

# PROJECT MANUAL

CONSTRUCTION DOCUMENTS  
VOLUME 1



## INTERMOUNTAIN HEALTHCARE PCH AUDIOLOGY CLINIC LAYTON, UTAH

DECEMBER 10, 2018

# HKS

HKS Architects, Inc.  
90 South 400 West, Suite 110  
Salt Lake City, Utah 84101

HKS #22524.000

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INTERMOUNTAIN HEALTHCARE  
PRIMARY CHILDRENS OUTPATIENT AUDIOLOGY CLINIC  
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**SECTION 00 1000**

**INVITATION TO BID**

**PROJECT:** Intermountain Healthcare PCH Audiology Clinic located in Layton, Utah.

**LOCATION:** The project is located at:  
  
**201 West Layton Parkway**  
**Layton, Utah**

**OWNER:** **IHC Health Services, Inc.**

**TIME AND PLACE:** The Owner will receive bids as announced by the Project Manager:  
  
**IHC Health Services, Inc.** (Intermountain Healthcare)  
Facility Planning and Development (FP&D)  
36 South State Street, 16<sup>th</sup> Floor  
Salt Lake City, Utah 84111-1486  
  
**Attention:** Shannon Brown ([Shannon.M.Brown@imail.org](mailto:Shannon.M.Brown@imail.org))  
  
Bids shall be received by sealed envelope or emailed to the Owner by time and at address noted above. If submitting a sealed bid, deliver to Security on the 16<sup>th</sup> floor.

**TYPE OF BID:** Bids shall be on a **Stipulated Sum** basis.

**TIME OF COMPLETION:** Bidders shall provide a Date of Substantial Completion on their Bid Form. Consideration will be given to bidders offering earlier times of completion.

**BIDDING DOCUMENTS:** Bidding documents will be available as announced, thru the office of HKS Architects, Inc. in accordance with the Instructions to Bidders. Electronic copies of the Contract Documents (PDF's) will be provided to invited Contractors only. Bidding Documents **are not allowed to be posted** in any plan rooms. Any Contractor who violates this, will be disqualified.

**BID SECURITY/BONDS:** Bid Security or Performance and Payment Bonds will not be required for this project.

**LIQUIDATED DAMAGES:** Liquidated Damages will not be assessed for this project.

**RIGHT TO REJECT BIDS:** The **Owner** reserves the right to reject any or all bids, and to waive any irregularities in any bid or in the bidding

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**MANDATORY  
PREBID  
CONSTRUCTION  
MEETING**

**To be announced by the Project Manager**

**END OF SECTION**



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**SECTION 00 2213**

**SUPPLEMENTARY INSTRUCTIONS TO BIDDERS**

- A. The Supplementary Instructions to Bidders herein describe, contain changes and additions to Section 00 0100 - AIA A701 Instructions to Bidders (included by reference - copies may be obtained from the Architect's office for the cost of reproduction). Where any part of the Instructions to Bidders is modified by these Supplementary instructions, the unaltered provisions shall remain in effect.

**3.1.5 COPIES**

Add the following:

The title or cover sheet to the drawings and the index to the Project Manual contains a list of all documents which comprise a full set of bid documents for this project. Any Contractor, Subcontractor, vendor or any other person participating in or bidding on this project shall be responsible for the information contained in any and all sheets of drawings and all sections of the specifications. If any person, party or entity elects to submit bids for any portion, or all, of this project, that person, party or entity shall be responsible for any and all information contained in these drawings and specifications, including, but not limited to, any subsequent addendums or clarifications that may be issued.

**3.3 SUBSTITUTIONS**

Amend 3.3.2 to read:

No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least 7 days prior to the date for receipt of Bids. Such requests...

**3.4 ADDENDA**

Amend 3.4.3 to read:

No addenda will be issued later than 24 hours prior to the date for receipt of Bids except an addendum may be issued no later than 12 hours prior to the date for receipt of bids for the purpose of cancellation or postponement of receipt of bids. It is the responsibility of the Bidder to disseminate telephone addendum information to sub-bidders.

**4.2 BID SECURITY**

**Delete** this article in its entirety. Bid bonds will not be required for this project.

**4.3 SUBMISSION OF BIDS**

Amend 4.3.4 to read:

Bids shall be hand delivered in sealed envelope or emailed to the Owner at the address noted in the Invitation to Bid. Bids submitted orally, or by telephone or facsimile will not be considered.

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**5.3 ACCEPTANCE OF BID (AWARD)**

Amend 5.3.2 to read:

The Owner shall ... to determine the low bidder on the basis of the sum of the Base Bid or on the basis of the sum of the Base Bid and any combined accepted Alternates. Cost of insurance will not be used as the basis of award.

**ARTICLE 7 - PERFORMANCE AND PAYMENT BOND**

Delete this Article in its entirety. Bonds will not be required for this Project.

**END OF SECTION**

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**SECTION 00 4000**

**BID FORM**

**TO:** **IHC Health Services, Inc.** (Intermountain Healthcare)  
Facility Planning and Development (FP&D)  
36 South State Street, 16th Floor  
Salt Lake City, Utah 84111-1486

**Attention:** Shannon Brown  
Email: [Shannon.M.Brown@imail.org](mailto:Shannon.M.Brown@imail.org)

**PROJECT:** **Intermountain Healthcare PCH Audiology Clinic**  
201 West Layton Parkway  
Layton, Utah

**NAME OF BIDDER:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

The undersigned, in compliance with your Invitation To Bid, having examined the Drawings and Specifications (Contract Documents) and related documents and the site of the proposed work and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of labor, hereby propose to furnish all labor, materials, services, equipment and appliances required in connection with or incidental to the construction of the above named project in strict conformance with the following specification and drawings:

Instructions to Bidders, General Conditions, Supplemental General Conditions, Specification Divisions as shown and all applicable addenda and Drawings as listed on the drawing cover sheets as prepared by HKS Architects, Inc.

I/We certify, by signing this BID FORM, that I/We have a working relationship with the proposed subcontractors and that Bids we're not solicited from; and/or the received Contract Documents were not listed in any Plan Rooms for distribution to subcontractors broadly.

**BASE BID – for the PCH Audiology Clinic for Intermountain Healthcare:**

For Work of the contract listed above and shown on the Drawings and described in the Project Manual, I/We agree to perform for the sum of:

\_\_\_\_\_ Dollars (\$\_\_\_\_\_)  
(In the case of discrepancy, written amount shall govern)

**CONTRACTOR'S PROPOSED CONSTRUCTION TIME PERIOD:**

This Bid requires a construction time in **calendar days** from the date of authorization of \_\_\_\_\_  
calendar days. The anticipated date of Substantial Completion is thus \_\_\_\_\_.

**ADDENDA:**

I/We acknowledge receipt of the following addenda for the above noted project: \_\_\_\_/\_\_\_\_/\_\_\_\_/\_\_\_\_/\_\_\_\_

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**SCHEDULE OF VALUES:**

I/We have attached with this Bid Form our Schedule of Values (Section 00 4373) which reflects the above Base Bid. We submit this for Owner review of subcontractors that are being proposed for this Project.

**TYPE OF ORGANIZATION:**

(Corporation, Partnership, Individual, etc.) \_\_\_\_\_

SEAL (If a Corporation)

Respectfully Submitted,

\_\_\_\_\_  
Name of Bidder

\_\_\_\_\_  
Authorized Signature

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**SECTION 00 4373**

**SCHEDULE OF VALUES**

**NAME OF BIDDER:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

DIV	TITLE	AMOUNT	\$/SQ. FT	COMMENTS
01	General Conditions	\$ _____	\$ _____	
02	Demolition	\$ _____	\$ _____	
02	Saw cut slab	\$ _____	\$ _____	
03	Concrete	\$ _____	\$ _____	
04	Masonry	\$ _____	\$ _____	
05	Steel	\$ _____	\$ _____	
06	Woods and Plastics	\$ _____	\$ _____	
07	Thermal and Moisture Protection	\$ _____	\$ _____	
08	Openings	\$ _____	\$ _____	
09	Finishes	\$ _____	\$ _____	
10	Specialties	\$ _____	\$ _____	
12	Furnishings	\$ _____	\$ _____	
21	Fire Suppression	\$ _____	\$ _____	
22	Plumbing	\$ _____	\$ _____	
23	HVAC	\$ _____	\$ _____	
26	Electrical	\$ _____	\$ _____	
31	Earthwork	\$ _____	\$ _____	
32	Landscape	\$ _____	\$ _____	
33	Utilities	\$ _____	\$ _____	
	<b>SUBTOTAL</b>	\$ _____	\$ _____	
	<b>OVERHEAD AND PROFIT</b>	\$ _____	\$ _____	

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	<b>TOTAL COST</b>	\$ _____	\$ _____	
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**END OF SECTION**

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**SECTION 00 5200**

**OWNER/CONTRACTOR AGREEMENT**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Intermountain Healthcare's '**CONTRACTOR AGREEMENT**' (**Stipulated Sum**) for Construction between the Owner and General Contractor' where the basis of payment is a STIPULATED SUM, will be used on this project. An electronic copy may be obtained from Intermountain Healthcare's Project Manager.

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**SECTION 00 6000**

**BONDS, CERTIFICATES AND OWNER DOCUMENTS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. The following documents are incorporated by reference; copies may be obtained from Intermountain Healthcare or the Architect for the cost of reproduction, if necessary. Electronic copies of the Intermountain Healthcare Documents can be obtained by contacting the Intermountain Healthcare Project Manager.
1. Intermountain Healthcare Document – **'Application and Certificate for Payment'**
  2. Intermountain Healthcare Document – **'Application and Certificate for Payment – Continuation Sheet'**
  3. Intermountain Healthcare Document – **'Change Order' (CO)**
  4. Intermountain Healthcare Document – **'Proposed Change Order' (PCO)**
  5. Intermountain Healthcare Document – **'A/E Supplement Instructions' (ASI)**
  6. Intermountain Healthcare Document – **'Proposal Request' (PR)**
  7. Intermountain Healthcare Document – **'Construction Change Directive' (CCD)**
  8. Intermountain Healthcare Document – **'Request For Information' (RFI)**
  9. AIA Document G704 – **'Certificate of Substantial Completion'**
  10. AIA Document G707 – **'Consent of Surety to Final Payment'** (if required)
  11. AIA Document G707A – **'Consent of Surety to Reduction in or Partial Release of Retainage'** (if required)
  12. AIA Document A312 – **'Payment Bond'** (if required)
  13. AIA Document A312 – **'Performance Bond'** (if required)



## 4.8 Fixtures, Furnishings, and Equipment

The responsibilities for Owner Furnished / Owner Installed (OFOI), Owner Furnished / Contractor Installed (OFCI), and Contractor Furnished / Contractor Installed (CFCI) furnishings and equipment shall comply with the following matrix (updated 12/6/2016).

ITEM	STATUS - Furnished / Installed	NOTES	Additional Notes		
			Data	Power	Backing
<b>OFOI - (Owner Furnished / Owner Installed)</b>					
Art	Owner / Vendor				
Brochure Racks	Owner / Vendor	G.C. to provide proper backing			
Chart Racks	Owner / Vendor (Midwest-Peter Pepper)	G.C. to provide proper backing			
Copiers, fax	Owner / Vendor		Yes	Yes	
Cup Dispensers	Owner / Vendor				
Exam Tables	Owner / Vendor			Yes	
Systems Furniture	Owner / Vendor (Midwest Furn.)	Coordinate Modesty Panels with Elec. Outlets. Coordinate data and power with Midwest & Design Team.	Yes	Yes	
Moveable Metal Shelving	Owner / Vendor				
Recliners / Draw Chairs	Owner / Vendor				
Signage - Exterior	Owner / Vendor (IG Signs, YESCO)	Provide power and data to required exterior signage. Provide circuits for above ceiling signs. Coordinate thru-wall conduit sleeves with weather barrier. Intermountain Logo Signs - (2) 20A Circuits - May vary. InstaCare and other Signs - (1) 20 A Circuits - May vary.	Yes	Yes	Yes
Signage - Interior	Owner / Vendor (Scribbly, or Hightech)	Provide power to required signage.			
Radiology Equipment	Owner / Vendor (IMG - James Jeppson; Hospitals - Steve Isakson)		Yes	Yes	
Clinical Garbage Cans (Clinical, Office, PT, Etc.)	Owner / Owner				
Computers, Printers, Scanners, Keyboards, Mice, etc.	Owner / Owner	In-ceiling & wall mounts, conduits and boxes mounted by G.C. IMG computers will be All-in-One computers.	Yes	Yes	Yes
Televisions, Digital Projectors, etc.	Owner / Owner	These items to be provided by Owner, but A/E to coordinate locations and infrastructure	Yes	Yes	Yes
Coat Hooks (Offices only)	Owner / Owner				
Keyboard Trays	Owner / Owner				
PACS	Owner / Owner				
Marker Boards (if not shown in drawings)	Owner / Owner				
Emergency Evacuation Medical Sled (Med Sled)	Owner / Vendor				
Supply Area Panels	Owner / Owner	G.C. to provide proper backing			Yes
<b>OFCI - (Owner Furnished / Contractor Installed)</b>					
<b>(Coordinate location of items with Owner/Users)</b>			Data	Power	Backing
Automated External Defibrillator (AED)	Owner / Contractor	Verify locations with Owner, Architect to coordinate recess, semi-recessed, or surface mount options with Owner.			
Time Clocks	Owner / Contractor	Conduit and boxes by G.C., Coordinate location with Owner	Yes	Yes	
Paper Towel Dispensers	Owner / Contractor	Location coordinated during mockup			
Soap Dispensers	Owner / Contractor	Location coordinated during mockup			
Toilet Paper Dispensers	Owner / Contractor	Location coordinated during mockup			
Glove Dispensers	Owner / Contractor	Location coordinated during mockup			
Hand Sanitizer Dispensers (Avagard)	Owner / Contractor	Location coordinated during mockup			
Diagnostic Board (Otoscope / Ophthalmoscope)	Owner / Contractor	Location coordinated during mockup		Yes	
Sharps Disposal Container	Owner / Contractor	Location coordinated during mockup			
Stadiometers, Recessed Scales	Owner / Contractor	Location coordinated during mockup; coordinate power		Yes	
Procedure Lights	Owner / Contractor	Location coordinated during mockup; G.C. to provide and install procedure light support structure		Yes	
Scrub Sinks & Carriers	Owner / Contractor	G.C. to coordinate with Owner for ordering and Install coord.			Yes
IV Track	Owner, Vendor / Contractor				
Boom Mounting Plates (Equipment, Lighting, Anesthesia)	Owner / Contractor	G.C. to coordinate with Owner for ordering for Install coord.			
OR Clocks	Owner / Contractor	G.C. to coordinate with Owner for ordering for Install coord.	Yes	Yes	Yes
Clinical Clocks	Owner / Contractor	G.C. to coordinate with Owner for ordering for Install coord.		Yes	
Cubicle Curtains, Shower Curtains & Rods & IV Hangers	Owner, Vendor (Medline) / Contractor	Owner to provide Medline "On the Right Track" or similar, Contractor to install.			
Digital Projector Mounts, TV Mounts, & Computer Mounts (Ergotron Brackets/Mounts, etc.)	Owner / Contractor	In-ceiling & wall mounts, conduits and boxes mounted by G.C. Facility to coordinate with A/V company to pull required cabling.	Yes	Yes	Yes
Radiation Protection Certification	Owner, (Medical Physics Consultants)/ Contractor	G.C. to coordinate prior to Gyp.install.			
MRI Metal Detectors (Where these are required/approved)	Owner / Contractor	G.C. to coordinate with Owner		Yes	
Nurse Call System & Patient Monitoring System (Hospital Campus)	Owner, Vendor (Hill-Rom) / Contractor	Hospital Local Facilities to contract directly with Nurse Call & Patient Monitoring vendor for devices, equipment, monitors, etc. (from wall side out). Contractor to provide infrastructure, back boxes, and cabling (from wall side back).	Yes	Yes	
Staff Assist Notification System (Medical Group Clinics on hospital campuses to match nurse call system)	Owner, Vendor (Hill-Rom) / Contractor	System to be coordinated with Hospital Campus system, as applicable, Medical Group Strategic Planner, and IMG Operations Officer. IMG to contract directly with Staff Assist System vendor for devices, equipment, monitors, etc. (from wall side out). Contractor to provide infrastructure, back boxes, and cabling (from wall side back).	Yes	Yes	
Staff Assist Notification System (Stand-alone Medical Group Clinics)	Owner, Vendor / Contractor	System to be coordinated with Medical Group Strategic Planner and Operations Officer. IMG to contract directly with Staff Assist System vendor for devices, equipment, monitors, etc. (from wall side out). Contractor to provide infrastructure, back boxes, and cabling (from wall side back).	Yes	Yes	
Patient Lifts	Owner, Vendor (Liko Hill-Rom) / Contractor	G.C. to coordinate shop drawings and Installation. Connect to Equipment branch if provided.		Yes	
Building Alarms / Medication Refrigerator Alarm / Pharmacy Alarm System	Owner / Contractor	G.C. to provide conduit and infrastructure into accessible ceiling for access from equipment and/or devices. Local Facility to contract with alarm company for alarm, wire, and monitoring.		Yes	
UPS	Owner / Contractor	Verify location with Owner		Yes	
Signage - Exterior	Owner / Vendor / Contractor	G.C. to coordinate with vendor to provide and install power and required backing		Yes	Yes

