposited in the nose, mouth, and upper respiratory tract. It may be related to baker's asthma. Alternaria has been associated with hypersensitivity pneumonitis, sinusitis, dermatomycosis, onychomycosis, subcutaneous phaeohyphomycosis, and invasive infection. It is a common cause of extrinsic asthma (immediate-type hypersensitivity: type I).

Found in these Sample Locations: (3) Lobby Rear

Basidiospores

A large group of spores that are very ubiquitous in nature. They are released from mushrooms, shelf fungi, puffballs, and a variety of other macro fungi. Basidiospores may be allergenic to those with seasonal allergies.

Found in these Sample Locations: (1) Kitchen (3) Lobby Rear (5) Lobby Front (7) Safe Room (9) Exterior

Chaetomium

A type of ascospore commonly isolated from soil. It is found on a variety of substrates including decomposing plant material and wood, dung, straw, and damp or water-damaged cellulose (e.g. paper on drywall). As a moisture-indicator fungi, Chaetomium only grows when the substrate has a current or previous severe moisture problem. There are over 100 documented species of Chaetomium, several of which are reported to be toxigenic; if not speciated, the genus Chaetomium should be assumed to be toxigenic. It has been known to cause systemic, cerebral, cutaneous, subcutaneous, and pulmonary infections, though usually only in the immunocompromised.

Found in these Sample Locations: (7) Safe Room

Cladosporium

One of the most commonly identified outdoor fungi. It is often found indoors in numbers less than outdoors. Cladosporium is also found on decaying plants and food, straw, paint, and textiles. It is generally regarded to be allergenic and can be a cause of extrinsic asthma



Report Prepared For: Allstate Environmental Resources
Project Name: Community Health Ctr of Buffalo - 100 Main St
Project Number: 61621-9
Report Date: 06/18/2021
Lab Number: E160742

(immediate type hypersensitivity: Type I). *Cladosporium* has been reported in cases of skin lesions, keratitis, onychomycosis, sinusitis, and pulmonary infections.

Found in these Sample Locations: (1) Kitchen (2) Lounge Wall (3) Lobby Rear (4) Workspace (5) Lobby Front (6) Safe Room Wall (7) Safe Room (8) Safe Room Door Panel (9) Exterior

Ganoderma

A type of basidiospore from a genus of mushrooms known as shelf mushrooms or bracket fungi, which grow on wood. These spores may be allergenic to those with seasonal allergies.

Found in these Sample Locations: (9) Exterior

Hyphal Fragment

A tubular filament which is the vegetative, nutrient-absorbing portion of the fungus.

Found in these Sample Locations: (1) Kitchen (3) Lobby Rear (5) Lobby Front (7) Safe Room (9) Exterior

Pen/Asp group

The spores of the genera *Penicillium*, *Aspergillus*, and *Trichoderma* are quite similar when viewed under a microscope and are grouped together under the heading Pen/Asp. *Penicillium* species are among the most common fungi found in indoor environments, particularly basements. Certain species may cause infections of the eye, external ear, respiratory system, and urinary tract. Some species of *Aspergillus* are parasitic on insects, plants, and animals including humans. All *Aspergillus* species are allergenic. Various species can cause extrinsic asthma, pulmonary emphysema, opportunistic infections of the ears and eyes, and severe pulmonary infections. Some species of *Penicillium*, *Aspergillus*, and *Trichoderma* produce mycotoxins which may be associated with diseases in humans and animals. Several toxins are considered potential human carcinogens. The genus *Trichoderma* has been reported to cause infections in immunocompromised individuals, patients undergoing dialysis, and individuals with chronic kidney failure or chronic lung disease.

Found in these Sample Locations: (2) Lounge Wall (3) Lobby Rear (4) Workspace (5) Lobby Front (6) Safe Room Wall (7) Safe Room (8) Safe Room Door Panel

Pollen

Pollen are coarse to fine particles/grains produced by various trees, weeds, and grasses. For individuals with seasonal allergies, pollen is often the causative agent.

Found in these Sample Locations: (7) Safe Room (9) Exterior



Report Prepared For: Allstate Environmental Resources
Project Name: Community Health Ctr of Buffalo - 100 Main St
Project Number: 61621-9
Report Date: 06/18/2021
Lab Number: E160742

Smuts/Periconia/Myxomycetes

A group of plant pathogens with similar morphology. They are commonly found in the outdoor environment in soil and on wood, grasses, cereal crops, and flowering plants. Myxomycete spores are considered to cause Type 1 allergies (hay fever and asthma).

Found in these Sample Locations: (1) Kitchen (5) Lobby Front (7) Safe Room (9) Exterior

Stachybotrys

A fungus naturally found on decaying plant and tree material. In the indoor environment, it grows on building material with a high cellulose and water content and a low nitrogen content (e.g. wet drywall). There are over 20 documented species of Stachybotrys, and at least two are reported to be toxigenic; if not speciated, the genus Stachybotrys should be assumed to be toxigenic. Specifically, it can produce the mycotoxin trichothecene (Satratoxin H), which is poisonous upon inhalation. Individuals with chronic exposure to the toxin produced by this fungus reported cold and flu symptoms, sore throats, diarrhea, headaches, fatigue, dermatitis, intermittent local hair loss, and general malaise. The toxin may suppress the immune system, affecting the lymphoid tissue and the bone marrow. It is also reported to be a liver and kidney carcinogen. Effects by absorption of the toxin in the human lung are known as pneumomycosis. Areas with relative humidity above 55% are subject to temperature fluctuations and are ideal for toxin production. Stachybotrys is rarely found in outdoor samples. It is usually difficult to find in indoor air samples unless it is physically disturbed.

Found in these Sample Locations: (2) Lounge Wall (7) Safe Room



Report Prepared For: Allstate Environmental Resources
Project Name: Community Health Ctr of Buffalo - 100 Main St
Project Number: 61621-9
Report Date: 06/18/2021
Lab Number: E160742

7 - Glossary of Terms

Agar ~

A gelatinous medium used for growing microorganisms (e.g. mold, yeast, and bacteria).

Colony ~

A group of hyphae (filaments) of the same type of microorganism growing together. A colony can be seen with the naked eye.

Colony Forming Unit (CFU) ~

A unit of measure describing the number of colonies present in or on a surface of a sample.

Exposure ~

The exposure refers to the quantity of a sample collected for laboratory analysis. With reference to air tests, the exposure is determined by multiplying the flow rate of the collection device by the length of time the device was operating.

Fungus (fungi, pl) ~

Fungi are a form of life (eukaryotic) which can range from unicellular to filamentous. Fungi lack chlorophyll and absorb nutrients. Fungi can reproduce by sexual, asexual, or both means. Mold is a type of fungi.

Hypha (hyphae, pl) / hyphal fragment ~

Hypha is the tubular filament which is the vegetative, nutrient absorbing portion of the fungus.

Isolate (verb, Microbiology) ~

To obtain or extract a microorganism from an environment or mixed culture.

Mold ~

A very large group of microscopic fungi. Most are filamentous organisms and produce spores that can be air-, water-, or insect-borne. Mold can be a common trigger for allergies. For people who are sensitive to mold, exposure can cause symptoms such as nasal stuffiness, eye irritation, or wheezing. People with serious allergies to mold may have more severe reactions. Severe reactions may occur among workers exposed to large amounts of molds in occupational settings. People with chronic illnesses, such as obstructive lung disease, may develop mold infections in their lungs. Mold growth in the home can be slowed by keeping humidity levels below 50% and ventilating showers and cooking areas.



Report Prepared For: Allstate Environmental Resources
Project Name: Community Health Ctr of Buffalo - 100 Main St
Project Number: 61621-9
Report Date: 06/18/2021
Lab Number: E160742

Mycotoxin ~

A substance produced by fungi which can be toxic to man and/or animals.

Opaque particle ~

Opaque particles are dark, non-biological, debris through which light will not pass.

Petri Dish ~

A dish containing agar for the culturing of microorganisms (e.g. fungi or bacteria).

Raw Count ~

The number of particles counted by an analyst during the examination of specimen.

Reporting Limit (RL) ~

The reporting limit (RL) is the limit of detection for an analyte that can be reliably reported by using a given analytical method. The RL is dependent on the time and volume of sampling.

Sample Medium ~

The sample medium refers to the type of test conducted (e.g. swab, spore trap air test, tape lift, etc.).

Serial Number ~

A manufacturer's specific identification code on a test medium (e.g. spore trap or tape lift).

Spore ~

A propagule/structure produced by fungi as a means of reproduction, survival, and dissemination. Spores can be single cellular or multicellular.

Spore Trap ~

A Spore trap is a collection device (or media) used to capture airborne spores and other airborne particulates. Spore traps are analyzed by microscopic means and do not distinguish between viable and non-viable cells.

Too Numerous To Count (TNTC) ~

TNTC is used to denote specimens in which a type of organism is present at an extremely high level or has grown together so that individual colonies cannot be distinguished.

Toxigenic fungi ~

Toxigenic fungi are fungi capable of producing toxic substances.



Report Prepared For: Allstate Environmental Resources
Project Name: Community Health Ctr of Buffalo - 100 Main St
Project Number: 61621-9
Report Date: 06/18/2021
Lab Number: E160742

8 - Warranties, Legal Disclaimers, and Limitations

IMS's scope of accreditation through the AIHA-LAP, LLC is for the following FoT(s) / Method(s): Fungal Air - Direct Examination (SOP 2.2 and 2.3); Fungal Bulk - Direct Examination (SOP 2.6); and Fungal Surface - Direct Examination (SOP 2.1).

The study and understanding of molds is a progressing science. Because different methods of sampling, collection and analysis exist within the indoor air quality industry, different inspectors or analysts may not always agree on the mold concentrations present in a given environment. Additionally, the airborne levels of mold change frequently and by large amounts due to many factors including activity levels, weather, air exchange rates (indoors), and disturbance of growth sites. It is possible for report interpretations and ranges of accuracy to vary since comprehensive, generally accepted industry standards do not currently exist for indoor air quality inspections of mold in residential indoor environments. This report is intended to provide an analysis based upon samples taken at the site at the time of the inspection. Mold levels can and do change rapidly, especially if home building materials or contents remain wet for more than 24 hours, or if they are wet frequently. This report is not intended to provide medical or healthcare advice. All allergy or medical-related questions and concerns, including health concerns relating to possible mold exposure, should be directed to a qualified physician. If this report indicates indoor mold levels that are higher than in typical indoor living spaces relative to the outdoor environment, or indicates any findings that are of concern to you, further evaluation by a trained mold professional or a Certified Industrial Hygienist (CIH) may be advisable.

Results pertain only to the samples tested, as received by IMS. Unless otherwise noted in the body of this report, the condition of samples upon receipt was acceptable. Blank samples are reported in the same manner as all other samples. The results are not corrected for contamination.

This report is generated by IMS at the request of, and for the exclusive use of, the IMS client named on this report. Project Name, Project Number, Sampling Date, Sampling Locations and Exposure times and rates have been provided to IMS by the client, and may affect the validity of the results. The analysis of the test samples is performed by IMS. This report applies only to the samples taken at the time, place and location referenced in the report and received by IMS, and to the property and weather conditions existing at that time only. Please be aware, however, that property conditions, inspection findings and laboratory results can and do change over time relative to the original sampling due to changing conditions, the normal fluctuation of airborne mold, and many other factors. IMS does not furnish, and has no responsibility for, the inspector or inspection service that performs the inspection or collects the test samples. It is the responsibility of the end-user of this report to select a properly trained professional to conduct the



Report Prepared For: Allstate Environmental Resources
Project Name: Community Health Ctr of Buffalo - 100 Main St
Project Number: 61621-9
Report Date: 06/18/2021
Lab Number: E160742

inspection and collect appropriate samples for analysis and interpretation. Neither IMS, nor its affiliates, subsidiaries, suppliers, employees, agents, contractors and attorneys ("IMS related party") are able to make and do not make any determinations as to the safety or health condition of a property in this report. The client and client's customer are solely responsible for the use of, and any determinations made from, this report, and no IMS related party shall have any liability with respect to decisions or recommendations made or actions taken by either the client or the client's customer based on the report.

Samples analyzed by IMS are disposed the day that they are analyzed. Storage may be available for a fee with written request at the time the samples are submitted for analysis.

IMS hereby expressly disclaims any and all representations and warranties of any kind or nature, whether express, implied or statutory, related to the testing services or this report including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of IMS and whether IMS has been informed of the possibility of such damages, arising out of or in connection with IMS's services or the delivery, use, reliance upon or interpretation of test results by client or any third party. In no event will IMS be liable for any special, indirect, incidental, punitive, or consequential damages of any kind regardless of the form of action whether in contract, tort (including negligence), strict product liability or otherwise, arising from or related to the testing services or this report.

IMS accepts no legal responsibility for the purposes for which the client uses the test results. IMS will not be held responsible for the improper selection of sampling devices even if we supply the device to the user. The user of the sampling device has the sole responsibility to select the proper sampler and sampling conditions to insure that a valid sample is taken for analysis. Additionally, neither this report nor IMS makes any express or implied warranty or guarantee regarding the inspection or sampling done by the inspector, the qualifications, training or sampling methodology used by the inspector performing the sampling and inspection reported herein, or the accuracy of any information provided to IMS serving as a basis for this report. The total liability of IMS related to or arising from this report to a client or any third party, whether under contract law, tort law, warranty or otherwise, shall be limited to direct damages not to exceed the fees actually received by IMS from the client for the report. The invalidity or unenforceability, in whole or in part, of any provision, term or condition herein shall not invalidate or otherwise affect the enforceability of the remainder of these provisions, terms and conditions. Client shall indemnify IMS and its officers, directors and employees and hold each of them harmless for any liability, expense or cost, including reasonable attorney's fees, incurred by reason of any third party claim in connection with IMS's services, the test result data or its use by client.

- End of Lab Report Number E160742 -

SECTION 035400 – CEMENTITIOUS FLOOR UNDERLAYMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Description of Work: Work of this section includes underlayment for interior finish flooring.

1.02.1 REFERENCES

- A. Underwriters Laboratory Fire Resistance Volume 1
www.ul.com
- B. ASTM E336 and E1007 Field Sound Transmission Class (F-STC), Field
Impact Insulation Class (F-IIC)
- C. ASTM E90 and E492 Sound Transmission Class (STC), Impact
Insulation Class (IIC)
- D. ASTM C472M Compressive strength of gypsum concrete
- E. ASTM F2170 Standard Test Method for Determining Relative
Humidity in Concrete Floor Slab
- F. ASTM F2419 Standard Test Method for Installation of Thick
Poured Gypsum Concrete and Preparation of Surface to
Receive Resilient Flooring
- G. ASTM F2678 Standard Practice for Preparing Panel Underlayments,
Thick Poured Gypsum Concrete Underlayments, Thick
Poured Lightweight Cellular Concrete Underlayments,
and Concrete Subfloors with Underlayment Patching
Compounds to Receive Resilient Flooring
- H. TCNA F 180 Tile Council of North America Installation
Handbook www.tileusa.com

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's product sheets.
- B. UL Directory Fire Resistance Data.
- C. Acoustical Data: Submit sound tests according to IBC code criteria ASTM E492 (IIC) and ASTM E90 (STC) or ASTM E1007 (F-IIC) and E336 (F-IIC).

1.04 SYSTEM REQUIREMENTS

- A. Performance Requirements:
 - 1. Gyp-Crete Floor Underlayment

- a. Compressive strength up to 2,200 psi
- b. Density 110 pounds per cubic foot
- 2. Sound Control – 2006 International Building Code
 - a. Minimum Sound Transmission Class, 50 STC
 - 1) ASTM E90 and E336
 - b. Minimum Impact Insulation Class, 50 IIC
 - 1) ASTM E492 and E1007

1.05 QUALITY ASSURANCE

- A. Performance Standards:
 - 1. All materials, unless otherwise indicated, shall be from a single manufacturer and shall be installed in accordance with its current printed directions and by the manufacturer.
 - 2. Underlayment mix shall be tested for a slump using a 2" (i.d.) x 4" cylinder resulting in a patty size of 8 inches plus or minus 1 inch diameter.
 - 3. Compressive strength tested in accordance with ASTM C 472M.

1.06 DELIVERY, STORAGE AND HANDLING

- A. All materials shall be delivered in their original unopened packages and protected from damage and exposure from the elements. Damaged or deteriorated materials shall be removed from the premises.

1.07 PROJECT CONDITIONS

- A. Before, during and after installation of product, building interior shall be enclosed, with adequate ventilation and heat maintained at a temperature above 50° F to allow for drying of product.

PART 2 - PRODUCTS

2.01 PRODUCTS AND MANUFACTURERS

- A. Manufacturer: Maxxon Corporation, Hamel, MN or approved equal.

2.02 MATERIALS

- A. Proprietary products/systems: Poured flooring underlayment and topping products, including the following:
 - 1. Gyp-Crete Floor Underlayment
- B. Floor Primer:
 - 1. Material Standard: Comply with specifications outlined in manufacturer's Design and Installation Guide for wood.
- C. Mix Water:
 - 1. Material Standard: Potable, free from impurities and from a domestic source.
- D. Sand Aggregate:
 - 1. Sand shall meet manufacturer's requirements.

- E. Primer Sealer:
 - 1. Seal all areas that receive glue down floor goods with primer sealer according to manufacturer's specifications.
- F. Reinforcement Crack Suppression Mat

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Site Verification of Conditions:
 - 1. Installation shall not begin until the building is enclosed, including roof, windows, doors, and any other apertures.
 - 2. Wood substrate shall be structurally sound, properly fastened, and dry. Contractor shall clean subfloor to remove mud, oil, grease, and other contaminating factors before arrival of the authorized applicator.
 - 3. Wood substrate:
 - a. The wood subfloor must be adequate to withstand live and dead loads with a deflection limitation of L/360.
 - b. Wood should be agency approved 23/32" (1.8cm) T & G subfloor sheathing.

3.02 REQUIREMENTS

- A. Leak Prevention:
 - 1. Fill cracks and voids in subfloor where leakage of slurry could occur.
- B. Priming subfloor:
 - 1. Prime substrate according to manufacturer's recommendations.
- C. Application:
 - 1. Install in accordance with reference standards and manufacturer's instructions.

3.03 GENERAL INSTALLATION REQUIREMENTS

- A. Mixing Proportions:
 - 1. General Requirements: Mix proportions and methods shall be in strict accordance with product manufacturer recommendations.
- B. Application:
 - 1. Pour floor topping thickness indicated. Immediately spread and screed product to a smooth surface. Expansion joints in all types of work shall be brought through the underlayment.
- C. Drying:
 - 1. The general contractor must provide and maintain correct environmental conditions to keep the building clean and dry and protect against infestation of moisture from a variety of potential sources. The general contractor must supply mechanical ventilation and heat if necessary to remove moisture from the area until the Gyp-Crete is dry.

2. Protection from Heavy Loads: During construction, place temporary wood planking over Gyp-Crete wherever it will be subject to heavy wheeled or concentrated loads.

3.04 PREPARATION FOR INSTALLATION OF GLUE DOWN FLOOR GOODS

- A. Sealing:
 1. Seal all areas that receive glue down floor goods. Any floor areas where the surface has been damaged shall be cleaned and sealed regardless of floor covering to be used. Where floor goods manufacturers require special adhesive or installation systems, their requirements supersede these recommendations.
- B. Moisture Testing:
 1. ASTM F2170 Test Method for Determining Relative Humidity in Concrete. Follow the respective floor goods manufacturers' recommendations for relative humidity requirements. When manufacturer does not have a relative humidity requirement, refer to manufacturer recommendations.

END OF SECTION

SECTION 055000 - METAL FABRICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This section includes the following metal fabrications:
 - 1. Rough hardware.
 - 2. Miscellaneous framing and supports for the following:
 - a. Applications where framing and supports are not specified in other sections.
- B. Related Sections: The following sections contain requirements that relate to this section:
 - 1. Division 5 Section "Structural Steel" for structural steel framing systems components.

1.3 DEFINITIONS

- A. Definitions in ASTM E 985 for railing-related terms apply to this section.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for products used in miscellaneous metal fabrications, including paint products and grout.
- C. Shop drawings detailing fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections and details of metal fabrications and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other sections.
- D. Samples representative of materials and finished projects as may be requested by Architect.
- E. Welder certificates signed by Contractor certifying that welders comply with requirements specified under "Quality Assurance" article.
- F. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project name, addresses, names of Architects and Owners and other information specified.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Firm experienced in successfully producing metal fabrications similar to that indicated for this Project, with sufficient production capacity to produce required units without causing delay in the Work.

- B. Installer Qualifications: Arrange for installation of metal fabrications specified in this section by same firm that fabricated them.
- C. Qualify welding processes and welding operators in accordance with AWS D1.1 "Structural Welding Code - Steel," D1.3 "Structural Welding Code - Sheet Steel", and D1.2 "Structural Welding Code - Aluminum."
 - 1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.6 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.
- C. Refer to General Conditions for additional requirements.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit, by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of Work.
 - 1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabrication of products without field measurements. Coordinate construction to ensure that actual opening dimensions correspond to guaranteed dimensions. Allow for trimming and fitting.

PART 2 - PRODUCTS

2.1 FERROUS METALS

- A. Metal Surfaces, General: For metal fabrications exposed to view upon completion of the Work, provide materials selected for their surface flatness, smoothness and freedom from surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness and, for steel sheet, variations in flatness exceeding those permitted by reference standards for stretcher-leveled sheet.
- B. Steel Plates, Shapes, and Bars: ASTM A 36.
- C. Uncoated Structural Steel Sheet: Product type (manufacturing method), quality, and grade, as follows:
 - 1. Cold-Rolled Structural Steel Sheet: ASTM A 611, grade as follows:
 - a. Grade A, unless otherwise indicated or required by design loading.
- D. Steel Pipe: ASTM A 53; finish, type, and weight class as follows:
 - 1. Black finish, unless otherwise indicated.
 - 2. Galvanized finish for exterior installations and where indicated.
 - 3. Type F, standard weight (schedule 40), unless otherwise indicated, or another weight, type and grade required by structural loads.

- E. Malleable Iron Castings: ASTM A 47, grade 32510.
- F. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.
- G. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers and shims as required, hot-dipped galvanized per ASTM A 153.
- H. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications of the metal alloy to be welded.

2.2 GROUT AND ANCHORING CEMENT

- A. Non-shrink Nonmetallic Grout: Premixed, factory-packaged, non-staining, noncorrosive, nongaseous grout complying with CE CRD - C 621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.
- B. Interior Anchoring Cement: Factory-prepackaged, non-shrink, non-staining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching and grouting compound. Use for interior applications only.
- C. Erosion-Resistant Anchoring Cement: Factory-prepackaged, non-shrink, non-staining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching and grouting compound. Provide formulation that is resistant to erosion from water exposure without need for protection by a sealer or waterproof coating and is recommended for exterior use by manufacturer.
- D. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include but are not limited to the following:
- E. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Non-shrink Nonmetallic Grouts:
 - a. "Bonsal Construction Grout"; W.R. Bonsal Co.
 - b. "Masterflow 713"; Master Builders.
 - c. "Sealtight 588 Grout"; W.R. Meadows, Inc.
 - d. "SonogROUT"; Sonneborn Building Products Div., Rexnord Chemical Products, Inc.
 - e. "Stoncrete NM1"; Stonhard, Inc.
 - 2. Interior Anchoring Cement:
 - a. "Bonsal Anchor Cement"; W.R. Bonsal Co.
 - b. "Por-Rok"; Minwax Construction Products Division

2.3 FASTENERS

- A. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
- B. Bolts and nuts: Regular hexagon head type, ASTM A 307, Grade A.

- C. Lag Bolts: Square head type, FS FF-B-561.
- D. Machine Screws: Cadmium plated steel, FS FF-S-92.
- E. Wood Screws: Flat head carbon steel, FS FF-S-111.
- F. Plain Washers: Round, carbon steel, FS FF-W-92.
- G. Drilled-In Expansion Anchors: Expansion anchors complying with FS FF-S-325, Group VIII (anchors, expansion, [non-drilling]), Type I (internally threaded tubular expansion anchor); and machine bolts complying with FS FF-B-575, Grade 5.
- H. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class, and style as required.
- I. Lock Washers: Helical spring type carbon steel, FS FF-W-84.

2.4 PAINT

- A. Shop Primer for Ferrous Metal: Manufacturer's or fabricator's standard, fast-curing, lead-free, universal modified alkyd primer selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems indicated, and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure complying with performance requirements of FS TT-P-645.

2.5 CONCRETE FILL AND REINFORCING MATERIALS

- A. Concrete Materials and Properties: Comply with requirements of Division 3 section "Concrete Work" for normal weight, ready-mix concrete with minimum 28-day compressive strength of 2,500 psi, 440 lb cement per cu. ft. minimum, and W/C ratio of 0.65 maximum, unless higher strengths indicated.

2.6 FABRICATION, GENERAL

- A. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.
- B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
- C. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.
 - 1. Temperature Change (Range): 100°F (55.5°C).
- D. Shear and punch metals cleanly and accurately. Remove burrs.
- E. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or

otherwise impairing work.

- F. Remove sharp or rough areas on exposed traffic surfaces.
- G. Weld corners and seams continuously to comply with AWS recommendations and the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.
- H. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.
- I. Provide for anchorage of type indicated. Coordinate with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
- J. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- K. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware, screws and similar items.
- L. Fabricate joints that will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

2.7 ROUGH HARDWARE

- A. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 sections.
- B. Fabricate items to sizes, shapes and dimensions required. Furnish malleable-iron washers for heads and nuts which bear on wood structural connections; elsewhere, furnish steel washers.

2.8 LOOSE STEEL LINTELS

- A. Fabricate loose structural steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.
- B. Weld adjoining members together to form a single unit where indicated.
- C. Size loose lintels for equal bearing of one inch per foot of clear span but not less than 8 inches bearing at each side of openings, unless otherwise indicated.

- D. Galvanize loose steel lintels located in exterior walls.

2.9 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports for applications indicated or which are not a part of structural steel framework, as required to complete work.
- B. Fabricate units to sizes, shapes and profiles indicated and required to receive adjacent other construction retained by framing and supports. Fabricate from structural steel shapes, plates and steel bars of welded construction using mitered joints for field connection. Cut, drill and tap units to receive hardware, hangers and similar items.
 - 1. Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed.
 - a. Except as otherwise indicated, space anchors 24 inches o.c. and provide minimum anchor units in the form of steel straps 1¼" W x ¼" x 8" long.
- C. Galvanize miscellaneous framing and supports in the following locations:
 - 1. Exterior locations.
 - 2. Interior locations where indicated.

2.10 MISCELLANEOUS STEEL TRIM

- A. Provide shapes and sizes indicated for profiles shown. Unless otherwise indicated, fabricate units from structural steel shapes, plates and steel bars with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible. Provide cutouts, fittings and anchorages as required for coordination of assembly and installation with other work.
- B. Galvanize miscellaneous framing and supports in the following locations:
 - 1. Exterior locations.
 - 2. Interior locations where indicated.

2.11 FINISHES, GENERAL

- A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.
- B. Finish metal fabrications after assembly.

2.12 STEEL AND IRON FINISHES

- A. Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
 - 1. Exteriors (SSPC Zone 1B): SSPC-SP6 "Commercial Blast Cleaning."
 - 2. Interiors (SSPC Zone 1A): SSPC-SP3 "Power Tool Cleaning."
- B. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finish or to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with requirements of SSPC-PA1 "Paint Application Specification No. 1" for shop painting.
 - 1. Stripe paint all edges, corners, crevices, bolts, welds and sharp edges.

2.14 MISCELLANEOUS FRAMING

- A. Fabricate as indicated on drawings.
- B. Neatly finish all bends, ends and corners so there are no stray edges.

2.15 Steel Stair and Stair Railing System:

- A. Fabricate as indicated on drawings
 - 1. Stringers: Size as indicated on drawings.
 - 2. Risers and subtreads: #12 gauge steel.
 - 3. Handrails, railings and accessories:
 - a. Handrails: 1 1/4 inch Std. Schedule 40 Steel Pipe.
 - b. Fittings: Suitable for flush welded construction.
 - c. Pipe rail wall brackets: Equivalent to Julius Blum & Co., Inc., No. 378 Malleable Iron, complete with bolts and anchors to suit conditions encountered.
 - d. Wall returns: Equivalent to Julius Blum & Co., Inc., No. 604, cast iron, complete with bolts and anchors.
 - e. Post rail brackets: Equivalent to Julius Blum & Co., Inc. No. 322 Aluminum, complete with 1/2 inch std. thread stainless steel stud.
 - f. Vertical bars: Size as indicated on drawings.
 - g. Top and bottom channels: Size as indicated on drawings.
 - h. Construction:
 - 1) Flush welded, seamless
 - 2) Provide handrail brackets maximum 48 inches O.C.
 - 3) Provide wall returns at all discontinuous ends of railing.
 - 4. Stair construction:
 - a. Neatly finish exposed work including soffits. Minimize projecting bolts, rivets, lugs as practicable. Make curves and bends accurately and neatly.
 - b. Headers:
 - 1) Provide structural channel headers at all intermediate landings. Include bearing plates for bearing headers on masonry where indicated.
 - c. Stringers:
 - 1) Where stringers project above or below landings or floors, close ends with steel plates cut to outline of stringers.
 - 2) Weld, grind to smooth finish, except stringers which are either set flush with wall or concealed.
 - 3) Install filler pieces to close openings between stringers, risers or treads, other construction.
 - 4) Where stringers passes opening, close stringers in with steel plate on opening side at indicated locations.
 - 5) Where indicated, provide stringers with plates, brackets, other fittings as needed to adequately and properly support partitions, furring.
 - 6) Form base of indicated height.
 - 7) Provide supports for risers and subtreads.
 - d. Risers and subtreads:
 - 1) Form and assemble to accept concrete fill of thickness indicated.

- 2) Provide smooth transition at tread nosings. Offset between riser and nosing will not be acceptable.
- e. Intermediate landings:
 - 1) Provide metal centering equivalent to Wheeling Tensiform TF-50, to receive concrete deck.
 - 2) Include angle and/or channel stiffeners as indicated on drawings.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions and directions for installation of anchorages, including concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

3.2 INSTALLATION, GENERAL

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.
- B. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment and elevation; with edges and surfaces level, plumb, true and free of rack; and measured from established lines and levels.
- C. Provide temporary bracing or anchors in formwork for items that are to be build into concrete masonry or similar construction.
- D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dipped galvanized after fabrication and are intended for bolted or screwed field connections.
- E. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, methods used in correcting welding work and the following:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood or dissimilar metals with a heavy coat of bituminous paint or zinc chromate primer.

3.3 SETTING LOOSE PLATES

- A. Clean concrete and masonry bearing surfaces of any bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.
- B. Set loose leveling and bearing plates on wedges or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the bearing plate before packing with grout.
 - 1. Use metallic non-shrink grout in concealed locations where not exposed to moisture; use nonmetallic non-shrink grout in exposed locations, unless otherwise indicated.
 - 2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.4 Steel Stair and Stair Railing System:

- A. Securely anchor stringers to structural members, headers or walls.
- B. Install subtreads and risers plumb and level with relation to floor and landing surface and secure to stringers by bolting through supporting angles or welding.
- C. Install treads level across width of stair.
- D. Pipe handrails and railings:
 - 1. Weld railing supports to top flange of stair stringers. Grind fillet welds smooth, free of excessive grind marks. Exercise care not to deface stringers and rail supports in grinding operation.
 - 2. Anchor handrail brackets to walls using anchors appropriate for conditions encountered.
 - 3. Return discontinuous ends of railings to wall and/or railing supports.
- E. Install wall brackets equally along length of railing spaced maximum 4 feet O.C. Secure railing to brackets with minimum two (2) #10 FHMS of sufficient length to penetrate through pipe wall at least 1/4 inch.

3.5 ADJUSTING AND CLEANING

- A. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections and abraded areas of shop paint and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touch-up of field painted surfaces.
 - 1. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- B. Touch-Up Painting: Cleaning and touch-up painting of field welds, bolted connections and abraded areas of the shop paint on miscellaneous metal is specified in Division 9 Section "Painting" of these specifications.

END OF SECTION

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to this section.

1.2 SUMMARY:

- A. Types of work in this section include rough carpentry:
 - 1. Wood grounds, nailers and blocking.

1.3 SUBMITTALS:

- A. Wood Treatment Data: Submit chemical treatment manufacturer's instructions for handling, storing, installation and finishing of treated material.
 - 1. Preservative treatment: For each type specified, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained and conformance with applicable standards.
 - 2. Fire-retardant treatment: Include certification by treating plant that treated material complies with specified standard and other requirements.

1.4 PRODUCT HANDLING:

- A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.
 - 1. For lumber and plywood pressure treated with waterborne chemicals, sticker between each course to provide air circulation.

1.5 PROJECT CONDITIONS:

- A. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow attachment of other work.

PART 2 - PRODUCTS

2.1 LUMBER, GENERAL:

- A. Lumber Standards: Manufacture lumber to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
- B. Inspection Agencies: Inspection agencies and the abbreviations used to reference with lumber grades and species include the following:
 - 1. NLGA - National Lumber Grades Authority (Canadian).
 - 2. SPIB - Southern Pine Inspection Bureau.
 - 3. WCLIB - West Coast Lumber Inspection Bureau.
 - 4. WWPA - Western Wood Products Association.

- C. Grade Stamps: Factory-mark each piece of lumber with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
- D. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
 - 1. Provide dressed lumber, S4S, unless otherwise indicated.
 - 2. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.
 - 3. Provide lumber with 15 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness unless otherwise indicated.

2.2 DIMENSION LUMBER:

- A. Light lumber framing, wood blocking and grounds:
 - 1. Dimensions:
 - a. Where indicated and/or specified, lumber dimensions are nominal.
 - b. Actual dimensions to conform to PS20 for structural framing.
 - 2. Surfacing: Surface four sides (S4S) unless specified otherwise.
 - 3. Grades shall conform to the grading rules of manufacturer's association for the kinds of wood. Lumber shall bear the grade and trademark of the association under whose rule it is produced and shipped and a mark of the mill identification.
 - 4. Species: Douglas fir-larch, hem-fir or southern pine graded under SPIB, WCLIB or WWPA Rules.
 - 5. Grade: SPF No. 2 or better.
 - 6. Moisture content: 19% or less.
 - 7. Sizes: As indicated on drawings and/or as required to suit conditions encountered.
- B. Shoring Lumber: Dimensions, species and adequate stress characteristics as required to suit conditions encountered.

2.3 WOOD TREATMENT BY PRESSURE PROCESS:

- A. Preservative Treatment: Where lumber or plywood is indicated as "Trt-Wd" or "Treated", or "PT" is specified herein to be treated, comply with applicable requirements of AWPB Standards C2 (Lumber) and C9 (Plywood) and of AWPB Standards listed below. Mark each treated item with the AWPB Quality Mark Requirements.
 - 1. Pressure-treat aboveground items with water-borne preservatives to comply with AWPB LP-2. After treatment, kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19 percent and 15 percent. Treat indicated items and the following:
 - a. Wood nailers, curbs, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers and waterproofing.
 - b. Blocking, furring, stripping and similar concealed members in contact with masonry or concrete.
 - 2. Treat coated cut surfaces with heavy brush coat of same chemical used for treatment and to comply with AWPB M4.
- B. Fire Treatment
 - 1. Provide materials which comply with AWPB standards for pressure impregnation with fire-retardant chemicals, and which have a flame spread rating

of not more than 25 when tested in accordance with UL Test 723 or ASTM E 84 and show no increase in flame spread and no significant progressive combustion upon continuation of test for additional 20 minutes.

2. Treating chemicals shall be free of halogens, sulfates, ammonium sulphate and formaldehyde.
3. Where treated materials are exposed to exterior, high humidity or are to have transparent finish in form of stain or sealer, provide materials which show no change in fire-hazard classification when subjected to standard rain test (UL 790 or ASTM B 2898).
4. Use treatment which will not bleed through or adversely affect type of finish indicated and which does not require brush treatment of field made end cuts or drilled holes to maintain fire-hazard classification.
5. Lumber fire retardant treated by pressure process in accordance with AWWA Standards.
 - a. Lumber: AWWA Standard C20.
 - b. Plywood: AWWA Standard C27.

2.5 MISCELLANEOUS MATERIALS:

- A. Fasteners and Anchorages: Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices. Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommended nails.
 1. Where rough carpentry work is exposed to weather, used with preservative treated wood, or in area of high relative humidity, provide fasteners and anchorages with a hot-dip zinc coating (ASTM A-153).
- B. Provide joist hangers and framing anchors as shown on the drawings as manufactured by Simpson, Bowman or Teco, providing product is equivalent to that specified.
- C. Framing nails shall be uncoated common wire nails, length as specified on the drawing, or of sufficient length to penetrate 12 diameters into the holding member.
- D. Connectors, Anchors, Accessories: Provide fabricated steel (ASTM A 36) shapes, plates and bars, welded into assemblies of types and sizes indicated or, if not indicated, manufacturer's standard units for timber sizes indicated. Provide steel bolts (ASTM A 307), lag bolts, nails, and other standard fasteners as required for installation.
- E. Finish: finish fabricated assemblies with hot-dip zinc coating (ASTM A 153), including bolts and other fasteners.

2.6 FIRE RETARDANT LUMBER

- A. Provide fire retardant lumber as required by the applicable authorities where called for on the drawings, required by UL Design and as required by Code.

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Verify that surfaces to receive rough carpentry materials are prepared to required grades and dimensions and that they are reasonably clean, smooth, level and/or plumb.

- B. Assure that anchor bolts required to secure blocking and nailers are properly located and installed.
- C. Assure that preservative treatment used on blocking and nailers is compatible with roof deck insulation and membrane roofing materials.

3.2 INSTALLATION, GENERAL:

- A. Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
- B. Set carpentry work to required levels and lines, with members plumb and true and cut and fitted.
- C. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards.

3.3 INSTALLATION:

- A. Wood Blocking and Nailers: Used in conjunction with millwork installation, room and toilet accessories:
 - 1. Provide and install solid blocking at all wall door bumper locations.
- B. Properly frame, closely fit, accurately set all framing, blocking, grounds, nailers, furring and other rough woodwork to required lines and levels and rigidly secure in place.
- C. Install all woodwork level, plumb, square and true to details.
- D. Expansion Joints: Worked to permit section to expand or contract without buckling.
- E. Furnish and set all grounds, bucks and nailing clips required throughout building for work of other trades. Provide grounds or blocking ample to take nailing and securely anchored to studs.
- F. Shoring Timber: Install all shoring and miscellaneous timber required to complete work properly.
- G. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. CABO NER-272 for power-driven staples, P-nails, and allied fasteners.
 - 2. Published requirements of metal framing anchor manufacturer.
 - 3. Table 23-I-Q--Nailing Schedule” of the Uniform Building Code.
- H. Use common wire nails, unless otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.
- I. Use hot-dipped galvanized or stainless-steel nails where rough carpentry is exposed to weather, in ground contact or in area of high relative humidity.
- J. Countersink nail heads on exposed carpentry work and fill holes with wood filler.

- K. Patch or repair any work of this section that may be cut or damaged by other trades.
- L. Supervise all cutting for work by others and be responsible for any damage. Furnish means for proper access to different portions of work to Architect or his representative.
- M. Details showing intent of design and construction are indicated on drawings and should be followed as closely as possible in keeping with best construction practices of trade involved. Work shall meet with approval of Architect.
- N. Take and verify all measurements required for proper execution and fit of work. Check Architect's dimensions against field conditions. Report to Architect any discrepancies which will involve corrections. Adjust before fabrication. Be responsible for proper connections to adjoining work.
- O. **WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS**
 - 1. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attaching other work. Form to shapes shown and cut as required for true line and level of attached work. Coordinate locations with other work involved.
 - 2. Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.

END OF SECTION

SECTION 06 12 13 – SUBFLOOR PANEL, 3/4" USG STRUCTO-CRETE® Brand Structural Panels

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Specification for 3/4" USG STRUCTO-CRETE® Brand Structural Panels Floor Systems

PART 1 - GENERAL

1.01 SUMMARY

- A. Description of Work: Work of this Section includes, but is not limited to, the following:
1. Framing
 2. Fasteners
 3. Underlayment and floor coverings
 4. Sound attenuation materials

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. See Section 05 20 00, Metal Joists
- B. See Section 05 40 00, Cold-Formed Metal Framing
- C. See Section 06 10 00, Rough Carpentry
- D. See Section 09 30 00, Tiling
- E. See Section 09 60 00, Flooring
- F. See Section 13 40 00, Integrated Construction

1.03 SYSTEM DESCRIPTION

USG Structural Panel floor system consists of steel joists, trusses or framing members and 3/4" STRUCTO-CRETE® Brand Structural Panels installed with mechanical fasteners. 3/4" STRUCTO-CRETE® Brand Structural Panels are a high-strength reinforced concrete panel typically for use in noncombustible construction, as required by the applicable building codes. Adhesives are not recommended, nor required.

1.04 REFERENCES

- A. ICC-ES AC318 – Acceptance Criteria for Structural Cementitious Floor and Roof Sheathing Panels
- B. ICC-ES AC319 – Acceptance Criteria for Horizontal Diaphragms Consisting of Structural Cementitious Floor Sheathing Panels Attached to Cold-Formed Steel Framing
- C. ASTM A588/A588M – Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi [345 MPa] Minimum Yield Point, with Atmospheric Corrosion Resistance
- D. ANSI/AISI S100 – North American Specification for the Design of Cold-Formed Steel Structural Members
- E. ANSI/AISI S210 – North American Specification for Cold-Formed Steel Framing – Floor and Roof System Design
- F. ANSI/AISI S214 – North American Specification for Cold-Formed Steel Framing – Truss Design
- G. ANSI/AISI S230 – Standard for Cold-Formed Steel Framing – Prescriptive Method for One- and Two-Family Dwellings
- H. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials
- I. ASTM E119 – Standard Test Method for Fire Tests of Building Construction and Materials
- J. ASTM E136 – Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750° C

1.05 SYSTEM REQUIREMENTS

- A. Performance Requirements: Fabricate and install systems as indicated:
 - 1. Floor Framing:
 - a. Standard systems:
 - i. Floor framing shall be designed with a minimum deflection of L/360, where the Uniform Floor Load is 120 PSF (5.7 kPa) (Allowable) for framing spaced at 24" (610 mm) on center (o.c.).
 - ii. Floor framing shall be designed with a minimum deflection of L/360, where the Uniform Floor Load is 283 PSF (13.5 kPa) (Allowable) for framing spaced at 16" (406 mm) o.c.
 - 2. Fasteners:
 - a. Follow the selected fastener layout for Screw Patterns, for the design Diaphragm Loads as described in the current Progressive Engineering, Inc.'s Evaluation Report PER-13067, available at [3/4" USG STRUCTO-CRETE® Brand Structural Panels Code Report](#).
 - 3. Panel Layout:
 - a. Follow the 3/4" USG STRUCTO-CRETE® Brand Structural Panels application described in the current Progressive Engineering, Inc. Evaluation Report PER-13067.
- B. Fire Resistance Ratings: Where fire resistance classifications are indicated, provide materials and application procedures identical to those listed by UL or tested according to ASTM E119 for



type of construction shown.

Note: *Fire-resistance ratings may require lighter gauge framing than that required for Shear- or Uniform-Loading. In this case, the gauge and joist depth must be selected by the strongest governing factor.*

- C. **Noncombustible Ratings:** Where noncombustible assemblies are required, provide materials and application procedures identical to those tested according to ASTM E136, "Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 °C.

Note: *Materials with modified ASTM E136-16 evaluations are not acceptable.*

- D. **Acoustical Ratings:** Where sound ratings are indicated, provide materials and application procedures identical to those tested by manufacturer to achieve Sound Transmission Class (STC) in accordance with ASTM E90 and/or Impact Insulation Class (IIC) in accordance with ASTM E492 specified. Refer to [3/4" USG STRUCTO-CRETE® Brand Fire & Acoustic Manual - SCP100](#) for specific acoustical assemblies and performance ratings.

1.06 DELIVERY, STORAGE AND HANDLING

A. Delivery:

1. Deliver material to site promptly without undue exposure to weather.
2. Deliver in manufacturer's unopened containers, pallets, or panels fully identified with name, Brand, type, and grade.

B. Storage:

1. Store above ground in dry, ventilated space.
2. Protect materials from soiling, exposure, and damage.
3. If stored outside, material shall be covered with waterproof tarps.
Note: *If 3/4" USG STRUCTO-CRETE® Brand Structural Panels are frozen while stored outdoors, allow to thaw-out naturally. Do not use salts or fertilizers to defrost the panels or attempt to pry them apart.*
4. Panels must be stored over stable soil or other surface. Soil or surface must be able to carry the load of the stored pallet(s). Each 20-piece pallet weights 3,500 lbs (1542 kg). It is recommended that the load carrying capacity of the floor or surface be verified before storing panels.
5. Pallets must not be stacked out of alignment by more than +/- 1/2" (13 mm), measured on any side of the pallet.

1.09 PROJECT CONDITIONS

A. Environmental Requirements:

1. When mechanically fastened, do not install 3/4" USG STRUCTO-CRETE® Brand Structural Panels when ambient or conditioned temperature is below 0 °F (-18 °C).
2. Prior to the application of finished flooring, 3/4" USG STRUCTO-CRETE® Brand Structural Panels must be conditioned at the same temperature as required for the finished flooring for at least 48 hours.
3. Do not apply finished flooring over 3/4" USG STRUCTO-CRETE® Brand Structural Panels when wet, frozen or with surface frost.

Note: If installed panels have snow or ice, do not use salts or defrosting agents, sand is recommended over slippery surfaces.

PART 2 – PRODUCTS

2.01 PRODUCTS AND MANUFACTURERS

- A. Structural Concrete Panel: Listed products establish standard of quality and are manufactured by United States Gypsum Company (USG), Chicago, IL.

2.02 MATERIALS

- A. Structural Concrete Panel:

1. 3/4" USG STRUCTO-CRETE® Brand Structural Panels, a noncombustible structural subfloor panel manufactured in accordance with Acceptance Criteria AC318.

- a. Panel Dimensions:

- i. Thickness: **3/4" (19 mm)**
- ii. Width: **4' (1220 mm)**
- iii. Lengths: **[8' (2440 mm)]** or **[6' (1829 mm)]** or **[6'-8" (2032 mm)]**
- iv. Long Edges: **Tongue and Groove**

- b. Panel Properties:

- i. Density: **75 lb/ft³ (1200 kg/m³)** tested in accordance with ASTM C1185
- ii. Weight: **5.0 lbs/ft² (24.4 kg/m²)** tested in accordance with ASTM D1037 at a thickness of 3/4" (19 mm)
- iii. Noncombustibility: **Pass** tested in accordance with ASTM E136
- iv. Surface Burning Characteristics: **0 Flame Spread / 0 Smoke Developed** tested in accordance with ASTM E84
- v. Mold Resistance: **10** tested in accordance with ASTM D3273
0 tested in accordance with G21

- B. 3/4" USG STRUCTO-CRETE® Brand Structural Panels Recommended Fasteners:

- a. In accordance with PER-13067 (Subfloor) and PER-14076 (Roof Deck), PER-15092 (Foundation Wall), and ESR-1792 (Subfloor).
- b. Use only fasteners recommended by USG. Go to www.USGSCP95.com for the current list of recommended fasteners.
- c. Install using the recommended spacing and distance from the Ends (square cut) and Edges (tongue & groove) of the panel.
- d. Any length of USG recommended fasteners may be used but do not use a larger size fastener unless specified by the structural engineer.

- C. Floor Coverings and Underlayment:

1. Follow floor covering manufacturers' installation procedures.



D. Sound Attenuation:

1. Reference [3/4" USG STRUCTO-CRETE® Brand Fire & Acoustic Manual - SCP100](#) for sound system designs.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine substrates, adjoining construction and conditions under which Work is to be installed. Do not proceed with Work until unsatisfactory conditions are corrected.
- B. Steel framing to receive the 3/4" USG STRUCTO-CRETE® Brand Structural Panels shall be structurally sound, free from bows, twists, or other malformations and in general compliance with local building code requirements. Damaged framing shall be replaced before installation of 3/4" USG STRUCTO-CRETE® Brand Structural Panels.

3.02 GENERAL INSTALLATION REQUIREMENTS

A. Cold-Formed Steel Framing:

1. The floor joists and other floor framing components must be designed to meet the strength and deflection criteria specified in the contract documents.
2. The attachment flange or bearing edge for cold-formed steel must be a minimum 1-5/8" (41 mm) wide, 2" preferred, with at least 3/4" (19 mm) of the panel bearing on the supporting flange.
3. The size of the cold-formed steel framing flange required will vary based on the specified mil thickness/gauge and fastener selected.
4. Cold-formed steel framing thickness and size is always based on diaphragm capacity but must be a minimum 43 mil (18 gauge) and spaced no greater than 24" (610 mm) o.c. for up to 450 plf. When significant diaphragm capacity is required, 54 mil (16 gauge) may be required.
5. Joist bearing shall be provided at the foundation that is uniform and level.
6. Cold-formed steel joists shall be located directly over bearing studs or a header installed at the top of the bearing wall to distribute the load.
7. Joist framing must be perpendicular to rim joists.
8. On steel framing, a web stiffener shall be provided at reaction points and/or concentrated loads as specified in the contract documents. End blocking shall be provided where joist ends are not otherwise restrained from rotation.
9. Additional joists shall be provided under parallel partitions and around all floor openings that interrupt one or more spanning members. Framing must be properly fastened to the supporting walls or structure.
10. All blocking or bridging must be installed prior to the installation of 3/4" USG STRUCTO-CRETE® Brand Structural Panels.
11. Framing must be of good quality, free of bows, twists, or other malformations.

B. Hot-Rolled Steel Framing:



1. The floor joists and other floor framing components must be designed to meet the strength and deflection criteria specified in the contract documents.
2. Framing shape and size is always based on diaphragm capacity.
3. Hot-rolled steel framing shall have a 3" (76 mm) or larger bearing surface suitable for fastener insertion and panels must bear a minimum of 1 1/4" (32 mm) on the framing member.
4. Framing bearing shall be provided at the foundation that is uniform and level.
5. Joist framing must be perpendicular to support beams.
6. Additional framing members shall be provided under parallel partitions and around all floor openings that interrupt one or more spanning members. Framing must be properly fastened to the supporting walls or structure.
7. All blocking or bridging must be installed prior to the installation of 3/4" USG STRUCTO-CRETE® Brand Structural Panels.
8. Framing must be of good quality, free of bows, twists, or other malformations.

C. 3/4" USG STRUCTO-CRETE® Brand Structural Panels:

1. This product may contain respirable crystalline silica. Refer to OSHA Rule 29 CFR 1926.1153 for specific details about limiting worker exposure to respirable silica.
2. The panels shall be cut to size with a circular saw equipped with carbide-tipped cutting blade and a dry dust industrial HEPA vacuum collection device for control of dust and silica. Wear safety glasses and a NIOSH-approved dust mask when cutting the panel. Collected dust shall be disposed in a safe manner and in compliance with local, state, and federal ordinances.
3. 3/4" USG STRUCTO-CRETE® Brand Structural Panels shall be installed with the long edges (tongue & groove) perpendicular to the framing. If primary framing direction changes, removal of the tongue from the first row of panels oriented in the new direction will be necessary for proper fastening. Care should be taken to insure sufficient framing flange is available for fastening the panels in the new orientation.
4. The fire, sound, and structural ratings listed in the [3/4" USG STRUCTO-CRETE® Brand Fire & Acoustic Manual - SCP100](#) for the 3/4" STRUCTO-CRETE® Brand Structural Panel systems are based on fastener attachment only, no adhesives.
5. Begin panel installation by snapping a line across the joists parallel to the rim joist at a distance equal to the width of the first panel being placed. Given that panel width is 48" (1,220 mm), plan the layout so the first and last panel row width is a minimum of 24" (610 mm) wide. In the case where the row width is less than 24" (610 mm) wide, panels shall be blocked on all edges by framing (strapping is not sufficient).
6. Ensure that all supporting members are free of debris before placing panels. Place the cut edge or tongue along the rim joist. Place each panel across three or more supports [minimum two-span condition]. Less than full length panels at the end of a row may span a single framing opening. Cut panels to length as needed to ensure that the butt end of the panel is centered on the framing member. Install panels in a direction that ensures that the butt end falls over the open side of the joist. This will help keep adjacent ends in the same place.



7. 3/4" USG STRUCTO-CRETE® Brand Structural Panels shall be fastened following the fastening schedule listed in the contract documents. Begin fastening at one end and fan out across the panel. Do not fasten all the corners first. After the installation of one complete row, begin the next row. Slide panels together so that the tongue of the panel being installed fits into the groove of the installed panel. If there is construction debris lodged inside the groove, do not force the tongue into the clogged groove. Clean the plugged groove with a stiff bristle brush to dislodge the trapped debris. Do not gap the panels. Install the second panel and all subsequent panels in a similar manner to complete the row. Install all rows in a running bond pattern so that end joints fall over the center of the framing members and are staggered by at least two supports from where the end joints fall in the adjacent rows. Less than full length panels at the end of a row may be staggered by a single support.
8. Penetrations in the panels should be made before installing the panel whenever possible. If a penetration is required after the panel is installed, set the depth of the saw blade to ensure that the framing is not damaged. Support the ends and edges of any penetrations with framing if they are greater than 6" (153 mm) in any direction. Refer to [3/4" USG STRUCTO-CRETE® Brand Structural Panels Subfloor Installation Guide - SCP14](#) for additional information.
9. Ensure panel is flush with supporting member, drive fasteners so the heads are flush with the surface of the board. Go to www.USGSCP95.com for the current list of recommended fasteners.
10. Construction Traffic Protection – prior to floor finishing, place minimum 3/8" (9.525 mm) thick plywood sheathing materials on the floor in high traffic areas over newly installed 3/4" USG STRUCTO-CRETE® Brand Structural Panels (i.e., additional 3/4" USG STRUCTO-CRETE® Brand Structural Panels or plywood). 1/4" plywood may be used in lieu of 3/8" material provided it is fastened at all four corners to prevent shifting and curling. Thicker protecting material may be required if heavier loads are expected or work is to be performed that may damage installed 3/4" USG STRUCTO-CRETE® Brand Structural Panels.

D. Sound Mat and Underlayments

1. Sound Mat:

- a. Refer to [3/4" USG STRUCTO-CRETE® Brand Fire & Acoustic Manual - SCP100](#) for specific acoustical assemblies and performance ratings.
- b. Refer to [USG Performance Flooring Portfolio – IG2013](#), along with USG submittal and SDS documents, at USG.com for the most recent product data and installation procedures for USG Levelrock® Brand, Durock® Brand, and USG Fiberock® Brand Underlayment products.
- c. Install sound mat over 3/4" USG STRUCTO-CRETE® Brand Structural Panels according to sound mat manufacturer's recommendations.
- d. USG Fiberock® Brand Underlayment over Sound Mat:
 - 1) Lay cut edges of USG Fiberock® Brand Underlayment base layer against the wall; only factory edges should be joined. Begin laying panels at one corner. Maintain 1/4" (6.35 mm) space between panels and perimeter walls. Stagger joints of surface layer a minimum of 16" (406 mm) so that four panel corners never meet, and offset end and edge joints of panels a minimum of 12" - 16" (305 mm - 406 mm) from subfloor panel joints. Adjoin panel edges and ends lightly together. A maximum 1/32" (0.76 mm) gap is allowed.



- 2) The base and surface layers of USG Fiberock® Brand Underlayment panels must be bonded together with modified thin set mortar and will 'float' on sound mat.
- 3) Use staples to hold panel layers together during mortar drying period. Staples (1/4" (6.35 mm) crown, 43 mil (18 ga.), and 1/2" (12.7 mm) legs) to be installed at 8" (203.2 mm) o.c. in the field and 1" (25.4 mm) o.c. along the perimeter of the USG Fiberock® Brand Underlayment panel. Set pneumatic tool pressure to drive fasteners flush or slightly below underlayment surface. To prevent fastener heads from telegraphing through resilient floor covering, do not countersink more than 1/16" (1.58 mm) below surface.
- 4) On surface layer of USG Fiberock® Brand Underlayment, use patching compound sparingly to fill wide joints, repair any surface voids, and correct joint lippage (panel edge sitting above or below the floor plane). Carefully fill joints wider than 1/32" (0.76 mm) and any surface imperfections with only enough material to infill void - do not feather. Correct joint lippage by applying patching compound to low side only and feathering to level. Allow compound to dry completely (90 min. minimum), then lightly sand or scrape, taking care not to scuff panel surface; use a flat blade to scrape away any excess material. Remove dust, dirt, and debris from underlayment surface before application of floor covering.

2. Poured Floor Underlayment:

- 1) USG Levelrock® Brand or Durock® Brand Underlayment can be poured directly onto 3/4" USG STRUCTO-CRETE® Brand Structural Panels in lieu of a dry underlayment panel.

Note: 3/4" USG STRUCTO-CRETE® Brand Structural Panel joints must be taped, and a primer may be required, prior to underlayment pour.

- 2) USG Fiberock® Brand Underlayment panels should be secured to 3/4" USG STRUCTO-CRETE® Brand Structural Panels using staples and a modified thin set mortar.
- 3) Refer to [USG Performance Flooring Portfolio – IG2013](#), along with USG submittal and SDS documents at USG.com for the most recent product data and installation procedures for USG Levelrock® Brand, Durock® Brand, USG Fiberock® Brand Underlayment products.

3. USG Fiberock® Brand Underlayment (over 3/4" USG STRUCTO-CRETE® Brand Structural Panels without sound mat):

- 1) Lay cut edges of USG Fiberock® Brand Underlayment against the wall; only factory edges should be joined. Begin laying panels at one corner. Maintain 1/4" (6.35 mm) space between panels and perimeter walls. Stagger joints a minimum of 16" (406 mm) so that four panel corners never meet, and offset end and edge joints of panels a minimum of 12" - 16" (305 mm - 406 mm) from subfloor panel joints. Adjoin panel edges and ends lightly together. A maximum 1/32" (0.76 mm) gap is allowed.
- 2) The USG Fiberock® Brand Underlayment must be bonded with modified thin set mortar.
- 3) Staples (1/4" (6.35 mm) crown, 43 mil (18 ga.), and 1" (25.4 mm) legs) to be installed at 4" (102 mm) o.c. in the field and 1" (25.4 mm) o.c. along the

perimeter of the USG Fiberock® Brand Underlayment panel. Set pneumatic tool pressure to drive fasteners flush or slightly below underlayment surface. To prevent fastener heads from telegraphing through resilient floor covering, do not countersink more than 1/16" (1.58 mm) below surface.

- 4) Use patching compound sparingly to fill wide joints, repair any surface voids and correct joint lippage (panel edge sitting above or below the floor plane). Carefully fill joints wider than 1/32" (0.76 mm) and any surface imperfections with only enough material to infill void - do not feather. Correct joint lippage by applying patching compound to low side only and feathering to level. Allow compound to dry completely (90 min. minimum), then lightly sand or scrape, taking care not to scuff panel surface; use a flat blade to scrape away any excess material. Remove dust, dirt, and debris from underlayment surface before application of floor covering.

E. Floor Finish:

1. Leftover material shall be removed from the job site.
2. Remove all foreign material from the floor surface and vacuum all dust from the surface.
4. Before the application of floor finish materials, ensure that all panels are properly fastened, with the fastener head driven flush or slightly below the surface of the panels. If required butt joints and T&G joints shall be filled with an elastomeric patching compound [*cement-based compounds, can crack*].
5. Direct application of bonded floor finishes to 3/4" USG STRUCTO-CRETE® Brand Structural Panels is not recommended.
6. Engineered Wood – Apply a building paper, No. 15 felt or equivalent, over 3/4" USG STRUCTO-CRETE® Brand Structural Panels prior to applying wood flooring. For engineered wood flooring, use the moisture barrier recommended for the engineered wood flooring system specified in lieu of the building paper. Follow the wood flooring manufacturer's installation instructions for applying wood flooring to plywood or OSB floor sheathing. 3/4" USG STRUCTO-CRETE® Brand Structural Panels must be kept dry and maintained in a conditioned space for a minimum of 30 days prior to installation of wood flooring.
7. Ceramic Tile – Ceramic tile should be installed over an underlayment panel or poured underlayment as described in §3.02.D of this specification. Apply ceramic tile in accordance with ceramic tile manufacturer's instructions.
8. Carpet – For residential carpet and pad, apply tackless strips (designed for concrete application) for the installation of stretched carpet. Residential carpet and pad can be installed directly to 3/4" USG STRUCTO-CRETE® Brand Structural Panels or to an underlayment. For all carpet tile, it is recommended to use an underlayment as described in §3.02.D of this specification.
9. Vinyl Flooring - An appropriate underlayment should be used as described in §3.02.D of this specification.
10. If 3/4" USG STRUCTO-CRETE® Brand Structural Panels are left bare in extremely-light traffic areas, it is recommended that you seal the panels with a concrete sealer to seal the porous surface.