CFCI - (Contractor Furnished / Contractor Installed)			Data	Power	Backlog
Blinds/Shades (manual and powered)	Contractor / Contractor			Yes	
Apron Hooks/Rack (Heavy Duty in Radiology)	Contractor / Contractor				Yes
Marker Boards & Cork Boards	Contractor / Contractor	Coordinate with Owner			Yes
Emergency Phones	Contractor / Contractor	Conduit and boxes by G.C.	Yes	Yes	
Med Gas Certification	Contractor / Contractor	Coordinate Vendor with Owner			
Diaper Changing Station	Contractor / Contractor				Yes
Emergency Shower Station / Eye Wash Station	Contractor / Contractor	Shall meet the ANSI requirements			
Fire Extinguishers	Contractor / Contractor	Coordinate locations with Owner; flush-mount where possible			
Grab Bars (Rest rooms, Radiology, Exam rooms, etc.)	Contractor / Contractor				Yes
Mirrors (Rest rooms, Exams, Radiology, etc.)	Contractor / Contractor				
Pneumatic Tube Systems	Contractor / Contractor (SwissLog, Atreo Group, or other approved)	If Swisslog, verify pricing is per Intalere (Amerinet) Contract Agreement. Design fees are included in this agreement.	Yes	Yes	
Plumbing Shrouds	Contractor / Contractor				
Sanitary Napkin Dispensers/Receptacles	Contractor / Contractor				
Security Cameras	Contractor / Contractor (AlphaCorp)	Coordinate number and type of cameras, as well as final location with Owner prior to submitting shop drawings.	Yes		
Voice/Data Cabling (all horizontal cabling - see Div. 27 specs)	Contractor / Contractor (Cache Valley Elec., IES Commercial, Data Tech Professionals, Americom)	Coordinate with Owner/User on connections, pairs of fiber/copper, conduits, inner-ducts.	Yes		
Radiation Support Bracing for Radiology Equipment	Contractor / Contractor	Architect to coordinate with Intermountain selected Radiology Vendor. Architect to coordinate Final Site Specific Drawings with Construction Documents.	Yes	Yes	Yes
Wall Protection (Incl. Bumper and Corner Guards)	Contractor / Contractor				

## 4.4.3 RECEPTION DESKS, PHARMACY COUNSELING AND NURSES' STATIONS

Federal privacy requirements (HIPPA) present challenges for designing reception desks. The desk needs to be open, inviting and easily recognized by patients, but also needs keep conversations confidential. The design should prevent line of sight voice transmission between other patients at or near the reception desk. Glass walls have been used in several Intermountain facilities with success. Waiting area seating should not be near the reception desk. Walls and cabinets need to be designed or treated with acoustically absorbent material to avoid reflecting conversations. Localized sound masking systems should also be considered to help assure the patients' privacy.

### Recommended Background Noise Design Criteria

Auditorium/Classroom	NC 25-30
Inpatient Rooms	NC 25-35
On-Call Rooms	NC 25-35
Conference Rooms	NC 30-35
Classrooms	NC 30-35
Consultation Rooms	NC 30-40
Exam Rooms	NC 35-40
General Office Areas	NC 35-40

### Minimum Sound Isolation Criteria

Source Occupancy	Receiving Room	Wall Sound Isolation
Executive Offices	Adjacent Room	STC 50
Personnel Offices	Adjacent Rooms	STC 45
Normal Offices	Adjacent Office	STC 45
Corridor	Call Rooms	STC 48
Exam Rooms	Corridor	STC 45
Classroom	Classroom	STC 50
Classroom	Corridor	STC 45

## 4.5 Interior Finishes and Color Selections

### 4.5.1 GENERAL

#### Philosophy

Patients will experience interior decor as inviting and comfortable to evoke a warm, healing environment. The look should be timeless, not trendy; the color scheme should have a life cycle greater than four years. The number of patterns and colors should be limited so patients do not experience a color scheme that is not comforting.

### Guiding Principles

Carpet and paint is not the primary decoration focus of a facility. The eye should not be drawn to the floor but to the beauty and variety of artwork, upholstery, furnishing, plants, cabinetry, millwork, as well as any outdoor views. The check-in desk and circulation should be a focal point and easy for a patient to locate. Different colors may exist on different levels, but they should harmonize so the entire facility maintains a coordinated color scheme.

## 4.6 Preferred Pricing and Vendors

Intermountain maintains purchase agreements with vendors that provide excellent service and products. The current list of vendors is:

### 4.6.1 SINGLE SOURCE AGREEMENTS

Products	Company	Rep Name	Rep Number	Expire Date	Notes
Angio	Siemens or GE	Chad DeGroot (Siemens)	(385) 299-6055 chad.degroot@siemens.com		
Carpet	Shaw	Brandon Rhoads	801-604-9909	10/31/2017	
Cath Lab	Siemens	Chad DeGroot	(385) 299-6055		
Cubicle Track and Curtains	C/S and Medline	Russ Parker	801-920-4360 rparker@medline.com	12/31/2021	"On the Right Track"
Digital Radiography	Carestream	Monte Huff	(801) 541-3600		
Facilities Maintenance Supplies	Grainger	Bryce Parkinson	801-215-5820	2/28/2018	
Fluoroscopy	Siemens	Chad DeGroot	(385) 299-6055		
Furniture	Steelcase	Megan Burraston	801-230-808	10/31/2017	
	Distributor: Midwest Office	Jamie Walker jamiew@MWClutah.com	801-359-7681	10/31/2017	
		Stephanie Ennis stephaniee@MWClutah.com	801-359-7681 801-573-4016		
		Kara Norlin Karan@MWClutah.com	801-359-7681 801-505-4214		
General Rad	Carestream	Monte Huff	(801) 541-3600 monte.huff@carestreamhealth.com		
Hospital Lab Furniture	Symbiote				
	Distributor: Henrickson Butler			In contract negotiations	
Hybrid OR	Siemens, GE, Philips				
Interventional Radiology	Siemens or GE	Chad DeGroot	385-299-6055 chad.degroot@siemens.com		
Light Booms, SS	Steris	Brady Barker	801-560-5158 Brady_Barker@STERIS.com	9/1/2021	
Linear Accelerator	Varian	Nathan Korte	618-407-4861 <a href="mailto:nathan.korte@varian.com">nathan.korte@varian.com</a>	9/22/2020	
MRI	GE	Brian King	801-201-5803 Brian.King@med.ge.com		
	GE	Brad Findlay	801-414-6299 Bradley.Findlay@med.ge.com		
Nurse Call	Hill Rom	Julie Vieira	208-964-0856	4/30/2021	

			<a href="mailto:julie.vieira@hill-rom.com">julie.vieira@hill-rom.com</a>		
Patient Lifts (ceiling)	Liko (Hill Rom)	Julie Vieira			
PET/CT	Siemens	Walt Stenborg	303-903-7824		
Pharmacy Medication Dispensing (Robots, Carousels, etc.)	Omnicell				
SPECT/CT	Siemens	Walt Stenborg	303-903-7824 <a href="mailto:walter.stenborg@siemens.com">walter.stenborg@siemens.com</a>		
Vaccine Refrigerators and Freezer					
	Helmer HLR 105, 105 w/lock box	Lisa Brown	317-773-9073 x3812 <a href="mailto:lbrown@helmerinc.com">lbrown@helmerinc.com</a>		Under-counter models
	Helmer MLR 102				Countertop fridge
	Helmer HLR 104				ADA complaint under-counter
	Helmer HPR 245				2-Door Upright
	Helmer HPR 120				1-Door Upright
	Follett FZR1	Jim Hwang-King	303-910-7011 <a href="mailto:jhwang-king@follettice.com">jhwang-king@follettice.com</a>		Counter-top Freezer
Resilient Flooring*	Mannington	Bryan Thompson	801-450-6449	12/31/2018	
	Distributor: Midwest Flooring	Wayne Francom	801-330-4626		
Washers/Sterilizers	Steris	Mark Green	801-557-7012 <a href="mailto:mark_green@steris.com">mark_green@steris.com</a>	9/1/2021	
*Refer to Construction Standards for a complete list of approved installers					

## 4.6.2 PREFERRED AGREEMENTS

Products	Company	Rep Name	Rep Number	Expire Date	Notes
Air Filters	Camfil Farr	Tim Pratt	801-201-6418		
Armstrong Ceiling Products	Armstrong	Deborah Pickens	480-695-9053 <a href="mailto:dlpickens@armstrongceilings.com">dlpickens@armstrongceilings.com</a>	12/31/2017	
	<p>Strategic Account or the contractor can call <b>1-800-442-4212</b> to locate the nearest Armstrong distributor to the job site.</p> <p>Strategic Account or contractor must give the distributor the Strategic Account Name <b>Intermountain Healthcare</b> and the facility <b>address</b> prior to requesting a quote or placing an order.</p> <p>The Armstrong distributor will sell the ceiling panels at the agreed upon pricing.</p> <p>Delivery charges, stock and scatter, any extra services requested by Strategic Account or the contractor will be quoted by the local distributor.</p> <p>Strategic Account or the contractor ordering the materials will pay the distributor.</p> <p>Terms and Conditions of sale are between the Strategic Account or the contractor and the distributor.</p>				
Atkinson Controls	Atkinson	Scott Richards	801-529-2912		
A/V Integration	Cache Valley Electric, Marshall Industries, Webb Audio				
Chiller and Cold Airside	York	Doug Warnick	801-510-8697		

Fume Hoods and/or Bio-Safety Cabinets	Baker Company				
Johnson Controls	JCI	Joe Morin	801-669-7596		
Light Booms – CV	Skytron	Donna Johnson	801-361-4967 <a href="mailto:Donna@johnsonmedical.com">Donna@johnsonmedical.com</a>	5/1/2019	
Paint and Wall Protection	Sherwin-Williams	Cody Slade	801-718-5553		
Siemens Controls	Siemens	Taft Arnold	303-324-2628		
Water Treatment	Nalco	Mike Kimball	801-560-4896	12/31/2017	

## Standard Commercial

### 4.6.3 SHAW STANDARD COMMERCIAL RECLAMATION PROGRAM

Please see information provided by Shaw below regarding their Commercial Reclamation Program, which should be used whenever possible on Intermountain projects.



## Standard Commercial Reclamation Program

Dear Shaw Customer,

In addition to being good for the environment, recycling is a significant value-added service that we offer our customers. In order to take advantage of this service, we require that you adhere to the following Program Guidelines and Material Quality & Staging Requirements. Eligible Standard Commercial Reclamation Projects (non-EcoWorx) are managed by Shaw Reclamation at a cost per square yard charged to the customer (EcoWorx projects are managed free of charge, please see our EcoWorx Environmental Guarantee Reclamation Program for details).

### Program Guidelines

- For a non-EcoWorx recycling project to be eligible as a Standard Project, the project must be:
  - A minimum of 500 square yards
  - Associated with a replacement order through Shaw in the same or greater quantity
  - Located within the continental U.S. or Canada
- The customer is responsible for preparing the material for shipment.
- The pick-up location must be able to accommodate a 53-foot trailer.
  - Additional required services such as pup trailers, dropped trailers, etc. will be provided as necessary at additional cost. These services are available in the continental United States only.
  - The customer must load the trailer to maximize weight, starting in the nose of the trailer and working toward the rear.
  - Trailers must be clean of any non-carpet debris (i.e. construction waste, cardboard boxes, trash, etc.).
  - A trailer refusal fee will be applied to any project that is not available for pick-up at the scheduled time.
- Shaw will not be held liable for any non-conforming material or any charges that arise from non-conforming loads. Any additional costs or liability associated with a non-conforming load will be passed on to the customer.
- To initiate your Standard Commercial Reclamation Project, please complete and submit the attached Standard Commercial Reclamation Project Request Form for eligibility and scheduling purposes. Please email the completed form to: [Bea.brahmbhatt@shawinc.com](mailto:Bea.brahmbhatt@shawinc.com) & [Stephanie.prather@shawinc.com](mailto:Stephanie.prather@shawinc.com). **Please complete and submit the form at least 8 business days prior to the expected pick-up date.**
- Upon receipt and approval of the completed form, Shaw Reclamation will determine the best recycling option for the material and submit a quote for customer approval as soon as possible.
  - Allow up to 3 business days to receive a project quote for approval.
  - Allow 5 business days for transportation scheduling from quote approval date.
- The project cost will be billed directly to the existing Shaw customer account on a separate invoice.
- Shaw will provide a proof of recycling certificate upon project completion. The certification process may take up to 30 days from the pick-up date.

### Material Quality & Staging Requirements

- Only approved carpet tile or broadloom products may be included in the project. Other carpet types, carpet pad, or carpet with attached pad will not be accepted.
- Material must be dry and free of non-carpet debris. If trash or other materials are present on the load, trash handling and disposal charges will be applied.
  - Material must not contain vinyl, asbestos, or adhesives containing asbestos.
  - Bio hazardous or contaminated material will not be accepted.
- All material must be staged on pallets no wider than 4ft by 4ft (pallets must be able to be loaded in a trailer side-by-side.)
  - Do not mix tile and broadloom on the same pallet.
  - Tile should be stacked flat and neatly onto pallets at least 38" high and no higher than 44".
  - Broadloom carpet must be cut into strips and then formed into individual rolls. Rolls should be stacked and palletized at least 38" high and no higher than 44".
  - All pallets must be strapped to secure the material during shipment (at least 2 straps, one on each pallet side). Rope or twine can be used for strapping material if necessary.
  - Pallets that come apart in transit may result in additional handling charges.

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Shaw reserves the right to modify or replace the information and offering stated in this document. No prior notification is required for these changes.





## Standard Commercial Reclamation Program

### Standard Commercial Reclamation Project Request Form

Please email the completed form to: [Bea.brahmbhatt@shawinc.com](mailto:Bea.brahmbhatt@shawinc.com) and [Stephanie.prather@shawinc.com](mailto:Stephanie.prather@shawinc.com)

<b>Sales Representative Information:</b>	
Date of Request:	
Sales Specialist Name:	
Sales Specialist Contact Number:	
Sales Specialist Account Number:	
Sales Specialist Area #:	
<b>Customer &amp; Order Information:</b>	
Customer Name:	
Is there a Replacement Order? (Note: Only EcoWorx does not require a replacement Order.)	Circle One: EcoWorx      Non EcoWorx
Customer Acct Number:	
Mill Order # for Replacement Order	
Mill Order Dollar Amount: (square yards x price per yard)	\$
<b>Reclamation Project Material Information:</b>	
Square Yards Being Recycled: (500sy min)	
Project Type: Circle all that apply:	EcoWorx      Other Tile _____ EPBL      Other BL _____
Carpet Type: Broadloom or Tile? (If both indicate approx. amts of each)	# of SY: Tile _____ BL _____
Fiber type of material being recycled? Disclaimer:	____ N6    ____ N6.6    ____ Mixed    ____ PET ____ PP    ____ Wool    ____ Unknown
Backing type of material being recycled (Examples: PVC, EcoWorx, Cushion Back, ActionBac)	
Is customer requesting fiber pad recycling?	
<b>Reclamation Project Pickup Information:</b>	
Pick Up Type: Check One	____ Live Load    ____ Trailer Drop
Total # of Pallets to Pick up:	
Pickup/Drop trailer date requested:	
Has customer received packaging guidelines?	____ Yes    ____ No
Project Start Date:	
Project End Date:	
What is the largest container type the pickup Location can accommodate?	53 ft. trailer    26 ft. trailer    40 yd bin    Other
Specify other size trailer need(s):	
Does truck need to have a lift gate?	
Hours location is open for pick up or drop?	
<b>Reclamation Project Contact Information:</b>	
End Use Customer:	
Pickup address:	
Contact Person at Pickup:	
Contact Information for On-Site Contact at Pickup:	Office: Cell: Email Address:
Name as to be listed on reclamation certificate:	
Email or Mailing Address to send certificate:	
Comments:	

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## 4.6.4 INTALERE



## SOURCE AGREEMENTS

In addition, Intermountain receives preferred pricing with several manufacturers through Intalere.

## MATERIALS FURNISHED BY THE CONTRACTOR

Intermountain Healthcare (owner) has a national accounts and contract program with selected manufacturers and/or distributors through Intalere, Inc. It is the request of the owner that Intalere contract suppliers' receive consideration for project awards. All bidders should submit most competitive pricing, warranty, and value-added offers. In any instance where an Intalere contracted supplier's prices, terms or conditions are more favorable than the bid response (same supplier not utilizing Intalere pricing), the owner reserves the right to request that identified benefits are amended and included in the final contract award. All awards granted to Intalere contracted suppliers shall be subject to volume reporting and terms and conditions of their master Intalere Agreement, unless identified and agreed to by the owner. Any such exclusion from Intalere contract reporting requirements must be documented in writing including a signature of agreement by the owner.

Please consider separating materials and labor costs in bid responses. Itemized materials pricing including a description of materials discount structures (from list), is preferable, so that Intalere contract pricing or better can be validated.

Subcontractors and installers may access Intalere contract pricing from manufacturers by identifying the project for Intermountain Healthcare (Intalere Member ID # 17615). Proper utilization of Intalere contracts will net Intermountain Healthcare savings and rebates on materials supplied by contracted suppliers. Please contact Mike Gerhardt for questions or assistance.