END OF SECTION

SECTION 062000 - FINISH CARPENTRY AND MILLWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

- A. Extent of finish carpentry and millwork is indicated on drawings and provisions of this section.
- B. Work Shall Include, But Not Be Limited To:
 - 1. Wood trim, crown molding and chair rail.
 - 2. Plastic Laminate Countertops
 - 3. Screws, fasteners and anchors required for fabrication and installation.
 - 4. Wood handrails.

1.3 RELATED WORK SPECIFIED ELSEWHERE:

- A. Section 061000 – Rough Carpentry
- B. Section 099000 – Painting
- C. Section 114550 – Residential Cabinets
- D. Mechanical – Refer to Drawings
- E. Plumbing – Refer to Drawings

1.4 QUALITY ASSURANCE:

- A. Job Conditions: Prior to delivery and installation of finish carpentry and millwork materials, assure that following conditions exist:
 - 1. Temperature and humidity conditions closely approximate those which will exist when building is occupied.
 - 2. Building is not damp and cold or dry and hot.
 - 3. Concrete flooring, plastering and other wet work has been allowed to dry properly.
 - 4. Windows and doors are in place and glazed.
 - 5. Heating system is installed and operating where necessary to maintain proper conditions before, during and after finish carpentry and millwork is in progress.
- B. Fabricate materials to conform with details and design indicated on drawings in accordance with best millwork practices. Work must meet approval of Architect. Remove and build over, any mediocre work disapproved by Architect.
- C. Coordination:
 - 1. Take and verify all measurements required for proper execution and fit of work.
 - 2. Verify dimensions on Architect's drawings with field conditions.

3. Report discrepancies and conflicts involving changes, including those between different installations, to Architect for correction prior to fabrication of materials.
4. Coordinate work with various other trades providing adjoining work.

1.5 SUBMITTALS:

- A. Shop Drawings: Submit shop drawings of millwork, indicating:
 1. Elevations and sections.
 2. Details of joinery and fastening.
 3. Material species and grade.
 4. Surfaces to receive plastic laminate finish and solid surface finish.
 5. Adhesives types and grades.
 6. Actual field verified dimensions.
- B. Samples:
 1. Two pieces of each species of solid wood adequate to indicate standard of quality for materials to be used on project.
 2. Samples of specified plastic laminate for Architect's approval.
 3. Samples of specified solid surface for Architect's approval.

1.6 PRODUCT DELIVERY, HANDLING AND STORAGE:

- A. Provide necessary protection for delivery, handling, and storage of materials to prevent damage.
- B. Store materials in an enclosed space protected from weather and with environmental conditions specified for job conditions.
- C. Provide manufacturer's 10-year warranty against defects in materials. Warranty shall provide material and labor to repair or replace defective materials. Damage caused by physical or chemical abuse or damage from excessive heat not warranted.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Solid Woods: Hardwood, clear and free from defects. Kiln dry to insure moisture content of 6 to 8 %. After kiln drying, temper all solid woods to moisture content of 7 to 10 %.
 1. Hardwood for exposed edges of plywood:
 - a. Maple (See drawings to verify species and locations)
 2. Hardwood:
 - a. Grade No. 2 or better, for natural finish.
 3. All corner ends to be tapered or mitered as selected in architectural drawings or contact Architect if information differs.
 4. Finish stain to be selected by Architect
- B. Base & Door Trim
 1. MDF (Medium Density Fiberboard)
 - a. Profile: Refer to Drawings.
 - b. Color: Field Painted, Color as indicated or selected.
- C. Adhesives:

1. Millwork: As recommended by millwork fabricator for conditions encountered.
2. Plastic laminate: Natural-setting hybrid P.V.A. Type III water resistant adhesives that cure through chemical reaction, containing no health or environmentally hazardous ingredients.

D. Screws and Fastenings:

1. Stainless Steel for Plastic Laminate.
2. Millwork Assembly: Dustproof type as required for conditions encountered.

2.2 WARRANTY:

- A. Provide manufacturer's 10-year warranty against defects in materials. Warranty shall provide material and labor to repair or replace defective materials. Damage caused by physical or chemical abuse or damage from excessive heat not warranted.

2.3 PRODUCTS

A. Plastic Laminate:

1. Refer to Drawings.

2.4 MILLWORK

A. Wood Chair rail and trim rail:

1. Provide size/style to comply with ANSI Standards to be submitted and approved by the Architect.
2. Provide all necessary blocking for support and attachment to walls.
3. Provide stained finish as requested in (A-600s).
4. All millwork to be glued and nailed to walls.

2.5 FABRICATION, GENERAL:

- A. Fabrications to dimensions, profiles, and details indicated on drawings, with openings and mortises precut, where required, to receive hardware and other items and work.
- B. Complete fabrication, assembly, finishing, hardware application, and other work before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- C. Pre-cut Openings: Fabricate with pre-cut openings, where required, to receive hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing-in diagrams for proper size and shape. Smooth edges of cutoffs.
- D. Measurements: Before proceeding with fabrication of solid polymer fabrications required to be fitted to other construction, obtain field measurements and verify dimensions and shop drawing details as required for accurate fit.
- E. Millwork:
1. Assemble millwork items neatly and carefully.
 2. Glue shop assembled surfaces where possible and block at concealed locations.
 3. Cope intersecting moldings where possible.

4. Join mill assemblies with concealed nails and screws where practical.
5. Glue, mortise and tenon joints.
6. Install splines at mitered corners.
7. Make all jointing over solid bearing.
8. Where drawers are required, fabricate heads, sides and backs from solid hardwood material. Particleboard, not acceptable.

2.6 BLOCKING, GROUNDS AND FRAMING

- A. Framing: Frame, fit closely, set framing accurately to required lines, levels, secure rigidly in place. Provide special framing or construction not indicated or specified, as required to complete work in best workmanlike manner. Do nailing and fastening in a thorough manner; use nails and fasteners of ample size: 16d spikes where practicable.
- B. Provide dressed wood grounds and furring where required and herein described.
- C. Set grounds rigidly, in perfect alignment, true up with long straight edge.
- D. Fastening: To concrete and solid masonry with expansion bolts. Fasten to hollow masonry with toggle bolts or with nails in metal wall plugs. Fasten to metal with stove bolts and fasten to metal lath with wire. The use of wood plugs will not be permitted.
- E. Install rough wood blocking, rough hardware metal fastenings for proper installation of finish work and accessories.
- F. Install furring as indicated.

2.7 FINISH HARDWARE

- A. Install hardware in accordance with manufacturer's instructions. Fit accurately, apply securely and adjust carefully.

PART 3 - EXECUTION

3.1 INTERIOR FINISH:

- A. General character and intent as indicated on drawings.
- B. Perform all cutting and fitting neatly and, in general, make fastenings with finishing nails.
- C. Set exposed nails for putty stopping.
- D. Space splice joints in wood trim not less than 12 feet on center. Miter and glue splices. Where transparent finish is scheduled, match grain at splices as closely as possible.
- E. Finish Work: Free from open joints and tool marks.

3.2 INSTALLATION:

- A. Install work level, plumb, true to detail.
- B. Fasten work securely in place.

- C. Back prime all interior woodwork with one liberal coat of approved sealer.
- D. Unless otherwise indicated, provide concealed fastenings and anchors to secure plastic laminated tops and panels to blocking or other materials indicated.
- E. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. Keep components and hands clean when making joints.
- F. Provide backsplashes and end splashes as indicated on the drawings.
- G. Install sinks in countertops using manufacturers/installers recommended product installation details.
- H. Keep components and hands clean during installation. Remove adhesives, sealants and other stains. Components shall be clean on date of substantial completion.
- I. Clean and prepare finish carpentry and millwork to receive scheduled finish.
- J. Allowable tolerances: Fabricate to the following tolerances:
 - 1. Variation in component size: + 1/8".
 - 2. Location of openings: + 1/8" from indicated location.
 - 3. Anchors: Select material, type, size and finish required.

3.3 PROTECTION:

- A. Provide protection for finish carpentry and millwork against damage by construction work until completion of project.
- B. Repair or replace damaged work as directed by Architect, at no additional cost to Owner.

END OF SECTION

SECTION 072100 - SOUND CONTROL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Mineral wool insulation and acoustical batt insulation for the following applications:
1. Interior partition insulation.
 2. Concealed building insulation.
 3. Sound attenuation insulation.

1.2 RELATED WORK

- A. Refer to the following Sections for related work and insulation not included in this Section:
1. Section 092500 – Metal Studs and Gypsum Wallboard.

1.3 REFERENCES

- A. ASTM International (ASTM):
1. ASTM C165 Standard Test Method for Measuring Compressive Properties of Thermal Insulations.
 2. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 3. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
 4. ASTM C665 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
 5. ASTM C1104 - Standard Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation.
 6. ASTM C1304 Standard Test Method for Assessing the Odor Emission of Thermal Insulation Materials
 7. ASTM C1338 - Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
 8. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 9. ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
 10. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
 11. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 C.
 12. ASTM E736 Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members.
 13. ASTM E759 Standard Test Method for Effect of Deflection on Sprayed Fire-Resistive Material Applied to Structural Members.
 14. ASTM E970 Standard Test Method for Critical Radiant Flux of Exposed Attic Floor Insulation Using a Radiant Heat Energy Source.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's product data sheets including the following:

1. Product performance data.
2. Preparation instructions and recommendations.
3. Storage and handling requirements and recommendations.
4. Installation methods.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain insulation from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
 1. Surface Burning Characteristics: ASTM E84
 2. Combustion Characteristics: ASTM E139

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver insulation materials to Project site with original packaging unbroken and labeled with manufacturer's name, product brand name and type, and directions for storage.
- B. Store materials in clean, dry area in manufacturer's unopened packaging until ready for installation and in accordance with manufacturer's instructions and temperature recommendations.
- C. Handle and store insulation materials in a manner to avoid damaging materials.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Johns Manville; P.O. Box 5108; Denver, Colorado 80217-5108. Toll Free: 800- 654-3103. Tel 303-978-2434. Web: www.jm.com.

2.2 SOUND ATTENUATION FIRE BATTS

- A. Unfaced, Rock-Wool-Fiber Blanket Insulation: ASTM C665, Type I (blankets without membrane facing).
 1. Material: Inorganic fibers derived from basalt, with thermosetting resin binder.
 2. Size: thickness as indicated, 16 inches wide, 48 inches long.
 3. Surface burning characteristics – ASTM E84: Maximum flame spread: 0, Maximum smoke spread: 0
 4. Combustion characteristics - ASTM E136 Noncombustible: Pass

2.3 SOUND ATTENUATION BATTS

- A. Fiberglass batt insulation for use in multi-family construction in concealed spaces between floors: Flexible preformed batt, friction fit.
 1. JM Formaldehyde-free Cavity-SHIELD Fiberglass Batts:
 - a. Material Standard: ASTM C665, Type I.

- b. Thickness: as indicated.
- c. Combustion Characteristics (ASTM E136): Pass.
- d. NFPA 13: Section 9.2.1 compliant
- e. Critical Radiant Flux (ASTM E970): Greater than $0.11 \text{ Btu/ft}^2 \times \text{s}$ (0.12 W/cm^2).
- f. Water Vapor Sorption (ASTM C1104): 5% or less.
- g. Odor Emission (ASTM C1304): Pass.
- h. Corrosiveness (ASTM C665): Pass.
- i. Fungi Resistance (ASTM C1338): Pass.
- j. Flame Spread Index (ASTM E84): 25, maximum.
- k. Smoke Developed Index (ASTM E84): 50, maximum.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Examine substrates and conditions under which insulation work is to be performed. A satisfactory substrate is one that complies with requirements of the section in which substrate and related work is specified.

3.2 INSTALLATION

- A. Installation: Install rock-wool in strict accordance with manufacturer's recommendations and written instructions, including the following:
 - 1. Install insulation in cavities formed by framing members to produce a snug friction fit between edges of insulation and adjoining framing members. Avoid excessive compression.
 - 2. If more than one length is required to fill a cavity, provide lengths that will fit tightly end-to-end.
 - 3. Walls with penetrations may require insulation to be carefully fit around outlets, junction boxes, and plumbing.
 - 4. Install in proper relationship with adjacent construction.

3.3 PROTECTION AND CLEANING

- A. Protect materials from damage during installation and subsequent construction. Repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 079000 - CAULKING AND SEALANTS

PART 1 – GENERAL

1.0 RELATED DOCUMENTS

- A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

- A. The work covered by this section of the specifications consists of providing all equipment, materials and labor, and performing all the work as required for the complete execution of caulking and sealing as indicated. Included, but not necessarily limited to, are the following:
 - 1. Sealing all joints between masonry, wood, vinyl and aluminum frames.
 - 2. Sealing all around all exterior door frames, louvers and other items built into exterior walls.
 - 3. Sealing all joints between exterior architectural metal work and other materials.
 - 4. Caulking all exterior door saddles.
 - 5. Caulking all joints between flashing and other work beneath flashings.
 - 6. Sealing or caulking at all other locations where sealant or caulking is indicated.
 - 7. Sealing at all countertop backsplashes where they intersect with wall.
 - 8. Sealing at perimeter of all door casings.
 - 9. Sealing at all cabinets where they meet the wall.
 - 10. Caulk and seal all perimeter openings, doors and window penetrations.
- B. The following work is specified under other divisions and/or sections of the specifications:
 - 1. Windows - Division 8.

1.2 GENERAL PERFORMANCE

- A. Except as otherwise indicated, joint sealers are required to establish and maintain airtight and waterproof continuous seals on a permanent basis, within recognized limitations of wear and aging as indicated for each application. Failures of installed sealers to comply with this requirement will be recognized as failures of materials and workmanship.

1.3 SUBMITTALS

- A. Product Data
 - 1. Submit manufacturer's product specifications, handling, installation, curing instructions, and performance tested data sheets for each elastomeric product required.
- B. Certified Tests
 - 1. With product data submit test reports for elastomeric sealants on aged performances as specified, including hardness, stain resistance, adhesion, cohesion or tensile strength, elongation, low-temperature flexibility, compression set, modulus of elasticity, water absorption and resistance (aging, weight loss, deterioration) to heat and exposures to ozone and ultraviolet.

1.4 JOB CONDITIONS

- A. Weather Conditions
 - 1. Do not proceed with installation of liquid sealants under unfavorable weather conditions. Install elastomeric sealants when temperature is in lower third of temperature range recommended by manufacturer for installation.

1.5 SAMPLES

- A. Submit in duplicate, samples of all material specified herein, for approval of General Contractor.
- B. Approved samples shall be the standard for comparison of all installed work.

PART 2 - PRODUCTS

2.1 BUTYL CAULKING COMPOUND

- A. Use plain caulking compound under door saddles.
- B. Butyl caulking compound shall be the best grade manufactured by one of the following companies and shall comply with specification requirements:
 - 1. Tremco Butyl Sealant
 - 2. Pecora BC-158
- C. It shall be furnished in proper consistency for gun or knife application as required.
- D. Color shall be approved by the Architect.

2.2 SILICONE SEALANT

- A. Except as otherwise specified or recommended by product manufacturer, all sealant and caulking work shall be done with silicone sealant.
- B. All silicone sealants shall be 1-part. Primer shall be used in accordance with manufacturer's recommendations.
- C. It shall have a Shore Hardness Durometer reading of 25 to 35 as recommended by manufacturer for specific conditions and shall withstand temperature extremes from minus degrees F. to plus 260 degrees F.
- D. It shall absorb movement not to exceed 100% of its applied width after ten (10) years exposure without loss of adhesion or cohesion.
- E. It must be non-staining and non-blushing after contact with masonry terra cotta, mortar or metal of any kind.
- F. Color shall be selected by the Architect.
- G. All silicone furnished under this section shall be of the same brand unless otherwise approved by the Architect in writing.
- H. Silicone sealant shall be of a brand and as manufactured by a firm listed below:

1. Tremco Proglaze.
2. Sonneborn Sonolastic Omniplus.
3. Dow 786.
4. Bostik Pure Silicone

2.3 JOINT BACKUP

- A. Joint backup material shall be compatible with sealant used.
- B. Size of backup material shall be determined by the condition and as recommended by the manufacturer.
- C. One of the following brands and manufacturers shall be used providing they are compatible with sealant used:
 1. Aerocor PL-336 fiberglass as manufactured by Owens Corning Fiberglass Corp.
 2. Ethafoam as manufactured by Dow Corning Corp.
 3. Foam Polyethylene as manufactured by the Tremco Manufacturing Co.
 4. Sonofoam Backer Rod as manufactured by Sonneborn, Inc.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Installer must examine substrates, (joint surfaces) and conditions under which joint sealer work is to be performed and must notify Contractor in writing of unsatisfactory conditions. Do not proceed with joint sealer work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

3.2 JOINT PREPARATION

- A. Clean joint surfaces immediately before installation of gaskets, sealants or caulking compounds. Remove dirt, insecure coatings, moisture and other substrate which could interfere with seal of gasket or bond of sealant or caulking compound. Etch concrete and masonry joint surfaces as recommended by sealant manufacturer. Roughen vitreous and glazed joint surfaces as recommended by sealant manufacturer.
- B. Prime or seal joint surfaces where recommended by sealant manufacturer. Confine primer/sealer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION

- A. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified and except where manufacturer's technical representative directs otherwise.
- B. Rake out, clean out thoroughly all joints and recesses to be caulked or sealed so as to be free of all loose or foreign material, just prior to sealing.
- C. Remove all foreign matter including methacrylate lacquer that would prohibit bond adhering to metal with a solvent recommended by manufacturer of compound.

- D. Pack all joints deeper than 3/8" with joint filler to 3/8" from face of as detailed on drawings.
- E. Apply manufacturer's recommended primer to concrete, masonry and stone surfaces before sealing if recommended by manufacturer.
- F. Apply compound only to dry surfaces, preferably only when temperature is above 40° F.
- G. Fill all joints and recesses completely. Finish all compounds against stop where this is provided. Elsewhere finish to a neat uniform bevel. Finish all joints with beading tool.
- H. Consistency of compound shall be such as to prevent sagging.
- I. Use all possible precautions to avoid smearing any compound of finished work.
- J. Remove immediately all compound smeared on any adjacent surfaces using a non-staining solvent recommended by manufacturer of compound.

3.4 CURE AND PROTECTION

- A. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability. Advise Contractor of procedures required for cure and protection of joint sealers during construction period, so that they will be without deterioration or damage (other than normal wear and weathering) at time of substantial completion.
- B. All existing work shall be adequately protected from damage and staining during all caulking and sealing operations.

END OF SECTION

SECTION 081110 STEEL DOORS AND FRAMES**PART 1 - GENERAL**

1.1 WORK INCLUDED

- A. The work under this section shall include the furnishing of all items of steel doors and frames as listed hereinafter except items which are specifically excluded from this section.
- B. Steel Doors, 18 ga, A60 galvanized at exterior locations, cold rolled steel at interior locations. Factory primed.
- C. Steel Door Frames, 16 ga., welded, A60 galvanized at exterior locations. Knock down slip on drywall type, cold rolled steel at interior locations. Factory primed.
- D. Steel Sidelite Door Frames, welded 16 ga. cold rolled steel.
- E. Steel Borrowed Lite Frames, welded 16 ga. cold rolled steel.
- F. Louvers Installed in Steel Doors
- G. Glass lites installed in steel doors
- H. Job site Delivery
- I. Field Measuring
- J. Job site Service
- K. Project close out information for owner.

1.2 RELATED WORK

- A. Items not included in this section but listed elsewhere
 - 1. Section 062000 - Finish Carpentry
 - 2. Section 082000 - Wood Doors
 - 3. Section 087111 - Door Hardware
 - 4. Section 099000 - Painting.

1.3 QUALITY ASSURANCE

- A. Provide Steel Doors and Frames manufactured by a single firm specializing in the production of this type of work.
- B. Provide Steel Doors and Frames complying with the Steel Door Institute recommended specifications for Standard Steel Doors and Frames (ANSI/SDI 100-91) and as herein specified.
- C. Compliance with all standards listed under paragraph 1.4 "References" is required.
- D. Compliance with all building, fire and life safety codes as listed by State and local codes along with those listed under paragraph 1.4 "References" is required.

- E. Insulation properties: Polyurethane core doors shall have a R factor of 10. Tests must be performed in accordance with SDI-113.

1.4 REFERENCES

- A. Steel Doors and Frames in this section must meet all Standards as established by the following listing.
 1. Door and Hardware Preparation ANSI 115.1.
 2. Life Safety Codes NFPA101 (Latest edition).
 3. Fire Doors and Windows NFPA80 (Latest edition).
 4. Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcing ANSI A151.1.
 5. ANSI/SDI-100-91

1.5 SUBMITTALS

- A. The steel door and frame supplier shall furnish to the architect (6) complete copies of the proposed steel door and frames schedule and/or shop drawings. Using the same reference number for details and openings as those on the Contract drawings. This is to be done within (10) days of acceptance of the General Contractor's purchase order. After receipt of the approved door schedule the steel door and frame supplier shall make any corrections to the door schedule and submit to the architect (4) sets of corrected schedules for file and field use.
- B. All door openings including wood, aluminum, overhead etc. must be listed on the door schedule. If any opening is not by the steel door manufacturer only the door opening number should be shown along with the type of door (wood, etc.) and a "not by steel manufacturer." Include details of each frame type, elevations of door designs, types, conditions at openings, details of construction, location and installation requirements for finish hardware on all reinforcements and details of joints and connections, show anchorage and accessory items.
- C. Each floor of the building is to be detailed separately.
- D. Coordinate approved shop drawings with all other trades and manufacturers whose products are used in conjunction with the Steel Doors and Frames as listed under section 081000.
- E. Templates: Finish hardware supplier is to furnish templates, template reference number and/or physical Hardware to the steel supplier in order to cut, reinforce or otherwise prepare the doors and frames to receive the finish hardware items.

1.6 DELIVERY, STORAGE AND HANDLING

- A. All steel doors and frames being supplied under section 08100 of this specification must be properly marked with door opening mark number to correspond with the door schedule.
- B. Steel doors and frames shall be delivered to the General Contractor according to the contractors, Architect's, or construction manager's request to insure the proper and timely completion of the work.
- C. Deliver all steel doors and KD frames cartoned and/or palletized to provide protection during transit and job storage. Welded frames will not be palletized.

- D. Inspect doors and frames upon delivery for damage. Minor damage may be repaired, provided the finish items are equal in all respects to new work and acceptable to the architect, otherwise remove and replace damaged items as directed.
- E. Store doors and frames at the building site under cover. Place units on at least 4 inch high wood sills or on the floor in a manner that will prevent rust and damage. Avoid the use of non-vented plastic or canvas shelters which could create a humidity chamber. If the cardboard wrapper on the door becomes wet, remove the carton immediately. Provide a 1/4 inch space between stacked doors to promote air circulation.

1.7 JOB CONDITIONS

- A. Installer must examine the substrate and conditions under which steel doors and frames are to be installed and notify the contractor in writing of any condition detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. The following are acceptable manufacturers. Other manufacturers will be considered provided they meet the specified requirements herein and the design intent,
 1. Ceco Door Products
 2. Pioneer Industries
 3. Steelcraft Manufacturing Company
 4. Curries Company
 5. Republic Builder's Products
 6. Amweld Building Products, Inc.

2.2 HARDWARE LOCATIONS

- A. Location of hardware on doors and frames shall be the steel and frame manufacturers standard published locations.
- B. Prepare steel units to receive mortised and concealed hardware, including cutouts, reinforcing, drilling and tapping in accordance with final Finish Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of American National Standards Institute (ANSI) A115 "Specifications for Door and Frame Preparations for Hardware".
 1. For concealed overhead door closers or holders, provide space, cutouts, reinforcing and provisions for fastening in tops of doors or in frame heads as applicable.
 2. Reinforce steel units to receive surface applied hardware. Drilling and tapping for surface applied finish hardware shall be done at the project site.
- C. Locate finish hardware at door frame manufacturer's standard published locations in accordance with "Recommended Locations for Builder's Hardware", published by the Door and Hardware Institute.
- D. When steel frames only are specified, for use with doors to be furnished by others,

hardware preparation on the doors is normally governed by its location on the frames. If the doors are to be factory mortised, the door supplier is responsible for coordinating hardware locations. If they are to be mortised at the site, proper hardware location is the responsibility of the trade doing the work.

2.3 CLEARANCES

- A. Edge clearances shall be as follows:
 - 1. Between doors and frames, at head and jambs - 1/8 inch
- B. At door sills
 - 1. Where no threshold is used - 3/4 inch standard except if otherwise shown on architectural drawings.
 - 2. Where a threshold is used, 1/4 inch maximum between door and threshold.
 - 3. When carpet is used, 1/4 inch higher than the thickness of the carpet.
- C. Between meeting edges of pairs of doors 1/8 inch.
- D. Doors with vertical rod exit devices as required by the exit device template.

2.4 STEEL DOORS

- A. Materials
 - 1. Doors shall be made of commercial quality, level, cold rolled steel conforming to ASTM A-366 or A-620 and ASTM A568 and free of scale, pitting or other surface defects. Face sheets shall not be less than 18 gauge.
 - 2. Hot dipped zinc coated steel shall comply with ASTM designations A526 or A642 and A525. The coating weights shall meet or exceed the minimum requirements shown for A60 in the case of alloyed coatings and G60 for spangled coatings.
- B. Fabrication
 - 1. General Design and Construction
 - 2. All doors shall be of the types and sizes shown on Architect's drawings. Door thickness shall be 1 3/4". Exterior doors to be hot dipped galvanized. Interior doors to be cold rolled steel.
 - 3. All doors shall be strong, rigid and neat in appearance, free from warpage or buckle.
 - 4. All doors shall be constructed with smooth, flush surfaces, without visible joints or seams or exposed faces, except around glass lite trim or louvered panel inserts.
- C. Doors swinging in pairs
 - 1. Non-labeled doors shall have a two piece overlapping astragals which consist of an 18 gauge steel channel applied to the inactive leaf and either a plain extruded aluminum leaf and either a plain aluminum overlap strip with wool pile (specify which) applied to the active leaf. All metal parts are painted to match door.
 - 2. When both leaves are active, an extruded aluminum split astragal consisting of a two-piece, adjustable base and cover set, in either anodized aluminum with a wool pile insert and shall be packaged separately from the door for field attachment.
 - 3. For labelled fire doors a two piece overlapping astragal consisting of a 16 gauge steel edge channel applied to the inactive door and a 12 gauge steel overlap strip

applied to the active door in accordance with procedures of the various labeling agencies.

- D. Seamless vertical edges:
1. Join door faces at their vertical edges by a continuous weld extending the full height of the door. Grind, fill and dress smooth all welds to make them invisible and provide a smooth flush surface.
- E. Hardware Reinforcements
1. Minimum gauges for reinforcing doors for required finish hardware is as follows:
 - a. Hinges and pivots steel plate - 7 gauge thick x 1 1/4 inches wide X 9 inches secured by not less than 6 spot welds.
 - b. Mortise locksets (Govt # 86 Series) and deadlocks 16 gauge steel, secured with not less than 4 spot welds.
 - c. Cylindrical locksets (Govt #160 and 161 Series) 16 gauge steel, secured with not less than 4 spot welds.
 - d. Flush bolts 12 gauge steel, secured with not less than 4 spot welds.
 - e. Surface - applied closers - 12 gauge steel.
 - f. Surface - applied exit devices - 14 gauge steel.
 - g. Automatic door bottoms - 16 gauge steel for mortise type.
 2. Doors shall be mortised, reinforced drilled and tapped at the factory for fully templated hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier. Where surface-mounted hardware is to be applied, doors shall have reinforcing only, drilling and tapping shall be done by others.
- F. Top and Bottom Channels
1. Reinforce tops and bottoms of all doors with a continuous steel, channel not less than 16 gauge, extending the full width of the door and spot welded to the face sheet. Top channel to be flush steel. Plastic fillers not acceptable.
- G. Lip type glass stops and moldings.
1. Where specified or scheduled, door shall be provided with either aluminum or steel moldings to secure glazing by others in accordance with glass opening sizes as shown on approved shop drawings.
 2. On non label doors, doors prepared for glass lights shall have the openings framed and securely attached. Molding shall be made of steel with beads made of not less than 20 gauge, secured to the framed opening by cadmium or zinc coated counter-sunk screws. Corner joints can be butted or mitered type.
 3. On label fire doors, doors prepared for glass light shall have the openings framed and securely attached. Molding must be made of 20 gauge steel. The glazing bead shall be not less than 20 gauge steel with butt or mitered corner joints, secured to the frame opening by cadmium or zinc coated countersunk screws.
- H. Louvers
1. Non-Label Doors Louvers shall be fabricated of 18 gauge frames and 20 gauge commercial quality cold rolled steel, louvers shall be inverted blades of "Y" design. Free air flow shall be 50% of the free area. Louver assemblies have formed metal moldings that shall be attached to the door by clamping the door cutout and secured to the opening with countersunk screws. Corner joints of metal moldings shall be mitered type.
 2. Fire Rated Model Door louvers shall be manufactured in accordance with

Underwriters Laboratories procedures and bear the appropriate label. Testing of Fire Rated Door louvers shall be in accordance with ASTM E 152-S, UL 10B. Components shall be fabricated from 16 gauge commercial quality cold rolled steel. Corners shall be mitered and flush welded. All units shall be equipped with a 160 F fusible link and actuated by a concealed spring mechanism. Adjustable louver blades shall employ a detent system and clearance rivets at operating points. Free air flow shall be 40% of the free area.

I. Door Cores

1. The following are acceptable cores for doors
 - a. Exterior doors: polyurethane core.
 - b. Interior doors: Kraft Honeycomb

J. Finish:

1. Factory Prime Finish
 - a. Doors and frames are to be thoroughly cleaned, and chemically treated to insure maximum paint adhesion. All surfaces of the door and frame exposed to view shall receive a factory applied coat of rust inhibiting primer, either air-dried or baked-on. The finish shall meet the requirements for acceptance stated in ANSI A224.1 "Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces." The prime finish is not intended to be the final layer of protection from the outside elements. Field painting shall be performed in accordance with the recommendations of the door and frame manufacturer. For specialty types of finished coatings, the paint supplier should also be consulted.

2.5 STEEL PANELS

- A. Steel panels shall be made of the same materials, constructed and finished in the same way as specified for steel doors.