Company	Contact	Title	Phone	Email
Intalere	Mike Gerhardt	Senior Director, Capital, Facilities and Construction	(513) 502-2756	Michael.Gerhardt@Intalere.com

## Intalere Construction Solutions

### Contract Index March 2017

APPLIANCES			CURRENTLY USE
<a href="#">Sears Commercial</a>	Appliances, Tools, Lawn & Garden, & Fitness Equipment	<a href="#">VQ10329</a>	<input type="checkbox"/>
BEDS			CURRENTLY USE
<a href="#">Hill-Rom Company, Inc.</a>	Equipment, Beds & Furniture	<a href="#">VQ03000</a>	<input type="checkbox"/>
<a href="#">Hill-Rom Company, Inc.</a>	Equipment, Rental, Therapeutic	<a href="#">VQ10244</a>	<input type="checkbox"/>
CAPITAL MEDICAL EQUIPMENT DISPOSITION, SALES & SERVICES			CURRENTLY USE
<a href="#">DOTmed.com (Intalere Choice)</a>	Capital Medical Equipment Disposition, Sales & Services	<a href="#">AS10104</a>	<input type="checkbox"/>
CARTS, SHELVING & MATERIAL HANDLING			CURRENTLY USE
<a href="#">InterMetro Industries Corporation</a>	Material Handling Equipment, Carts	<a href="#">VQ03800</a>	<input type="checkbox"/>
<a href="#">Quantum Medical (Intalere Choice)</a>	Material Handling Equipment, Carts	<a href="#">VQ10315</a>	<input type="checkbox"/>
<a href="#">Spacesaver Corporation</a>	Mobile Filing & Storage Systems	<a href="#">VQ00600</a>	<input type="checkbox"/>
<a href="#">Stanley Healthcare</a>	Storage Solutions for Interventional Radiology & Cardiac Cath Labs, Inventory Management	<a href="#">VQ16200</a>	<input type="checkbox"/>
<a href="#">Storage Systems Unlimited</a>	Project Management & Distribution	<a href="#">VQ10296</a>	<input type="checkbox"/>
CASEWORK			CURRENTLY USE
<a href="#">Blickman, Inc.</a>	Durable Medical Equipment, Stainless Steel & Chrome	<a href="#">VQ10055</a>	<input type="checkbox"/>
<a href="#">Fisher HealthCare</a>	Distribution, Laboratory	<a href="#">VH01200</a>	<input type="checkbox"/>
<a href="#">Haworth, Inc. (Intalere Choice)</a>	Energy Efficient Office Environments	<a href="#">VH10868</a>	<input type="checkbox"/>
<a href="#">Herman Miller, Inc.</a>	Furniture, Office	<a href="#">VH02500</a>	<input type="checkbox"/>
<a href="#">InterMetro Industries Corporation</a>	Material Handling Equipment, Carts	<a href="#">VQ03800</a>	<input type="checkbox"/>
<a href="#">Midmark Corporation</a>	Equipment, Exam Room	<a href="#">VQ11600</a>	<input type="checkbox"/>
<a href="#">Staples Contract and Commercial, Inc. dba Staples Business Advantage</a>	Office Supplies & Furniture	<a href="#">VH10115</a>	<input type="checkbox"/>
<a href="#">Steelcase, Inc.</a>	Furniture, Office	<a href="#">VQ11400</a>	<input type="checkbox"/>
COMMUNICATIONS			CURRENTLY USE
<a href="#">Ascom Patient Systems</a>	Patient/Staff Communications Solutions	<a href="#">VQ12100</a>	<input type="checkbox"/>
<a href="#">Graybar Electric Company, Inc.</a>	Electrical Supplies & Lamps	<a href="#">VH16900</a>	<input type="checkbox"/>
<a href="#">Hill-Rom Company, Inc.</a>	Computer Software	<a href="#">VH10993</a>	<input type="checkbox"/>
<a href="#">WESCO Distribution, Inc.</a>	Electrical Supplies & Lamps	<a href="#">VH19500</a>	<input type="checkbox"/>
DIETARY EQUIPMENT			CURRENTLY USE
<a href="#">Aladdin Temp-Rite</a>	Foodservice Equipment & Smallwares	<a href="#">VF01700</a>	<input type="checkbox"/>
<a href="#">C&amp;T Design and Equipment Company</a>	Foodservice Design Services & Equipment	<a href="#">VF10162</a>	<input type="checkbox"/>
<a href="#">Carlisle Foodservice Products dba DineX International, Inc.</a>	Food Service Equipment & Supplies	<a href="#">FN10183</a>	<input type="checkbox"/>
<a href="#">Carter-Hoffmann, LLC</a>	Foodservice Equipment & Smallwares	<a href="#">VF10233</a>	<input type="checkbox"/>
<a href="#">Culinox</a>	Foodservice Equipment & Smallwares	<a href="#">VF74600</a>	<input type="checkbox"/>
<a href="#">Direct Supply, Inc.</a>	Healthcare Equipment, Furnishings, Environmental, Foodservice	<a href="#">VH45800</a>	<input type="checkbox"/>
<a href="#">Ecolab, Inc.</a>	Dietary Equipment Service, Repair, Preventative Maintenance and Parts	<a href="#">VF10002</a>	<input type="checkbox"/>
<a href="#">Edward Don Company</a>	Foodservice Equipment & Smallwares	<a href="#">VF10094</a>	<input type="checkbox"/>
<a href="#">Wassenaar Company, The</a>	Foodservice Equipment & Smallwares	<a href="#">VF02700</a>	<input type="checkbox"/>

DURABLE MEDICAL EQUIPMENT			CURRENTLY USE
<a href="#">Blickman, Inc.</a>	Durable Medical Equipment, Stainless Steel & Chrome	<a href="#">VQ10055</a>	<input type="checkbox"/>
<a href="#">Lowe's Companies, Inc.</a>	Maintenance, Repair & Operations Products	<a href="#">VH11273</a>	<input type="checkbox"/>
<a href="#">Mitchell Planning Associates</a>	Equipment Planning & Management Services	<a href="#">VH11464</a>	<input type="checkbox"/>
<a href="#">Pedigo Products, Inc.</a>	Durable Medical Equipment, Stainless Steel & Chrome	<a href="#">VQ12500</a>	<input type="checkbox"/>
ELECTRICAL SUPPLIES, FIXTURES & LAMPS			CURRENTLY USE
<a href="#">Datatrend Technologies, Inc.</a>	Maintenance, Repair & Operations Products	<a href="#">VH11423</a>	<input type="checkbox"/>
<a href="#">Grainer Industrial Supply</a>	Maintenance, Repair & Operations Products	<a href="#">VH59100</a>	<input type="checkbox"/>
<a href="#">Grainer Industrial Supply</a>	Maintenance, Repair & Operations Products	<a href="#">VH11191</a>	<input type="checkbox"/>
<a href="#">Graybar Electric Company, Inc.</a>	Electrical Supplies & Lamps	<a href="#">VH16900</a>	<input type="checkbox"/>
<a href="#">HD Supply Facilities Maintenance</a>	Maintenance, Repair & Operations Products	<a href="#">VH17500</a>	<input type="checkbox"/>
<a href="#">Lowe's Companies, Inc.</a>	Maintenance, Repair & Operations Products	<a href="#">VH11273</a>	<input type="checkbox"/>
<a href="#">WESCO Distribution, Inc.</a>	Electrical Supplies & Lamps	<a href="#">VH12500</a>	<input type="checkbox"/>
ELEVATOR EQUIPMENT & MAINTENANCE			CURRENTLY USE
<a href="#">KONE, Inc.</a>	Elevator, Escalator & Moving Walkway Products & Maintenance Services	<a href="#">VQ10174</a>	<input type="checkbox"/>
<a href="#">Otis Elevator Company</a>	Elevator Maintenance	<a href="#">VQ10500</a>	<input type="checkbox"/>
EMERGENCY RESTORATION SERVICES			CURRENTLY USE
<a href="#">Polygon US Corporation</a>	Emergency Restoration Services	<a href="#">VH11394</a>	<input type="checkbox"/>
EQUIPMENT PLANNING, MANAGEMENT			CURRENTLY USE
<a href="#">Attainia, Inc.</a>	Software, Capital Budgeting & Equipment Planning	<a href="#">VH11184</a>	<input type="checkbox"/>
<a href="#">ECRI Institute</a>	Healthcare Technology Assessment Resource	<a href="#">AS91298</a>	<input type="checkbox"/>
<a href="#">MD Buyline, Inc.</a>	Healthcare Technology Assessment Resource	<a href="#">AS10075</a>	<input type="checkbox"/>
<a href="#">Medical Equipment Resources &amp; Consulting</a>	Project, Operational & Valuation Services	<a href="#">AS10194</a>	<input type="checkbox"/>
FINISHES, INTERIOR			CURRENTLY USE
<a href="#">Construction Specialties</a>	Wall Protection	<a href="#">VH26500</a>	<input type="checkbox"/>
<a href="#">InPro Corporation</a>	Architectural Products	<a href="#">VH10749</a>	<input type="checkbox"/>
<a href="#">Pawling Corporation (Intalere Choice)</a>	Wall Protection	<a href="#">VH10972</a>	<input type="checkbox"/>
<a href="#">Sherwin-Williams Company</a>	Paint & Related Products	<a href="#">VH23800</a>	<input type="checkbox"/>
FIRE PROTECTION SYSTEM SERVICES			CURRENTLY USE
<a href="#">Cintas Corporation</a>	Fire Protection System Services	<a href="#">VH11640</a>	<input type="checkbox"/>
<a href="#">Telaian Corporation</a>	Fire Protection System Services	<a href="#">VH11200</a>	<input type="checkbox"/>
FLOOR COATINGS			CURRENTLY USE
<a href="#">CentiMark Corporation</a>	Roofing, Replacement, Repair & Installation	<a href="#">VQ04900</a>	<input type="checkbox"/>
<a href="#">Sherwin-Williams Company</a>	Paint & Related Products	<a href="#">VH23800</a>	<input type="checkbox"/>
FLOOR COVERINGS			CURRENTLY USE
<a href="#">Mannington Commercial</a>	Floorcoverings & Carpets	<a href="#">VH10161</a>	<input type="checkbox"/>
<a href="#">Shaw Industries, Inc.</a>	Floorcoverings & Carpets	<a href="#">VH10009</a>	<input type="checkbox"/>
FLOOR MAINTENANCE			CURRENTLY USE
<a href="#">Nilisk, Inc.</a>	Commercial & Industrial Floor Maintenance Equipment	<a href="#">VH10211</a>	<input type="checkbox"/>

<a href="#">Tennant Sales and Service Company</a>	Commercial & Industrial Floor Maintenance Equipment	<a href="#">VH10658</a>	<input type="checkbox"/>
<b>FREIGHT MANAGEMENT SERVICES</b>			CURRENTLY USE
<a href="#">Cardinal Health-Optifreight Pro</a>	Freight Management Services	<a href="#">AS10121</a>	<input type="checkbox"/>
<a href="#">Tricore, Inc.</a>	Inbound & Outbound Freight Management Services	<a href="#">AS10145</a>	<input type="checkbox"/>
<b>FURNITURE</b>			CURRENTLY USE
<a href="#">Direct Supply, Inc.</a>	Healthcare Equipment, Furnishings, Environmental, Foodservice	<a href="#">VH45800</a>	<input type="checkbox"/>
<a href="#">Howarth, Inc. (Intalere Choice)</a>	Energy Efficient Office Environments	<a href="#">VH10868</a>	<input type="checkbox"/>
<a href="#">Herman Miller, Inc.</a>	Furniture, Office	<a href="#">VH02500</a>	<input type="checkbox"/>
<a href="#">Hill-Rom Company, Inc.</a>	Equipment, Beds & Furniture	<a href="#">VQ03000</a>	<input type="checkbox"/>
<a href="#">Humanscale Healthcare (Intalere Choice)</a>	Ergonomic Work Stations	<a href="#">VQ10159</a>	<input type="checkbox"/>
<a href="#">Joerns Healthcare, Inc.</a>	Equipment, Beds & Furniture, Long Term Care	<a href="#">VQ03900</a>	<input type="checkbox"/>
<a href="#">Kl</a>	Furniture	<a href="#">VQ04700</a>	<input type="checkbox"/>
<a href="#">Knoll, Inc.</a>	Furniture, Office & Healthcare	<a href="#">VQ10152</a>	<input type="checkbox"/>
<a href="#">Kwglu</a>	Furniture	<a href="#">VH11186</a>	<input type="checkbox"/>
<a href="#">La-Z-Boy Contract Furniture, Knu, LLC</a>	Furniture, Office	<a href="#">VQ10084</a>	<input type="checkbox"/>
<a href="#">NOA Medical Industries, Inc.</a>	Equipment, Beds & Furniture	<a href="#">VQ10331</a>	<input type="checkbox"/>
<b>GENERATORS, SWITCHGEAR, UPS &amp; ATS</b>			CURRENTLY USE
<a href="#">Caterpillar, Inc.</a>	Generators, Switchgear, UPS & ATS	<a href="#">VQ10306</a>	<input type="checkbox"/>
<b>HVAC EQUIPMENT &amp; SERVICE</b>			CURRENTLY USE
<a href="#">Building Logic</a>	Energy Management Services	<a href="#">VH11585</a>	<input type="checkbox"/>
<a href="#">Carrier Corporation</a>	HVAC Equipment & Service	<a href="#">VQ14700</a>	<input type="checkbox"/>
<a href="#">Dakin Applied</a>	HVAC Equipment & Service	<a href="#">VQ10141</a>	<input type="checkbox"/>
<a href="#">Phoenix Controls</a>	Building Automation Controls	<a href="#">VQ10287</a>	<input type="checkbox"/>
<a href="#">Tritatomic Environmental, Inc., dba Fresh Air UV</a>	UVC Germicidal Light Systems	<a href="#">VQ10327</a>	<input type="checkbox"/>
<b>ICE/WATER DISPENSERS &amp; ACCESSORIES</b>			CURRENTLY USE
<a href="#">Falleit Corporation</a>	Ice Machines & Medical Grade Refrigerators/Freezers	<a href="#">VQ10285</a>	<input type="checkbox"/>
<b>MAINTENANCE, REPAIR &amp; OPERATIONS (MRO)*</b>			CURRENTLY USE
<a href="#">Grainier Industrial Supply</a>	Maintenance, Repair & Operations Products	<a href="#">VH52100</a>	<input type="checkbox"/>
<a href="#">Grainier Industrial Supply</a>	Maintenance, Repair & Operations Products	<a href="#">VH11191</a>	<input type="checkbox"/>
<a href="#">HD Supply Facilities Maintenance</a>	Maintenance, Repair & Operations Products	<a href="#">VH17500</a>	<input type="checkbox"/>
<a href="#">Lowe's Companies, Inc.</a>	Maintenance, Repair & Operations Products	<a href="#">VH11273</a>	<input type="checkbox"/>
<b>MOBILE, MODULAR &amp; STORAGE FACILITIES</b>			CURRENTLY USE
<a href="#">Modular Space Corporation (ModSpace)</a>	Mobile & Modular Buildings & Storage Units	<a href="#">VQ10310</a>	<input type="checkbox"/>
<b>MOVING SERVICES</b>			CURRENTLY USE
<a href="#">Allied Van Lines</a>	Moving Services	<a href="#">AS91246</a>	<input type="checkbox"/>
<b>OPERATING/EXAM ROOM &amp; MISCELLANEOUS EQUIPMENT</b>			CURRENTLY USE
<a href="#">Berchtold Corporation</a>	Equipment, OR Tables	<a href="#">VQ10255</a>	<input type="checkbox"/>
<a href="#">MAQUET Medical Systems</a>	Equipment, OR Tables	<a href="#">VQ10249</a>	<input type="checkbox"/>
<a href="#">Midmark Corporation</a>	Equipment, Exam Room	<a href="#">VQ11600</a>	<input type="checkbox"/>

<a href="#">SensoScientific, Inc.</a>	Wireless Temperature Monitoring Solutions	<a href="#">AS10101</a>	<input type="checkbox"/>
<a href="#">Skytron, LLC</a>	Equipment, OR Tables	<a href="#">VQ10089</a>	<input type="checkbox"/>
<a href="#">STERIS Corporation (Intalere Choice)</a>	Equipment, OR Tables	<a href="#">VQ10090</a>	<input type="checkbox"/>
<a href="#">STERIS Corporation (Intalere Choice)</a>	Equipment, OR Lights & Booms	<a href="#">VQ28200</a>	<input type="checkbox"/>
<a href="#">Stryker Corp.</a>	Equipment, Stretchers	<a href="#">VQ10043</a>	<input type="checkbox"/>
<b>OXYGEN - BULK LIQUID, CYLINDER GAS &amp; ACCESSORIES</b>			CURRENTLY USE
<a href="#">Praxair Healthcare Services</a>	Bulk Liquid Oxygen & Cylinder Gas	<a href="#">VH11700</a>	<input type="checkbox"/>
<b>PAINT &amp; RELATED PRODUCTS</b>			CURRENTLY USE
<a href="#">Sherwin-Williams Company</a>	Paint & Related Products	<a href="#">VH23800</a>	<input type="checkbox"/>
<b>PATIENT LIFTS</b>			CURRENTLY USE
<a href="#">Hill-Rom Company, Inc.</a>	Patient Lifts	<a href="#">VQ10133</a>	<input type="checkbox"/>
<b>PATIENT WEIGHING SYSTEMS</b>			CURRENTLY USE
<a href="#">Health o meter Professional Scales</a>	Patient Scales, Weighing Systems	<a href="#">VQ10311</a>	<input type="checkbox"/>
<a href="#">Scale-Tronix, Inc.</a>	Patient Scales, Weighing Systems	<a href="#">VQ10245</a>	<input type="checkbox"/>
<a href="#">SR Instruments, Inc.</a>	Patient Scales, Weighing Systems	<a href="#">VQ05900</a>	<input type="checkbox"/>
<b>PATIENT/STAFF COMMUNICATIONS SOLUTIONS</b>			CURRENTLY USE
<a href="#">Hill-Rom Company, Inc.</a>	Computer Software	<a href="#">VH10993</a>	<input type="checkbox"/>
<b>PIPING SYSTEMS, MEDICAL GAS &amp; VACUUM</b>			CURRENTLY USE
<a href="#">Allied Healthcare Products, Inc.</a>	Medical Gas & Vacuum Piping Systems	<a href="#">VQ06000</a>	<input type="checkbox"/>
<a href="#">Ohio Medical Corporation</a>	Medical Gas & Vacuum Piping Systems	<a href="#">VQ10033</a>	<input type="checkbox"/>
<b>PLUMBING PRODUCTS</b>			CURRENTLY USE
<a href="#">PlumbMaster, Inc.</a>	Plumbing Specialty Products & Related	<a href="#">VH40200</a>	<input type="checkbox"/>
<a href="#">SupplyWorks</a>	Plumbing Specialty Products & Related	<a href="#">VH23100</a>	<input type="checkbox"/>
<b>PNEUMATIC TUBE SYSTEM &amp; SERVICE</b>			CURRENTLY USE
<a href="#">TransLogic Corporation dba Swisslog Healthcare Solutions</a>	Pneumatic Tube System & Services, Computerized	<a href="#">V107200</a>	<input type="checkbox"/>
<b>ROOFING, EXTERIOR IMPROVEMENTS</b>			CURRENTLY USE
<a href="#">CentiMark Corporation</a>	Roofing, Replacement, Repair & Installation	<a href="#">VQ04900</a>	<input type="checkbox"/>
<a href="#">Tremco, Inc.</a>	Roofing & Waterproofing Products & Services, Facility Renovation & Restoration Services	<a href="#">VH94100</a>	<input type="checkbox"/>
<b>SECURITY MONITORING SYSTEMS, INFANT, CHILD, &amp; ADULT</b>			CURRENTLY USE
<a href="#">RF Technologies, Inc.</a>	RTLS/RFID Solutions	<a href="#">VQ01500</a>	<input type="checkbox"/>
<a href="#">Versus Technology, Inc.</a>	Locating Devices	<a href="#">VH11414</a>	<input type="checkbox"/>
<b>SECURITY SYSTEMS</b>			CURRENTLY USE
<a href="#">RF Technologies, Inc.</a>	RTLS/RFID Solutions	<a href="#">VQ01500</a>	<input type="checkbox"/>
<b>SIGNAGE</b>			CURRENTLY USE
<a href="#">2/90 Sign Systems</a>	Signage Supplies & Wayfinding	<a href="#">VH11338</a>	<input type="checkbox"/>
<a href="#">InPro Corporation</a>	Architectural Products	<a href="#">VH10749</a>	<input type="checkbox"/>
<a href="#">Seton Identification Products</a>	Signage Supplies & Wayfinding	<a href="#">VH54800</a>	<input type="checkbox"/>
<b>STORAGE SOLUTIONS</b>			CURRENTLY USE
<a href="#">InterMetro Industries Corporation</a>	Material Handling Equipment, Carts	<a href="#">VQ03800</a>	<input type="checkbox"/>



<a href="#">Quantum Medical (Intalere Choice)</a>	Material Handling Equipment, Carts	<a href="#">VQ10315</a>	<input type="checkbox"/>
<a href="#">Spacesaver Corporation</a>	Mobile Filing & Storage Systems	<a href="#">VQ00600</a>	<input type="checkbox"/>
<a href="#">Stanley Healthcare</a>	Storage Solutions for Interventional Radiology & Cardiac Cath Labs, Inventory Management	<a href="#">VQ16200</a>	<input type="checkbox"/>
<a href="#">Storage Systems Unlimited</a>	Project Management & Distribution	<a href="#">VQ10296</a>	<input type="checkbox"/>

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**SECTION 00 6276.13**

**EXEMPTION CERTIFICATE**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Construction materials purchased by or on behalf of **Intermountain Healthcare** *may be* exempt from Utah sales and use taxes. Tax Exempt **Form TC-721** must be used by vendors when purchasing construction materials for **Intermountain Healthcare** projects. A copy of Form TC-721, with the Owner's pertinent tax information, follows this cover page.

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**SECTION 00 7000**

**GENERAL CONDITIONS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. **INTERMOUNTAIN HEALTHCARE GENERAL CONDITIONS of the Contract for Construction** to be furnished, as requested. Where any part of the General Conditions is modified, the unaltered provisions shall remain in effect. An electronic copy may be obtained from Intermountain Healthcare's Project Manager.



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SECTION 01 1000

SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Phased construction.
3. Work by Owner.
4. Work under separate contracts.
5. Future work.
6. Purchase contracts.
7. Owner-furnished, Owner-Installed (OFOI) products.
8. Owner-furnished, Contractor-installed (OFICI) products.
9. Worker conduct and appearance - work rules.
10. Healthcare facility renovation work.
11. Access to site.
12. Coordination with occupants.
13. Work restrictions.
14. Specification and drawing conventions.
15. Miscellaneous provisions.

1.2 PROJECT INFORMATION

A. Project Identification: Intermountain Layton Parkway PCH Audiology Clinic

1. Project Location: Layton, Utah

B. Owner: Intermountain Healthcare.

1. Owner's Representative: Refer to project information sheet

C. Architect: HKS Architects Inc.

D. Architect's Consultants: The Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:

1. Refer to project sheet title block

E. Contractor: To be determined

1.3 WORK BY OWNER

- A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

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- B. Concurrent Work: Owner will perform the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.

1. Owner furnished accessories, Contractor installed.

1.4 WORK UNDER SEPARATE CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

- B. Concurrent Work: Owner has provided a separate contract(s) for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.

1. Audiology booth

1.5 PURCHASE CONTRACTS

- A. General: Owner has negotiated purchase contracts with suppliers of material and equipment to be incorporated into the Work. Owner will assign these purchase contracts to Contractor. Include costs for purchasing, receiving, handling, storage if required, and installation of material and equipment in the Contract Sum, unless otherwise indicated.

1. Contractor's responsibilities are same as if Contractor had negotiated purchase contracts, including responsibility to renegotiate purchase and to execute final purchasing agreements.

- B. Purchase Contracts Information:

1. Flooring materials shall be purchased from Mannington utilizing the Owners procurement contract

1.6 OWNER-FURNISHED, OWNER-INSTALLED (OFOI) PRODUCT

- A. Products will be indicated as follows:

1. Product prefixed with "Space for"
2. N.I.C.
3. Owner Furnished - Owner Installed
4. Product noted as "Future"

- B. Roughing-in for Owner Furnished, Owner Installed Product is provided by applicable Sections governing the type of work. Obtain rough-in requirements from Owner.

1.7 OWNER-FURNISHED, CONTRACTOR-INSTALLED (OFCI) PRODUCT

- A. Install products indicated as follows:

1. Owner Furnished, Contractor Installed".
2. "Reuse".
3. "Relocate."

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- B. Provide labor, transportation, materials, tools, appliances and utilities necessary for the following:
1. Relocated Products:
    - a. Removing installed product from the Owner's existing facility, as required.
    - b. Transportation of product from Owner's facility to the job site.
  2. Receiving and storage of Owner furnished, Contractor installed product, as required.
  3. Providing materials and components for the product as necessary to install in an operating condition, but not including repairing of existing damages to the product.
  4. Modification of product only as specified under the particular item.
  5. Installation of product in this project, complete and in operating condition, including the adjusting and calibration of the product as necessary for proper operation.
  6. Testing of product.
  7. Paying of fees, licenses, and taxes in conjunction with the installation of the product.
  8. Roughing-in and final utility connections for the Owner furnished, Contractor installed product remains the work of Sections governing the specific utility.

1.8 WORKER CONDUCT AND APPEARANCE - WORK RULES

- A. General: The conduct and appearance of each worker at the jobsite is of paramount importance. The Owner reserves the right to require any worker to be reassigned to work outside the Owner's property.
1. Privacy: Where applicable, conduct work of the Contract with the maximum effort to maintain the privacy of the Owner's operations, staff, and clientele. Do not permit workers to peer into other areas of the building visible from the work area. Invasion of privacy is a major infraction of the work rules.
  2. Conduct and Demeanor: Construction workers shall treat other construction workers, Owner's staff, clientele, and visitors (as applicable) professionally with respect and courtesy.
  3. Physical Appearance: Require each worker to dress appropriately in a clean, neat, and professional manner.
  4. Radios and Television: The use of entertainment devices including personal devices with headphones or earphones is prohibited at all times. Control the volume of communication radios and loudspeakers to avoid creating a nuisance.
  5. Tobacco Products: The use of tobacco products is prohibited.
  6. Language: The use of foul language is prohibited.
  7. Loud Conduct: Screaming, yelling, and unnecessary loud conduct is prohibited.
  8. Physical Actions: Running, horseplay, fighting, and other unprofessional conduct is prohibited. Fighting is a major infraction of the work rules.
  9. Stealing: Stealing of any material, objects, furnishings, equipment, fixtures, supplies, clothing, or other items is prohibited and a major infraction.
  10. Sexual Harassment: All forms of physical and verbal sexual harassment including, without limitation: touching; whistling; sexually explicit stories, jokes, drawings, photos, and representations; exhibitionism; and all other sexually oriented offensive behavior is prohibited.
  11. Roaming: Construction personnel shall not be allowed to roam, or wander about, the existing facilities.
  12. Eating: Construction personnel shall not use the existing Dining Area for breakfast, lunch, or dinner.

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13. Parking: Construction personnel shall only park in designated areas reserved for construction parking.
14. Penalties: First infraction of the work rules shall result in a verbal warning from the Owner. Second infractions shall result in being requested to leave the Owner's property. Owner's decision in such matters shall be final with no exceptions.

- B. Warnings and Dismissal: For minor infraction of the rules, the Owner may issue a warning. Only one warning will be allowed per worker, and a second infraction shall result in immediate dismissal of the worker from the Owner's property. For major infractions such as invasion of privacy, the worker shall be dismissed immediately without warning and possibly subject to criminal prosecution.
- C. Notification of Workers: Clearly notify and educate each worker about these Work Rules and the requirements for worker conduct and appearance.

1.9 HEALTHCARE FACILITY RENOVATION WORK

- A. Interim Life Safety Measures (ILSM): The following Interim Life Safety Measures (ILSM) as established by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) shall be implemented, documented and enforced in and adjacent to all construction areas:
1. Ensure that exits provide free and unobstructed egress. Personnel shall receive training, and the Hospital shall be notified if alternative exits must be designated. Buildings/areas under construction must maintain escape facilities for construction workers at all times. Means of egress in construction areas must be inspected daily.
  2. Ensure free and unobstructed access to emergency department/service and for emergency forces.
  3. Ensure that fire alarm, detection, and suppression systems are not impaired. A temporary, but equivalent, system shall be provided, and the Hospital shall be notified, when any fire system is impaired. Temporary systems must be inspected and tested monthly.
  4. Ensure temporary construction partitions are smoke tight and built of non-combustible or limited combustible materials that will not contribute to the development or spread of fire.
  5. Provide additional fire-fighting equipment and use training for personnel.
  6. Prohibit smoking in or adjacent to all construction areas.
  7. Develop and enforce storage, housekeeping, and debris-removal practices that reduce the flammable and combustible fire load of the building to lowest level necessary for daily operations.
  8. Conduct a minimum of two fire drills per shift per quarter.
  9. Increase hazard surveillance of buildings, grounds, and equipment with special attention to excavations, construction areas, construction storage, and field offices.
  10. Train personnel, and notify the Hospital, when structural or compartmentation features of fire safety are compromised.
  11. Conduct organization wide safety education programs to assure awareness of deficiencies, construction hazards, and these ILSM.

1.10 ACCESS TO SITE

- A. 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.
- B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

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1. Confine constructions operations to work in areas indicated on drawings.
2. Allow for Owner occupancy of site and use by the public.
3. Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times.
4. Do not use drives and entrances for parking or storage of materials.
5. Schedule deliveries to minimize use of driveways and entrances.
6. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
7. Coordinate use of premises under direction of Owner.
8. Assume full responsibility for the protection and safekeeping of Products under this Contract, stored on the site.
9. Move any stored Products, under Contractor's control, which interfere with operations of the Owner or separate contractor.
10. Obtain and pay for the use of additional storage or work areas needed for operations.

- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.11 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner will occupy site and existing and/or adjacent building(s), as applicable, during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

- B. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

- C. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.

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2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.12 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 7:00 a.m. to 6:00 p.m., Monday through Friday, unless otherwise indicated.
- C. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
  1. Notify Owner not less than 72 hours in advance of proposed disruptive operations.
  2. Obtain Owner's written permission before proceeding with disruptive operations.

1.13 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. Abbreviated Language: Language used in Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be interpolated as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.
  2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
  3. 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.
  4. 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:

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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 scheduled on Drawings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 012600

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on Architect's Form HKS-710 "Architect's Supplemental Instructions"; copy attached at the end of this Section.

1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposed Change: 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. Proposed Changes issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
  - 2. Within time specified in Proposed Change or with reasonable promptness, when not otherwise specified, after receipt of Proposed Change, 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. Include updated Submittal Schedule showing effect of the change.
- B. Contractor-Initiated Proposed Change: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect using Contractor's Standard Form.
  - 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.



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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. Include updated Submittal Schedule showing effect of the change.
7. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.4 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposed Change, Architect will issue a Change Order for signatures of Owner and Contractor.

1.5 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive. 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

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SECTION 012900

PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 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. Accepted Alternates.
  - 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. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments; provide subschedules showing values coordinated with each phase of payment.
  - 4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work; provide subschedules showing values coordinated with each element.
  - 5. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract as described in Division 01 Section "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 the schedule of values in tabular form, in format accepted by Architect, with separate columns to indicate the following for each item listed:

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- 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.
  - 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.
3. 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, where appropriate.
  4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
  5. 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 or bonded warehousing.
  6. 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.
  7. Allowances (If Applicable): Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances (if applicable), as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
  8. Alternates (If Applicable): Provide a separate line item in the schedule of values for each accepted alternate.
  9. Change Orders: Provide a separate line item in the schedule of values for each change order.
  10. Separate Owner-Consultant Contracts: Provide a separate line item in the schedule of values for each separate Owner-Consultant related Work item.
  11. Purchase Contracts: When applicable, provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
  12. 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.
  13. 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.

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1.3 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.
  - 1. If the Agreement does not state payment dates, establish dates at preconstruction conference.
  - 2. Submit draft, or pencil, copy of Application for Payment seven days prior to due date for review by Architect.
- C. Application for Payment Forms: Unless directed otherwise by Owner, use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- D. 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 of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Stored Materials: If accepted by Owner, 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.
- F. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. 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.

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- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from General Contractor, 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. Waiver Delays: Submit each Application for Payment with Contractor's waiver of mechanic's lien for construction period covered by the application.
    - a. 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.
- H. 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. Products list (preliminary if not final).
  5. Schedule of unit prices.
  6. Submittal schedule (preliminary if not final).
  7. List of Contractor's staff assignments.
  8. List of Contractor's principal consultants.
  9. Copies of building permits.
  10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  11. Initial progress report.
  12. Report of preconstruction conference.
  13. Certificates of insurance and insurance policies.
  14. Performance and payment bonds.
- I. 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. When applicable, this application shall reflect Certificate(s) of **Partial** Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: 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.

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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. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. 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.
9. If applicable, final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 01 3100

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General coordination procedures.
  - 2. Coordination drawings.
  - 3. Requests for Information (RFIs).
  - 4. Project Web site.
  - 5. Project meetings.

1.2 DEFINITIONS

- A. Project communications documents shall be defined as the following:
  - 1. Letters.
  - 2. Memoranda.
  - 3. E-Mail Communications/Internet Communications/Project Management Software Communications.
  - 4. RFI (Request for Information - Contractor).
  - 5. RFI-A (Request for Information - Architect).

1.3 FORMAT

- A. Letters and Memoranda: Submit in formats acceptable to the Architect.
- B. E-Mail Communications/Internet Communications/Project Management Software Communications: Submit in forms and formats acceptable to and as approved by the Architect.
- C. RFI (Request for Information - Contractor): Submit on forms as approved by the Architect.
- D. RFI-A (Request for Information - Architect), will be submitted by Architect to Contractor on Architects standard form.

1.4 PROJECT COMMUNICATIONS DOCUMENTS

- A. Letters and Memoranda documents shall be submitted in a timely manner so as to facilitate project delivery and coordination. Routing of communications shall be as established in the Contract, the Contract Documents and the Pre-Construction Conference. Communications documents shall be transmitted or forwarded in a manner consistent with the schedule and progress of the work.