2.6 STEEL FRAMES (14 GA. Exterior, 16 GA. Interior)

A. Materials

1. Frames shall be either cold rolled steel conforming to ASTM A366- 68 or commercial grade hot rolled and pickled steel conforming to ASTM A569-66T or not less than 16 gauge, unless otherwise specified.
2. Hot dipped zinc coated steel shall comply with ASTM designations A526 or A642 and A525. The coating weights shall meet or exceed the minimum requirements shown for A40 in the case of alloyed coatings and G60 for spangled coatings.

B. Fabrication

1. General design and construction
 - a. Provide steel frames for doors, transoms, sidelites, borrowed lites, and other openings to the size and design as shown on the architectural drawings. Exterior frames to be hot dipped galvanized. Interior frames to be cold rolled steel.
 - b. All finished work shall be strong and rigid, neat in appearance square, true and free of defects, warp or buckle.
 - c. Jamb depths, trim, profile and backbends shall be as scheduled by the architect and shown on approved shop drawings.

- d. Minimum depth of stops shall be 5/8 inches, cut off (sanitary or hospital type) stops, where scheduled, shall be capped 45 degrees at heights shown on approved shop drawings, and all jamb joints below cut-off stops shall be ground and filled smooth.
 - e. When shipping limitations so dictate, frames for large openings shall be fabricated in sections designed for splicing in the field by others.
 - f. Hardware reinforcements
 - 1) Frames shall be mortised, reinforced, drilled and tapped at the factory for fully templated mortised hardware only, in accordance with approved hardware schedule and templates provided by the hardware contractor. Where surface-mounted hardware is to be applied, frames shall have reinforcing plates only; all drilling and tapping shall be done by others.
 - 2) Reinforce frames for finish hardware as follows:
- C. Hinge reinforcements for 1 3/4 inches thick doors steel plate 7 gauge thick x 1 1/4 inches wide x 9" inches long. Reinforcement shall be attached to the door frames by not less than 6 spot welds.
- D. Strike reinforcements - steel plate 12 gauge x 1 1/2 inches wide.
- E. Flush bolts - steel plate 12 gauge.
- F. Surface applied closers - 14 gauge steel.
- G. Concealed closers - not used
- H. Reinforcements for - Surface mounted hardware 14 gauge steel Hold open arms 14 gauge steel Surface mounted exit devices 14 gauge steel
- I. Floor Anchors
- 1. Floor anchors shall be securely welded or screwed inside each jamb, with two holes provided at each jamb for floor anchorage.
 - 2. Where so scheduled or specified adjustable floor anchors providing not less than 1" height adjustment.
 - 3. Minimum thickness of floor anchors shall be 16 gauge.
- J. Jamb Anchors
- 1. Frames for installation in masonry walls shall be provided with adjustable jamb anchors of the wire type. Anchors shall be not less than 0.156 inch diameter steel wire. The number of anchors provided on each jamb shall be as follows:
 - a. Frames up to 90" height: 3 anchors
 - b. Frames 90" to 96" height: 4 anchors
 - c. Frames over 96" height 1 anchor for each 2' or fraction there of over 96"
 - 2. Frames for installation in stud partitions shall be provided with steel anchors of suitable design, not less than 18 gauge thickness, securely welded inside each jamb or insert type with notched clip to engage stud inserted to back of the frame as follows:
 - a. Frames up to 90" height: 4 anchors
 - b. Frames 90" to 96" height: 5 anchors
 - c. Frames over 96" height 5 anchors plus one additional anchor for every 24 inches or fraction there of over 96"

3. Frames to be anchored to previously placed concrete, masonry or structural steel shall be provided with anchors of suitable design as shown on approved shop drawings. Fasteners for such anchors shall be provided by others.
- K. Dust cover boxes (or mortar guards) of not thinner than 26 gauge steel shall be provided at all hardware mortises on frames to be set in masonry or plaster partitions.
- L. All frames that are to be welded shall be provided with 2 steel spreaders temporarily attached to the feet of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and shall not be used to size the frame.
- M. Except on weatherstripped doors, drill stop to receive 3 silencers on single-door frames and 2 silencers on double-door frames. Drill for 2 silencers on heads of double-swing frames.
- N. Welded Frames
 1. Assemble frame, bend the tabs after assuring that the face miter seam is "closed and tight". Weld the entire face miter seam. Grind the exterior face and dress the face miter seam (exterior) and spot paint, inside and out.
- O. Finish:
 1. Factory Prime Finish

2.07 FIRE LABELED DOORS AND FRAMES

- A. Fire-rated assemblies: Wherever a fire resistance classification is shown or scheduled for steel work, provide fire rated steel doors and frames investigated and tested as a fire door assembly, complete with type of fire door hardware to be used. Identify each fire door and frame with recognized testing laboratory labels, indicating applicable fire rating of both door and frame.
 1. Construct and install doors and frames to comply with current issue of National Fire Protection Association (NFPA) Standard Number 80, as herein specified.
- B. Label doors and frames shall be provided for those openings requiring fire protection ratings as determined and scheduled by the architect.
- C. If any door or frame specified by the architect to be fire-rated cannot qualify for appropriate labeling because of its design, hardware or any other reason, the architect shall be so advised before fabricating work on that item is started. If the architect still wants that material fabricated as shown on the architect's shop drawings, provide a manufacturer's letter of certification that the assembly has been constructed with materials and methods equivalent to a fire rated label construction.

PART 3 - EXECUTION

3.01 INSPECTIONS

- A. Examine the substrate and conditions under which steel work is to be installed and remedy conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

- B. It is the responsibility of the General Contractor to make sure that all dimensions for existing opening or existing frames (strike height, hinge spacing, hinge backset, etc.) given to the steel manufacturer are accurate.
- C. It is the responsibility of the General Contractor to see that any scratches or disfigurements caused in shipping or handling are properly cleaned and touched up with a rust inhibitive primer.

3.02 INSTALLATION

- A. Door Frames
 1. Prior to installation, all frames must be checked for rack, twist and out of square.
 2. Except for frames located at in-place concrete or masonry and at drywall installation, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.
 3. Fill frames in masonry walls with mortar as the wall is laid up. Frames in solid plaster or steel stud walls may be completely filled with plaster except when drywall is used.
 4. When temperature conditions necessitate an additive to be used in the plaster or mortar to prevent freezing, the contractor installing the frames shall coat the inside of the frames in the field with a corrosion inhibiting bituminous material.
 5. SDI-105, "Recommended Erection Instructions for Steel Frames" and SDI-110 "Standard Steel Doors and Frames for Modular Masonry Construction" shall indicate the proper installation procedures.
 6. Install fire-rated frames in accordance with NFPA Standard No. 80.
 7. Anchors
 - a. In masonry construction, locate wall anchors in jambs at hinge and strike levels.
 - b. At in-place concrete or masonry construction, set frame and secure to adjacent construction with machine screws and masonry anchorage devices.
 - c. In metal stud partitions, install wall anchors in jambs at hinge and strike levels. In open steel stud partitions, place studs in wall anchor notches and wire tie. In closed steel stud partitions, attach studs to wall anchors with self drilling screws.
 8. Make field splices in frames as detailed on final shop drawings.
- B. Doors
 1. Install doors plumb and in true alignment in a prepared opening and fasten them to achieve the maximum operational effectiveness and appearance of the unit.
 2. Proper door clearance must be maintained in accordance with Part 2, Section 2.03, except for special conditions otherwise noted.
 3. Where necessary, metal hinge shims are acceptable to maintain clearances.
 4. "The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames, and Builders Hardware" published by DHI is recommended for further details.
- C. Hardware must be applied in accordance with hardware manufacturer's templates and instructions. Also, in compliance with installation instructions as specified under the "Finish Hardware Section of Division 8".

3.03 ADJUST & CLEAN

- A. Final adjustments
 - 1. Check and re-adjust operating finish hardware items in hollow metal work just prior to final inspection. Leave work in complete and proper condition. Remove and replace defective work, including doors or frames which are warped, bowed or otherwise unacceptable.
- B. Prime Coat Touch-Up
 - 1. Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.

3.04 SCHEDULES AND CLOSE OUT DOCUMENTS

- A. Follow Architect's instructions to provide project close out documents. These documents will include, but are not limited to :
 - 1. Copies of hollow metal schedule " as built"
 - 2. Warranty
 - 3. Care and maintenance instructions to owner.
 - 4. Manufacturer's painting recommendations.
 - 5. Other documents required Division 1 of the specifications.
 - 6. Other Documents required by the Construction Manager.

END OF SECTION

SECTION 081400 - WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Extent and location of each type of wood door is indicated on drawings and in schedules.
- B. Types of doors required include the following:
 - 1. Flush solid core wood doors with wood veneer faces. Finish as selected in architectural drawings. (Finish type including doors with lites).
- C. Wood door frames for flush wood doors are specified in another Division-8 section.

1.3 SUBMITTALS

- A. Product Data: Door manufacturer's technical data for each type of door, including details of core and edge construction, trim for openings and louvers and factory-finishing specifications.
- B. Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for factory finishing and other pertinent data.

1.4 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.
- C. Refer to General Conditions for additional requirements.

1.5 QUALITY ASSURANCE

- A. Quality Standards: Comply with the following standards:
 - 1. NWWDA Quality Standard: I.S.1 "Industry Standard for Wood Doors", of National Wood Window and Door Association (NWWDA).
- B. NWWMA Quality Marking: Mark each wood door with NWWDA Wood Door Certification Hallmark certifying compliance with applicable requirements of NWWDA I.S. 1 Series.
 - 1. For manufacturers not participating in NWWDA Hallmark Program, a certification of compliance may be substituted for marking of individual doors.
- C. Fire-Rated Wood Doors: Provide wood doors which are identical in materials and

construction to units tested in door and frame assemblies per ASTM E 152 and which are labeled and listed for ratings indicated by UL, Warnock Hersey or other testing and inspection agency acceptable to authorities having jurisdiction.

- D. Manufacturer: Obtain doors from a single manufacturer.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Protect doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standards and recommendations of NWWDA pamphlet "How to Store, Handle, Finish, Install, and Maintain Wood Doors", as well as with manufacturer's instructions.
- B. Identify each door with individual opening numbers which correlate with designation system used on shop drawings for door, frames, and hardware, using temporary, removable or concealed markings.

1.7 PROJECT CONDITIONS

- A. Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period to comply with the following requirements applicable to project's geographical location:
 - 1. Referenced AWI quality standard including Section 100-S-3 "Moisture Content".

1.8 WARRANTY

- A. General: Warranties shall be in addition to, and not a limitation of, other rights the Owner may have under the Contract Documents.
- B. Door Manufacturer's Warranty: Submit written agreement in door manufacturer's standard form signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup or twist) or that show telegraphing of core construction in face veneers, or do not conform to tolerance limitations of referenced quality standards.
 - 1. Warranty shall also include reinstallation which may be required due to repair or replacement of defective doors where defect was not apparent prior to hanging.
 - 2. Warranty shall be in effect during following period of time after date of Substantial Completion.
 - 3. Solid Core Interior Doors:
 - a. Life of installation.
- C. Contractor's Responsibilities: Replace or refinish doors where Contractor's work contributed to rejection or to voiding of manufacturer's warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering doors which may be incorporated in the work include, but are not limited to, the following:

- B. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
 - 1. Flush solid core wood door with Wood Veneer Faces:
 - a. Masonite
 - b. Graham Wood Doors
 - c. Mohawk Doors, Inc.
 - d. Other manufacturers may be accepted if submitted to and approved.
 - 2. Style & Finish: See architectural drawings.
- C. Fire-Rated Solid Core Doors: Comply with the following requirements.
- D. Faces and AWI Grade: Provide 5-ply faces and grade to match non-rated doors in same area of building, unless otherwise indicated.
 - 1. Construction: Manufacturer's standard core construction as required to provide fire-resistance rating indicated.
 - 2. Edge Construction: Provide manufacturer's standard laminated edge construction for improved screw-holding capability and split resistance as compared to edges composed of a single layer of treated lumber.
 - 3. Pairs: Furnished formed steel edges and astragals for pairs of fire-rated doors, unless otherwise indicated.
 - a. Provide fire-rated pairs with fire-retardant stiles which are labeled and listed for kinds of applications indicated without formed steel edges and astragals.

2.2 LOUVERS AND LIGHT FRAMES

- A. Metal Frames for Light Openings in Fire Doors: Manufacturer's standard frame formed of 18-gage cold-rolled steel, factory-primed and approved for use in door of fire-rating indicated.

2.3 FABRICATION

- A. Fabricate wood doors to produce doors complying with following requirements:
 - 1. In sizes indicated for job-site fitting.
 - 2. Factory-pre-fit and pre-machine doors to fit frame opening sizes indicated with the following uniform clearances and bevels:
 - a. Comply with tolerance requirements of AWI for pre-fitting. Comply with final hardware schedules and door frame shop drawings and with hardware templates.
 - b. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory pre-machining.
- B. Metal Astragals: Pre-machine astragals and formed steel edges for hardware where required for pairs of fire-rated doors.
- C. Transom and Side Panels: Fabricate matching panels with same construction, exposed surfaces and finish as specified for associated doors.
 - 1. Fixed Transom Panels: Fabricate fixed panels with solid lumber transom bottom rail and door top rail, both rabbeted as indicated, and factory-installed springbolts for concealed attachment into jambs of metal door frames.

- D. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine installed door frames prior to hanging door:
 - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
 - 2. Reject doors with defects.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation see Division-8 "Finish Hardware" section of these specifications.
- B. Manufacturer's Instructions: Install wood doors to comply with manufacturer's instructions and of referenced AWI standard and as indicated.
 - 1. Install fire-rated doors in corresponding fire-rated frames in accordance with requirements of NFPA No. 80.
- C. Job-Fit Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.
 - 1. Fitting Clearances for Non-Rated Doors: Provide 1/8" at jambs and heads; 1/16" per leaf at meeting stiles for pairs of doors; and 1/8" from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4" clearance from bottom of door to top of threshold.
 - 2. Fitting Clearances for Fire-Rated Doors: Complying with NFPA 80.
 - 3. Bevel non-rated doors 1/8" in 2" at lock and hinge edges.
 - 4. Bevel fire-rated doors 1/8" in 2" at lock edge; trim stiles and rails only to extent permitted by labeling agency.
- D. Prefinishing:
 - 1. Wood veneer doors: Factory finish door faces, moldings and side edges in accordance with AWI Quality Standard 1500.

3.3 ADJUSTING AND PROTECTION

- A. Operation: Rehang or replace doors which do not swing or operate freely.
- B. Finished Doors: Refinish or replace doors damaged during installation.
- C. Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND WINDOWS

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. Window framing for punched openings.
 - 2. Exterior manual-swing entrance doors and door-frame units.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles and finishes.
- B. Shop Drawings: For aluminum-framed entrances and windows. Include plans, elevations, sections, full-size details and attachments to other work.
 - 1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
 - 2. Include full-size isometric details of each vertical-to-horizontal intersection of aluminum-framed entrances and windows, showing the following:
 - a. Joinery, including concealed welds.
 - b. Anchorage.
 - c. Expansion provisions.
 - d. Glazing.
 - e. Flashing and drainage.
 - 3. Show connection to and continuity with adjacent thermal, weather, air and vapor barriers.
- C. Samples for Initial Selection: For units with factory-applied color finishes.

1.4 INFORMATIONAL SUBMITTALS

- A. Energy Performance Certificates: For aluminum-framed entrances and windows, accessories and components, from manufacturer.
 - 1. Basis for Certification: NFRC-certified energy performance values for each aluminum-framed entrance and windows.
- B. Product Test Reports: For aluminum-framed entrances and windows, for tests performed by a qualified testing agency.
- C. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For aluminum-framed entrances and windows to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated and accredited by IAS or ILAC Mutual Recognition Arrangement as complying with ISO/IEC 17025.

1.7 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace components of aluminum-framed entrances and windows that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration created by wind and thermal and structural movements.
 - c. Deterioration of metals, metal finishes and other materials beyond normal weathering.
 - d. Water penetration through fixed glazing and framing areas.
 - e. Failure of operating components.
 - 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling or failure of paint to adhere to bare metal.
 - 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer as defined in Section 014000 "Quality Requirements," to design aluminum-framed entrances and storefronts.
- B. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and windows representing those indicated for this Project without failure due to defective manufacture, fabrication, installation or other defects in construction.
 - 1. Aluminum-framed entrances and windows shall withstand movements of supporting structure including, but not limited to, story drift, twist, column

- shortening, long-term creep and deflection from uniformly distributed and concentrated live loads.
2. Failure also includes the following:
 - a. Thermal stresses transferring to building structure.
 - b. Glass breakage.
 - c. Noise or vibration created by wind and thermal and structural movements.
 - d. Loosening or weakening of fasteners, attachments and other components.
 - e. Failure of operating units.
- C. Structural Loads:
1. Wind Loads: As indicated on Drawings.
- D. Deflection of Framing Members: At design wind pressure as follows:
1. Deflection Normal to Wall Plane: Limited to edge of glass in a direction perpendicular to glass plane not exceeding 1/175 of the glass edge length for each individual glazing lite or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.
 2. Deflection Parallel to Glazing Plane: Limited to 1/360 of clear span or 1/8 inch, whichever is smaller.
 - a. Operable Units: Provide a minimum 1/16-inch clearance between framing members and operable units.
 3. Cantilever Deflection: Where framing members overhang an anchor point, as follows:
 - a. Perpendicular to Plane of Wall: No greater than 1/240 of clear span plus 1/4 inch for spans greater than 11 feet 8-1/4 inches or 1/175 times span, for spans less than 11 feet 8-1/4 inches.
- E. Structural: Test according to ASTM E 330 as follows:
1. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
 2. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members that exceed 0.2 percent of span.
 3. Test Durations: As required by design wind velocity, but not less than 10 seconds.
- F. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
1. Fixed Framing and Glass Area:
 - a. Maximum air leakage of 0.06 cfm/sq. ft. at a static-air-pressure differential of 6.24 lbf/sq. ft.
 2. Entrance Doors:
 - a. Pair of Doors: Maximum air leakage of 1.0 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.
 - b. Single Doors: Maximum air leakage of 0.2 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.
- G. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:

1. No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure but not less than 6.24 lbf/sq. ft.
- H. Energy Performance: Certify and label energy performance according to NFRC as follows:
1. Thermal Transmittance (U-factor): Fixed glazing and framing areas shall have U-factor of not more than 0.38 Btu/sq. ft. x h x deg F as determined according to NFRC 100.
 2. Thermal Transmittance (U-factor): Doors shall have U-factor of not more than 0.77 Btu/sq. ft. x h x deg F.
 3. Solar Heat Gain Coefficient: Fixed glazing and framing areas shall have a solar heat gain coefficient of no greater than 0.38 as determined according to NFRC 200.
 4. Condensation Resistance: Fixed glazing and framing areas shall have an NFRC-certified condensation resistance rating of no less than 58 as determined according to NFRC 500.
 5. Glazing
 - a. Insulated Glass (Tempered where indicated on the drawings)
 - 1) Insulating glass shall be RIG-Glass Products as manufactured by RIG-Glass Products, PPG or equal product.
 - 2) Where indicated "1" Tempered Insulating Glass", provide units shall consist of tinted ¼" tempered glass outer panes, a ½" air space and a ¼" tempered glass inner pane.
 - 3) Panes shall be hermetically sealed with a metal to glass bond and separated with a dehydrated air space.
 - 4) Separators between glass panes shall be hot dipped galvanized with welded corners. Glass to metal shall be sealed with a primary seal of polyisobutylene and two-part polysulphide for the secondary seal. Unit shall be bonded with a continuous metal band and sealed with a two-part polysulphide between metal and glass.
 - 5) Glass performance shall be capable of providing the specified overall thermal and solar heat gain window performance.
 - b. Spandrel Glass
 - 1) Conformance: ASTM E 2190
 - 2) Where indicated "1" Tempered Insulating Spandrel Glass", provide units shall consist of tinted ¼" tempered glass outer panes, a ½" argon filled air space and a ¼" tempered glass inner pane with ICD Coatings Opaci-Coat 300 on Surface #3. Color selected by architect.
 - 3) Visible Light Transmittance: 0 percent maximum.
- I. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:
1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include but are not limited to the following:
1. Kawneer
 2. Tubelite
 3. Vistawall

2.3 FRAMING

- A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
1. Construction: Thermally broken.
 2. Glazing System: Retained mechanically with gaskets on four sides.
 3. Glazing Plane: Center.
 4. Finish: High-performance organic finish.
 5. Fabrication Method: Field-fabricated stick system.
- B. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- D. Materials:
1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - a. Sheet and Plate: ASTM B 209.
 - b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
 - c. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
 - d. Structural Profiles: ASTM B 308/B 308M.
 2. Glazing
 - a. Insulated, tempered where indicated, color/tint to be selected.
 - b. Glazing performance shall meet the system performance requirements indicated herein.

2.4 ENTRANCE DOOR SYSTEMS

- A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing operation.
1. Door Construction: 1-3/4-inch overall thickness, with minimum 0.125-inch-thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
 2. Door Design: Medium stile; 3-1/2-inch nominal width.
 3. Glazing Stops and Gaskets: Square, snap-on, extruded-aluminum stops and preformed gaskets.
 - a. Provide nonremovable glazing stops on outside of door.

2.5 ENTRANCE DOOR HARDWARE

- A. Entrance Door Hardware: Hardware not specified in this Section is specified in Section 087100 "Door Hardware."
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of entrance door hardware are indicated in "Entrance Door Hardware Sets" Article. Products are identified by using entrance door hardware designations as follows:
 - 1. References to BHMA Standards: Provide products complying with these standards and requirements for description, quality and function.

2.6 ALUMINUM WINDOWS

- A. Extrusions shall be 6063-T5 alloy and temper (ASTM B221 alloy G.S. 10A-T5). Fasteners, where exposed, shall be aluminum, stainless steel or zinc plated steel in accordance with ASTM A 164. Perimeter anchors shall be aluminum or steel, providing the steel is properly isolated from the aluminum. Glazing gaskets shall be elastomeric. Single acting entrance frame weathering shall be nonporous, polymeric material.
- B. Mullion and perimeter framing shall be of two-part construction consisting of gutter and face sections, designed to permit unobstructed face glazing with through site lines and no protecting stops. All exterior face members will be seamless. All vertical and horizontal framing members shall have a nominal face dimension of 1 3/4". Overall depth shall be 4-1/2" as shown on drawings.
 - 1. All assemblies shall be secured internally by means of face clips of special form, in such manner as to be positively held against accidental disassembly in the event of glass breakage. Face clips shall be such a design as to provide a non-reversible snap action and prevent metal to metal contact of the face and gutter sections.

2.6 GLAZING

- A. Glazing: Meeting the requirements of this Section.
- B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks and shims or spacers.
- C. Glazing Sealants: As recommended by manufacturer.
- D. Sealants used inside the weatherproofing system shall have a VOC content of 250 g/L.
- E. Sealants used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- F. Weatherseal Sealants: ASTM C 920 for Type S; Grade NS; Class 25; Uses NT, G, A, and O; chemically curing silicone formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant and structural-sealant-glazed storefront manufacturers for this use.
 - 1. Color: Match structural sealant.

2.7 ACCESSORIES

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 - 2. Reinforce members as required to receive fastener threads.
 - 3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing system.
- B. Anchors: Three-way adjustable anchors with minimum adjustment of 1 inch that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
 - 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- C. Concealed Flashing: Manufacturer's standard corrosion-resistant, non-staining, nonbleeding flashing compatible with adjacent materials.
- D. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil thickness per coat.

2.8 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Physical and thermal isolation of glazing from framing members.
 - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 5. Provisions for field replacement of glazing from interior.
 - 6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- E. Structural-Sealant-Glazed Framing Members: Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.
- F. Storefront Framing: Fabricate components for assembly using screw-spline system.

- G. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
 - 1. At exterior doors, provide compression weather stripping at fixed stops.
- H. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
 - 1. At pairs of exterior doors, provide sliding-type weather stripping retained in adjustable strip and mortised into door edge.
 - 2. At exterior doors, provide weather sweeps applied to door bottoms.
- I. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.
- J. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.9 ALUMINUM FINISHES

- A. High-Performance Organic Finish: Two-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 1. Color and Gloss: To be selected.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare surfaces that are in contact with structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes but is not limited to cleaning and priming surfaces.

3.3 INSTALLATION

- A. General:
 - 1. Comply with manufacturer's written instructions.
 - 2. Do not install damaged components.
 - 3. Fit joints to produce hairline joints free of burrs and distortion.
 - 4. Rigidly secure nonmovement joints.
 - 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
 - 6. Seal perimeter and other joints watertight unless otherwise indicated.
- B. Metal Protection:

1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
 2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Set continuous sill members and flashing in full sealant bed as specified in Section 079200 "Joint Sealants" to produce weathertight installation.
- D. Install components plumb and true in alignment with established lines and grades.
- E. Install all units level and plumb, securely anchored and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.
- F. All glass framing shall be set in correct locations as shown in the details and shall be level, square, plumb and in alignment with other work in accordance with the manufacturer's installation instructions and approved shop drawings. All joints between framing and the building structure shall be sealed in order to secure a watertight installation.
- G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.
1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
 2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

3.4 ERECTION TOLERANCES

- A. Erection Tolerances: Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:
1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.
 2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
 3. Alignment:
 - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
 - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch wide, limit offset from true alignment to 1/8 inch.
 - c. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.
 4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

3.5 PROTECTION

- A. After installation, the General Contractor shall adequately protect exposed portions of aluminum surfaces from damage by grinding and polishing compounds, plaster, lime, acid, cement, or other contaminants. The General Contractor shall be responsible for final cleaning.

END OF SECTION

SECTION 087111 - DOOR HARDWARE

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. Mechanical door hardware for the following:
 - a. Swinging doors.
 - 2. Cylinders for door hardware specified in other Sections.
- B. Related Sections:
 - 1. Section 081110 - Steel Doors and Frames.
 - 2. Section 081400 - Wood Doors.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles and finishes.
- B. Other Action Submittals:
 - 1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames and related work to ensure proper size, thickness, hand, function and finish of door hardware.
 - a. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
 - b. Content: Include the following information:
 - 1) Identification number, location, hand, fire rating, size and material of each door and frame.
 - 2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
 - 3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function and finish of each door hardware product.
 - 4) Fastenings and other pertinent information.
 - 5) Explanation of abbreviations, symbols and codes contained in schedule.
 - 6) Mounting locations for door hardware.
 - 7) List of related door devices specified in other Sections for each door and frame.
 - 2. Keying Schedule: Prepared by or under the supervision of Installer, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the Contract Documents.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware schedule.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and an Architectural Hardware Consultant who is available during the course of the Work to consult with Contractor, Architect and Owner about door hardware and keying.
 - 1. Scheduling Responsibility: Preparation of door hardware and keying schedules.
- B. Source Limitations: Obtain each type of door hardware from a single manufacturer.
- C. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.
- D. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.
 - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.
 - 2. Comply with the following maximum opening-force requirements:
 - a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
 - 3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high and 3/4 inch high for exterior sliding doors.
 - 4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
- B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates and necessary fasteners with each item or package.
- C. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.7 COORDINATION

- A. Installation Templates: Distribute for doors, frames and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including excessive deflection, cracking, or breakage.
 - b. Faulty operation of doors and door hardware.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
 - 2. Warranty Period: 1 years from date of Substantial Completion unless otherwise indicated.
 - a. Five years from date of Substantial Completion.

1.9 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance and removal and replacement of door hardware.
- B. Maintenance Service: Beginning at Substantial Completion, provide six months' full maintenance by skilled employees of door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning and adjusting as required for proper door and door hardware operation. Provide parts and supplies that are the same as those used in the manufacture and installation of original products.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. Provide door hardware for each door as scheduled on Drawings to comply with requirements in this Section.
 - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by descriptive titles corresponding to requirements specified in Part 2.

2.2 HINGES

- A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
- B. Antifriction-Bearing Hinges:
 - 1. Mounting: Full mortise (butts).
 - 2. Bearing Material: Ball bearing.
 - 3. Grade: Grade 2 (standard weight).
 - 4. Base and Pin Metal:
 - a. Exterior Hinges: Brass with stainless-steel pin body and brass protruding heads.

- b. Interior Hinges: Brass with stainless-steel pin body and brass protruding heads.
5. Pins: Nonremovable on locking reverse handed doors.
6. Tips: Oval.
7. Corners: 1/4-inch radius.

2.3 MECHANICAL LOCKS AND LATCHES

- A. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
 1. Bored Locks: Minimum 1/2-inch latchbolt throw.
 2. Deadbolts: Minimum 1.25-inch bolt throw.
- B. Lock Backset: 2-3/4 inches, unless otherwise indicated.
- C. Lock Trim:
 1. Description: As indicated on Drawings.
 2. Levers: Forged.
 3. Dummy Trim: Match lever lock trim and escutcheons.
 4. Operating Device: Lever with escutcheons (roses).
- D. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
 2. Aluminum-Frame Strike Box: Manufacturer's special strike box fabricated for aluminum framing.
 3. Rabbet Front and Strike: Provide on locksets for rabbeted meeting stiles.
- E. Bored Locks: BHMA A156.2; Grade 2; Series 4000.
- F. Roller Latches: BHMA A156.16; Grade 1; rolling plunger that engages socket or catch, with adjustable roller projection.
 1. Material: Satin Stainless.
 2. Mounting: Surface.

2.4 MANUAL FLUSH BOLTS

- A. Manual Flush Bolts: BHMA A156.16; minimum 3/4-inch throw; designed for mortising into door edge.
- B. Manual-Extension Flush Bolts: Grade 2, fabricated from extruded brass or aluminum, with 12-inch rod actuated by flat lever. Provide with dustproof strike.
- C. Dustproof Strikes: Locking type, Grade 1, polished wrought brass, with 3/4-inch-diameter, spring-tension plunger.

2.5 LOCK CYLINDERS

- A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.

- B. Standard Lock Cylinders: BHMA A156.5; Grade 2; permanent cores that are removable; face finished to match lockset.
 - 1. Number of Pins: Six.
 - 2. Type: Bored-lock type.
- C. Construction Master Keys: Provide cylinders with feature that permits voiding of construction keys without cylinder removal. Provide 10 construction master keys.
- D. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.

2.6 KEYING

- A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.
 - 1. Grand Master Key System: Change keys, a master key, and a grand master key operate cylinders.
- B. Keys: Brass.
 - 1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
 - a. Notation: "DO NOT DUPLICATE."
 - 2. Quantity: In addition to one extra key blank for each lock, provide the following:
 - a. Grand Master Keys: Five.