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- B. E-Mail Communications, Internet Communications, and Project Management Software programs must be compatible with the Architect's and Owner's computer systems and equipment. The responsibility for all costs for management of these systems, including, but not limited to, licensing, onsite training or other training necessary for the proper operation of such systems, shall be by the Contractor. The Contractor shall keep written records and hard file copies of all electronic communications. Failure of the Contractor to keep such records shall waive the Contractor's right to rely on such communications and such communications shall be deemed to have not taken place.
- C. RFI (Request for Information - Contractor) shall be defined and limited to a request from the Contractor seeking interpretation or clarification of the requirements of the Contract Documents. Such requests shall comply with the following requirements:
1. RFI requests shall be submitted in a timely manner, well in advance of related work, and allow sufficient time for the resolution of issues relating to the request for interpretation or clarification. Contractor shall schedule the submission of RFI's so as to moderate and manage the flow of RFI requests. RFI's shall be submitted in a manner consistent with the schedule and progress of the work, and shall not be submitted in a sporadic and/or excessive manner.
  2. RFI requests shall be numbered in a sequential manner and contain a detailed description of the areas of work requiring interpretation or clarification. Include drawing and specification references, sketches, technical data, brochures, or other supporting data as deemed necessary by the Architect, for the Architect to provide the interpretations and clarifications requested.
    - a. The Contractor shall include a "Proposed Solution" to the issue requiring interpretation or clarification.
  3. RFI's submitted to the Contractor by Sub-Contractors, vendors, suppliers, or other parties to the work shall be reviewed by the Contractor prior to submission to the Architect. If the Architect deems that such RFI requests have not been adequately reviewed by the Contractor, such requests will be returned to the Contractor for further action. Sub-Contractor's RFI shall contain a "Proposed Solution".
  4. RFI requests shall not contain submittals, substitutions requests, routine communications, correspondence, memos, claims, or any information required by other areas of the Contract Documents. RFI requests containing such information will be returned to the Contractor without action by the Architect.
  5. RFI requests are limited to a request for interpretation or clarification of the requirements of the Contract Documents. Interpretations provided by the Architect shall not change the requirements of the Contract or the Contract Documents. If the Contractor determines that the Architect's response to an RFI gives cause for a change in the Contract or the Contract Documents, the Contractor shall promptly, within 5 working days, give written notice to the Architect of request for adjustments. Requests for adjustments to the Contract shall be submitted in a manner consistent with the terms and conditions of the Contract Documents.
  6. If the Architect, after review, determines that any RFI has been submitted in an incomplete manner, is unnecessary, or does not otherwise comply with the requirements of this Section, the RFI will be returned without action to the Contractor. The Contractor shall delete the original submittal date from the RFI log and enter a new submittal date at the time of re-submittal.
  7. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Use software log that is part of Project Web site. Software log with not less than the following:



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- a. Project name.
    - b. Name and address of Contractor.
    - c. Name and address of Architect.
    - d. RFI number including RFIs that were returned without action or withdrawn.
    - e. RFI description.
    - f. Date the RFI was submitted.
    - g. Date Architect's response was received.
  8. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
    - a. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
- D. RFI-A (Request for Information - Architect) shall be defined as a request by the Architect for information relating to the obligations of the Contractor under the Contract.
1. After receipt of an RFI-A the Contractor shall provide a written response to the Architect within 5 working days. Responses shall be thorough, complete and shall contain all information requested by the Architect.
  2. An RFI-A shall be limited to a request by the Architect for information related to the project. The RFI-A shall not be construed as authorizing or directing a change in the Contract or the Contract Documents.
- E. Revisions to Construction Documents: Responses to requests for information (RFI) shall not serve as construction documents; and the Contractor shall not incorporate RFI responses into construction of the Project, unless such answers bear the seal and signature of a licensed design professional.
- 1.5 INFORMATIONAL SUBMITTALS
- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
1. Name, address, and telephone number of entity performing subcontract or supplying products.
  2. Number and title of related Specification Section(s) covered by subcontract.
  3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
1. Post copies of list in project meeting room, in temporary field office, and Project Web site. Keep list current at all times.

1.6 GENERAL COORDINATION PROCEDURES

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- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Contractor's construction schedule.
  - 2. Preparation of the schedule of values.
  - 3. Installation and removal of temporary facilities and controls.
  - 4. Delivery and processing of submittals.
  - 5. Progress meetings.
  - 6. Preinstallation conferences.
  - 7. Project closeout activities.
  - 8. Startup and adjustment of systems.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.7 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
  - 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
    - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
    - b. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.

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- c. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
  - d. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
  - e. Indicate required installation sequences.
  - f. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
- 1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
  - 2. File Submittal Format: Submit or post coordination drawing files using Portable Data File (PDF) format.
  - 3. BIM File Incorporation: When applicable, develop coordination drawing files from Building Information Model (BIM) established for Project.
    - a. Perform three-dimensional component conflict analysis as part of preparation of coordination drawings. Resolve component conflicts prior to submittal. Indicate where conflict resolution requires modification of design requirements by Architect.
  - 4. If approved by Owner, Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
    - a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
    - b. Digital Data Software Program: Drawings are available in Autodesk Revit and/or Autocad; and compatible with Microsoft Windows operating system.
    - c. Distribution: Digital data files shall only be distributed via the HKS Thru site with acceptance of HKS data licensing agreement.

1.8 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
- 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
  - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
  - 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within 3 days of the meeting.
  - 4. Attendance: Document attendance of all participants.
- B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction.
- 1. Conduct the conference to review responsibilities and personnel assignments.

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2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
  2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, and coordination with adjacent activities. Prepare agenda appropriate to Work.
  3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
  5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, at a time to be decided prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
  2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
    - a. Preparation of record documents.
    - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    - c. Submittal of written warranties.
    - d. If applicable, requirements for completing sustainable design documentation.
    - e. Requirements for preparing operations and maintenance data.
    - f. Requirements for delivery of material samples, attic stock, and spare parts.
    - g. Requirements for demonstration and training.
    - h. Preparation of Contractor's punch list.
    - i. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
    - j. Submittal procedures.
    - k. If applicable, coordination of separate contracts.
    - l. If applicable, Owner's partial occupancy requirements.
    - m. Installation of Owner's furniture, fixtures, and equipment.
    - n. Responsibility for removing temporary facilities and controls.

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4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- E. Progress Meetings: Conduct progress meetings at regular intervals.
1. Coordinate dates of meetings with preparation of payment requests.
  2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      - 1) Review schedule for next period.
    - b. Review present and future needs of each entity present, including the following or as needed:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) If applicable, resolution of BIM component conflicts.
      - 4) Status of submittals.
      - 5) If applicable, status of sustainable design documentation.
      - 6) Deliveries.
      - 7) Off-site fabrication.
      - 8) Access.
      - 9) Site utilization.
      - 10) Temporary facilities and controls.
      - 11) Work hours.
      - 12) Hazards and risks.
      - 13) Progress cleaning.
      - 14) Quality and work standards.
      - 15) Status of correction of deficient items.
      - 16) Field observations.
      - 17) Status of RFIs.
      - 18) Status of proposal requests.
      - 19) Pending changes.
      - 20) Status of Change Orders.
      - 21) Documentation of information for payment requests.
  4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

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- a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- F. Coordination Meetings: Conduct Project coordination meetings on an as-needed basis. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
- 1. Attendees: Each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
  - 2. Agenda: Review items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Review present and future needs of each contractor present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) If applicable, resolution of BIM component conflicts.
      - 4) Status of submittals.
      - 5) Deliveries.
      - 6) Off-site fabrication.
      - 7) Access.
      - 8) Site utilization.
      - 9) Temporary facilities and controls.
      - 10) Work hours.
      - 11) Hazards and risks.
      - 12) Progress cleaning.
      - 13) Quality and work standards.
      - 14) Change Orders.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 013200

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work.

1.2 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- B. Major Area: A story of construction, a separate building, or a similar significant construction element.
- C. Milestone: A key or critical point in time for reference or measurement.
- D. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- E. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- F. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
- G. Event: The starting or ending point of an activity.
- H. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
  - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

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- I. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

1.3 SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
  - 1. PDF electronic file.
- B. Startup construction schedule.
- C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
- D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
- E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
  - 1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
  - 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
  - 3. Total Float Report: List of all activities sorted in ascending order of total float.
  - 4. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed until most recent Application for Payment.
- F. Construction Schedule Updating Reports: Submit with Applications for Payment.
- G. Daily Construction Reports: Submit at weekly intervals.
- H. Material Location Reports: Submit at monthly intervals.
- I. Site Condition Reports: Submit at time of discovery of differing conditions.
- J. Special Reports: Submit at time of unusual event.

1.4 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.



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1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.
  1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
  1. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
  2. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
  3. Startup and Testing Time: Include no fewer than 7 days for startup and testing.
  4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
  5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule (where applicable), and show how the sequence of the Work is affected.
  1. Phasing: Arrange list of activities on schedule by phase.
  2. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
  3. Products Ordered in Advance: Include a separate activity for each product.
  4. Owner-Furnished Products: Include a separate activity for each product.
  5. Work Restrictions: Show the effect of the following items on the schedule:
    - a. Coordination with existing construction.
    - b. Limitations of continued occupancies.
    - c. Uninterruptible services.
    - d. Partial occupancy before Substantial Completion.
    - e. Use of premises restrictions.
    - f. Provisions for future construction.
    - g. Seasonal variations.
    - h. Environmental control.

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6. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
  - a. Subcontract awards.
  - b. Submittals.
  - c. Purchases.
  - d. Mockups.
  - e. Fabrication.
  - f. Sample testing.
  - g. Deliveries.
  - h. Installation.
  - i. Tests and inspections.
  - j. Adjusting.
  - k. Curing.
  - l. Building flush-out.
  - m. Startup and placement into final use and operation.
7. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
  - a. Structural completion.
  - b. Temporary enclosure and space conditioning.
  - c. Permanent space enclosure.
  - d. Completion of mechanical installation.
  - e. Completion of electrical installation.
  - f. Substantial Completion.
8. Other Constraints include but are not limited to the following:
  - a. Roads.
  - b. Parking.
  - c. Landscape.

- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, punch list activities, Substantial Completion, and final completion.
- E. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.
- F. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

## 2.2 STARTUP CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within 14 days of date established for the Notice of Award.

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- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. Startup Network Diagram may be submitted in lieu of Bar-Chart Schedule.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (BAR CHART/GANTT CHART)

- A. Bar Chart/Gantt Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 30 days of date established for the Notice to Proceed. Base schedule on the startup construction schedule and additional information received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
  - 1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using AON (activity-on-node) format.
- B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work.
  - 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for the Notice to Proceed.
    - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
  - 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
  - 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
  - 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.

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1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
    - a. Preparation and processing of submittals.
    - b. Purchase of materials.
    - c. Delivery.
    - d. Fabrication.
    - e. Installation.
    - f. Punch list and final completion.
  2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
  3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
  4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
    - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
- E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment, fragnet, to demonstrate the effect of the proposed change on the overall project schedule.
- F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
1. Contractor or subcontractor and the Work or activity.
  2. Description of activity.
  3. Main events of activity.
  4. Immediate preceding and succeeding activities.
  5. Early and late start dates.
  6. Early and late finish dates.
  7. Activity duration in workdays.
  8. Total float or slack time.
  9. Average size of workforce.
  10. Dollar value of activity (coordinated with the schedule of values).
- G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
1. Identification of activities that have changed.
  2. Changes in early and late start dates.
  3. Changes in early and late finish dates.
  4. Changes in activity durations in workdays.
  5. Changes in the critical path.
  6. Changes in total float or slack time.
  7. Changes in the Contract Time.

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H. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
  - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
  - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

2.5 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. High and low temperatures and general weather conditions, including presence of rain or snow.
5. Accidents.
6. Meetings and significant decisions.
7. Unusual events (see special reports).
8. Stoppages, delays, shortages, and losses.
9. Meter readings and similar recordings.
10. Emergency procedures.
11. Orders and requests of authorities having jurisdiction.
12. Change Orders received and implemented.
13. Construction Change Directives received and implemented.
14. Services connected and disconnected.
15. Equipment or system tests and startups.
16. Partial completions and occupancies.
17. Substantial Completions authorized.

B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.

C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

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2.6 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day~~(s)~~ of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.
  - 1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
  - 2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.
- B. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  - 3. As the Work progresses, indicate final completion percentage for each activity.
- C. Distribution: Distribute copies of approved schedule to Architect-Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
  - 1. Post copies in Project meeting rooms and temporary field offices.
  - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

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SECTION 013300

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's review. Architect's responsive action is required.
- B. Digital Signature: A digital signature or digital signature scheme is a mathematical scheme for demonstrating the authenticity of a digital message or document.
- C. Electronic Signature: An electronic signature is any legally recognized electronic means that indicates that a person adopts the contents of an electronic message.
- D. Informational Submittals: Written and graphic information other than action submittals that require Architect's review. Architect's responsive action is required on informational submittals that do not comply with the information given and design concept expressed in the Drawings and Specifications.
- E. 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.

1.3 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.
  - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

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4. Format: Arrange the following information in a tabular format:
- a. Scheduled date for first submittal.
  - b. Specification Section number and title.
  - c. Submittal category: Action; informational.
  - d. Name of subcontractor.
  - e. Description of the Work covered.
  - f. Scheduled date for Architect's final release or approval.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: If approved by the by Owner, Architect will furnish Contractor one set of digital data files of Drawing files for use in preparing submittals. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings. .
1. Distribution: Digital data files shall only be distributed via the HKS Thru site with acceptance of HKS data licensing agreement.
- 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. 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 sufficient and reasonable time for submittal review, including time for resubmittals. 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. 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.
- D. Paper Submittals: Architect reserves the right to require paper submittals.
- E. 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. Name file with submittal number, including revision identifier.



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- a. File Naming Convention (separate by dashes - or underscores \_):
    - 1) Specification Number / Revision Number / Submittal Sequence (A, B, C, etc.).pdf
  - 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
  - 4. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software or electronic form acceptable to Owner, containing the following information:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name of Contractor.
    - e. Name of firm or entity that prepared submittal.
    - f. Names of subcontractor, manufacturer, and supplier.
    - g. Category and type of submittal.
    - h. Submittal purpose and description.
    - i. Specification Section number and title.
    - j. Specification paragraph number or drawing designation and generic name for each of multiple items.
    - k. Drawing number and detail references, as appropriate.
    - l. Location(s) where product is to be installed, as appropriate.
    - m. Related physical samples submitted directly.
    - n. Indication of full or partial submittal.
    - o. Transmittal number, numbered consecutively.
    - p. Submittal and transmittal distribution record.
    - q. Other necessary identification.
    - r. Remarks.
  - 5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
    - a. HKS Job Number and Add Service Number (e.g. 14424.000)
    - b. Project name.
    - c. Number and title of appropriate Specification Section.
    - d. Manufacturer name.
    - e. Product name.
    - f. Submittal revision number.
  - 6. Utilize electronic project management software program to process submittals when feasible with the type and extent of submittals. Refer to Division 01 Section "Project Management and Coordination" for description of electronic project management software.
- F. Options: Identify options requiring selection by Architect.
- G. Deviations and Additional Information: On page, 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.

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- H. Resubmittals: Make resubmittals in same form as initial submittal.
  - 1. Note date and content of previous submittal.
  - 2. Note date and content of revision in file name and clearly indicate extent of revision.
  - 3. Resubmit submittals until they are marked with notation from Architect's action stamp not requiring additional submittals.
- I. Distribution: Furnish electronic 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.
- J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with appropriate notation from Architect's action stamp indicating for construction. Retain a separate copy for Owner to be delivered to Owner with Project Closeout documents.

## 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 as PDF electronic files.
    - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
    - b. Provide PDF electronic files from scanned paper originals at 300 dpi, minimum.
  - 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. When one or more individual Specification Sections includes requirements for notarized signature on certificates and certifications, 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 written recommendations.
    - b. Manufacturer's installation instructions.
    - c. Mill reports.

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- d. Standard product operating and maintenance manuals.
  - e. Certification that products are appropriate for installation indicated.
  - f. Manufacturer's catalog cuts.
  - g. Manufacturer's product specifications.
  - h. Standard color charts.
  - i. Statement of compliance with specified referenced standards.
  - j. Testing by recognized testing agency.
  - k. Application of testing agency labels and seals.
  - l. Notation of coordination requirements.
  - m. 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. Dimensions.
  - c. Fabrication and installation drawings.
  - d. Roughing-in and setting diagrams.
  - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
  - f. Shopwork manufacturing instructions.
  - g. Templates and patterns.
  - h. Design calculations.
  - i. Schedules.
  - j. Compliance with specified standards.
  - k. Notation of coordination requirements.
  - l. Notation of dimensions established by field measurement.
  - m. Relationship and attachment to adjoining construction clearly indicated.
  - n. Seal and signature of professional engineer.
2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (212 by 275 mm), but no larger than 30 by 42 inches (750 by 1050 mm).
4. Submit Shop Drawings in the following format:
- a. PDF electronic file.

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- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of applicable Specification Section.
    - e. Specification paragraph number and generic name of each item.
  3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record. This is in addition to physical samples.
  4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit 4 full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
  6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Number of Samples: Submit 4 sets of Samples. Architect will retain 2 Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.
      - 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 4 sets of paired units that show approximate limits of variations.