2.7 KEY CONTROL SYSTEM

- A. Key Control Cabinet: BHMA A156.5; metal cabinet with baked-enamel finish; containing key-holding hooks, labels, 2 sets of key tags with self-locking key holders, key-gathering envelopes, and temporary and permanent markers; with key capacity of 150 percent of the number of locks.
 - 1. Wall-Mounted Cabinet: Cabinet with hinged-panel door equipped with key-holding panels and pin-tumbler cylinder door lock.
- B. Key Lock Boxes: Designed for storage of two keys.

2.8 OPERATING TRIM

- A. Operating Trim: BHMA A156.6; brass, unless otherwise indicated.
- B. Push-Pull Plates: 1/8 inch thick, 3-1/2 inches wide by 15-3/4 inches high with square corners, beveled edges, and raised integral lip; secured with exposed screws.

2.9 ACCESSORIES FOR PAIRS OF DOORS

- A. Overlapping-with-Gasket Astragals: BHMA A156.22; T-shaped metal, surface mounted on edge of door with screws; with integral gasket and base metal as follows:
 - 1. Base Metal: Aluminum.
 - 2. Gasket Material: Vinyl.

2.10 SURFACE CLOSERS

- A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.
- B. Cast-Aluminum Surface Closers: Grade 2; Traditional Type with mechanism enclosed in cast-aluminum alloy shell.
 - 1. Mounting: Hinge side.
 - 2. Type: Regular arm.
 - 3. Backcheck: Adjustable, effective between 60 and 85 degrees of door opening.

2.11 MECHANICAL STOPS AND HOLDERS

- A. Wall- and Floor-Mounted Stops: BHMA A156.16; polished cast brass, bronze, or aluminum base metal.
- B. Wall Bumpers: Grade 2; with rubber bumper; 2-1/2-inch diameter, minimum 3/4-inch projection from wall; with backplate for concealed fastener installation; with concave bumper configuration.
- C. Lever-Type Door Holders: Grade 2; minimum 4-inch-long arm that swings up and remains in vertical position; with replaceable rubber tip; for surface-screw application.
- D. Plunger-Type Door Holders: Grade 2; minimum 1-1/8-inch plunger throw; with replaceable rubber tip; for surface-screw application.

2.12 DOOR GASKETING

- A. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.
- B. Adjustable, Housed, Perimeter Gasketing: Screw-adjustable nylon brush gasket material held in place by aluminum housing; fastened to frame stop with screws.
- C. Adjustable Astragals for Meeting Stiles: Screw-adjustable brush pile gasket material held in place by aluminum housing; mounted with screws.
 - 1. Mounting: Surface mounted on face of each door.
- D. Door Sweeps: Nylon brush gasket material held in place by flat aluminum housing or flange; surface mounted to face of door with screws.

2.13 THRESHOLDS

- A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.
- B. Saddle Thresholds:
 - 1. Type: Thermal break and fluted top.

2. Base Metal: Aluminum.

2.14 FABRICATION

- A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by Architect.
 1. Manufacturer's identification is permitted on rim of lock cylinders only.
- B. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.
- C. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
 1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
 2. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
 3. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."
 4. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

2.15 FINISHES

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
- B. Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."

3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each door hardware item to comply with manufacturer's 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. Do not install surface-mounted items until finishes have been completed on substrates involved.
 - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
 - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- D. Intermediate Offset Pivots: Where offset pivots are indicated, provide intermediate offset pivots in quantities indicated in door hardware schedule but not fewer than one intermediate offset pivot per door and one additional intermediate offset pivot for every 30 inches of door height greater than 90 inches.
- E. Lock Cylinders: Install construction cores to secure building and areas during construction period.
 - 1. Replace construction cores with permanent cores as directed by Owner.
 - 2. Furnish permanent cores to Owner for installation.
- F. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- G. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."
- H. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

- I. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- J. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

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.
 - 1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three months after date of Substantial Completion, Installer's Architectural Hardware Consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.5 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

3.6 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate and maintain door hardware and door hardware finishes.

3.7 DOOR HARDWARE SCHEDULE

- A. Refer to Drawings.

END OF SECTION

SECTION 087113 – AUTOMATIC DOOR OPERATORS

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the following types of automatic door operators:
 - 1. Low energy and power assist door operators for swinging doors.
- B. Related Sections:
 - 1. Division 7 Sections for caulking to the extent not specified in this section.
 - 2. Division 8 Section “Aluminum-Framed Entrances and Storefronts” for entrances furnished separately in Division 8 Section.
 - 3. Division 8 Section “Door Hardware” for hardware to the extent not specified in this Section.

1.2 REFERENCES

- A. References: Refer to 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. CUL – Approved for use in Canada.
 - 4. NFPA 70 - National Electrical Code.
 - 5. NFPA 80 - Fire Doors and Windows.
 - 6. NFPA 101 - Life Safety Code.
 - 7. NFPA 105 - Installation of Smoke Door Assemblies.
- B. American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA).
 - 1. ANSI/BHMA A156.10 American National Standard for Power Operated Pedestrian Doors.
 - 2. ANSI/BHMA A156.19 Standards for Power Assist and Low Energy Power Operated Doors.
- C. Underwriters Laboratories (UL).
 - 1. UL Listed R-9469 Fire Door Operator with Automatic Closer.
 - 2. UL10C – Positive Pressure Fire Tests of Door Assemblies.
 - 3. UL 325 Standard for Safety for Door, Drapery, Gate, Louver and Window Operators and Systems.
 - 4. UL991 Listed - Tests for Safety-Related Controls Employing Solid-State Device.
 - 5. UL244A – Solid – State Controls for Appliances.
 - 6. UL1998 – Software in Programmable Components.
 - 7. UL1310 – Class 2 Power Units.
- D. American Association of Automatic Door Manufacturers (AAADM).
- E. American Society for Testing and Materials (ASTM).

1. ASTM B221 Standard Specification for Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
2. ASTM B209 Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate.

F. American Architectural Manufacturers Association (AAMA).

1. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.

G. National Association of Architectural Metal Manufacturers (NAAMM).

1. Metal Finishes Manual for Architectural Metal Products.

H. International Code Council (ICC).

1. IBC: International Building Code.

1.3 DEFINITIONS

A. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to activate the operation of the door.

1. Knowing act: Consciously initiating the opening of a power operated door using acceptable methods including wall mounted switches such as push plates and controlled access devices such as keypads, card readers and key switches.

B. Safety Device: A device that detects the presence of an object or person within a zone where contact could occur and provides a signal to stop the movement of the door.

C. Double Egress Doors: A pair of doors that swing with the two doors moving in opposite directions and no mullion between them.

1.4 PERFORMANCE REQUIREMENTS

A. Automatic door equipment accommodates medium to heavy pedestrian traffic.

B. Opening Force Requirements: Doors shall open with a manual force, not to exceed 30lbf to set the door in motion and 15 lbf to fully open the door applied at 1" from the latch edge of the door. The force required to prevent a stopped door from opening or closing shall not exceed 15 lbf measured 1" from the latch edge of the door at any point during opening or closing.

C. Closing Time:

1. Doors shall be field adjustable to close from 90 degrees to 10 degrees in 3 seconds or longer as applicable per ANSI/BHMA A156.19 standards.
2. Doors shall be field adjusted to close from 10 degrees to fully closed in not less than 1.5 seconds.

1.5 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, fabrication, operational descriptions and finishes.

- B. Shop Drawings: Submit manufacturer's shop drawings, including elevations, sections and details, indicating dimensions, materials, operator, motion /presence sensor control device, anchors, hardware, finish, options and accessories.
 - 1. Indicate required clearances, and location and size of each field connection.
 - 2. Indicate locations and elevations of entrances showing activation and safety devices.
 - 3. Wiring Diagrams: For power, signal, and activation / safety device wiring.
- C. Samples: Submit manufacturer's samples of aluminum finish.
- D. Manufacturers Field Reports: Submit manufacturer's field reports from AAADM certified technician of inspection and approval of doors for compliance with ANSI/BHMA after completion of installation.
- E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the work of this section in quantity as required in Division 01, Closeout Submittals. The manual to include the name, address, and contact information of the manufacturers providing the operators and their nearest service representatives. The final copies delivered after completion of the installation test to include spare parts list.
- F. Warranties and Maintenance: Special warranties and maintenance agreements specified in this Section.

1.6 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 10 years of documented experience in manufacturing of doors and equipment of similar to that indicated for this Project and that have a proven record of successful in-service performance. Manufacturer to have a company certificate issued by AAADM.
- B. Installer Qualifications: Installers, trained by the primary product manufacturers, with a minimum 3 years documented experience installing and maintenance of units 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.
- C. Certified Inspector Qualifications: Certified by AAADM.
- D. Source Limitations for Automatic Door Operators: Obtain each type of door, frame, operator and sensor components specified in this Section from a single source, same manufacturer unless otherwise indicated.
- E. Certifications: Operators shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards.
 - 1. ANSI/BHMA A156.19 American National Standard for Power Assist and Low Energy Operated Doors.
 - 2. NFPA 101 - Life Safety Code.
 - 3. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
 - 4. UL Listed R-9469 Fire Door Operator with Automatic Closer.
- F. Emergency Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrance doors serving as a required means of egress.

1.7 COORDINATION

- A. Coordinate door operators with doors, frames and related work to ensure proper size, thickness, hand, function and finish. Coordinate hardware for automatic entrances with hardware required for rest of the project.
- B. Electrical System Roughing-in: Coordinate layout and installation of power door operators with connections to power supplies and access control system as applicable.

1.8 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. Automatic Door Operators shall be free of defects in material and workmanship for a period of one (1) year from the date of substantial completion.
- C. During the warranty period a factory-trained technician shall perform service and affect repairs. An inspection shall be performed after each adjustment or repair.
- D. During the warranty period all warranty work, including but not limited to emergency service, shall be performed during normal business hours.
- E. Manufacturer shall have in place a dispatch procedure that shall be available 24 hours a Day, 7 Days a week for emergency call back service.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Manufacturer: ASSA ABLOY Entrance Systems, 1900 Airport Road, Monroe, NC 28110. Toll Free (877) SPEC-123. Fax (704) 290- 5555 Website www.assaabloyentrance.com contact: specdesk.na.aes@assaabloy.com
- B. Manufacturer: Stanley Access Technologies; Magic-Force™ Series automatic door operator.
- C. Substitutions: Requests for substitution and product approval in compliance with the specifications must be submitted in writing. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated, as indicated below:
 - 1. Extruded Aluminum, Alloy 6063-T5.

2.3 SWING DOOR OPERATORS

- A. Model: Besam ASSA ABLOY SW200i low energy automatic door operator (Basis of Design):
1. Reference Standard: ANSI/BHMA A156.19.
 2. Configuration: Operator to control single swinging doors and pairs of swinging doors as indicated on the drawings and specified below:
 - a. Traffic Pattern: Two way.
 - b. Pairs of Doors: Single leaf operation in both directions of traffic
 3. Automatic Door Operator: Electro-mechanical, non-handed operator, powered by 24 volt, 1/4 hp motor. Operator shall be adjustable to compensate for different manual push forces as required.
 - a. Automatic operator shall be capable of operating and controlling up to a 700 pound door, 48 inches in width.
 - b. Surface Mounted Operator:
 - 1) Side Access Operator Housing: Operator is contained in 5-1/8" (130.2 mm) deep x 4 5/16" (110 mm) high extruded aluminum housing with a removable cover.
 - 2) Surface Mounted Housing: Continuous for full width of door.
 - 3) Connecting Hardware: Surface mounted operators to have a steel arm from the operator, mounted to the top face of the swing door.
 - 4) UL Listed R-9469 Fire Door Operator with Automatic Closer (surface mounted operator).
 - c. Operator shall be field switchable between an ANSI/BHMA A156.19 and an ANSI/BHMA A156.10 compliant operator and vice versa. Addition of the required safety sensors, activation devices and guard rails may be required to comply with the applicable standard.
 - d. Operator Temperature Range: Capable of operating within temperature ranges of -31° F to 160° F (-35° C to 71° C).
 - e. Electrical Characteristics: Maximum power consumption is 300 watts (2.5 amps at 120 VAC), 50/60hz, built-in thermal overload protection.
 - f. Battery Convenience Mode: Operator to maintain continuous operation by battery power during power failure. Battery is continuously monitored and provides a warning signal if the battery is not working properly.
 4. Door Operation:
 - a. Opening Cycle The adjustable speed operator mechanically powers the drive shaft and the torque control maintains constant speed throughout the opening cycle regardless of stack pressures or wind speed. Operator shall allow manual door operation with operational forces as indicated to fully open the door applied at 1" (25 mm) from the latch edge of the door.
 - 1) Manual push force shall be adjustable from 5 lbf to 15 lbf maximum.
 - b. Hold Open: The operator shall stop and hold the door open at the selected door opening angle for an adjustable period of time (1.5 seconds to 30 seconds).
 - c. Closing Cycle: Spring close with speed controlled power assist.
 - 1) Upon loss of power, dynamic braking will control the door insuring controlled closing.
 - 2) Selectable Torque Control: Automatically adjusts torque without changing the closing speed of the operator.
 - a) When the torque control is activated, the closing speed shall remain constant regardless of stack pressures or wind speed.

- b) Torque Cancellation: The torque control is deactivated whenever there is a signal received from door mounted sensors.
 - c) The torque control is disabled during manual use of the door.
 - d. Wind Force Dampening: The operator electromechanically counteracts wind forces, slowing down the door movement to safely open or close the door.
 - e. Stack Pressure Compensation: Operator shall counteract positive stack pressures, negative stack pressures, and sudden changes of stack pressures. The operator never allows the door to open or close faster than the speed control settings, regardless of pressures.
 - f. Obstruction Control: The operator will stop and reverse the door movement.
 - g. Electric Lock Management:
 - 1) Internal module for electrified locking integration.
 - 2) Electric Lock Output: Selectable 12 VDC, maximum 1200 mA / 24 VDC, maximum 600 mA.
 - 3) Lock monitoring prevents operator(s) from opening door(s) until release of electrified lock.
 - 4) Operator pulls door closed before opening, automatically unjamming electric latch hardware.
 - 5) Sequenced operation between operators for pairs of doors allowing lock release and astragal coordination.
 - h. Lock Retry Circuit: If attempt to fully close the door is unsuccessful, the operator will automatically reverse open 10 degrees and reclose in an attempt to successfully close the door.
 - i. Selectable Alarm Reset: The operator can be field set so that after receiving an alarm signal, the operator will not accept any activation impulses and will operate only as a manual door closer until manually reset.
 - j. Electronic Controls: Solid state integrated circuit controls the operation and switching of the swing power operator. The electronic control provides low voltage power supply for all means of actuation. The controls include time delay (1 to 30 seconds) for normal cycle.
 - k. Control Switch: Automatic door operators shall be equipped with the following type of multi-position function switch:
 - 1) 3 position rocker switch mounted on end cap (On-Off-Hold).
5. Operator Interface:
- a. Safety Sensor Integration for overhead presence safety device and door mounted reactivation safety sensors.

2.4 ACTIVATION DEVICES

- A. General: Provide activation devices in accordance with ANSI/BHMA standards, for condition of exposure and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated. Coordinate activation and safety devices with door operation and door operator mechanisms.
- B. Knowing Act Activation Device:
 - 1. Push Plate: Hard wired, 4-1/2 inch square stainless steel push plate switches engraved with "Push to Open" with a blue handicap logo. Mounted to storefront @ interior door. Post mounted @ exterior door.
 - 2. Push Plate: Jamb mounted, hard wired, 1-1/2 inch x 4-3/4 inch, stainless steel push plate switches engraved with "Push to Open" with a blue handicap logo.

C. Manual Operation:

1. Operator shall allow manual door operation with operational forces adjustable from 5 lbf to 15 lbf maximum.
2. Operator shall provide power assist function to the doors to provide ease of manual operational forces.
 - a. Manual push force shall be adjustable from 5 lbf to 15 lbf maximum.

2.5 SAFETY DEVICES

A. General: Provide safety devices in accordance with ANSI/BHMA A156.10 standards, for condition of exposure and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated. Coordinate safety devices with door operation and door operator mechanisms.

B. Safety Devices:

1. Door Mounted Presence Sensor (DMPS): Shall be the ASSA ABLOY door mounted infrared presence safety device (mounted at top of each door); adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10.
 - a. Unit to provide detection during the travel of the door.
 - b. Upon detection the sensor shall provide a signal to stop or reverse the door action.
2. Door Mounted Safety Sensor Devices: Safety sensor devices shall be door mounted as specified.
 - a. The door mounted safety sensor devices shall be mounted on both the swing (pull) side and the approach (push) side of the door (2 safety sensors per leaf), providing detection on both sides of the door.
 - b. Power transfer from the door mounted safety sensor to operator shall be through an EPT (electrical power transfer).

2.6 ALUMINUM FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Automatic Door Operator Enclosure:

1. Anodized Finish:
 - a. Match storefront

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, wall and floor construction, and other conditions affecting performance of swinging power operated doors.
- B. Examine roughing-in for electrical source power to verify actual locations of wiring connections.
- C. Proceed only after such discrepancies or conflicts have been resolved.

3.2 INSTALLATION

- A. Do not install damaged components. Fit joints to produce hairline joints free of burrs and distortion. Rigidly secure non-movement joints.
- B. Operators: Install automatic door operators plumb and true in alignment with established lines and grades without warp or rack of framing members and doors. Anchor securely in place.
 - 1. Install surface mounted hardware using concealed fasteners to greatest extent possible.
 - 2. Set headers, carrier assemblies, tracks, operating brackets and guides level and true to location with anchorage for permanent support.
- C. Door Operators: Connect door operators to electrical power distribution system.
- D. Sealants: Comply with requirements specified in division 7 Section "Joint Sealants" to seal between the operator housing and the adjacent surfaces.
- E. Signage: Apply signage on both sides of each door and sidelite as required by ANSI/BHMA A156.19 and manufacturers installation instructions.

3.3 ADJUSTING

- A. Adjust automatic door operators, controls and hardware for smooth and safe operation and for weather tight closure. Adjust doors in compliance with ANSI/BHMA A156.19.

3.4 FIELD QUALITY CONTROL

- A. Before placing doors into operation, AAADM certified technician shall inspect and approve doors for compliance with ANSI/BHMA A156.19. Certified technician shall be approved by manufacturer.

3.5 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by automatic door operator installation.
- B. Clean metal surfaces promptly after installation. Remove excess sealants, compounds, dirt and other substances. Repair damages and finish to match original finish.

3.6 DEMONSTRATION

- A. Engage a factory-authorized representative to train Owner's maintenance personnel to adjust, operate, and maintain safe operation of the door.

END OF SECTION

SECTION 092500 - METAL STUDS, GYPSUM WALLBOARD & GYPSUM SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Extent of each type of gypsum drywall construction required is indicated on Drawings.
- B. This Section includes the following types of gypsum board construction:
 - 1. Standard non-rated assemblies
 - 2. Fire rated assemblies

1.3 DEFINITIONS

- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA 505 for definitions of terms for gypsum board construction not otherwise defined in this section or other referenced standards.

1.4 SUBMITTALS

- A. Product data from manufacturers for each type of product specified.
- B. Submit gypsum board manufacturer fire and sound test assemblies fire systems designed including assembly instructions

1.5 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Construction Manager, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Construction Manager.
- C. Refer to General Conditions for additional requirements.

1.6 QUALITY ASSURANCE

- A. Fire-Resistance Ratings: Where indicated, provide materials and construction which are identical to those of assemblies whose fire resistance rating has been determined per ASTM E 119 by a testing and inspecting organization acceptable to authorities having jurisdiction.
 - 1. Provide fire-resistance-rated assemblies identical to those indicated by reference to GA File No's. in GA-600 "Fire Resistance Design Manual" or to design designations in U.L. "Fire Resistance Directory" or in listing of other testing and agencies acceptable to authorities having jurisdiction.
- B. Comply with the gypsum association recommendations for levels of finish and applications of gypsum panel products.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.
- C. Handle gypsum boards to prevent damage to edges, ends and surfaces. Do not bend or otherwise damage metal corner beads and trim.

1.8 PROJECT CONDITIONS

- A. Environmental Conditions, General: Establish and maintain environmental conditions for application and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's recommendations.
- B. Minimum Room Temperatures: For non-adhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board maintain not less than 50 deg F (10 deg C) for 48 hours prior to application and continuously thereafter until drying is complete.
- C. Ventilate building spaces to remove water not required for drying joint treatment materials. Avoid drafts during dry, hot weather to prevent materials from drying too rapidly.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:
- B. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
 - 1. Steel Framing and Furring:
 - a. Gold Bond Building Products Div., National Gypsum Co.
 - b. Marino Industries Corp.
 - c. United States Gypsum Co.
 - 2. Gypsum Boards and Related Products:
 - a. Domtar Gypsum Co.
 - b. Georgia-Pacific Corp.
 - c. Gold Bond Building Products Div., National Gypsum Co.
 - d. United States Gypsum Co.

2.2 STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 deg and doubled over to form 3/16" minimum lip (return) and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
 - 1. Thickness: As indicated.

2. Depth: 3-5/8 inches, unless otherwise indicated.
 3. All metal studs extending to underside of metal roof deck and over 12'-0" in height shall be 20 gauge. Partitions under 12'-0" in height shall be 25 gauge. All studs shall be rolled formed from galvanized steel with matching sill and plate runners. Studs shall be 16" o.c. in sizes as shown on drawings.
 4. All studs supporting lead lined gypsum board shall be 20 ga with cold-rolled channels, 16 ga, 1 1/2" x 1/2" cross bridging 4' o.c. max. Refer to Section 13090.
- B. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth and minimum thickness of base (uncoated) metal as follows:
1. Depth: 7/8 inch.
 2. Thickness: 0.0329 inch, unless otherwise indicated.
- C. Z-Furring Members: Manufacturer's standard zee-shaped furring members with slotted or nonslotted web, fabricated from hot-dip galvanized steel sheet complying with ASTM A 525, Coating Designation G60; with a minimum base metal (uncoated) thickness of 0.0179 inch face flange of 1-1/4 inch, wall-attachment flange of 7/8 inch, and of depth required to fit insulation thickness indicated.
- D. Deflection Track Systems:
1. Ceiling runners of wall assembly shall consist of minimum 25 ga. galvanized steel channels sized to accommodate steel studs. Runner channels shall be of depth required to allow for deflection of building system. Refer to drawings for details.
 2. Deflection track systems shall be equivalent to Fire Trak Corp. rated and non-rated deflection systems.
 3. Fire rated wall track assemblies shall meet U.L. or Warnock Hersey Test assemblies for fire and hose stream requirements for 1-Hr. or 2-Hr. rated assemblies. Refer to drawings for rated wall locations.
- E. Fasteners: Provide fasteners of type, material, size, corrosion resistance, holding power and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum drywall manufacturers for applications indicated.
- F. Resilient Brackets and Furring Channels: 1/2" deep x 1 1/2" wide, 25 gage minimum galvanized steel furring channels specially designed sound insulating brackets for drywall ceiling and wall applications and approved for use in specifically design fire resistant assemblies.
1. Marino Ware RC1
 2. Clark Dietrich RCSD
 3. USG RC1

2.3 GYPSUM BOARD

- A. General: Provide gypsum board of types indicated in maximum lengths available to minimize end-to-end joints.
1. Thickness: Provide gypsum board in thicknesses indicated, or if not otherwise indicated, in either 1/2 inch or 5/8 inch thicknesses to comply with ASTM C 840 for application system and support spacing indicated.
- B. Gypsum Wallboard: ASTM C 36, and as follows:

1. Type: Regular, unless otherwise indicated.
 2. Type: Type (fire code) for fire-resistance-rated assemblies.
 3. Edges: Tapered.
 4. Thickness: ½" or 5/8" as indicated.
 5. Use sag resistant or ceiling rated panels on ceilings.
- C. Products: Subject to compliance with requirements, provide one of the following products where FIRE CODE gypsum wallboard is indicated:
1. "Gyprock Fireguard 'C' Gypsum Board"; Domtar Gypsum Co.
 2. "Fire-Shield G"; Gold Bond Building Products Div., National Gypsum Co.
 3. "SHEETROCK Brand FIRECODE 'C' Gypsum Panels"; United States Gypsum Co.
- D. Water and Mold Resistant Gypsum Backing Board: ASTM C 630 and as follows (walls and ceiling surfaces for all kitchens, mechanical rooms, janitor closets, bathrooms and laundries):
1. Type: Regular, unless otherwise indicated.
 2. Type: Type (fire code) for fire-resistance-rated assemblies.
 3. Thickness: ½" or 5/8" where indicated.

2.3 TRIM ACCESSORIES

- A. Cornerbead and Edge Trim for Interior Installation: Provide corner beads, edge trim and control joints which comply with ASTM C 1047 and requirements indicated below:
1. Material: Formed metal, or metal combined with paper, with metal complying with the following requirement:
 - a. Sheet steel zinc-coated by hot-dip process.
 2. Edge trim shapes indicated below by reference to designations of Fig. 1 in ASTM C 1047:
 - a. "LC" Bead, unless otherwise indicated.
 - b. "L" Bead where indicated.
 3. One-Piece Control Joint: Formed with "V" shaped slot per Fig. 1 in ASTM C 1047, with slot opening covered with removable strip.

2.4 GYPSUM BOARD JOINT TREATMENT MATERIALS

- A. General: Provide materials complying with ASTM C 475, ASTM C 840 and recommendations of manufacturer of both gypsum board and joint treatment materials for the application indicated.
- B. Joint Tape: Paper reinforcing tape.
1. Use pressure sensitive or staple-attached open-weave glass fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.
 2. Setting-Type Joint Compounds: Factory-prepackaged, job-mixed, chemical-hardening powder products formulated for uses indicated.
 - a. Where setting-type joint compounds are indicated for use as taping and topping compounds, use formulation for each which develops greatest bond strength and crack resistance and is compatible with other joint compounds applied over it.
 - b. For prefilling gypsum board joints, use formulation recommended by gypsum board manufacturer for this purpose.
- D. Drying-Type Joint Compounds: Factory-prepackaged vinyl-based products complying with

the following requirements for formulation and intended use.

1. Job-Mixed Formulation: Powder product for mixing with water at Project site.
2. Taping compound formulated for embedding tape and for first coat over fasteners and flanges of corner beads and edge trim.
3. Topping compound formulated for fill (second) and finish (third) coats.
4. All-purpose compound formulated for use as both taping and topping compound

2.4 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials for gypsum drywall construction which comply with referenced standards and the recommendations of the manufacturer of the gypsum board.
- B. Laminating Adhesive: Special adhesive or joint compound recommended for laminating gypsum boards.
- C. Spot Grout: ASTM C 475, setting-type joint compound of type recommended for spot grouting hollow metal door frames.
- D. Gypsum Board Screws: ASTM C 1002.
- E. Concealed Acoustical Sealant: Nondrying, non-hardening, non-skinning, non-staining, non-bleeding, gunnable sealant complying with requirement specified in Division-7 section "Joint Sealers."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to which drywall construction attaches or abuts, preset hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of drywall construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF STEEL FRAMING, GENERAL

- A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, and similar construction to comply with details indicated and with recommendations of gypsum board manufacturer, and the "Gypsum Construction Handbook" published by United States Gypsum Co.
- C. Isolate steel framing from building structure to prevent transfer of loading imposed by structural movement, at locations indicated below to comply with details shown on Drawings:
 1. Where edges of suspended ceilings abut building structure horizontally at ceiling perimeters or penetration of structural elements.
 2. Where partition and wall framing abuts overhead structure.
 - a. Provide slip or cushioned type joints as detailed to attain lateral support and

avoid axial loading.

- D. Do not bridge building expansion and control joints with steel framing or furring members; independently frame both sides of joints with framing or furring members or as indicated.

3.3 INSTALLATION OF STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Install runners (tracks) at floors, ceilings and structural walls and columns where gypsum drywall stud system abuts other construction.
- B. Installation Tolerances: Install each steel framing and furring member so that fastening surface do not vary more than 1/8 inch from plane of faces of adjacent framing.
- C. Terminate partition framing at suspended ceilings where indicated.
- D. Install steel studs and furring in sizes and at spacings indicated but not less than that required by referenced steel framing installation standard.
 - 1. For single layer construction: 16 inches on center.
- E. Install steel studs so that flanges point in the same direction and gypsum boards can be installed in the direction opposite to that of the flange.
- F. Frame door openings to comply with details indicated, with GA-219 and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - 1. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above as detailed on drawings.
- G. Frame openings other than door openings to comply with details indicated, or if none indicated, in same manner as required for door openings; and install framing below sills of openings to match framing required above door heads.

3.4 APPLICATION AND FINISHING OF GYPSUM BOARD & SHEATHING, GENERAL

- A. Gypsum Board Application and Finishing Standard: Install and finish gypsum to comply with ASTM C 840.
 - 1. Level 4
 - a. In all rooms where gypsum board will be painted.
 - b. In all public spaces, corridors and stairways.
 - 2. Level 1
 - a. Above ceilings.
- B. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 24 inches in alternate courses of board.
- C. Stagger end joints at least 24 inches.
- D. Install wall/sheathing in manner which minimizes the number of end-butt joints or avoids them entirely where possible.
- E. Install gypsum sheathing with face side out. Do not install imperfect, damaged or damp

boards. Butt boards together for a light contact at edges and ends with not more than 1/16 inch open space between boards. Do not force into place.

- F. Locate either edge or end joints over supports, except in horizontal applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill-cut or field-cut ends against mill-cut or field-cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.
- G. Attach gypsum board to steel studs so that leading edge or end of each board is attached to open (unsupported) edge of stud flange first.
- H. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.
- I. Spot grout hollow metal door frames for solid core wood doors, hollow metal doors and doors over 32 inches wide. Apply spot grout at each jamb anchor clip just before inserting board into frame.
- J. Form control joints and expansion joints at locations indicated, with space between edges of boards, prepared to receive trim accessories.
- K. Space fasteners in gypsum boards in accordance with referenced gypsum board application and finishing standard and manufacturer's recommendations.

3.5 METHODS OF GYPSUM APPLICATION

- A. Single-Layer Application: Install gypsum wallboard as follows:
 - 1. Apply gypsum vertically (parallel to framing), unless otherwise indicated and provide sheet lengths which will minimize end joints.
- B. Single-Layer Fastening Methods: Apply gypsum boards to supports as follows:
 - 1. Fasten with screws.