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- E. Coordination Drawing Submittals: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- F. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- G. Application for Payment and Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."
- H. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."
- I. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
- J. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- K. 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.
- L. 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.
- M. 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.
- N. 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.
- O. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- P. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- Q. 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.
- R. 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.
- S. 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

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before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

- T. 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.
- U. 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.

### 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 Division 01 Section "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. Action Submittals: Architect will review submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp and mark submittal appropriately, as follows:
  - 1. Final but Restricted Release: When submittals are marked "Accepted as Noted," the Work covered by the submittal may proceed provided it complies with both the Architect's notations and corrections on the submittal and requirements of the Contract Documents. Final acceptance will depend on that compliance.
  - 2. Returned for Resubmittal: When submittal is marked "Revise Resubmit," do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the Architect's notations. Resubmit without delay. Repeat if necessary to obtain a different action mark.
    - a. Do not permit submittals marked "Revise Resubmit" to be used at the Project site, or elsewhere where construction is in progress.
  - 3. Submittals Not Required: Where a submittal is primarily for other Contractor activity, the submittal will be returned, marked "Not Reviewed; Submittal not required by Contract Documents".

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- B. Architect's acceptance of Shop Drawings, Samples or Product Data which deviates from the Contract Documents does not authorize changes to the Contract Sum. Submit in writing at the time of submission any changes to the Contract Sum affected by such Shop Drawings, Samples or Product Data, otherwise, claim for extras will not be considered.
- C. Informational Submittals: Architect will review submittal, and return it in accordance with submittal Processing Time indicated if it does not comply with requirements. Architect will stamp and mark submittal appropriately.
- D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect. Review shall not be final until complete submittal has been reviewed by Architect.
- E. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- F. Submittals not required by the Contract Documents may be returned by the Architect without action.
- G. Electronic File of Submittal Documents: Provide Architect with an independent electronic archive of project submittal documents using electronic project management software as defined in Division 01 Section "Project Management and Coordination".

END OF SECTION

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SECTION 014000

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 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, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 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 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 (Nationally Recognized Testing Laboratories), an NVLAP (National Voluntary Laboratory Accreditation Program), 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.



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- 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 and with the qualification requirements of individual specification section governing their work.

1.3 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 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.
- C. If work is required in a manner that makes it impossible to produce such work of the quality required by or reasonably inferred from the Contract Documents, or should discrepancies appear among the Construction Documents, the Contractor shall request in writing an interpretation from the Architect before proceeding with the work. If the Contractor fails to make such request, no excuse will be entertained thereafter for failure to carry out work in the required manner or to produce required guarantees, warranties, or bonds, and the Contractor shall not be entitled to any change in the Contract Sum or the Contract Time on account of such failure.

1.4 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

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- B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
  - 1. Project quality-control manager may be the Project superintendent or be an individual with no other Project responsibilities, as accepted by the Architect.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
  - 1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
  - 2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
  - 3. Owner-performed tests and inspections indicated in the Contract Documents, including tests and inspections indicated to be performed by the Commissioning Authority when Commissioning is included in the Project.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results, including Owner acceptance of nonconforming work. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.5 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.

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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 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. Statement whether conditions, products, and installation exceed manufacturer's statements.
  8. 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.
- 1.6 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.

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- 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. 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.
- F. 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.
- G. 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.
- H. 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.

1.7 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. 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.

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- a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  3. Notify testing agencies at least 48 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 Division 01 Section "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. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  4. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  5. Do not perform any duties of Contractor.
- G. 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.

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6. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. 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.
- I. 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.
  1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.
    - a. 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.

1.8 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner may engage a qualified to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
  1. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  2. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect 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.

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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.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

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 in a manner that eliminates evidence of patching. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "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

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SECTION 014200

REFERENCES

PART 1 - GENERAL

1.1 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": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. Submitted: The terms "submitted", "reported", "satisfactory" and similar words and phrases means submitted to Architect, reported to Architect and similar phrases.
- J. "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.

1.2 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.



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- 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.

1.3 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 Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- B. 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. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

IAPMO	International Association of Plumbing and Mechanical Officials <a href="http://www.iapmo.org">www.iapmo.org</a>	(909) 472-4100
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ICC	International Code Council <a href="http://www.iccsafe.org">www.iccsafe.org</a>	(888) 422-7233
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ICC-ES	ICC Evaluation Service, Inc. <a href="http://www.icc-es.org">www.icc-es.org</a>	(800) 423-6587 (562) 699-0543
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UBC	Uniform Building Code (See ICC)	
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- C. 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. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CE	Army Corps of Engineers <a href="http://www.usace.army.mil">www.usace.army.mil</a>	(202) 761-0011
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CPSC	Consumer Product Safety Commission <a href="http://www.cpsc.gov">www.cpsc.gov</a>	(800) 638-2772 (301) 504-7923
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DOC	Department of Commerce <a href="http://www.commerce.gov">www.commerce.gov</a>	(202) 482-2000
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DOD	Department of Defense <a href="http://dodssp.daps.dla.mil">http://dodssp.daps.dla.mil</a>	(215) 697-6257
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DOE	Department of Energy <a href="http://www.energy.gov">www.energy.gov</a>	(202) 586-9220
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EPA	Environmental Protection Agency <a href="http://www.epa.gov">www.epa.gov</a>	(202) 272-0167
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FAA	Federal Aviation Administration <a href="http://www.faa.gov">www.faa.gov</a>	(866) 835-5322
FCC	Federal Communications Commission <a href="http://www.fcc.gov">www.fcc.gov</a>	(888) 225-5322
FDA	Food and Drug Administration <a href="http://www.fda.gov">www.fda.gov</a>	(888) 463-6332
GSA	General Services Administration <a href="http://www.gsa.gov">www.gsa.gov</a>	(800) 488-3111
HUD	Department of Housing and Urban Development <a href="http://www.hud.gov">www.hud.gov</a>	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory <a href="http://www.lbl.gov">www.lbl.gov</a>	(510) 486-4000
NCHRP	National Cooperative Highway Research Program (See TRB)	
NIST	National Institute of Standards and Technology <a href="http://www.nist.gov">www.nist.gov</a>	(301) 975-6478
OSHA	Occupational Safety & Health Administration <a href="http://www.osha.gov">www.osha.gov</a>	(800) 321-6742 (202) 693-1999
PBS	Public Buildings Service (See GSA)	
PHS	Office of Public Health and Science <a href="http://www.osophs.dhhs.gov/ophs">www.osophs.dhhs.gov/ophs</a>	(202) 690-7694
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
SD	State Department <a href="http://www.state.gov">www.state.gov</a>	(202) 647-4000
TRB	Transportation Research Board <a href="http://gulliver.trb.org">http://gulliver.trb.org</a>	(202) 334-2934
USDA	Department of Agriculture <a href="http://www.usda.gov">www.usda.gov</a>	(202) 720-2791
USPS	Postal Service <a href="http://www.usps.com">www.usps.com</a>	(202) 268-2000

- D. 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. Names, telephone numbers, and Web sites are subject to

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change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from U.S. Access Board <a href="http://www.access-board.gov">www.access-board.gov</a>	(800) 872-2253 (202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office <a href="http://www.gpoaccess.gov/cfr/index.html">www.gpoaccess.gov/cfr/index.html</a>	(866) 512-1800 (202) 512-1800
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point <a href="http://dodssp.daps.dla.mil">http://dodssp.daps.dla.mil</a>	(215) 697-2664
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Department of Defense Single Stock Point <a href="http://dodssp.daps.dla.mil">http://dodssp.daps.dla.mil</a>  Available from Defense Standardization Program <a href="http://www.dps.dla.mil">www.dps.dla.mil</a>  Available from General Services Administration <a href="http://www.gsa.gov">www.gsa.gov</a>  Available from National Institute of Building Sciences <a href="http://www.wbdg.org/ccb">www.wbdg.org/ccb</a>	(215) 697-2664     (202) 619-8925  (202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
MIL	(See MILSPEC)	
MIL-STD	(See MILSPEC)	
MILSPEC	Military Specification and Standards Available from Department of Defense Single Stock Point <a href="http://dodssp.daps.dla.mil">http://dodssp.daps.dla.mil</a>	(215) 697-2664
UFAS	Uniform Federal Accessibility Standards Available from Access Board <a href="http://www.access-board.gov">www.access-board.gov</a>	(800) 872-2253 (202) 272-0080

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PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 015000

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.2 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

- 1. Cost or use charges for temporary facilities are not chargeable to Owner or Architect.

- B. Sewer Service: Facility services may be utilized. Coordinate with facility staff.

- C. Water Service: Facility services may be utilized. Coordinate with facility staff.

- D. Electric Power Service: Facility services may be utilized. Coordinate with facility staff.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show staging areas, and parking areas for construction personnel.

- B. 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 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.

- C. Dust- and HVAC-Control Plan at Renovation Work: 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.

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5. Other dust-control measures.

1.4 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6 "Requirements for Demolition Operations", NECA's "Temporary Electrical Facilities," and NFPA 241 "Standard for Safeguarding Construction, Alteration, and Demolition Operations".
1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
- B. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- C. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to, the following:
1. Building Code requirements.  
2. Health and safety regulations.  
3. Utility company regulations.  
4. Police, Fire Department and Rescue Squad rules.  
5. Environmental protection regulations.  
6. City ordinances and regulations.

1.5 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. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.
- B. Materials and equipment may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.
- C. Polyethylene Sheet: Reinforced, fire-resistive sheet, 6 mil (0.14 mm) minimum thickness, with Class A flame-spread rating per ASTM E 84 and passing NFPA 701 Test Method 2.
1. Basis of Design (Product Standard): Abatement Technologies, Inc.; SAFE-FLEX ICRA Awareness Barrier.
- D. Dust Containment Barrier for Doors: reinforced, fire-resistive polyethylene sheet, 10 mil (0.25 mm) minimum thickness with Class B flame-spread rating per ASTM E 84 and designed to be

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used for securing temporary construction doors so as to minimize and mitigate particle control during construction.

1. Basis of Design (Product Standard): Abatement Technologies, Inc.; Aire Guardian Door Guard Reusable Barrier.

- E. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches (900 by 1500 mm).

## 2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: No field office space is available. Contractor may be granted space for a table on site. Coordinate with facility.

## 2.3 EQUIPMENT

- A. Air-Filtration Units for Renovation Work: 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.
- 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. Locate temporary utilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify utilities as required.
- B. Provide each utility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until utilities are no longer needed or are replaced by authorized use of completed permanent utilities.
- C. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
  1. Prior to commencing work, isolate the HVAC system in area where work is to be performed according to coordination drawings.
    - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.

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- b. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
- 2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
- 3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Project Signs: Coordinated signs with Owner's requirements and requirements of authorities having jurisdiction.
- B. Waste Disposal Facilities: Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."
- C. Comply with progress cleaning requirements in Division 01 Section "Execution."
- D. Existing Elevator Use in Occupied Facilities: Use of Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.
  - 1. Do not load elevators beyond their rated weight capacity.
  - 2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.
- E. Existing Stair Usage in Occupied Facilities: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
  - 1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

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 Division 01 Section "Summary."



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- C. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- D. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- E. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas from fumes and noise.
  - 1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
  - 2. Construct dustproof partitions with two layers of 6 mil (0.14 mm) polyethylene sheet on each side. Cover floor with two layers of 6 mil (0.14 mm) polyethylene sheet, extending sheets 18 inches (450 mm) up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant-treated plywood.
    - a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches (1200 mm) between doors. Maintain walk-off mats in vestibule, for dust control.
  - 3. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
  - 4. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
  - 5. Protect air-handling equipment.
  - 6. Provide walk-off mats at each entrance through temporary partition.
- F. 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 and authorities having jurisdiction; manage fire-prevention program.

3.5 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.
  - 2. Maintain markers for underground lines. Protect from damage during excavation operations.
- 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.

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1. Materials and facilities that constitute temporary facilities are property of Contractor.
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 Division 01 Section "Closeout Procedures."

END OF SECTION

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SECTION 016000

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 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.

1.2 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. Substitutions: Changes in products, materials, and equipment from those required by the Contract Documents and proposed by Contractor. Refer to Division 01 Section "Substitution Procedures".
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "Product Standard," 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 other manufacturers
- D. Hazardous Substances Prohibited by Law: Including, but not limited to, any product, material, element, constituent, chemical, substance, compound, or mixture, which is defined in, included under, or regulated by any environmental laws.

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- E. Environmental Laws: Applicable local, state, and federal laws, rules, ordinances, codes, regulations, and requirements in effect at the time Contractor's services are rendered, any amendments for Contractor's services rendered after the effective date of any such amendments.

1.3 SUBMITTALS

- A. Comparable Product: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements. 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.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.
- C. Contractor shall submit an affidavit on construction company letterhead signed by an officer of the company, notarized by a notary public, which certifies compliance with the environmental laws controlling hazardous substances for the construction of this Project.

1.4 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.
- B. Compliance: Contractor shall take whatever measures deemed necessary to insure that all employees, suppliers, vendors, fabricators, subcontractors, or their assigns, to comply with hazardous substance requirements.

1.5 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 ensure compliance with the Contract Documents and to ensure 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.

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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.

1.6 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, required by the Contract Documents to provide specific rights for Owner, and specifically endorsed by manufacturer to Owner.
  2. Warranties: Prepare a written document, on manufacturer's standard form, modified to include Project-specific information, that contains appropriate terms and identification, properly executed.
- B. Submittal Time: Comply with requirements in Division 01 Section "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. Products and materials brought onto the Project Site, and products and materials incorporated into the Work, shall comply with environmental laws.
- 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.

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Comparable products or substitutions for Contractor's convenience will not be considered.

3. Products:

- a. Restricted List (Acceptable Manufacturers/Fabricators and Products): Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.
- b. Nonrestricted List (Available Manufacturers/Fabricators and Products): Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

4. Manufacturers:

- a. Restricted List (Acceptable Manufacturers/Fabricators): Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.
- b. Nonrestricted List (Available Manufacturers/Fabricators): Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

5. Basis-of-Design Product (Product Standard): 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, or unnamed manufacturer's product.

C. Descriptive Specification Requirements: Where Specifications describe a product, or assembly, listing exact characteristics required, without use of a brand or trade name, provide a product, material or assembly that provides the characteristics and otherwise complies with Contract requirements.

D. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product or material is specified for a specific application.

1. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

E. Compliance with Standards, Codes and Regulations: Where Specifications only require compliance with imposed code, standard or regulation, select product that complies with standards, codes or regulations specified.

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- F. 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.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.
- G. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's color, gloss, pattern, density, or texture" or similar phrase, select a product (and manufacturer) that complies with other specified requirements.
1. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that does not include premium items.
  2. Custom Range: Where Specifications include the phrase "custom range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that includes both standard and premium items.
  3. Special Custom Range: Where Specifications include the phrase "special custom range of colors patterns, textures" or similar phrase, Architect will select a new color, pattern, or texture different from those normally produced by the manufacturer.

## 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.

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PART 3 - EXECUTION

3.1 RESTRICTION OF HAZARDOUS SUBSTANCES

- A. Contractor agrees that it shall not knowingly after reasonable diligence and effort, incorporate into the Work any hazardous substance other than as may be lawfully contained within products, except in accordance with applicable environmental laws. Further, in performing any of its obligations hereunder, Contractor shall not cause any release of hazardous substances into, or contamination of, the environment, including soil, the atmosphere, any watercourse or ground water, except in accordance with applicable environmental laws. In the event that Contractor engages in any of the activities prohibited in this paragraph, to the fullest extent permitted by law, Contractor hereby indemnifies and holds harmless Owner and its partners, members, officers, directors, agents, employees and consultants from and against any and all claims, damages, losses, causes of action, suits and liabilities of every kind, including, but not limited to, expenses of litigation, court costs, punitive damages and attorney's fees, arising out of, incidental to or resulting from the activities prohibited.
- B. In the event Contractor observes on the Project Site any substance which Contractor reasonably believes to be a hazardous substance, and which is being introduced into the Work, or exists on the Project Site, in a manner violative of any applicable environmental laws, Contractor shall immediately notify Owner and report the condition to Owner in writing. The Work in the affected area shall not thereafter be resumed except by written authorization of Owner if in fact a hazardous substance has been encountered and has not been rendered harmless. In the event that Contractor fails to give Owner proper notification hereunder, upon knowingly observing a hazardous substance at the Project Site, to the fullest extent permitted by the law, Contractor hereby indemnifies and holds harmless Owner, and all of its partners, members, officers, directors, agents, employees and consultants from and against all claims, damages, losses, causes of action, suits and liabilities of every kind, including, but not limited to, expenses of litigation, court costs, punitive damages and attorneys' fees, arising out of, incidental to, or resulting from Contractor's failure to stop the Work.
- C. If Owner believes that hazardous substances may have been located, generated, manufactured, used or disposed of on or about the Project Site by Contractor or any of its employees, agents, subcontractors, suppliers, or invitees, Owner may have environmental studies of the Project Site conducted as it deems appropriate, and Contractor shall be responsible for the cost of such studies to the extent that Contractor or any of its employees, agents, subcontractors, suppliers or invitees are responsible for the presence of any hazardous substances.