3.6 PROTECTION

- A. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum sheathing construction being without damage or deterioration at time of veneer installation.

END OF SECTION

SECTION 093000 - TILE (CERAMIC)

PART 1 - GENERAL

1.0 RELATED DOCUMENTS

- A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

- A. Definitions: Tile includes ceramic surfacing units made from clay or other ceramic materials. The types of work of this section include:
 - 1. Ceramic tile, floors/walls
 - 2. Special shapes as required or indicated
 - 3. Tile base, treads and trim
 - 4. Setting beds as required or indicated
 - 5. Grout and setting materials
 - 6. Cutting and setting materials
 - 7. Cutting, drilling and fitting tile work in connection with work by others
 - 8. Waterproofing, uncoupling and drainage membranes
 - 9. Edge protection and control joints
 - 10. Crack isolation and sound reduction membrane

1.2 RELATED SECTIONS

- A. Section 033000- Cast In Place Concrete
- B. Section 033500- Concrete Finishing: concrete floor finishing
- C. Section 061000- Rough Carpentry: plywood subfloor and underlayment
- D. Section 079000- Joint Sealers
- E. Section 092500-Gypsum Board
- F. Section 224000- Plumbing Fixtures and Equipment

1.3 REFERENCES

- A. ANSI A108.1-1999: Installation of Ceramic Tile
- B. ANSI A137.1-1998: Ceramic Tile
- C. ANSI C144-99: Standard Specification for Masonry Aggregates
- D. ANSI C150-90: Standard Specification for Portland Cement
- E. ASTM C207-91 (1992): Standard Specification for Hydrated Lime
- F. ASTM C503-99: Standard Specification for marble Dimension Stone

- G. ASTM C568-99: Standard Specification for Limestone Dimension Stone
- H. ASTM C615-99: Standard Specification for Granite Dimension Stone
- I. ASTM C629-99: Standard Specification for Slate Dimension Stone
- J. ASTM C847-95: Standard Specification for Reinforcing Metal lath

1.4 QUALITY ASSURANCE

- A. Manufacturer: Provide products by the following for type of tile:
 - 1. Tile
 - a. Olympia Tile
 - b. Best Tile
 - c. Dal Tile
 - d. Approved equal or other specified manufacturer in architectural drawings
 - 2. Grout
 - a. Laticrete
 - b. FlexTile
 - c. Hydorment
 - d. Approved equal or other specified manufacturer
- B. Tile Manufacturing Standard: TCA 137.1 Furnish tile complying with Standard Grade requirements unless indicated otherwise.
- C. Proprietary Materials: Handle, store, mix and apply proprietary setting and grouting materials in compliance with manufacturer's instructions.
 - 1. Provide materials obtained from one source for each type and color of tile, grout, and setting materials.
- D. Certificates:
 - 1. Master Grade Certificates:
 - a. Conform to ANSI A 137.1, standard grade

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information and installation instructions for materials required, except bulk materials. Include certifications and other data to show compliance with these specifications.
- B. Submit Manufacturer's maintenance guides for Owner's use in maintaining all ceramic tile work included for project.
- C. Submit shop drawings for architect's review showing location of expansion joints based on building control joints, cold joints, sawed joints and recommended expansion joints based on TCA Specifications.

1.6 SAMPLES

- A. Submit samples in duplicate for approval showing quality, color, texture and finish for each kind of tile. Submit 12" x 12" panels of floor tile patterns and all custom patterns.

1. Wall and Floor Tile:
 - a. Panel for each color, pattern, and type.
 - b. Approximate panel size: 12" x 12", mounted to 3/4" plywood backer
 - c. Crack Isolation Membrane: 6" x 6" piece

- B. No work for which such samples are required shall proceed until samples have been approved by the Architect, and all tile work shall be executed in strict accordance with the approved samples.

1.7 DELIVERY AND STORAGE OF TILE

- A. All tile shall be graded, sealed and delivered in accordance with Department of Commerce Simplified Practice Recommendation R-61, latest issue, and this specification.
- B. Deliver all tile in unbroken packages bearing the brand and manufacturer's name and store them on platforms, properly covered to protect them from moisture, damage and contamination.
- C. Keep all containers in which tiles are packed, dry until tiles are removed. Take every precaution to see that tiles are not stained.
- D. Manufactured mortars and grouts to contain hallmarks certifying compliance with referenced standards and be types recommended by the tile manufacturer for application.

1.8 CERTIFICATION

- A. The Contractor shall furnish a master grade certificate bearing the certification mark of the Tile Council of America, signed by the manufacturer of the tile and the tile applicator. Certificates shall state the type and quality of the material furnished.

1.9 MAINTENANCE INSTRUCTIONS

- A. Furnish in triplicate (3) copies of instructions for the care, cleaning, and maintenance of ceramic tile.

1.10 EXTRA TILE

- A. Upon completion of work, deliver to Owner, tile of same size, color, pattern and type as used on the project for use in future repair and maintenance work.
 1. 2% if resultant quantity exceeds 5 sq. ft.
 2. Minimum, 5 sq. ft.
 3. Include each trim shape, inside/outside corners, and any other special pieces in quantities in keeping with the conditions encountered.
- B. Provide extra tile in above noted quantities for each color, tile, pattern and type employed on project.
- C. Clearly mark extra stock to identify:
 1. Manufacturer's name
 2. Product name
 3. Product color and pattern

- D. Package tile products neatly in original containers, to prevent damage.

1.11 JOB CONDITIONS

- A. Environmental:
 - 1. Maintain temperature no lower than 50 degrees F and no higher than 100 degrees F during tile work and for seven (7) days after completion.
 - 2. Vent temporary heaters to outside to avoid carbon dioxide damage to new tile work.
 - 3. Provide adequate lighting for good grouting and clean up.
- B. Protection: Protect adjoining work surfaces before tile work begins.

PART 2 - PRODUCTS

2.1 KINDS OF TILE

- A. All tile shall be of domestic manufacture, standard grade, meeting the requirements of recommended standard Specification for Ceramic Tile TCA 137.1-1980. All packages shall bear quality triangle of Tile Council of America, Inc.
- B. All porcelain and slate as specified in Finish Schedule by Architect. Edges shall be plain or cushion as selected.
- C. All base shall be coved and match floor tile. Refer to drawings where tile base is used.
- D. Include all special shapes required such as bullnose, cove, trim, caps, etc. These shall be of the same kind and finish as adjacent tile.

2.2 COLOR, PATTERNS, SIZES OF TILE AND GROUT SELECTIONS

- A. General
 - 1. All colors of tile shall be as selected by the Architect from manufacturer's complete line of styles, patterns and colors. Refer to finish plans and schedule for products, colors, and locations.
- B. Tiles:
 - 1. **Refer to A-600's for all tile selections. Refer to A-600's for wall tile layouts.*

2.3 TERMINAL EDGES

- A. Use Schluter Systems, Inc. L-Channel Top cap for unfinished tile edges. Color and finish to be selected by architect.
- B. Tile Edge Protection: Provide appropriate Schluter Systems, Inc. edge protection to transition between floor types when applicable. Submit samples for approval by Architect.
- C. Tile Expansion and Control Joints: Provide appropriate Schluter Systems, Inc., tile expansion and control joint profile when applicable. Submit samples for approval by Architect.
- D. Waterproofing Membrane System: Provide Schluter Systems, Inc or approved equal waterproof membrane in shower areas or other wet locations. Install per manufacturer's recommended instructions.

- E. Waterproofing & Crack Isolation Membrane: Provide Flextile Ltd, WP-980 waterproof membrane system in areas where large expanses of tile are installed. Install per manufacturer's recommended instructions.

2.4 MORTAR AND GROUTING MATERIALS

- A. All cement shall be Portland Cement conforming to ASTM Specifications C150, latest edition, type 1.
- B. All hydrated lime shall comply with ASTM Specifications C206 and C207, type S.
- C. All sand shall be clean, sharp, durable, fine natural aggregate, free from salt, loam, clay, soluble salts organic impurities, conforming to ASTM C144.
 - 1. Sand for floor setting beds shall be well graded, passing #8 sieve, not over 5% passing #100 mesh screen.
 - 2. Sand for grout shall pass #30 mesh sieve, not over 5% passing #100 mesh screen.
- D. Water shall be clean, free from injurious amount of oil, acid, soluble salts, organic impurities.
- E. Dry-set mortar - conform with ANSI A118.1 and be prepared under Tile Council Formula. Package shall bear quality triangle of Tile Council of American, Inc.
- F. Latex-Portland cement mortars to conform to ANSI A118.4.
- G. Organic adhesives to conform to ANSI A136.1.
- H. Epoxies:
 - 1. Floor and wall adhesive: Equivalent to Mapei Corp. Kerapoxy adhesive.
 - 2. Heavy duty floor mortar:
 - a. Equivalent to Mapei Corp. Kerapoxy epoxy mortar.
 - b. Conform to ANSI A118.3
- I. All materials shall be measured accurately by volume thoroughly mixed and placed within a reasonable time after mixing. Do not re-temper.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify existing condition are ready to receive work.
- B. Ensure substrates are clean, dimensionally stable, cured and free of contamination such as oil, sealers and curing compounds.
- C. Ensure concrete has been allowed to cure for a minimum of 28 days.
- D. Ensure that floor substrate is troweled to a fine broom finish.
- E. Notify architect in writing of unacceptable substrate conditions.

3.2 SETTING METHODS

- A. All ceramic tile installation work shall be in accordance with latest recommendations of the Tile Council of America, Inc. and as indicated on drawings and specified herein. In case of conflict, the more stringent shall apply.
- B. Porcelain tile floors and walls shall be applied direct, using dry set mortar (thin set method).
- C. Average thickness of thin set mortar bed shall be 1/8" and shall not exceed 1/4".
- D. Coordinate with concrete work for recess at area of tile.
- E. Providing waterproofing membrane at all shower walls.
- F. Verify size and field dimensions for Entry Mat at Vestibules

3.3 STANDARD FOR TILE WORK

- A. Except as otherwise specified, all details of tile setting and workmanship shall conform with the requirements of the "2003-2004 Handbook for Ceramic Tile Installation" of the Tile Council of America, Inc.

3.4 TILE SETTING PROCEDURE

- A. A detailed inspection of all surfaces on which tile is to be placed shall be made. A report, in writing, of any defects found as a result of this inspection, shall be made to the Contractor, who shall immediately remedy such defects before the placing of the tile.
- B. All rooms or spaces in which tile floors are being laid, shall be closed to traffic or other work, and kept closed until the floors are completed and the tile firmly set.
- C. No tile shall be set on surfaces where other work is specified or shown to be embedded in the tile work until such work has been installed and approved.
- D. Tile work shall be laid out so as to avoid small cuts. All cuts shall be rubbed smooth and even.
- E. Replace All tile misfits with properly cut tile.
- F. No tile shall be placed or allowed to set in temperatures below 40 degrees F.

3.5 SETTING TILE

- A. Installation of the tile shall comply with standards previously specified and with ANSI 108.5.
- B. Clean surface of all dust, deleterious film and non-compatible matter, moisten well with water, allow no free water to remain on surface. Do not saturate.
- C. Spread specified setting mortar, screen to true plane at proper height, sloped to drains or level as indicated.

- D. Do not spread more setting mortar at one time than can be covered during same working period.
- E. Lay all tiles to straight edge, maintain uniform joint between tiles. All joints shall align in all directions.
- F. Press tile into still plastic mortar and beat to true surface, using approved tools.
- G. Provide expansion joints in locations and as required by recommendations of Tile Council of America, Inc.

3.6 GROUTING

- A. After removal of paper, grout all tile joints. Fill by screening or brushing specified grout until joints are full, avoiding air traps or voids.
- B. Pre-seal tiles requiring protection from grout staining.
- C. Tool all cushion edge joints to depth of cushion.
- D. Remove all surplus grout from tile, using diagonal strokes across joints. Check for gaps or air holes, filling same.

3.7 PROTECTION

- A. Immediately after initial set of grout, apply a coat of non-corrosive soap to all wall tile or cover it completely with heavy gauge plastic sheets, properly secured and joints well taped.
- B. Cover all tile floors with building paper with taped joints. Where necessary to truck over tile floors, General Contractor shall provide planking.
- C. Close all rooms to traffic for ten (10) days after grouting tile.
- D. Protect all finished work until the Architect authorizes the removal of protection.

3.8 CLEANING

- A. After grout has set, wash and rinse all tile work with sponge and clean water. Polish with dry cloth.
- B. Avoid the use of acid if possible. If absolutely necessary, obtain approval of Architect and use 10% muriatic solution and rinse thoroughly with clean water.
- C. All cleaning shall be done in such a manner as not to adversely affect mortar joints and finish of tile.

3.9 REPAIR AND REPLACEMENT

- A. Remove all broken tiles and replace with new tile. Provide adequate "back up" in base coat to prevent further cracking tile. Provide protection to replaced floor tile as specified.

END OF SECTION

SECTION 095100 - ACOUSTICAL TREATMENT

PART 1 - GENERAL

1.0 RELATED DOCUMENTS

- A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

- A. Extent of each type of acoustical ceiling is shown and scheduled on drawings.
 - 1. Refer to Room Finish Schedule, reflected ceiling plans and other pertinent details as indicated on drawings.
- B. Types of acoustical ceilings specified in this section include the following:
 - 1. Acoustical panel ceilings, exposed suspension.

1.2 SEISMIC REQUIREMENTS

- A. Suspended ceiling grid systems shall provide all necessary components to comply with the New York State Seismic Design Criteria as dictated by the specific Seismic Design Category. This requirement includes suspension of all HVAC, lighting and any other ceiling installed items

1.3 QUALITY ASSURANCE

- A. Installer: Firm with not less than three years of successful experience in installation of acoustical ceilings similar to requirements for this project and which is acceptable to manufacturer of acoustical units, as shown by current written statement from manufacturer.
- B. All acoustical tile panels specified herein, shall have a flame spread rating of 25 or less when tested by an independent Testing Laboratory in accordance with ASTM E84-70.
- C. Manufacturer shall submit substantiating data as evidence of compliance.

1.4 SUBMITTALS

- A. Product Data: Manufacturer's product specifications and installation instructions for each acoustical ceiling material required, and for each suspension system, including certified laboratory test reports and other data as required to show compliance with these specifications. Include manufacturer's recommendations for cleaning and refinishing acoustical units, including precautions against materials and methods which may be detrimental to finishes and acoustical performances.
- B. Samples: Set of 12" square samples for each acoustical unit required showing full range of exposed color and texture to be expected in completed work. Set of 12" long samples of each exposed runner and molding.
- C. Maintenance Stock: At time of completing installation, deliver stock of maintenance material to Owner. Furnish full size units matching units installed, packaged with protective covering

for storage, and identified with appropriate labels. Furnish amount equal to 2.0% of acoustical units and exposed suspension installed.

1.5 JOB CONDITIONS

- A. Recommendations of the Acoustical Materials Association in their latest bulletin shall apply. Acoustical materials shall be installed under temperature and humidity conditions closely approximating those which will exist when the building is occupied. They should not be installed when buildings are damp and cold or dry and hot. Plastering, concrete and flooring shall be completed and then allowed to dry before the installation of acoustical tiles. All windows and doors shall be in place and glazed. Heating system should be installed and operating where necessary to maintain proper conditions before, during and after the acoustical ceiling installation. Concrete should be thoroughly dry.

PART 2 - PRODUCTS

2.1 CEILING UNITS

- A. Manufacturer: Shall be Armstrong World Ind. Or approved equal.
1. Type A: Manufacturer: See drawings for selection.
 - a. Product: See drawings for selection.
 - b. Style: See drawings for selection.
 - c. Size: See drawings for selection.
 - d. Edge: See drawings for selection.
 - e. Color: See drawings for selection.
 - f. Fire Rating: Class A- Conforms with ASTM E-84
 2. Type B: Manufacturer: See drawings for selection.
 - a. Product: See drawings for selection.
 - b. Style: See drawings for selection.
 - c. Size: See drawings for selection.
 - d. Edge: See drawings for selection.
 - e. Color: See drawings for selection.
 - f. Fire Rating: Class A- Conforms with ASTM E-84

2.2 CEILING SUSPENSION MATERIALS

- A. Exposed Tee Suspension System
1. System shall include all hangers, wire, carrying tees, cross tees, edge angles, clips and all other components to complete installation. Provide proper amount and proper type of "hold down" clips as required to prevent "uplift" and "shifting" of tiles.
 2. Suspension system for type A ceiling tile shall be as manufactured by Armstrong World Ind. or equal as follows:
 - a. See drawing for selection.
 3. All lights in exposed grid suspension system shall be supported by the suspension system. Diffusers, grilles, etc. shall be independently supported.
 4. Main tees shall be sufficiently supported to carry load imposed, which shall include weight of lights. A minimum of four hangers per light shall be used and for lights over 4'-0" long, and additional two hangers for each additional 2'-0" of length shall be used.
 5. Main tees and cross tees shall be made of fully zinc coated steel of gauges as previously noted. All connections of main tees, cross tee, perimeter mouldings, etc., shall be mechanically interlocked. All work shall be level, square and at proper

- height. Provide perimeter mouldings where ceiling abuts walls or partitions.
6. Hanger wire shall be No. 12 annealed galvanized wire, spaced not to exceed 4" O.C.
 7. All ceiling suspension shall be supported from floor and roof construction above. Provide all supplementary framing as required to adequately support the suspended ceiling.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Installer must examine conditions under which acoustical ceiling work is to be performed and must notify Contractor in writing of unsatisfactory conditions. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 PREPARATION

- A. Coordination: Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustical ceilings.
- B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half width units at borders and comply with reflected ceiling plans wherever possible.

3.3 INSTALLATION

- A. General: Install materials in accordance with manufacturer's printed instructions, and to comply with governing regulations, fire resistance rating requirements as indicated, and industry standards applicable to work.
- B. Installation - Lay-In Type
 1. Attach to carrying channels, at right angles, the tee bars or exposed grid at spacing determined by the tile size. Provide additional support to exposed grid carrying tees at recessed lights. (light to bear on tees). Ceiling diffusers to be supported independently by Heating Contractor. Provide tee bar splices as required.
 2. Ceiling contractor to coordinate his work with that of electrical and heating contractors to insure satisfactory installation of lights, diffusers and ceiling and with metal deck installer to assure proper placement of strap hangers. Frame around ceiling diffusers to support ceiling tile as required.
 3. Furnish and install all accessories and items necessary for proper suspension.
 4. Acoustical ceiling tile shall be placed in an approved manner as recommended by the manufacturer.
 5. Lay out work to avoid small pieces at room perimeters. All damaged ceiling tile shall be replaced before final acceptance of structure and all acoustical installations shall be made by an acoustical contractor approved by the manufacturer of the acoustical materials as being thoroughly experienced in erection of acoustical materials.
 6. Anchorage and fastenings shall be secure and adequate for the use intended.
 7. Acoustical ceilings shall be erected in a rigid and secure manner, level with tight joints, free from wave, buckles and sags. All acoustical tile shall be properly supported.
 8. Cut and fit all acoustical units neatly and accurately against beams and walls and around pipes, electrical outlets and equipment so that flanges will cover units where

- cut.
9. All joints shall be kept in proper alignment and parallel to walls, unless otherwise indicated.
 10. All finished ceiling areas shall be flat with not tile or edges of the tile protruding or recessed in relation to adjacent tile.
 11. Metal edge channels, fillers, mouldings, etc., shall be in as long pieces as possible and joints shall be neatly and as inconspicuously as possible. Trim shall be attached with approved concealed fastenings. All angles, corners and filler shall have mitered joints.
 12. Insert for support of suspended ceilings from slab above and for attachment of suspension wire shall be of type recommended by manufacturer and shall be of a type to support ceiling loads imposed.

3.4 ADJUST AND CLEAN

- A. Replace damaged and broken panels.
- B. Upon completion, all exposed surfaces of factory finished acoustical work shall be cleaned and left in a condition entirely satisfactory to the Architect. Remove all debris, equipment and material from premises.

END OF SECTION

SECTION 096500 – RESILIENT FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

- A. Extent of vinyl sheet, vinyl composition tile, and rubber base drawings, schedules and in provisions of this section.

1.3 RELATED WORK

- A. Cast-In-Place Concrete as specified in Division 3.
- B. Ceramic Tile is specified in another Division 9 Section.
- C. Quarry Tile is specified in another Division 9 Section.
- D. Carpet as specified in Division 9/

1.4 QUALITY ASSURANCE

- A. All resilient flooring covered by this specification shall establish minimum standards for materials, finish, construction, design, function, and workmanship.
- B. Installer Qualifications:
 - 1. Minimum 3 years experience installing resilient floor covering materials.
 - 2. Demonstrated quality of workmanship:
 - a. Minimum number of installations – 5.
 - b. Age of installations: Maximum – 3 yrs.; Minimum – 1 yr.

1.5 SUBMITTALS

- A. Samples:
 - 1. Submit minimum of 3 samples of each type and color or pattern of resilient flooring and base materials as follows:
 - a. Vinyl Composition Tile: 3” x 3”
 - b. Rubber Base: 2” length
 - c. Sheet Vinyl: 12” x 12”
 - d. Plank Vinyl: 3” x 3”
 - 2. Mark samples with name of Contractor, project identification, and area where materials are to be used.
- B. Maintenance Data and Instructions: Upon completion and prior to acceptance of work, furnish three (3) copies and a list of recommended maintenance products and recommended maintenance methods and procedures for each product specified.
- C. Maintenance Materials:

1. Furnish additional floor covering materials for replacement and maintenance.
2. Furnish materials of each size, color, pattern, and type of material included in work.
 - a. VCT: 3% overage
 - b. Rubber Base: 20 linear feet where installed quantity is 200 linear feet or more. 10 linear feet where installed quantity is less than 200 linear feet.
 - c. Sheet Vinyl: 5% overage
 - d. Plank Vinyl: 5% overage

1.6 PRODUCT DELIVERY AND STORAGE

- A. Deliver materials to project site in manufacturer's original, unopened containers with labels indicating brand names, colors and patterns, and quality designations legible and intact.
- B. Do not open containers or remove markings until materials are inspected and accepted.
- C. Store and protect accepted materials in accordance with manufacturer's directions and recommendations.
- D. Unless otherwise directed or recommended by manufacturer, store materials in original containers at not less than 70° F (21°C) for not less than 24 hours immediately before installation.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Maintain a minimum temperature of 65°F in space to receive flooring and accessories for at least 48 hours before, during, and for not less than 48 hours after, installation.
- B. Maintain minimum temperature 55°F after flooring is installed except as specified in Paragraph 1.7 A.
- C. Ventilation:
 1. Provide ventilation during and following adhesives applications.
 2. Use temporary air circulators in enclosed areas lacking natural ventilation.

PART 2 - PRODUCTS

2.1 MANUFACTURER: Products of the following manufacturers, subject to compliance with requirements, will be acceptable.

- A. Vinyl Composite Tile
 1. **Refer to A-600's for all finish selections*
- B. Rubber Base
 1. **Refer to A-600's for all finish selections*
- C. Sheet Vinyl
 1. **Refer to A-600's for all finish selections*
- D. Luxury Vinyl Tile
 1. **Refer to A-600's for all finish selections*
- E. Architect to select from manufacturer's full line of styles and colors.

2.2 FLOOR COVERING MATERIALS

- A. General:
 - 1. Uniform in thickness and size.
 - 2. Edges cut accurately and square.
 - 3. Uniform color with variations in variegated patterns kept to a minimum.
 - 4. Colors and/or patterns selected by Architect from manufacturer's standard.

- B. Vinyl Composite Tile:
 - 1. 12" x 12" face size x 1/8" thick
 - 2. Fire hazard classification
 - a. Smoke developed (ASTM E-662): 450 or less.
 - b. Critical radiant flux (ASTM E-648): 0.45 watts/sq. cm or more, Class I.

- C. Tile Reducers and Feature Strips:
 - 1. Transition between vinyl composition tile and dissimilar materials: 1/8" thick x 1" wide, tile reducer as manufactured by Schluter Systems or approved equivalent. See A-600's for exact selection.
 - 2. Feature strips: 1/8" x 1" feature strips as manufactured by Schluter Systems or approved equivalent. See A-600's for exact selection.

- D. Sheet Vinyl:
 - 1. 6' x 6' wide rolls, up to 82 ft in length
 - 2. Fire Hazard Classification:
 - a. Flooring Radiant Panel (ASTM E648) – Class 1.
 - b. Smoke Density (ASTM E662) – Less than 450.
 - 3. Heat weld seam with matching vinyl welding thread.
 - 4. Color and Style: To be selected from manufacturer's complete product line.

- E. Vinyl Plank
 - 1. See A-600's for exact product.
 - 2. Characteristics:
 - a. ASTM E648, Critical Radiant Flux: Class I
 - b. ASTM E662, Smoke Density: <450
 - c. ASTM F970, Static Load Limit: 1500psi

2.3 BASE MATERIALS

- A. General:
 - 1. Uniform in thickness.
 - 2. As long lengths as practicable to suit conditions of installation.
 - 3. Colors as selected by Architect from manufacturer's full range of styles and colors.

- B. Rubber Base
 - 1. Cove Base: 4 or 6 inch high as indicated on drawings, 1/8 inch thickness, with 5/8 inch standard toe base.
 - 2. Factory premolded inside and outside corners. Match base materials.
 - 3. Equivalent to extruded ASTM F-1861 – Type TP, thermoplastic rubber base.
 - 4. Fire Hazard Classification:
 - a. Smoke developed (ASTM E-662): 450 or less.
 - b. Critical radiant flux (ASTM E-648): 0.45 watts/sq. sm. Or more, Class I.

2.4 APPLICATION MATERIALS

- A. Adhesive: Provide waterproof type and brands of adhesive as recommended by manufacturer of covering materials for conditions of installation.
- B. Cleaner: As recommended by floor covering manufacturer for particular type of flooring material.

2.5 FLOOR PATCH AND LEVELING MATERIALS

- A. Floor Patch: Equal to Armstrong S-175.
- B. Fill and Leveling: Equal to Armstrong S-180 latex underlayment; Crossfield Products Corp. "Dex-O-Tex" G26 underlayment.
- C. Liquid Underlayment: Equivalent to Crossfield Products Corp., A-81 underlayment. Use where fill or leveling exceeds more than 1/8 inch.

PART 3 – EXECUTION

3.1 INSPECTION OF SURFACES

- A. Examine substrate for excessive moisture content and unevenness which would prevent execution and quality of resilient flooring as specified. Notify Architect in writing of any defect in subfloor.
- B. Do not proceed with installation of flooring until defects have been corrected except where correction is indicated under "Preparation" in this section.

3.2 PREPARATION

- A. Remove dirt, oil, grease, or other foreign matter from surfaces to receive floor covering materials.
- B. Fill cracks, as required, in subfloor with approved non-shrinking crack filler.
- C. Fill subfloor cracks, etc. Clean subfloor of grease or other dirt. Do not begin until work of other trades, including painting, has been completed.
- D. Construction contractor: Maintain rooms and subfloors at 70 degrees F. minimum for least 48 hours before, during, and 48 hours after flooring operations.
- E. Use only experienced workmen. Lay tiles with even joints and with finished surfaces in true plane, smooth. Lay tiles square and symmetrical with room axis. Cut, fit, scribe to wall.
- F. Install protective edgings where flooring edges are exposed and where required to saddle difference of finished floor elevation between ceramic tile and resilient tile.
- G. Cement base firmly to walls using proper adhesive for surface to which it is to be applied. Scribe base accurately to trim.

- H. The floor shall be installed using manufacturers' recommended adhesives and in strict compliance with written installation specification.

3.3 APPLICATION OF ADHESIVES

- A. Mix and apply adhesives in accordance with manufacturer's instructions.
- B. Provide safety precautions during mixing and applications as recommended by adhesive manufacturer.
- C. Apply uniformly over surfaces.
 - 1. Cover only that amount of area which can be covered by flooring material within recommended working time of adhesive.
 - 2. Remove any adhesive which dries or films over.
 - 3. Do not soil walls, bases, or adjacent areas with adhesives.
 - 4. Promptly remove any spillage.
 - 5. Use waterproof adhesive at all areas.
- D. Apply adhesives with notched trowel or other suitable tool.
- E. Clean trowel and rework notches as necessary to insure proper application of adhesive.

3.4 INSTALLATION OF BASE

- A. General:
 - 1. Install base around perimeter of rooms or space where scheduled or indicated on drawings.
 - 2. Include furnishing and installing rubber base on exposed sub-base surfaces of cabinets and/or casework installed as part of work on project.
 - 3. Match edges at all seams.
 - 4. Install with tight butt joints with no joint widths greater than 1/64 inch.
- B. Top-Set Base:
 - 1. Apply adhesive and firmly adhere to wall surfaces.
 - 2. Press down so that bottom cove edge follows floor profile.
 - 3. Form internal corners by using premolded corners.
 - 4. Form external corners by using premolded corners.
 - 5. Scribe base accurately to abutting materials.
 - 6. Provide flat toeless base where carpeting is scheduled.

3.5 INSTALLATION OF SHEET VINYL

- A. General:
 - 1. Install sheet vinyl per manufacturer's recommended installation instruction.
 - 2. Prepare subfloor per manufacturer's recommendation. Floors must be clean and dry. Any surface materials such as paint, wax, oil adhesive residues, etc. must be removed. Floors must be free of any sealers, curing, hardening or parting compounds.
 - 3. If concrete floor, install moisture barrier as recommended by manufacturer.
 - 4. If wood subfloor, wood floors must be double construction with a minimum thickness of 1". Top layer of wood must be Underlayment Grade Plywood.

5. Adhere sheet vinyl flooring with manufacturer's recommended adhesive.
6. Heat welded seams: Underscribe seams. Rout seams with hand router or and electric router. Heat weld with matching vinyl welding thread.
7. Refer to A-600's for installation pattern of sheet vinyl.

3.6 FINISHING AND CLEANING

- A. Upon completion of installation of floor covering, adjacent work, and after materials have set, clean surfaces with a neutral cleaner as recommended by manufacturer for type of floor covering material installed.
- B. Leave surfaces clean, ready to receive wax application by Owner.
- C. Protect completed work from traffic and damage until acceptance by Owner.

END OF SECTION

SECTION 096800 - CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Applicable provisions of following documents govern work under this section:
 - 1. General Conditions
 - 2. Supplementary General Conditions
 - 3. General Requirements - Division 1

1.2 SCOPE

- A. Provide labor, materials and equipment required to furnish and install carpeting in locations as scheduled on drawings. Include, but not limited to:
 - 1. Preparation of substrate surfaces as specified and/or as required by carpet manufacturer.
 - 2. Adhesive application.
 - 3. Carpet installation.
 - 4. Necessary cleaning operations.