END OF SECTION



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SECTION 017300

EXECUTION

PART 1 - GENERAL

1.1 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. Installation of the Work.
  - 3. Cutting and patching.
  - 4. Coordination of Owner-installed products.
  - 5. Progress cleaning.
  - 6. Starting and adjusting.
  - 7. Protection of installed construction.
  - 8. Correction of the Work.

1.2 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.

1.3 SUBMITTALS

- A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
  - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
  - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
  - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
  - 4. Dates: Indicate when cutting and patching will be performed.
  - 5. 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.
  - 6. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

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1.4 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  - 1. 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.
  - 2. Miscellaneous 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.
  - 3. 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 on the exterior or in occupied spaces 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.
- B. 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.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

1.5 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
  - 1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with requirements in Division 01 sustainable construction requirements Section.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  - 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.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
  - 1. Before construction, verify the location and points of connection of utility services.
- B. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions. 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, and floors 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.

3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
  - 1. Respective manufacturer/fabricator's written installation instructions.
  - 2. Accepted submittals.
  - 3. Contract Documents.
- B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by isolating metals and other materials from direct contact with incompatible materials.

3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.
- A. Existing Utility Interruptions at Renovation Work: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Owner not less than 72 hours in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without Owner's written permission.

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- B. 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.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. 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 according to requirements in Division 01 Section "Project Management and Coordination."

3.4 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to existing conditions. If discrepancies are discovered, notify Architect promptly.

3.5 FIELD ENGINEERING

3.6 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, unless indicated otherwise in the Contract Documents.
- 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 loading in excess of that 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.

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- 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, aligned, and coordinated 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.

3.7 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. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Division 01 Section "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- G. 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.

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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 and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. 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.
  5. Proceed with patching after construction operations requiring cutting are complete.
- H. 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.
    - b. Patch fire rated assemblies with materials to match existing and maintain assembly fire rating.
  4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.
- 3.8 OWNER-INSTALLED PRODUCTS
- A. Site Access: As applicable, provide access to Project site for Owner's construction personnel.
  - B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.

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1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.9 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. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers specifically intended for holding types of waste materials identified where applicable, e.g. blue colored containers with labeling and symbols for bio-waste.
- 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 immediately.
  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 wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls." and Division 01 Section "Construction Waste Management and Disposal", whichever is the more restrictive.
- H. Remove construction markings not required and graffiti immediately, repairing or replacing damaged material.

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- I. 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.
- J. 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.
- K. 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.

3.10 STARTING AND ADJUSTING

- A. As applicable, coordinate startup and adjusting of equipment and operating components with commissioning requirements in Division 01 specification sections.
- 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 Division 01 Section "Quality Requirements."

3.11 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



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SECTION 017700

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 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.

1.2 SUBMITTALS

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- B. Certified List of Incomplete Items: Final submittal at Final Completion.
- C. Certificates of Release: From authorities having jurisdiction.
- D. Certificate of Insurance: For continuing coverage.
- E. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.3 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 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 Divisions 02 through 33 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

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4. Submit maintenance material submittals specified in individual Divisions 02 through 33 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 Owner's signature for receipt of submittals.
  5. Submit test/adjust/balance records.
- C. Procedures Prior to Substantial Completion: Complete the following 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 Division 01 Section "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. 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, in writing, 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.
- E. 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.
- 1.4 FINAL COMPLETION PROCEDURES
- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

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1. Submit a final Application for Payment according to Division 01 Section "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). Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection for acceptance. 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.

1.5 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 format agreed upon by the Owner and Architect.

1.6 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties 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 minimum number days, as required by the Contract, 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.

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1. 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, as applicable, before requesting inspection for certification of Substantial Completion for entire Project or for a 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. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - f. Sweep concrete floors broom clean in unoccupied spaces.
    - g. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
    - h. 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.
    - i. Remove labels that are not permanent.
    - j. Remove all graffiti and construction writing.

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- k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - l. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - m. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - n. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
  - o. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
  - p. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls." and Division 01 Section "Construction Waste Management and Disposal", whichever is the more restrictive and as follows:
- 1. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

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 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 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 all lamps and starters to comply with requirements for new fixtures.
- C. All Warranties remain in effect.

END OF SECTION

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SECTION 017823

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 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.

1.2 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.

1.3 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.
- 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 Owner.
    - 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.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect 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 before commencing demonstration and training. Architect will return copy with comments.
  - 1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual prior to commencing demonstration and training.

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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 Architect.
  - 7. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
  - 8. Cross-reference to related systems in other operation and maintenance manuals.

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- 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.

## 2.3 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
  - 1. Type of emergency.
  - 2. Emergency instructions.
  - 3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
  - 1. Fire.
  - 2. Flood.
  - 3. Gas leak.
  - 4. Water leak.
  - 5. Power failure.
  - 6. Water outage.
  - 7. System, subsystem, or equipment failure.
  - 8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.



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D. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

## 2.4 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.

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- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## 2.5 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.

## 2.6 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.

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- 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. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

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- C. 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.
- D. 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.
- E. 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 Division 01 Section "Project Record Documents."
- F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION

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SECTION 017839

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
  - 4. Miscellaneous record submittals.

1.2 SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit copies of record Drawings as follows:
    - a. Initial Submittal:
      - 1) Submit PDF electronic files of scanned record.
      - 2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
    - b. Final Submittal:
      - 1) Submit PDF electronic files of scanned record.
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.

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.

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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.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  4. Note related Change Orders, record Product Data, and record Drawings where applicable.

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- B. Format: Submit record Specifications as scanned PDF electronic file(s) of marked-up paper copy of Specifications.

## 2.3 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.
  - 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- 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.

## 2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as scanned PDF electronic file(s) of marked-up miscellaneous record submittals.
  - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

## 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

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SECTION 06 4023

INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Shop-finished interior architectural woodwork and supplementary items necessary for installation.
- B. Simulated Stone Countertops: Refer to Division 12 Sections "Solid Surface Modular Casework" and "Simulated Stone Countertops" for solid surfacing, quartz agglomerate, or cultured marble countertops incorporated into work specified in this Section. Simulated stone trim is specified in this Section.

1.2 DEFINITIONS

- A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.
- B. Exposed Surfaces, Semi-Exposed Surfaces, Concealed Surfaces, Types of Cabinet Construction, and other related terms are defined in referenced quality standards.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
  - 1. Wood Veneered Items: Include finishing materials and processes.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
  - 1. Show details full size.
  - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
  - 3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in architectural woodwork.
  - 4. Items with Plastic Laminate Finish:
    - a. Plastic laminates, 8 in by 10 in (200 mm by 250 mm), for each type, color, pattern, and surface finish, with 1 sample applied to core material and specified edge material applied to 1 edge.
- C. Product Certificates: For each type of product, signed by manufacturers certifying that products furnished comply with requirements.



D. Qualification Data: For manufacturer/fabricator and installer.

1. For firms and persons specified in "Quality Assurance" to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.

1.4 QUALITY ASSURANCE

A. Manufacturer/Fabricator Qualifications: Manufacturer/fabricator with not less than 5 years experience with successful production of products and systems similar to scope of this Project, with a record of successful in-service performance and completion of projects for a period of not less than 5 years, and with sufficient production capability, facilities, and personnel to produce required Work.

1. Woodwork Fabricator Certification: Certified participant in AWI's Quality Certification Program or licensee of WI's Certified Compliance Program.

B. Installer Qualifications:

1. Experience: Installer with minimum of 5 years specialized experience in performing specified work similar in design, material and extent to scope of Project, and with a record of successful in-service performance.
2. Supervision: Installer shall maintain a competent supervisor who is on job site during times specified work is in progress, and, who is experienced in installing systems similar to type and scope required for Project.
3. Certification: Certified participant in AWI's Quality Certification Program or licensee of WI's Certified Compliance Program.

C. Quality Standard: Unless otherwise indicated, comply with one of the following for standards of interior architectural woodwork indicated and other requirements:

1. AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
  - a. Provide manufacturer certification indicating that woodwork complies with requirements of referenced quality standards.
2. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with such selections and requirements in addition to the quality standard.

D. Fire-Test-Response Characteristics: Where fire-retardant materials or products are indicated or required, provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

## 1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.

## 1.7 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.
- B. Coordinate Shop Drawings and fabrication with hardware requirements.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS AND PRODUCTS

- A. Acceptable Manufacturers/Fabricators and Products: Subject to compliance with requirements of Contract Documents as judged by the Architect, provide product by one of manufacturers/fabricators listed. If not listed, submit as substitution according to the Conditions of the Contract and Division 01 Section "Substitution Procedures".
- B. Basis of Design (Product Standard): Contract Documents are based on products and systems specified to establish a standard of quality. Other manufacturers offering products having equivalent characteristics may be considered, provided deviations are minor and comply with requirements of Contract Documents as judged by the Architect.

### 2.2 MATERIALS

- A. General: Provide materials that comply with requirements of AWI's or WI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Products for Cabinets:
  - 1. Hardboard for Vertical Dividers Only: AHA A135.4, tempered, smooth two sides, 1/4 in (6 mm) minimum thickness unless indicated otherwise.
  - 1. Medium-Density Fiberboard: ANSI A208.2, Grade MD Exterior Glue, made with binder containing no added urea formaldehyde.
  - 2. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1, made with adhesive containing no added urea formaldehyde.
  - 3. Softwood Plywood: DOC PS 1.
- C. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.

1. Manufacturers:
  - a. Formica Corporation.
  - b. International Paper
  - c. Lamin-Art, Inc.
  - d. Nevamar Company, LLC; Decorative Products Div.
  - e. Pioneer Plastics Corp.
  - f. Westinghouse Electric Corp.; Specialty Products Div.
  - g. Wilsonart International; Div. of Premark International, Inc.
2. Colors, Patterns, and Finishes:
  - a. Selections: As indicated in Design Selections on drawings.

## 2.3 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 08 Section "Door Hardware (Scheduled by Describing Products)."
- B. Hinges: Provide number of hinges recommended by hinge manufacturer for size and weight of door.
- C. Frameless Concealed Hinges (European Type) For 3/4 in (19 mm) Doors 20 in (600 mm) or Less in Width: BHMA A156.9, B01602,
  1. Product Standard: Grass 3000 Series, No. 3803, 170 degree swing, self-closing from 10 deg.
- D. Back-Mounted Pulls: BHMA A156.9, B02011. Refer to drawings for selection.
- E. Catches: Magnetic catches, BHMA A156.9, B03141.
- F. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.
- G. Shelf Rests: BHMA A156.9, B04013; metal.
  1. Product Standard: K & V No. 345, nickel plated.
- H. Drawer Slides: BHMA A156.9, B05091.
  1. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-extension type; zinc-plated steel ball-bearing slides.
  2. Box Drawer Slides: Grade 1HD-100; for drawers not more than 6 in (150 mm) high and 24 in (600 mm) wide.
    - a. Product Standard for 24 in (600 mm) Wide and Less: Full extension; Accuride "7434".
    - b. Product Standard for Wider than 24 in (600 mm): Full extension; Accuride "7432".
  3. File Drawer Slides: Grade 1HD-200; for drawers more than 6 in (150 mm) high or 24 in (600 mm) wide.
    - a. Product Standard for 42 in (1050 mm) Wide and Less: Full extension with 1 in (25 mm) over travel; Accuride "3640".

- I. Door Locks: BHMA A156.11, E07121.
  - 1. Product Standard: K & V No. 984, nickel plated.
- J. Drawer Locks: BHMA A156.11, E07041.
  - 1. Product Standard: K & V No. 986, nickel plated.
- K. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
  - 1. Satin Stainless Steel: BHMA 630, unless otherwise indicated.
- L. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.
- M. Manufacturers:
  - 1. Accuride
  - 2. Julius Blum, Inc.
  - 3. The Engineered Products Company
  - 4. Grass America, Inc.
  - 5. Hafele America Company
  - 6. Hettich America Corporation
  - 7. Knappe & Vogt Manufacturing Company (K & V)
  - 8. Stanley Hardware, Division of the Stanley Works
- N. Cabinet Accessories:
  - 1. Counter Support Brackets: Unless noted otherwise, provide brackets factory-primed for field painting.
    - a. Manufacturers and Products:
      - 1) A&M Hardware, Inc.; Work Station Brackets
      - 2) Rakks/Rangine Corporation; Counter Support Brackets, EH Series.

## 2.4 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- C. Adhesives:
  - 1. General: As recommended by woodwork fabricator to suit application.
  - 2. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24) unless indicated otherwise:
    - a. Wood Glues: 30 g/L.

- b. Contact Adhesive: 250 g/L.
- 3. Adhesive for Bonding Plastic Laminate Faces and Edges: PVA as recommended by woodwork fabricator to suit application.

## 2.5 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Unless otherwise indicated, provide Premium Grade interior woodwork complying with referenced quality standard.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
  - 1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members 3/4 in (19 mm) Thick or Less: 1/16 in (1.5 mm).
  - 2. Edges of Rails and Similar Members More Than 3/4 in (19 mm) Thick: 1/8 in (3 mm).
- D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
  - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
  - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.
- E. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
  - 1. Countertops: Seal edges of openings in countertops.

## 2.6 PLASTIC-LAMINATE CABINETS

- A. Grade: Custom.
- B. AWI Type of Cabinet Construction: Flush overlay unless indicated otherwise.
- C. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
  - 1. Horizontal Surfaces Other Than Tops: Grade HGP, .038 in (1 mm) thick.
  - 2. Postformed Surfaces: Grade HGP, .038 in (1 mm) thick.
  - 3. Doors and Vertical Surfaces: Grade VGS, .028 in (0.7 mm) thick.
  - 4. Edges: PVC Edge Banding, 0.12 in (3 mm) thick, matching laminate in color, pattern, and finish.

- D. Semi-exposed Surfaces: Provide surface materials indicated below:
1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, Grade CLS, .020 in (0.5 mm) thick.
  2. Edges: PVC Edge Banding, .038 in (1 mm) thick, matching laminate in color, pattern, and finish.
  3. Drawer Sides, Backs and Sub-Fronts: 1/2 in (13 mm) minimum thickness, as indicated.
    - a. Solid-hardwood lumber.
  4. Drawer Bottoms: 1/4 in (6 mm) minimum thickness, as indicated.
    - a. Hardwood plywood with veneer core.
  5. Drawer Box Construction: One of the following:
    - a. Glued multiple dovetail.
    - b. Glued French dovetail.
    - c. Glued and doweled.
  6. Interior Drawer Box Finish, as indicated:
    - a. Clear catalyzed polyurethane
- E. Body Members (Ends, Divisions, Bottoms and Sub-Tops): Medium-density fiberboard, 3/4 in (19 mm) minimum thickness.
- F. Face Frames, Rails, Kicks and Bases: Solid-hardwood lumber or hardwood plywood, 3/4 in (19 mm) thick minimum thickness.
- G. Kicks and Bases: Solid-hardwood lumber, 1 1/2 (38 mm) thick minimum thickness.
- H. Shelves: Hardwood plywood with veneer core with the following thickness:
1. For Spans Up To 32 in (800 mm): 3/4 in (19 mm).
  2. For Spans Up To 42 in (1050 mm): 1 in (25 mm).
- I. Drawer Fronts: Medium density fiberboard, 3/4 in (19 mm) thick minimum thickness.
- J. Doors:
1. Hinged Flush Type: Medium density fiberboard with the following thickness:
    - a. For Width up to 30 in (750 mm) and Height Up To 60 in (1500 mm): 3/4 in (19 mm) doors.
    - b. For Width up to 36 in (900 mm) and Height Up To 72 in (1800 mm): 1 in (25 mm) to 1-1/4 in (32 mm) doors.
    - c. For Doors Larger than Sizes Above: 1-3/8 in (35 mm) or 1-3/4 in (45 mm) doors; refer to Division 08 Section "Flush Wood Doors".
    - d. If hinge screws enter only edge of door, provide 3/4 in (19 mm) lumber edges glued to core prior to laminating.
  2. Sliding Flush Type: As required by referenced quality standard for grade specified.
  3. Stile and Rail Type: As required by referenced quality standard for grade specified.

## INTERIOR ARCHITECTURAL WOODWORK

- K. Concealed Backs of Panels with Exposed Plastic Laminate Surfaces: High-pressure decorative laminate, Grade BKL, .020 in (0.5 mm) thick.
- L. Concealed Edges of Base Cabinet Panels: Including but not limited to floors, vertical edges, splashes and countertops; Clear Catalyzed Polyurethane.

### 2.7 SOLID SURFACING COUNTERTOPS

- A. Refer to Division 12 Section "Simulated Stone Countertops".

### 2.8 SHOP FINISHING

- A. Grade: Provide finishes of same grades as items to be finished.
- B. General: Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.
- C. Shop Priming: Shop apply the prime coat including backpriming, if any, for items specified to be field finished. Refer to Division 09 Painting Sections for material and application requirements.
- D. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
  - 1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate.
- E. Finish:
  - 1. Selections: As indicated in Design Selections on drawings.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive interior architectural woodwork and associated work to which interior architectural woodwork will be applied for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.

### 3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
  - 1. Quality standards. (The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with such selections and requirements in addition to the quality standard.)
  - 2. Respective manufacturer/fabricator's written installation instructions.
  - 3. Accepted submittals.
  - 4. Contract Documents.