1.3 QUALITY ASSURANCE

- A. Carpeting specified herein shall be considered a standard of type and quality acceptable.
- B. Manufacturer's qualifications: Actively engaged in manufacturing types of materials specified.
- C. Installer qualifications
 - 1. Installer of at least ten projects equal in yardage to work specified.
 - 2. Minimum five years experience.
 - 3. Approved by and acceptable to carpet manufacturer.
- D. Reference standards
 - 1. American Society for Testing and Materials ASTM E-648 test for critical radiant flux or floor covering systems using a radiant heat energy source.
 - 2. Federal Flammability Standard DOC-FF-1-70.

1.4 SUBMITTALS

- A. Samples: two pieces 18" x 18" of each type, color and pattern employed on project.
- B. Shop drawings
 - 1. Dimensions of carpeted areas.
 - 2. Pattern direction and/or pile direction.
 - 3. Layout of contrasting borders, etc.
 - 4. Details of transitions between carpeting and other finish floor material.
 - 5. Seaming diagram
- C. Manufacturer's literature
 - 1. Descriptive literature and specifications for carpeting and adhesive.
 - 2. Installation instructions including:

- a. Preparation requirements for existing and new floor substrates.
 - b. Allowable temperature range.
 3. Maintenance and cleaning instructions.
- D. Test reports
 1. Fire hazard classification.
 2. Static control.
- E. Certificates
 1. Manufacturer's certification that materials furnished conform to specification requirements.
 2. Manufacturer's certification that installer is acceptable.
 3. Installers list of comparable installations and years of experience.
- F. Maintenance material
 1. Furnish Owner with 3 percent overage of each color and pattern of carpeting employed on project.
 2. In addition to overage, properly package remnants and usable scraps and deliver to Owner upon completion of work on project.

1.5 GUARANTEE

- A. Wear: Provide carpet manufacturer's written guarantee that, excluding stairs, no part of carpet wearing surface shall wear more than 10 percent by weight in ten (10) years.
- B. Static: Provide carpet manufacturer's written guarantee that carpet will maintain static generation at less than 3.0 KV at 70°F and 20 percent R.H. throughout life of product.
- C. Seams: Installer shall guarantee in writing failure of seams for a period of three (3) years from date of certificate of substantial completion.

1.6 COORDINATION

- A. Coordinate carpet installation with work of other trades.
- B. Do not install carpeting until drywall, ceiling installation, finishing, etc., scheduled for walls, ceilings, trim, panels, doors, etc., has been completed.

1.7 PRODUCT DELIVERY AND STORAGE

- A. Deliver materials to project site in manufacturer's original, unopened containers with labels indicating brand names, colors and patterns, and quality designations legible and intact.
- B. Do not open containers or remove markings until materials are inspected and accepted.
- C. Store and protect accepted materials in accordance with manufacturer's directions and recommendations.

PART 2 - PRODUCTS

2.1 CARPETING

- A. Refer to Finish Schedule for locations and selection of carpet types.

2.2 PHYSICAL PROPERTIES

- A. Flammability: Meets ASTM E-648 Flooring Radiant Panel- class 1
- B. Smoke chamber: Meets ASTM E-662 NBS- less than 450

2.3 ADHESIVE

- A. Carpet Adhesive: Equal to Para-chem Southern, Inc. M-433 and the W.W. Henry Company 429.
- B. Seam Adhesive: Equal to Para-chem Southern, Inc. M-263 and the W.W. Henry Company 246.

2.4 PRIMER AND SEALER

- A. As recommended by adhesive manufacturer to suit conditions encountered.

2.5 FLOOR PATCH AND LEVELING MATERIALS

- A. Floor Patch: Equal to Armstrong S-175.
- B. Fill and Leveling: Equal to Armstrong S-180 latex underlayment; Crossfield Products Corp. "Dex-O-Tex" G26 underlayment.
- C. Transition materials, carpeting to other surfaces, to suit conditions encountered.

PART 3 - EXECUTION

3.1 INSPECTION OF SURFACES

- A. Examine surfaces for properly bonded substrate and unevenness which would prevent execution and quality of carpet installation.
- B. Do not proceed with installation of carpeting until defects have been corrected.

3.2 PREPARATION

- A. General: All floor substrates indicated to receive carpeting shall be free of dust, dirt, wax, old or existing adhesives, debris, etc. as required by carpet manufacturer for proper carpet installation. Remove all existing carpet to allow for new carpet.
- B. It shall be responsibility of carpet manufacturer or his authorized installer to arrange for and bear cost of floor preparation work, except that work required for new concrete floor substrates installed on this project and found to be in an unacceptable condition to receive new carpeting, shall be responsibility of trade who installed new concrete to prepare substrate so as to be acceptable for carpeting.
- C. Flash patch existing concrete floors to provide a flush, uniform surface for new carpet finish at area of studio entrances. Flash patch from corridor a minimum of 1:20 pitch to meet studio

threshold.

3.3 INSTALLATION OF CARPET

- A. Application of adhesives
 - 1. Mix and apply adhesives in accordance with manufacturer's instructions.
 - 2. Provide safety precautions during mixing and applications as recommended by adhesive manufacturer.
- B. Carpet Installation
 - 1. Install carpeting in accordance with manufacturer's instructions and approved submissions.
 - 2. Adhere to patterns and pile directions indicated on approved shop drawings.
 - 3. Do not permit loose joints or too much pressure. Install joints tight but not compressed. Accurately check tightness in accordance with manufacturer's instructions as work progresses.

3.4 CLEANING

- A. Remove spots and smears of cement from carpet immediately with solvent.
- B. Remove rubbish, wrapping paper, salvages, and scraps not suitable for use as maintenance materials.
- C. Upon completion, vacuum with a commercial beater bar type vacuum cleaner.

END OF SECTION

SECTION 097710 – SPECIAL WALL SURFACES (FIBERGLASS REINFORCED PLASTIC PANELS)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Special wall surfaces, including fiberglass reinforced plastic panels.

1.2 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide fiberglass reinforced plastic (FRP) panels which have been manufactured and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

1.3 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit product data, including manufacturer's SPEC-DATA product sheet, for specified products.
- C. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures. Indicate location and dimension of joints and fastener attachment.
- D. Samples: Submit selection and verification samples for finishes, colors and textures. Submit 2 samples of each type of panel, trim and fastener.
- E. Quality Assurance Submittals: Submit the following:
 - 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
 - 2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics, criteria and physical requirements.
 - 3. Manufacturer's Instructions: Manufacturer's installation instructions. submit manufacturer's *Installation Guide #6211*.
- F. Closeout Submittals: Submit the following:
 - 1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Date) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
 - 2. Warranty: warranty documents specified herein.

1.4 QUALITY ASSURANCE

- A. Qualifications:

1. Installer Qualifications: Installer should be experienced in performing work of this section and should have specialized in installation of work similar to that required for this project.
 2. Installer must have a minimum of three (3) years experience.
 3. Manufacturer Qualifications: Manufacturer should be capable of providing field service representation during construction and should be capable of approving application method.
- B. Surface- Burning Characteristics
1. Determined by testing identical products according to ASTM E 84 by a testing agency acceptable to authorities having jurisdiction.
- C. FM Approved:
1. Crane Composites “Glasbord FXE”
- D. Environmental Certification:
1. Greenguard Certification UL2818
- E. Mock-Ups:
1. Install at project site a mock-up using acceptable products and manufacturer approved installation methods.
 2. Construct mock-up at location determined by architects
 3. Obtain architect approval and acceptance of finish, color, texture, pattern, trim, fasteners, and quality of installation

1.5 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirements Sections.
- B. Ordering: Comply with manufacturer’s ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact. Package sheets on skids or pallets for shipment to project site.
- D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer. Store panels indoors in a dry place at the project site.
- E. Handling: Remove foreign matter from face of panel by using a soft bristle brush, avoiding abrasive action.

1.6 PROJECT CONDITIONS

- A. Environmental Requirements:
1. Installation shall not begin until building is enclosed, permanent heating and cooling equipment is in operation, and residual moisture from plaster, concrete or terrazzo work has dissipated.

1. During installation, and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.
 2. Provide ventilation to disperse fumes during application of adhesive as recommended by adhesive manufacturer.
- B. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.7 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.
1. Warranty Period: Ten (10) years commencing on Date of Substantial Completion.

1.8 MAINTENANCE

- A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals (Maintenance Materials) Section.
1. Quantity: Furnish quantity of Glasbord –FSI Panel units equal to 3% of amount installed.
 2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.

PART 2 - PRODUCTS

2.1 FIBERGLASS REINFORCED PLASTIC (FRP) PANELS

- A. Manufacturer: Crane Composites, Inc. (formerly Kemlite) 23525 West Eames Street, Channahon, Illinois 60410. Toll free 800-435-0080. Phone 815-467-8600. Fax 815-467-8666. Website www.cranecomposites.com Email salesbp@cranecomposites.com
- B. Fiberglass Reinforced Plastic (FRP) Panels: Crane Composites FM
- C. Surfaseal Surface Protection: Provide manufacturer's proprietary Surfaseal surface protection for fiberglass reinforced plastic (FRP) panels.
- D. Division Bars, Corner Trim: Panel manufacturer's standard length extruded vinyl pieces; longest length possible to eliminate end joints.
- E. Fasteners: Non-Corrosive drive rivets

2.2 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

2.3 MANUFACTURED UNITS

- A. Crane Composites FM Approved Glasbord FXE Fiberglass Panels with Surfaseal Surface Protection:
 - 1. Rating:
 - a. Fire-X Glasbord Underwriters Laboratories, Inc. (UL) classified, Class (A) Interior Finish Material.
 - 2. Wall Panels: Finish, thickness and color shall be:
 - a. Pebble Embossed 0.75" (1.9 mm) Glasbord FXE with Surfaseal. Color: Pearl Grey 48
 - b. Class A flame spread of less than 25, smoke developed less than 450 per ASTM E84 latest version.
 - c. Barcol Hardness (scratch resistance) of 52 as per ASTM D2583.
 - d. Panels will exhibit no more than a 0.038% weight loss after a 25 cycle Taber Abrasion Test using CS-17 abrasive wheels with 1000 g weight.
 - e. Gardner Impact Strength of 30 in-lb (3.4 J) showing no visible damage on front side per ASTM D3029.
 - f. Meets USDA/FSIS requirements.
 - g. Complies with ICBO report Number4583.
 - h. Panel surface protection: "Surfaseal" molecularly bonded surface protection film for impact, abrasion, and scratch resistance.

2.4 ACCESSORIES

- A. Moldings, trim, and caps: 1-piece extruded polypropylene or PVC, configured to cover panel edges and corners. Color to match FRP panels.
- B. Panel adhesive: As recommended by FRP panel manufacturer.
- C. Panel Seam Sealant: Bright-white, 2 part urethane sealant, as recommended by FRP panel manufacturer
- D. Rivets: Match FRP panels

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTION

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.2 EXAMINATION

- A. Site Verification of Conditions: Verify that substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
 - 1. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails are

countersunk and joints and cracks are filled flush and smooth with the adjoining surface.

2. Do not begin installation until backup surfaces are in satisfactory condition.

3.3 PREPARATION

- A. Surface Preparation: Per manufacturer's instructions.

3.4 INSTALLATION

- A. Fiberglass Reinforced Panel (FRP) Installation:
 1. Cut and frill panels with carbide tipped saw blades or drill bits, or cut with snips.
 2. Install panels with manufacturer's recommended gap for panel field and corner joints.
 3. Pre-drill fastener holes in panels with 1/8" (3.2mm) oversize.
 4. For trowel type and application of adhesive, follow adhesive manufacturer's recommendations.
 5. Use products acceptable to panel manufacturer and install FRP system in accordance with panel manufacturer's printed instructions. Comply with panel manufacturer's Installation Guide #6211.

3.5 CLEANING

- A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace products that have been installed and are damaged. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.
 1. Remove any adhesive or excessive sealant from panel face using solvent or cleaner recommended by panel manufacturer.

3.6 PROTECTION

- A. Protection: Protect installed product and finish surfaces from damage during construction.

END OF SECTION

SECTION 099100 - PAINTING

PART 1 - GENERAL

1.0 RELATED DOCUMENTS

- A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 SUMMARY

- A. Extent of painting work is shown on drawings and schedules, and as herein specified.
- B. The work includes painting and finishing of interior exposed items and surfaces throughout the project, except as otherwise indicated.
 - 1. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of work.
- C. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.
- D. Paint exposed surfaces whether or not colors are designated in "schedules", except where natural finish of material is specifically mentioned, paint same as adjacent similar materials or areas. If color or finish is not designated, Architect will select these from colors available for materials systems specified.
- E. Paint in accordance with Room Finish Schedule, all drywall, wood trim and base.
- F. Paint all exposed surfaces that are shop or job primed under other sections of the specifications. Touch-up all primed surfaces where prime coat has been marred or damaged.
- G. Finish all architectural woodwork, millwork, including counters and all other millwork items that cannot be completely prefinished at the factory.
- H. Paint all hollow metal doors, frames and other hollow metal work of a ferrous material.
- I. Back prime all wood trim.

1.2 FOLLOWING CATEGORIES OF WORK ARE NOT INCLUDED AS PART OF FIELD-APPLIED FINISH WORK OR ARE INCLUDED IN OTHER SECTIONS OF THE SPECIFICATIONS.

- A. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various sections for structural steel, miscellaneous metal, hollow metal work, and similar items. Also, for fabricated components such as architectural work, and similar items. Also, for fabricated or factory-built mechanical and electrical equipment or accessories.
- B. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer finishing is specified for such items as (but not limited to) architectural woodwork and casework, finished mechanical and electrical equipment, including light fixtures, distribution cabinets, doors, and equipment.

- C. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas.
- D. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, and similar finished materials will not require finish painting, unless otherwise indicated.
- E. Operating Parts and Labels: Moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinks, sensing devices, motor and fan shafts will not require finish painting, unless otherwise indicated.
- F. Do not paint over any code-required labels, such as underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.

1.3 RELATED WORK

- A. Shop Painting:
 - 1. Metal Fabrications as specified in Division 5.
 - 2. Hollow Metal Doors as specified in Division 8.
 - 3. Hollow Metal Frames as specified in Division 8.
- B. Sealants and Caulking as specified in Division 7.
- C. Wood Doors as specified in Division 8.
- D. Factory prefinished items as specified.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use.
- B. Samples: Submit samples for Consulting Officer's review of color and texture only. Provide a listing of material and application for each coat of each finished sample.
 - 1. On 12" x 12" hardboard, provide two samples of each color and materials, with texture to simulate actual conditions. Resubmit samples as requested by the Architect until acceptable sheen, color and texture is achieved.
 - 2. On actual wood surfaces, provide two 4" x 8" samples of natural and stained wood finish. Label and identify each as to location and application.

1.4 DELIVERY AND STORAGE

- A. Deliver materials to job site in original, new and unopened packages and containers, bearing manufacturer's name and label, and following information:
 - 1. Name or title of material
 - 2. Manufacturer's stock number and date of manufacturer
 - 3. Manufacturer's name
 - 4. Contents of volume, for major pigment and vehicle constituents.
 - 5. Thinning instructions
 - 6. Application instructions
 - 7. Color name and number

- B. Storage of materials: Store and mix all materials only in such rooms as may be assigned for this purpose. Take all necessary precautions in storage of painting materials and implements to prevent fire.
 - 1. Provide galvanized iron pans of suitable size in which all mixing pails must be placed. No mixing shall be done outside of these pans. Pay for repairs for all damage caused by mixing or spillage.
 - 2. Remove all oily rags and waste each night after being placed in a covered metal receptacle during the day.

1.6 JOB CONDITIONS

- A. Before commencing painting, make certain that surfaces to be coated are in perfect condition to receive the coating by being clean, dry, smooth, and at the proper temperature. No materials shall be applied when unfavorable atmospheric conditions prevail which could adversely affect the drying, appearance, color, or adhesion of the materials. If surface, atmospheric, or other conditions to be improper for paint or finishing are found, report such conditions to the Architect at once and do not proceed until the situation is corrected. Commencement of work in any given areas shall be construed to mean acceptance of such areas by the Contractor.
- B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F (7 degrees C) and 95 degrees F (35 degrees C), unless otherwise permitted by paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog or mist; or when relative humidity exceeds 85%; or damp or wet surfaces unless otherwise permitted by paint manufacturer's printed instructions.
- D. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.
- E. Material List and Maintenance Instructions: Furnish triplicate (3) copies of a complete list of materials being used, including type, brand and color used for painting and finishing each room and portion of building, interior and exterior. Include instructions for proper maintenance.

PART 2 - PRODUCTS

2.1 COLORS AND FINISHES

- A. Prior to beginning work, Architect will select colors for surfaces to be painted.
 - 1. Use representative colors when preparing samples for review.
 - 2. Final acceptance of colors will be from samples applied on the job.
- B. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.
 - 1. Lead content in pigment, if any, is limited to contain not more than 0.5% lead, as lead metal based on the total non-volatile (dry film) of paint by weight.
- C. Paint Coordination: Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other

trades, furnish information on characteristics of finish materials proposed for use, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and reprime as required. Notify Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

2.2 MATERIAL QUALITY

- A. Provide best quality grade of various types of coating as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

2.3 MANUFACTURERS

- A. Use the same brand of each respective material throughout the job.
- B. Primers and undercoats shall be those made by manufacturers of respective finish coats.
- C. The following manufacturer's first line products are approved for use on this project:
 - 1. Sherwin Williams – Low VOC
- D. Galvanized surface pre-treatment shall be manufactured by American Chemical Paint Company of Nielson Chemical Company.

2.4 STANDARD MATERIALS

- A. Comply with requirements of latest editions of these standard specifications for the following materials, whether used directly or as ingredients of factory prepared products:
 - 1. Raw Linseed Oil - ASTM A-234
 - 2. Boiled Linseed Oil - ASTM D-260
 - 3. Liquid Drier - Federal Spec. TT-D-651
 - 4. White Shellac - Federal Spec. TT-V-91a
 - 5. Turpentine - ASTM D-13
 - 6. Mineral Spirits - ASTM D-235
 - 7. Interior Wood Filler - Federal Spec. TT-F-336
 - 8. Pigments-in-Oil - Federal Spec. FF-P-381

2.5 PAINTING MATERIALS

- A. All basic materials entering into the compounding and manufacture of paints and other finishing materials specified, shall be of the best quality products of recognized manufacturers, subject to approval of the Architect. Reference to ASTM or Federal Specifications is for the purpose of establishing a testing basis for requirements of quality.
- B. Coloring materials shall be pure tint colors, and of the highest grade of tinting strength and fineness obtainable. Coloring materials shall be composed of ingredients that will mix with the various coatings specified without impairing the ultimate result for which coatings are selected.
- C. All materials shall be delivered in original unopened containers, each container bearing the brand and maker's name, completely identifying the contents, including formula and given directions for its proper use.

- D. All materials shall be used without thinning, unless otherwise specified or approved by the Architect. If any material is thus thinned, use only the thinner recommended by paint manufacturer.

2.6 TYPES OF FINISHES

- A. Provide the following systems for various substrates, as indicated. Unless otherwise noted, all materials specified are the products of Sherwin Williams. The specifying of the products of one manufacturer is intended to indicate the type of product desired and equivalent products of approved manufacturers such as Benjamin Moore will be accepted, subject to conformance with specifications.

B. Gypsum Drywall Systems

1. Interior Drywall Walls

- a. Primer - Sherwin Williams ProMar 200 Zero VOC Interior Latex Primer
- b. 2nd Coat – Sherwin Williams ProMar 200 Zero VOC Interior Latex Eggshell
- c. 3rd Coat – Sherwin Williams ProMar 200 Zero VOC Interior Latex Eggshell
NOTE: See Finish Schedule

OR

- a. Primer – Sherwin Williams ProMar 200 Zero VOC Interior Latex Primer
- b. 2nd Coat – Sherwin Williams ProMar 200 Zero VOC Interior Latex Semi-Gloss
- c. 3rd Coat – Sherwin Williams ProMar 200 Zero VOC Interior Latex Semi-Gloss
NOTE: See Finish Schedule

OR

- a. Primer - Sherwin Williams DTM Acrylic Primer
- b. 2nd Coat - Sherwin Williams Pro Industrial Precatalyzed Waterbased Epoxy
- c. 3rd Coat - Sherwin Williams Pro Industrial Precatalyzed Waterbased Epoxy

2. Drywall Ceilings

- a. Primer – Sherwin Williams ProMar 200 Zero VOC Interior Latex Primer
- b. 2nd Coat– Sherwin Williams ProMar 200 Zero VOC Interior Latex Flat Ceiling White
- c. 3rd Coat – Sherwin Williams ProMar 200 Zero VOC Interior Latex Flat Ceiling White

- B. Paint **all** unprimed and pre-primed Metal as follows:

Includes: Metal Doors and Frames and Other Factory Primed Metal Work

- a. 1st Coat – Oil primer undercoat
- b. 2nd Coat – Semi-Gloss Latex
- c. 3rd Coat – Semi- Gloss Latex

Color to be selected by Architect. See finish schedule.

C. Natural Finish Woodwork & Stained Wood

1. Patch, sand and prepare wood for wood stain
2. One (1) coat polyurethane gloss (match stain sample)
3. Two (2) coats polyurethane stain
4. See Finish Schedule &/or drawings for locations

3.1 INSPECTION

- A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator.
- B. Starting of paint work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.
- C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.2 SURFACE PREPARATION

- A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.
 - 1. Remove hardware, hardware accessories, machine surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted or provide surface applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of paint of each space or area, reinstall removed items.
 - 2. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so the contaminants from cleaning process will not fall onto wet, newly painted surfaces.
- B. Cementitious materials: Prepare cement plaster to be painted by removing efflorescence, chalk, dust, dirt, grease, oils and by roughening as required to remove glaze.
- C. Wood: Clean wood surfaces to be painted of dirt, oil or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Smooth sand those finish surfaces exposed to view and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.
 - 1. Prime, stain, or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends, faces, undersides and backsides of wood, including cabinets, counters, cases, paneling.
 - 2. When transparent finish is required, use spar varnish for back priming.
- D. Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
 - 1. Touch up shop-applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch up with same type shop primer.
- E. Galvanized Surfaces: Clean free of oil and surface contaminants with nonpetroleum based solvent.

3.3 MATERIALS PREPARATION

- A. Mix and prepare painting materials in accordance with manufacturer's directions.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir materials before application to produce a mixture of uniform density and stir as required during application. Do not stir surface film into material. Remove film and if necessary, strain material before using.

3.4 APPLICATION

- A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied. Apply additional coats when undercoats, strains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 - 1. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment.
 - 2. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.
 - 3. Finish exterior and interior doors on tops, bottoms and side edges same as exterior or interior faces, unless otherwise indicated.
 - 4. Omit first coat (primer) on metal surfaces which have been shop primed and touch-up painted, unless otherwise indicated.
- B. Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for paint as soon as practicable after preparation and before subsequent surface deterioration.
 - 1. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.
- D. Wherever a door is cut or planed, the surfaces affected must be immediately primed with a primer sealer.

3.5 CLEAN-UP AND PROTECTION

- A. Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each workday.
 - 1. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- B. Protection: Protect work of other trades, whether to be painted or not, against damage by

painting and finishing work. Correct any damage by cleaning, repairing or replacing and repainting, as acceptable to Architect.

Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.

At the completion of the work of other trades, touch up and restore all damaged or defaced painted surfaces.

- C. Provide five gallons of each color and type of paint to the owner upon completion of all work.

3.6 GUARANTEE

- A. This subcontractor shall guarantee all work under this Section of the Contract for one year after the date of acceptance against blistering, checking, alligating, and other defects attributing to faulty surface preparation, materials or workmanship. Re-finish all defective areas as directed.

END OF SECTION

SECTION 101400 - SIGNAGE

PART 1 – GENERAL

1.0 RELATED DOCUMENTS

- A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 SCOPE

- A. Applicable provisions of all contract documents govern work under this section.
- B. Furnish all labor, materials and equipment necessary and required to completely install and apply signage specified herein.
- C. This Contractor is cautioned that all necessary built-in anchorage and built-in fasteners or their necessary support for the signage including the installation of the same is the responsibility of the contractor for this section.
- D. Braille to be part of all common area signage.

1.2 TYPES OF SIGNAGE

- A. Individual building and site project signage.
 - 1. Room identification system.
 - 2. All necessary signage to receive Certificate of Occupancy.
 - 3. At each public toilet provide a “Male” or “Female” sign in pictorial diagram of the sex.
 - 4. Electrical Service.
 - 5. Sprinkler Service
 - 6. Building Identification.
 - 7. Building Information.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer’s technical data and installation instructions for each type of sign required.
- B. Submit signage schedule in manufacturer’s format for verification of text/copy.
- C. Samples: Submit samples of each color and finish of exposed materials and accessories required for specialty signs. Architect’s review of samples will be for color and texture only. When requested, furnish full-size samples of specialty sign materials.
- D. Shop Drawings: Submit shop drawings for fabrication and erection of specialty signs. Include plans, elevations and large-scale details of sign wording and lettering layout. Show anchorages and accessory items. Furnish location template drawings for items supported or anchored to permanent construction.

1.4 QUALIFICATIONS

- A. Manufacturer specializing in fabricating the products specified with a minimum of 5 years of experience. Obtain signs from one source and a single manufacturer

PART 2 - PRODUCTS

- A. Molded Polymer Sign by ASI "In Touch" or Equal.
 - 1. Other acceptable manufacturers:
 - a. Architectural Graphics
 - b. Lynn Sign Co.
 - c. Mid-Michigan Stamps and Signs, Inc.
 - 2. Directional Sign: 1"H character, 3" x 10" sign.
 - 3. General Room Identification Signs: 1"H character, 3" x 10" sign mounted 60" aff.
 - 4. Exit Signs: 1"H character, 2" x 5" sign mounted 60" aff.
 - 5. No Smoking. Signs shall be located at exterior doors.
- B. All sized as required by local jurisdiction
- C. See civil drawings for site signage.
- D. Building Identification Sign
 - 1. Individual Arabic numbers, 8" high, 0.5" stroke, style and color to be selected.
 - 2. Location to be determined by Building and Fire Departments.
- E. Fire Department Connection
 - 1. FDC sign located at Siamese connection. Refer to sprinkler drawings.
- F. Building Information Sign
 - 1. Locate at all exterior doors.
 - 2. The sign shall consist of a circle 6" in diameter with a stroke width of 1/2". The background shall be reflective white color and the circle contents shall be red conforming to Pantone matching system PMS #187.
 - 3. The sign shall be of sturdy, non-fading, weather resistant material and applied directly to the door or adjacent sidelight as a sticker or decal.
 - 4. Refer to drawings for layout.

2.1 APPROVAL OF SIGNAGE

- A. After award of contracts the contractor for this section shall coordinate with the Architect in determining the exact signage location.
- B. Shop drawings indicating the determined signage shall be drawn at a scale of no less than 1" = 1'-0".
- C. It will be the responsibility of the contractor of this section to obtain an approval of the signage and permit required under this contract.
- D. Before application or fabrication, the contractor shall submit the occupant/owner approved shop drawings to the Architect for final approval.

2.2 SIGN STANDARDS

- A. ALL SIGNAGE IS TO BE SUBMITTED TO ARCHITECT IN SIGNAGE

SUBMITTAL. REVIEW AND APPROVAL OF ARCHITECT AND CLIENT ARE NEEDED PRIOR TO MANUFACTURE AND INSTALL.

- B. Type Style: As selected by Owner. Copy shall be true, clean, accurate reproduction of typeface(s). Upper and lower case as indicated by Owner. Letter spacing to be normal and interline spacing shall be set by manufacturer.
- C. Arrows, symbols and logo art: To be provided as in style, sizes colors, and spacing as requested by Owner and/or shown on drawings.
- D. Braille: Grade II perfectly round, clear Braille beads. Tactile requirements in adherence to ADA Specifications.
- E. Color and Finishes:
 - 1. Submit complete color samples to Architect for approval
 - 2. Finishes to meet current federal ADA and state requirements.
- F. Room Identification: Surface mount signs of type indicated, adjacent to doors on latch side.
- G. Plastic Sign Plates: Plastic signs consist of 1/16" matte acrylic that is engraved through the exposed ply of the plastic laminate sheet to expose the contrasting core ply laminated to a base of 1/8" opaque acrylic.
 - 1. Mounting of Signs: per manufacturer's installation instructions. Installation locations shall be in accordance with ADA specifications.
- H. Room numbering to be coordinated between signage provider and owner.
- I. All signs, including workstation and room ID's shall have a matching appearance and constructed utilizing the same manufacturing process to assure a consistent look throughout.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installer shall examine signs with Contractor for defects, damage and compliance with specifications. Installation shall not proceed until unsatisfactory conditions are corrected.
- B. Install sign units and components at locations shown securely mounted with concealed theft-resistant fasteners, unless otherwise indicated. Attach signs to substrates in accordance with manufacturer's instructions.
- C. Install level, plumb, and at proper height. Cooperate with other trades for installation of sign units to finish surfaces. Repair or replace damaged units as directed by Architect.
- D. Installation locations shall be in accordance with ADA specifications.
- E. Location of Signs
 - 1. All Doors and Rooms - Names to be provided by Owner
All information is to be put in to a finalized submittal package for final approval.

3.2 DELIVERY AND STORAGE

- A. Package and prevent damage or deterioration during shipment, handling, storage and installation. Products should remain in original packaging until removal is necessary.

3.4 3.3 WARRANTY

- A. Provide manufacturer's warranty against defect in materials or workmanship for a minimum of one (1) year.

END OF SECTION

SECTION 102800 - TOILET AND BATH ACCESSORIES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.2 DESCRIPTION OF WORK

- A. Extent of each type of toilet accessory is shown on drawings.
- B. Types of toilet accessories required include but are not necessarily limited to the following:
 - 1. Toilet Tissue Holders
 - 2. Mirrors
 - 3. Towel Rings
 - 4. Towel Bars
 - 5. Robe Hooks

1.3 QUALITY ASSURANCE

- A. Inserts and Anchorage: Furnish inserts and anchoring devices which must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.
- B. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units.
- C. Products: Provide products of same manufacturer for each type of accessory unit and for units exposed in same areas, unless otherwise acceptable to Architect.
- D. Manufacturer: Provide toilet accessories as stated in accessory schedule in A-400's.

1.4 SUBMITTALS

- A. Shop Drawings: Furnish for Architect's approval in accordance with Division 1, copies each of brochures, schedules and other pertinent information relative to toilet room accessories and building accessories.
- B. Maintenance Manual: Furnish a schedule of all toilet room accessories, indicating the model, finish, manufacturer and location installed, together with descriptive brochures of all installed equipment specified herein. This information shall be included in the maintenance manual specified in Division 1.
- C. Setting Drawings: Provide setting drawings, templates, instructions and directions for installation of anchorage devices in other work.

PART 2 - PRODUCTS

2.1 General

- A. See Drawings for all products & finishes.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Installer must examine substrates, previously installed inserts and anchorages necessary for mounting of toilet accessories and other conditions under which installation is to occur and must notify Contractor in writing of condition detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 INSTALLATION

- A. Install toilet accessory units in accordance with manufacturer's instructions, using fasteners which are appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations indicated.

3.3 ADJUST AND CLEAN

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly.
- B. Clean and polish all exposed surfaces after removing protective coatings.

END OF SECTION

SECTION 10522 - FIRE EXTINGUISHERS, CABINETS AND ACCESSORIES

PART 1 - GENERAL

1.0 RELATED DOCUMENTS

- A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

- A. Extent of fire extinguishers, cabinets and accessories is indicated on drawings.
- B. Definition: "Fire extinguishers" as used in this section refers to units which can be hand-carried as opposed to those which are equipped with wheels or to fixed fire extinguishing systems.
- C. Types of products required include:
 - 1. Fire extinguishers
 - 2. Fire extinguisher cabinets
 - 3. Mounting brackets

1.2 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain products in this section from one manufacturer.
- B. UL-Listed Products: Provide new portable fire extinguishers which are listed and bear UL "Listing Mark" for type, rating and classification of extinguisher indicated.
- C. FM Listed Products: Provide new portable fire extinguishers which are approved by Factory Mutual Research Corporation for type, rating and classification of extinguisher indicated and carry appropriate FM marking.

1.3 SUBMITTALS

- A. Product Data: Submit product data for each type of product included in this section. For fire extinguisher cabinets include roughing-in dimensions and details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style and door construction, and panel style and materials.

1.4 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.
- C. Refer to General Conditions for additional requirements.

1.5 SAMPLES

- A. Submit for verification purposes, samples of each required finish. Prepare samples on metal of same gage as used for actual production run. Where normal color variations are to be expected, include two (2) or more units in each sample set showing limits of variation.
 - 1. For initial selection of colors and finishes, submit manufacturer's color cards showing full range of standard colors available.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirement, provide products of one of the following:
 - 1. J.L. Industries
 - 2. Larsen's Manufacturing Company

2.2 FIRE EXTINGUISHERS

- A. General: Provide fire extinguishers for each extinguisher cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard which comply with requirements of governing authorities.
 - 1. Fill and service extinguishers to comply with requirements of governing authorities and manufacturer's requirement.
 - 2. Abbreviations indicated below to identify extinguisher types related to UL classification and rating system and not, necessarily to type and amount of extinguishing material contained in extinguisher.
- B. Multi-Purpose Dry Chemical Type: UL-rated 4-A:60-B:C, 10 lb. nominal capacity, in enameled steel container, for Class A, Class B and Class C fires.

2.3 MOUNTING BRACKETS

- A. Provide manufacturer's standard brackets designed to prevent accidental dislodgement of extinguisher, of sizes required for type and capacity of extinguisher indicated, in manufacturer's standard plated finish.
 - 1. Provide brackets for extinguishers not located in cabinets.
 - 2. B-2 wall bracket by Larsen's to be used as a standard.

2.4 FIRE EXTINGUISHER CABINETS

- A. General: Provide fire extinguisher cabinets where indicated, of suitable size for housing fire extinguishers of types and capacities indicated.
- B. Construction: Manufacturer's standard enameled steel box, with trim, frame, door and hardware to suit cabinet type, trim style, and door style indicated. Weld all joints and grind smooth. Miter and weld perimeter door frames.
- C. Cabinet Type: Suitable for mounting conditions indicated, of the following types:
 - 1. Recessed: Cabinet box (tub) fully recessed in walls of sufficient depth to suit style of trim indicated.
 - 2. Model 2409-R2-V-Duo Door by Larsen's to be used as a standard.

- D. Trim Style: Fabricate trim in one piece with corners mitered, welded and ground smooth.
- E. Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
 - 1. Square-Edge Trim: Square edges with backbend depths as follows: 1/4" to 5/16".
 - 2. Trim Metal: Enameled steel.
- F. Door Material and Construction: Manufacturer's standard door construction of material indicated, coordinated with cabinet types and trim styles selected.
 - 1. Enameled Steel: Manufacturer's standard finish, hollow steel door construction with tubular stiles and rails.
- G. Door Style: Manufacturer's standard design as indicated below and on drawing.
 - 1. Vertical Duo Panel: DSA Glass with catch.
- H. Door Hardware: Provide manufacturer's standard door operating hardware of proper type for cabinet type, trim style and door material and style indicated. Provide either level handle with cam action latch, or door pull, exposed or concealed, and friction latch. Provide concealed or continuous type hinge permitting door to open 180 degrees.

2.5 FACTORY FINISHING OF FIRE EXTINGUISHER CABINETS

- A. General: Comply with NAAMM "Metal Finishes Manual" for finish designations and application recommendations except as otherwise indicated. Apply finishes in factory after products are assembled. Protect cabinets with plastic or paper covering, prior to shipment.
- B. Painted Finishes: Provide painted finish to comply with requirements indicated below for extent, preparation and type:
 - 1. Extent of Painted Finish: Apply painted finish to both concealed and exposed surfaces to cabinet components except where other than a painted finish is indicated.
 - 2. Color: Provide color as selected by Architect from Manufacturer's standard colors.
 - 3. Preparation: Clean surfaces of dirt, grease and loose rust or mill scale.
 - 4. Baked Enamel Finish: Immediately after cleaning and pretreatment, apply Cabinet Manufacturer's standard baked enamel finish system to the following surfaces:
 - a. Interior of cabinet.
 - b. Exterior of cabinet.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install items included in this section in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities.
 - 1. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer's instructions.
 - 2. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.
 - 3. Install fire extinguishers 3'-6" from finish floor to top of extinguisher.
 - 4. Top of cabinet shall be 3'-6" from finish floor.

3.2 IDENTIFICATION

- A. Identify existence of fire extinguisher in cabinet with lettering spelling "FIRE EXTINGUISHER" applied to door by process indicated below. Provide lettering to comply with requirements indicated for letter style, color, size, spacing and location or, if not otherwise indicated as selected by Architect from Manufacturer's standard arrangements.
 - 1. Application Process: Silk screen.

- B. Identify bracket-mounted extinguishers with red letter decals spelling "FIRE EXTINGUISHER" applied to wall surface. Letter size, style and location as selected by Architect.

END OF SECTION

SECTION 106700 - SHELVING

PART 1 - GENERAL

1.0 RELATED DOCUMENTS

- A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions, and Division 1 are included herein and govern work under this section.

1.1 SCOPE OF WORK

- A. Furnish all miscellaneous work to complete installation of all items included herein.

1.2 QUALITY ASSURANCE

- A. Manufacturer of specialty items shall have been specified for at least five years.

1.3 SUBMITTALS

- A. Manufacturer's Data: Catalog illustrations with descriptive data showing dimensions, construction, etc.
- B. Shop Drawings: When required, showing installation details.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Products shall be delivered to the site in manufacturer's original containers, with labels intact and showing contents and name of project.
- B. Store in protected area until installed.

PART 2 - PRODUCTS

2.1 LIST OF ITEMS

- A. The following items are included under this Section:
 - 1. Coat rack or shelf unit; conventional ventilated vinyl coated wire.

2.2 MANUFACTURERS

- A. The manufacturers listed for each item below denotes the type, style, quality and function desired. Manufacturers of equivalent quality, etc., will be considered prior to Bid.

2.3 COAT RACK OR SHELF UNITS

- A. All closets to have conventional ventilated vinyl coated wire.
- B. Color of shelving and brackets to be white.
- C. Install in closets as indicated on drawings. See plans for exact location and dimensions.

2.4 COMPONENTS

- A. Storage Shelf: dimensions as indicated on the drawings.
 - 1. Shelves spaced a minimum of 13 inches apart.
- B. Hanging Shelf with Hanging Rod: 12 inches length as required.
 - 1. Rod: 1 ¼" 14 gauge white powder coated steel.
- C. Support Brace: Maximum 42 inches and every open end.
- D. Side Wall Bracket: As scheduled or as required. Shelf side wall interface. Back Clips: As required. 11 inches apart and 1.5" from each side wall plus one extra on open end and over support brace.
- E. Fasteners, clips, caps and touch-up all as required or indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prepared spaces are sized and located in accordance with shop drawings.
- B. Framing, reinforcement and anchoring devices are correct type and are located in accordance with shop drawings.

3.2 PREPARATION

- A. Layout scheduled components prior to installation to verify wall to wall and floor to ceiling heights, widths, plumb and flatness of surfaces.
- B. Prepare anchor locations and select anchor types using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Can be installed in any substrate in accordance with manufacturer's instructions.
- B. Install components true to line, square with adjacent components with drawer glides and working hardware operating smoothly without binding, or gaps when closed.
- C. Mounting Heights:
 - 1. As indicated.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 123000 - LAMINATE CASEWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.2 SUMMARY

- A. Extent of plastic laminate casework is indicated on drawings and in provisions of the section.
- B. Work Included
 - 1. Furnish, deliver and install to owner and architect's satisfaction, all custom prefabricated plastic laminate casework as shown on drawings.
 - 2. Furnish and install all fillers, scribes, finished ends, finished backs, work surfaces/backsplashes, and cutouts required to provide a complete and finished project. Plastic laminate work surfaces shall include backer sheet.
 - 3. Provide locks on all doors.
 - 4. Provide PVC edge banding on all built cabinets.
- C. Provide plastic laminate tops and wall mounted shelving.
 - 1. Cut openings in countertop for sinks where indicated in drawings from templates provided by plumbing contractor.

1.3 RELATED WORK NOT INCLUDED

- A. All sinks and fittings, couplings and connectors, piping, traps, supplies and shutoffs.
- B. Stainless steel sinks and fixtures.
- C. Millwork.
- D. Rubber Base.

1.4 RELATED WORK

- A. Finish Carpentry as specified in Division 6.
- B. Resilient Flooring as specified in Division 9.
- C. Mechanical as specified on Drawings.
- D. Plumbing as specified on Drawings.
- E. Electrical as specified on Drawings.

1.5 QUALITY ASSURANCE

- A. All plastic laminate casework covered by this specification shall establish minimum standards for materials, hardware, finish, construction, design, function and workmanship.
- B. Manufacturer's Qualifications:
 - 1. Actively engaged in design and fabrication of types of equipment.
 - 2. Producers of equipment shall comply with all governing codes, rules and regulations.
- C. Installer's Qualifications:
 - 1. Experienced personnel, actively engaged in type of work encountered.
 - 2. Familiar with installation and all governing codes, rules and regulations.
 - 3. Acceptable to and approved by product manufacturer.

1.6 SUBMITTALS

- A. Shop drawings shall be submitted for approval within thirty (30) days after formal notification of award of contract.
- B. Samples:
 - 1. Submit representative samples of material to be used, including hardware.
 - 2. Submit specified colors of plastic laminate samples for Architect's approval.
- C. Shop Drawings:
 - 1. Location, size, type and arrangement of components in unit.
 - 2. Relation to supporting and adjacent work.
 - 3. Complete elevations of casework.
 - 4. Types of materials used for fabrication.
 - 5. Size, thickness, gauges of materials.
 - 6. Types of finish for various components.
 - 7. Mechanical and/or electrical services required.
 - 8. Anchors, fasteners, etc.

1.7 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.
- C. Refer to General Conditions for additional requirement.

1.8 COLOR SELECTION

- A. Color shall be chosen from manufacturers standard patterns as described in color selector. A minimum of thirty-five (35) colors and patterns shall be available as standard selections.
- B. Exposed cabinet body edges and door/drawer front horizontal edges shall be color matched with cabinet sides. Color matched edgings shall be available in all standard color selections.

- C. Casework of substitute brands with lesser amounts or more restrictive selection requirements will not be considered equal and shall be rejected.

1.9 PRODUCT DELIVERY/STORAGE AND INSTALLATION

- A. Protect cabinets and countertops during transit, delivery, storage and handling to prevent damage, soiling and deterioration.
- B. Deliver equipment to project site with each package, box, crate, carton or other container marked on outside indicating its contents.
- C. Store cabinets and countertops at project site in installation and storage areas with similar ambient conditions as final installation, storage areas must be kept dry, heated with low relative humidity, and away from construction work as painting, wet work, grinding and similar operations.
- D. Installation shall be done in a craftsman like manner. Casework shall be installed, securely attached to building structure with anchorage devices of appropriate type, size and quantity to meet prevailing codes, specifications and safety conditions.
- E. Inspect and properly adjust all casework and related hardware. Repair damages, remove and dispose of all packing materials, debris and dirt resulting from casework installation leaving area broom clean.
- F. Worksurface, cutouts, and joint edges shall be sealed during installation with a water-resistant sealer or adhesive.
- G. Remove damaged and/or defaced materials from project site. Replace with new material.

1.10 COORDINATION

- A. Coordinate installation requirements with work of other trades.

1.11 WARRANTY

- A. Casework manufacturer warrants for a period of three (3) years the product manufactured by it to be free from defects in material and workmanship when properly installed under normal use.

PART 2 - PRODUCTS

2.1 CORE MATERIAL

- A. Cabinet components having particleboard core materials shall be minimum 45 lb. density industrial grade. The particleboard used shall have been tested under ANSI A 208.1 and or ASTM D-1037-87A standards. Marine grade plywood to be used as all counter materials for wet areas.
- B. Medium density fiberboard (MDF) used in high stress areas as drawer members and hanging frame rails shall be minimum 48 lb. density and shall have been tested under ANSI A 208.2 standards.

2.2 SURFACE MATERIALS

- A. Exposed exterior cabinet components, door/drawer fronts, and interior surface solid colors shall meet or exceed .040thick high pressure laminate NEMA LD 3 - 1985 GP - 20 and ALA 1985 specification standards. Surfaces shall be permanently thermofused plastic laminate, fused to core using a minimum average high pressure of 360 PSI and average 300F temperature. Interiors shall be white or color laminate as specified by architect.
 - 1. Refer to drawings A-600's for exact finishes.
- B. Door and drawer fronts shall be surfaced with vertical grade post-forming .040 thick plastic laminate meeting NEMA Test LD3 - 1985. Door shall have laminate post formed around radius shaped vertical edge. Shape shall have minimum radius of 8 MM and shall be continuous without edge corner joints or lines showing from front face. File drawers to have heavy duty sliders and built-in metal file holder brackets.
- C. Unexposed cabinet ends shall have balanced construction with thermofused melamine plastic laminate surfaces. Interior backs shall be laminated with plastic laminate specified by architect.

2.3 HARDWARE

- A. Hinges shall be fully concealed from view when door is in closed position and permit 176-degree door swing. Hinge crank shall be heavy duty steel with a concealed integral self-closing spring mechanism and hinge boss shall be heavy duty diecast steel. Nylon expansion inserts shall be provided in door for positive screw attachment. Hinge attachment to sides shall employ special 5 mm thread fasteners for maximum strength. Hinges shall incorporate mounting features providing three-dimensional adjustment and have life-time guarantee as warranted by the manufacturer. Doors less than 48" in height shall have two (2) hinges per door, doors, 40" to 63" in height shall have three (3) hinges per door and all doors over 63" in height shall have four (4) hinges per door. Concealed hinges to equal:
 - 1. Knap & Vogt #2661FNP170 full overlay **or** #2661HNP170 half overlay.
- B. Pulls: To be selected by the owner
- C. Hanger rods shall be heavy duty plated tubing. Rod shall be securely affixed to cabinet shelves or cabinet sides. Cabinet/closet shelf to be plastic laminated ply (typical). Exact laminates specified in drawings A-500's/A-600's.
- D. Drawers and slide out shelves shall be suspended on nylon roller, white epoxy coated steel slides to insure quiet, smooth operation. Slides shall have 100 lb. load rating with built in drawer stop and self close feature in the last 1" of travel and includes a closed side to side alignment.
- E. File drawers shall be side mounted, full extension steel slides. File drawers shall have an interior screw mounted metal bottom track and an adjustable metal file follower.
- F. Locks shall be cylinder type, die-cast, with five (5) disc tumbler mechanism. Each lock shall be provided with a milled brass key. Master keying shall be available.
 - 1. Locks shall be provided where shown on equipment drawings or cabinet

descriptions. Provide locks on all doors.

2.4 ADJUSTABLE SHELF SUPPORT SYSTEM

- A. Shelf support clips for adjustable shelves 3/4" and 1" thick shall be injection molded nylon. Support clips shall incorporate integrally molded lock tabs to retain shelf from tipping or inadvertently being lifted out. Support clips shall have double twin pin engagement into precision bored hole pattern in cabinet vertical members.
- B. Clips shall have a molded ridge which shall provide pressure against edge of shelving and maintain positive pin engagement. Clips shall be designed in such a manner to provide means for permanent attachment to shelf. Static test shear load must exceed 200 lb. per clip.
- C. Dividers that are 1/4" thick shall be fully adjustable and retained with injection molded nylon clip. Clip shall trap divider to prevent lift out.
- D. All adjustable shelves and dividers shall be adjustable on 32mm (1-1/4") centers.

2.5 WORK SURFACES

- A. Plastic laminate countertops shall be surfaced with general purpose .040 thick plastic laminate meeting NEMA spec. LD3-1985. Countertop cores shall be 1-1/8" full thickness 45 lb. density industrial grade particleboard. Exposed edges shall be covered with same laminate as top surface. Tops shall include backing sheet on underside.
- B. Backsplashes and end splashes shall be provided as indicated on drawings and shall be surfaced with same laminate as top.
- C. Continuous tops shall be joined with minimum number of splice joints and aligned with tight joint fasteners as required to provide a uniform and gapless joint.
- D. Provide solid surfaces as called out on drawings.

2.6 COMPONENT DETAILS

- A. Drawers shall be full box design with a separate front. Drawer sides and ends shall be constructed of 5/8" medium density fiberboard with white melamine laminate and matching top edges.
- B. Adjustable shelves less than 36" in length shall be 5/8" thick.

2.7 CONSTRUCTION

- A. Base, Wall and Tall Casework:
 - 1. Refer to drawings A-500's & A-600's for exact manufacturer and finishes.
- B. Cabinets corners shall be joined with dowel pin construction. Cabinets shall be assembled under controlled case clamp conditions assuring final cabinet squareness and proper joint compressions.
- C. Cabinet ends shall be 3/4" thick panels of balanced construction and precision bored for

dowel pins installed in horizontal cabinet members. Base and tall units shall have one-piece end panels continuous to floor for added load capabilities. Unexposed ends shall have laminate backing sheet.

- D. Cabinet bottoms and tops shall be 3/4" thick panels of balanced construction for base and tall units. Base cabinets shall include a full depth 3/4" thick top panel.
- E. Panels shall be precision bored to receive fluted dowel pins, which shall be inserted with glue. Dowel pins shall extend from the panel ends for joining into mating hole pattern of cabinet ends.
- F. Wall cabinets bottom and tops shall be full 1" thick panels of balanced construction. These panels must feature the same fluted dowel pin and glue joint construction as the base and tall cabinets.
- G. Toe kick panels shall be set back from cabinet front and back edges, doweled into cabinet ends. This integral twin toe kick construction shall be part of all base and tall cabinet structures for additional load support.
- H. Back panels shall be 1/4" thick, inset 5/8" from rear of cabinet. Backs shall be continuously trapped in grooves in cabinet top, bottom and ends. Backs shall be hot melt glued or mechanically fastened.
- I. Mounting rails shall be fully concealed behind backs. Rails shall be 5/8" thick and integrated into cabinet ends with dowel pin joints.
- J. Wall and tall cabinet shall incorporate two mounting rails. Wall cabinets shall have rails positioned at top and bottom. all cabinets shall have rails positioned at top and intermediate location. Base units shall have rail positioned in the upper back area.
- K. All cabinet edges to receive PVC edge banding:
- L. Doors, Hinged:
 - 1. Hinged solid doors, 48" or less in height:
 - 2. Components:
 - a. Core Ply: Particleboard with squared edges.
 - b. Plastic Laminate: Face ply's; two (2), one (1) applied to each face of the core ply. Face ply's shall be .030" thick, vertical grade, high pressure, plastic laminate.
 - c. Edges: As specified in A-400s.
 - 3. Construction:
 - a. Hinged solid doors, 48" or less in height, shall be 13/16" thick and overlap the opening 1/4" on all sides. Doors shall have one (1) pull, attached with two (2) screws, 4" on center. Doors shall have two (2), Euro hinges, matte finish, heavy duty, institutional type, 5-knuckle hospital tipped hinges; each attached with five (5) twin fast particleboard screws in the door, and four (4) Euro screws into the end panel. Door shall be secured by magnetic catches with a 5-11 lb. rated pull. Catch and steel strike plate shall be attached with screws. Strike plate screw holes shall be slotted for adjustability and a pinhole shall be provided to help anchor plate's position.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Verify dimensions of spaces to receive casework.
- B. Verify all field conditions at adjacent surfaces.
- C. Assure that mechanical and electrical services have been installed in location where required.
- D. Do not install equipment until satisfactory conditions have been corrected.
- E. Verify all field conditions for mechanical and electrical equipment.

3.2 INSTALLATION

- A. Install equipment in accordance with manufacturer's instruction and approved submissions.
- B. Securely attach cabinets to walls in an approved manner.
- C. Set equipment plumb and level.

3.3 ADJUSTMENT AND CLEANING

- A. Upon completion of installation assure that:
 - 1. Doors and drawers operate freely without bind.
 - 2. Catches have been adjusted to operate properly.
 - 3. Locks function properly.
 - 4. All shelves and accessories have been properly installed.
- B. Clean inside and outside surfaces of all equipment and accessories installed for this project to be free of dirt, oil, grease and any other foreign matter.
- C. Remove debris, not caused by other trades and legally dispose of away from site.

END OF SECTION

SECTION 124920 – MANUAL ROLLER SHADES

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes
 - 1. Manually operated Roller Shades
- B. Related work includes the following:
 - 1. Section 061000 - Rough Carpentry

1.2 REFERENCES

- A. National Fire Protection Association (NFPA) 701
- B. Department of Transportation Motor Vehicle Safety Standard 302 Flammability of Interior Materials
- C. California Administrative Code Title 19
- D. Federal Standard 191 Method 5903 (used by Port Authority of New York and New Jersey for drapery, curtain and upholstery material)
- E. Boston Fire Department Teat BFD IX-1
- F. New York State Uniform Fire Prevention and Building Code

1.3 SUBMITTALS

- A. Subject under provisions of Section 013300 – Submittal Procedures
- B. Product Data: Manufacturer's data sheets shall be submitted for each product specified, including:
 - 1. Preparation instructions and recommendations
 - 2. Finishes, material descriptions, dimensions of individual components
 - 3. Construction and installation instructions
 - 4. Manufacturers recommendations for maintenance and cleaning
- C. Drawings and Diagrams: Product details, installation details, working and assembly drawings shall be supplied as requested.
- D. Sample: Responsible contracting officer or agent shall supply one sample shade of each type specified in this contract for approval. Supplied units shall be furnished complete with all required components, mounting and associated hardware, instructions and warranty.

1.4 QUALITY ASSURANCE

- A. Supplier: Manufacturer, subsidiary or licensed agent shall be approved to supply the products specified, and to honor any claims against product presented in accordance with warranty.
- B. Installer: Installer or agent shall be qualified to install specified products by prior experience, demonstrated performance and acceptance of requirements of manufacturer, subsidiary or licensed agent. Installer shall be responsible for an acceptable installation.
- C. Uniformity: Provide Manual Roller Shades of only one manufacturer for entire project.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Product shall be delivered to site in manufacturer's original packaging.
- B. Product shall be handled and stored to prevent damage to materials, finishes and operating mechanisms.

1.6 JOB CONDITIONS

- A. Prior to shade installation, building shall be enclosed.
- B. Interior temperature shall be maintained between 60° F. and 90° F. during and after installation; relative humidity shall not exceed 80%. Wet work shall be complete and dry.

1.7 WARRANTY

- A. Lifetime Limited Warranty. Fabrics warranted for 5 years. Specific product warranties available from manufacturer or its authorized agent.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

- A. Hunter Douglas Contract/ 12250 Parkway Centre Dr. / Poway, CA 92064/ Phone: 800-727-8953 Fax: 800-205-9819/ Website: www.hunterdouglascontract.com or architect approved equivalent.
- B. Request for substitutions must be approved by architect minimum of 30 days prior to close of bid.

2.02 MANUAL ROLLER SHADES

- A. Product: Refer to drawings for selection.
- B. Materials:
 - 1. Fabric: Inherently anti-static, flame retardant, fade and stain resistant fabrics. Refer to drawings for selection.
 - 2. Control System:
 - a. Clutch Operated: Engineered heavy duty chain drive pulley operating system consisting of metal clutch housing and locking plug containing minimum 6 ribs and inserted at minimum of 2-1/4" into roller tube. Lift

torque enhancement provided by Counter-Balance System with integrated spring support module. Utilization of adjustment-free continuous qualified T304 stainless steel ball chain with 110 lbs breaking strength for precise control, smooth operation and ensuring a uniform look. Chain tensioner to be compliant with WCMA safety standard A100.1-2010 and must prevent the clutch system from moving the roller shade through lowering and raising if not properly installed as specified in ANSI Standard Section 6.5.2. Components will be maintenance free from adjustments or lubrication for trouble-free operation.

3. Roller Tube: Circular-shaped aluminum tube extruded from alloy and temper 6063 T-6, 2" outside diameter extruded tube to have a .063" wall thickness (2.5" outside diameter to have a .079" wall thickness). Heavily reinforced with minimum six internal ribs providing additional tensile strength and allows for secure placement of clutch & end plug.
4. Heavy Duty Tube Bearing Plug: Die cast metal and reinforced idler assembly containing spring loaded end plug with positive locking wheel allows for up to 7/8" adjustment and provides for a secure installation and removal of shade. Locking tube bearing plug contains minimum 6 ribs and inserted a minimum of 2-3/8" into roller tube.
5. Bottom Bar: Extruded aluminum weight in a Sealed Pocket Hem Bar, or RB Bottom Bar for fabrics that are not seamable. Bottom bar is for tracking adjustments and provides uniform look.
6. Mounting Hardware: Manufacturer's standard heavy-duty bracket constructed of hardened 1/8" thick steel to support full weight of shade with bracket & screw hole covers to provide uniform look. Integrated leveling device for enhanced level adjustment of overall shade. Locking mechanism on bracket adapter provides for a secure installation and removal of the shade.
7. Fascia: L shape removable aluminum extrusion valance that attaches to brackets and conceals roller shade.
8. Roller Shade Pocket: Extruded aluminum alloy U shape housing for recessed mounting in acoustical tile or drywall ceilings. 5.25" (or 9") in diameter with aluminum closure mount.
9. Block-out System: Extruded aluminum side channel with concealed mounting brackets. Bottom bar with nylon wool pile to prevent light leakage.

2.03 FABRICATION

- A. Shade measurements shall be accurate to within $\pm 1/8$ " or as recommended in writing by manufacturer.

2.04 FABRICS

- A. Refer to drawings for selection.

PART 3 – EXECUTION

3.01 INSPECTION:

- A. Sub-contractor shall be responsible for inspection on site, approval of mounting surfaces, installation conditions and field measurement for this work.

3.02 INSTALLATION:

- A. Installation shall comply with manufacturer's specifications, standards and procedures as detailed on contract drawings.
- B. Adequate clearance shall be provided to permit unencumbered operation of shade and hardware.
- C. Clean finish installation of dirt and finger marks. Leave work area clean and free of debris.

3.03 DEMONSTRATION:

- A. Demonstrate operation method and instruct owner's personnel in the proper operation and maintenance of the roller shades.

3.04 SCHEDULE:

- A. Refer to drawings.

END OF SECTION

SECTION 126700 - ENTRANCE MATS

PART 1 - GENERAL

1.0 RELATED DOCUMENTS

- A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions, and Division 1 are included herein and govern work under this section.

1.1 SCOPE OF WORK

- A. Provide all materials, labor and equipment necessary to provide Entrance Mat as indicated on drawings and specified herein.

1.2 RELATED SECTIONS:

- A. Submit samples of product to be used for Architects approval.
- B. Related Sections: The following sections contain requirements related to this section:
 - 1. Section 033000 - Cast-In-Place Concrete

1.3 REFERENCES:

- A. American Society for testing and Materials (ASTM)
- B. The Aluminum Association
- C. The Carpet and Rug Institute (CRI)
- D. The National Floor Safety Institute (NFSI)

1.4 SUBMITTALS:

- A. Product data for each type of floor mat and frame specified including manufacturer's specifications and installation instructions.
- B. Shop Drawings: Indicate –
 - 1. Thickness
 - 2. Shape and layout of mat and frame
 - 3. Frame Edge details
 - 4. Materials
 - 5. Field verified dimensions for mats
 - 6. Detail of Spline locations, profiles, anchors and accessories
- C. Maintenance data of manufacturer's instructions for cleaning and maintaining floor mats.

1.5 QUALITY ASSURANCE:

- A. Flammability in accordance with ASTM E648, Class 1. Critical radiant flux, minimum 0.45 watts/m².

- B. Slip Resistance in accordance with ASTM D-2047-96, Co-efficient of friction, minimum 0.60 for accessible routes.
- C. Standard rolling load performance 300 lb/wheel.
- D. Mats and frames from one source of a single manufacturer.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver to project site and protect against damage before and after installation.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. See A-600's for all finish selections

PART 3 - EXECUTION

3.1 EXAMINATION AND MAT INSTALLATION

- A. Verify conditions, examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
- B. Cut and install mat according to manufacturers' instructions and recommendations
- C. Coordinate top of mat surface with bottom of doors that swing across to provide enough clearance between door and mat.
- D. Do not install materials until conditions are acceptable.

3.2 CLEANING

- A. Clean after installation, according to manufacturers' recommendations.
- B. Provide owner with maintenance instructions.

3.3 PROTECTION

- A. Protect mat and frame until construction traffic has ended and project is near substantial completion.

END OF SECTION