### 3.3 PREPARATION

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.
- B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

### 3.4 INSTALLATION

- A. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication, to extent that it was not completed in the shop.
- B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 in per 96 in (3 mm per 2400 mm).
- C. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- E. Cabinets, General: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
  - 1. Install cabinets with no more than 1/8 in per 96 in (3 mm per 2400 mm) sag, bow, or other variation from a straight line.
- F. Base and Wall Cabinets: Set base cabinets straight, level, and plumb. Adjust subtops within 1/16 in (1.5 mm) of a single plane. Fasten base cabinets to partition framing, or reinforcements in partitions with fasteners spaced 24 in (600 mm) on center. Bolt adjacent cabinets together with joints flush, tight, and uniform.
  - 1. Where base cabinets are not installed adjacent to walls, fasten to floor at toe space with fasteners spaced 24 in (600 mm) on center. Secure sides of cabinets to floor, where they do not adjoin other cabinets, with not less than two fasteners.
  - 2. Wall Cabinets: Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 in (400 mm) on center with No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish or toggle bolts through metal backing or metal framing behind wall finish.
- G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
  - 1. Where possible make field jointing in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.
  - 2. Plastic Laminate Countertops: Secure field joints in plastic-laminate countertops with concealed clamping devices located within 6 in (150 mm) of front and back edges and at intervals not exceeding 24 in (600 mm). Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.



## INTERIOR ARCHITECTURAL WOODWORK

3. Abut top and edge surfaces in one true plane, with internal supports placed to prevent deflection.
  4. Simulated Stone Countertops: Refer to Division 12 Section "Simulated Stone Countertops".
  5. Install countertops with no more than 1/8 in per 96 in (3 mm per 2400 mm) sag, bow, or other variation from a straight line.
  6. Secure backsplashes to tops with concealed metal brackets at 16 in (400 mm) on center and to walls with adhesive.
  7. Calk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants".
- H. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

### 3.5 ADJUSTING AND CLEANING

- A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION

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SECTION 078413

PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes penetration firestopping systems for openings and penetrations through smoke and fire-resistance-rated assemblies, and supplementary items necessary to complete their installation.
  - 1. Penetrations in horizontal assemblies.

1.2 ACTION SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product and system indicated.
  - 1. Include manufacturer's specifications for materials, finishes, construction details, installation instructions, and recommendations for maintenance.
- B. Product Schedule: For each penetration firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing and inspecting agency..

1.3 INFORMATIONAL SUBMITTALS

- A. Manufacturer's Project Acceptance Document: Certification by the manufacturer that its product(s) are approved, acceptable, suitable for use in specific locations, for specific details, and for applications indicated, specified, or required, and that a warranty will be issued.
- B. Product Test Reports: Written reports based on evaluation of comprehensive tests performed by qualified testing agency indicating that each product complies with requirements.
- C. Field Quality Control Reports: Written report of testing and inspection required by "Field Quality Control".
- D. Qualification Data:
  - 1. For firms and persons specified in "Quality Assurance" to demonstrate their capabilities and experience. Include list of completed projects.

1.4 CLOSEOUT SUBMITTALS

- A. Installer Certificates: From Installer indicating that penetration firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications:

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1. Experience: Installer's personnel with not less than 5 years of experience in the successful performance of Work similar to scope of this Project.
2. Supervision: Installer shall maintain a competent supervisor at Project while the Work is in progress, and who has not less than 5 years of experience installing products and systems similar to scope of this Project.
3. Manufacturer Acceptance: Installer shall be certified, approved, licensed, or acceptable to manufacturer to install products.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Where products and systems are indicated to fit walls and other construction, verify dimensions by field measurements before fabrication.
- B. Install and cure penetration firestopping materials per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.7 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.
- B. Coordinate construction of openings and penetrating items to ensure that penetration firestopping systems can be installed according to specified firestopping system design.
- C. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate firestopping systems.
- D. Do not cover up firestopping system installations that will become concealed behind other construction until Owner's inspecting agency and building inspector, if required by authorities having jurisdiction, have examined each installation.

PART 2 - PRODUCTS

2.1 FIRESTOPPING, GENERAL

- A. Acceptable Manufacturers: Manufacturer is "acceptable" if firestopping system has been tested and listed by UL or other testing and inspection agency acceptable to authorities having jurisdiction and manufacturer can evidence product compliance with requirements of the Contract Documents.
- B. Compatibility: Provide firestopping systems that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating firestopping systems, under conditions of service and application, as demonstrated by firestopping system manufacturer based on testing and field experience.
- C. Single Source Responsibility: Furnish each type of product from single manufacturer. Provide secondary materials only as recommended by manufacturer of primary materials and approved by the qualified testing and inspection agency for firestopping systems indicated.

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2.2 PERFORMANCE REQUIREMENTS

- A. General: Provide firestopping systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly penetrated.
- B. Fire-Test-Response Characteristics:
  - 1. Perform penetration firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
  - 2. Test per testing standards referenced. Provide rated systems complying with the following requirements:
    - a. Penetration firestopping systems shall bear classification marking of a qualified testing agency acceptable to authorities having jurisdiction.
      - 1) UL Fire Resistance Directory.
      - 2) Intertek Group Directory of Listed Building Products.
      - 3) FM Global Building Materials Approval Guide.

2.3 PENETRATION FIRESTOP SYSTEMS

- A. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
  - 1. Classified in Underwriters Laboratories (UL) Fire Resistance Directory, Section XHEZ - Penetration Firestop System", and/or Section XHHW - Fill Void or Cavity Materials for specific project conditions.
- B. Penetrations in Horizontal Assemblies: Penetration firestopping systems with ratings determined per ASTM E 814 or UL 1479.
  - 1. F-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated.
  - 2. T-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
    - a. Penetrations located outside wall cavities.
    - b. Penetrations located outside fire-resistive shaft enclosures.
    - c. Penetrations located in construction containing fire-protection-rated openings.
  - 3. W-Rating: Provide penetration firestopping systems showing no evidence of water leakage when tested according to UL 1479.
- C. Exposed Penetration Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, per ASTM E 84.

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- D. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping system manufacturer and approved by qualified testing and inspecting agency for conditions indicated.
1. Permanent forming/damming/backing materials.
  2. Substrate primers.
  3. Collars.
  4. Steel sleeves.

2.4 FILL MATERIALS

- A. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture
- B. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- C. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced intumescent elastomeric sheet bonded to galvanized-steel sheet.
- D. Intumescent Putties: Nonhardening, water-resistant, intumescent putties containing no solvents or inorganic fibers.
- E. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- F. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- G. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.
- H. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- I. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants.
- J. Additional Application Requirements:
1. Firestops exposed to view and/or are scheduled to receive finishes shall be paintable or capable of receiving finish materials.
  2. Firestops exposed to traffic, moisture, and physical damage shall be products that do not deteriorate when exposed to these conditions.
  3. Firestops for water piping penetrations, of any type, shall be moisture-resistant products.
  4. Firestops for floor penetrations with annular spaces exceeding 4 in (100 mm) or more in width and exposed to possible loading and traffic shall be products capable of supporting the floor loads involved either by installing floor plates or by other means.

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5. Firestops for penetrations involving insulated piping shall be products that do not require removal of insulation.

- K. Provide firestops within fire resistive walls and partitions containing flush mounted devices such as outlet boxes, electrical cabinets and mechanical cabinets mounted back to back and spaced less than 24 inches on center in accordance with UL Fire Resistance Directory "Wall Opening Protective Materials", Category CLIV.

## 2.5 MIXING

- A. Penetration Firestopping Materials: For those products requiring mixing before application, comply with penetration firestopping system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.

### 3.2 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.
- B. Surface Cleaning: Before installing fire-resistive penetration systems, clean penetrations immediately to comply with fire-resistive joint system manufacturer's written instructions and the following requirements.
  1. Remove foreign materials from surfaces of openings, joints and penetrating items that could interfere with adhesion of firestopping.
  2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.
  3. Remove laitance and form release agents from concrete.
- C. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

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- D. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing firestopping's seal with substrates.

### 3.3 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
  - 1. Respective manufacturer written installation instructions.
  - 2. Accepted submittals.
  - 3. Contract Documents.
- B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by isolating metals and other materials from direct contact with incompatible materials.

### 3.4 INSTALLATION OF PENETRATION FIRESTOPS

- A. General: Install penetration firestopping systems to comply with manufacturer's written installation instructions and published drawings for products and applications.
- B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings.
  - 1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not forming permanent components of firestopping.
- C. Install fill materials for penetration firestop systems by proven techniques to produce the following results:
  - 1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.
  - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  - 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

### 3.5 IDENTIFICATION

- A. Wall Identification: Permanently label walls containing penetration firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches (76 mm) high and with minimum 0.375-inch (9.5-mm) strokes.
  - 1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 feet (4.57 m) from end of wall and at intervals not exceeding 30 feet (9.14 m).
- B. Penetration Identification: Identify each penetration firestopping system with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches (150 mm)

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of penetration firestopping system edge so labels are visible to anyone seeking to remove penetrating items or firestopping systems. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:

1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor's name, address, and phone number.
3. Tested System or Engineered Judgement Number.
4. Date of installation.
5. Manufacturer's name.
6. Installer's name.

3.6 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Manufacturer's qualified technical representative shall periodically inspect Work to ensure installation is proceeding in accordance with manufacturer's designs, recommendations, instructions, and warranty requirements. Representative shall submit written reports of each visit indicating observations, findings, and conclusions of inspection.
1. Manufacturer's Technical Representative Qualifications: Direct employee of technical services department of manufacturer with experience in providing recommendations, observations, evaluations, and problem diagnostics.
- B. Where deficiencies are found or penetration firestopping system is damaged or removed because of testing, repair or replace penetration firestopping system to comply with requirements.
1. Materials and installation failing to meet specified requirements shall be replaced at Contractor's expense. Retesting of materials and installations failing to meet specified requirements shall be done at Contractors expense.
- C. Proceed with enclosing penetration firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.7 CLEANING

- A. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping system products and of products in which opening and joints occur.
- B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping material and install new materials to produce systems complying with specified requirements.

END OF SECTION



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SECTION 079200

JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Joint sealants, backing materials, and supplementary items necessary for installation.

1.2 ACTION SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product and system indicated.
  - 1. Include manufacturer's specifications for materials, finishes, construction details, installation instructions, and recommendations for maintenance.
- B. Samples for Initial Selection: Where specified to provide sealant colors from manufacturer's standard and custom selections, provide manufacturer's color charts consisting of strips of cured sealants showing full range of colors available for each product exposed to view.
- C. Samples for Verification Purposes: Samples for each kind and color of joint sealants in 1/2 in (12 mm) wide joints formed between two 6 in (150 mm) long strips of material matching appearance of exposed surfaces adjacent to joint sealants.

1.3 INFORMATIONAL SUBMITTALS

- A. Manufacturer's Project Acceptance Document: Certification by the manufacturer that its product(s) are approved, acceptable, suitable for use in specific locations, for specific details, and for applications indicated, specified, or required, and that a warranty will be issued.
- B. Warranties: Sample of warranties.
  - 1. Provide manufacturer's and installer's written warranty covering materials and installation (labor) stating obligations, remedies, limitations, and exclusions.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications:
  - 1. Experience: Installer's personnel with not less than 5 years of experience in the successful performance of Work similar to scope of this Project.
  - 2. Supervision: Installer shall maintain a competent supervisor at Project while the Work is in progress, and who has not less than 5 years of experience installing products and systems similar to scope of this Project.
  - 3. Manufacturer Acceptance: Installer shall be certified, approved, licensed, or acceptable to manufacturer to install products.

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1.5 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.

PART 2 - PRODUCTS

2.1 MANUFACTURERS AND PRODUCTS

- A. Available Manufacturers and Products: Subject to compliance with requirements of Contract Documents as judged by the Architect, manufacturers offering products that may be incorporated into the Work include, but are not limited to, those listed.

2.2 MATERIALS, GENERAL

- A. Single Source Responsibility: Furnish each type of product from single manufacturer. Provide secondary materials only as recommended by manufacturer of primary materials.
- B. Compatibility: Joint sealants, backings, and other related materials shall be compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint sealant manufacturer based on testing and field experience.
- C. Volatile Organic Compounds (VOC) Content of Interior Sealants: Sealants and primers for use inside weatherproofing system shall comply with following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):
  - 1. Elastomeric Sealants: 250 g/L.
  - 2. Primers for Non-Porous Substrates: 250 g/L.
  - 3. Primers for Porous Substrates: 775 g/L.
- D. Sealant Color: As scheduled or as indicated.

2.3 INTERIOR ELASTOMERIC SEALANTS

- A. Interior Non-sag Silicone Sealant:
  - 1. Product Quality Standard: ASTM C 920, Type S, Grade NS, Class 25.
  - 2. Description: Single component, non-sag, moisture curing, silicone sealant specially formulated with fungicide for use in sanitary non-porous applications.
  - 3. Manufacturers and Products:
    - a. Dow Corning; 786 Silicone Sealant.
    - b. Momentive Performance Materials, GE Silicones; Sanitary SCS1700.
    - c. Pecora Corp.; 898.
    - d. Sika Corp., Construction Products Div.; Sikasil GP
    - e. Tremco Commercial Sealants & Waterproofing; Tremsil 200.
- B. Interior Non-sag Acrylic Latex Sealant:
  - 1. Product Quality Standard: ASTM C 834, Type and Grade as required by conditions.

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2. Description: Single component, non-sag, moisture curing, general purpose, paintable, siliconized acrylic latex sealant.
3. Joint Movement Capability: Plus 7.5 percent, minus 7.5 percent
4. Manufacturers and Products:
  - a. Pecora Corp.; AC 20+.
  - b. Tremco Commercial Sealants & Waterproofing; Tremflex 834.

2.4 JOINT SEALANT BACKING

- A. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials, or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.5 ACCESSORIES

- A. Cleaners for Non-porous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent non-porous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- B. Masking Tape: Non-staining, non-absorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrate surfaces to receive products and systems and associated Work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting Work within a particular area will be construed as acceptance of surface conditions.

3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
  1. Respective manufacturer's written installation instructions.
  2. Accepted submittals.
  3. Contract Documents.

3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.

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- B. Cleaning of Joints: Clean out joints immediately before installing joint backings and sealants to comply with joint sealant manufacturer's written instructions and following requirements:
1. Remove foreign material that could interfere with adhesion of joint sealant, including, but not limited to, dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.
  3. Remove laitance and form-release agents from concrete.
  4. Clean non-porous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
  5. Substrate material allowed by sealant's ASTM C 920 Use Classification.
- C. Joint Priming: Prime joint substrates where recommended by joint sealant manufacturer, or as indicated by prior experience, or as required by pre-construction compatibility and adhesion testing. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint sealant bond; do not allow spillage or migration onto adjoining surfaces.
- D. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.4 INSTALLATION

- A. Joint Sealants: Install at same time as backings using proven techniques that comply with following:
1. Place sealants so they directly contact and fully wet joint substrates.
  2. Completely fill recesses in each joint configuration.
  3. Produce uniform, cross sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
  4. Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
    - a. Remove excess sealant from surfaces adjacent to joints.
    - b. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
    - c. Use masking tape to protect surfaces adjacent to recessed tooled joints.
  5. Install joint sealants in accordance with ASTM C 1193 as applicable to materials, applications, conditions indicated, and with the following profile configurations:
    - a. Fillet: Figure 5.
    - b. Bridge: Figure 6.

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- c. Butt: Figure 8A (concave tooling), generally hour-glass shape with 2:1 width-to-depth ratio.

3.5 CLEANING

- A. In-Progress Cleaning: Remove excess sealant or sealant smears adjacent to joints as Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

- A. General Requirements: Protect during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original Work.

3.7 JOINT SEALANT SCHEDULE

- A. Interior Elastomeric Sealant Applications:
  - 1. Interior Non-sag Silicone Sealant: At countertops to adjacent countertops only
    - a. Non-moving joints in moist or damp areas which are susceptible to mildew.
  - 2. Interior Non-sag Acrylic Latex Sealant:
    - a. Non-moving joints where another type of sealant is not otherwise specified or scheduled.
    - b. Minimal moving joints due to temperature change.

END OF SECTION

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SECTION 08 1113

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Custom hollow metal doors and frames and supplementary items necessary for installation.

1.2 DEFINITIONS

- A. Custom Hollow Metal Work: Hollow metal work fabricated according to ANSI/NAAMM-HMMA 861.
- B. Interior: Areas located in conditioned spaces.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product and system indicated.
  - 1. Include manufacturer's specifications for materials, finishes, construction details, installation instructions, and recommendations for maintenance.
- B. Shop Drawings: Show details of fabrication and installation, including plans, elevations, sections, details of components and attachments to other work. Distinguish between shop and field-assembled work.
- C. Door and Frame Schedule: Schedule prepared by or under supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with door hardware schedule.
- D. Product Test Reports: Written reports based on evaluation of comprehensive tests performed by qualified testing agency indicating that each product complies with requirements.
- E. Qualification Data: For manufacturer and installer.
  - 1. For firms and persons specified in "Quality Assurance" to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer with not less than 5 years experience with successful production of products and systems similar to scope of this Project, with a record of successful in-service performance and completion of projects for a period of not less than 5 years, and with sufficient production capability, facilities, and personnel to produce required Work.

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B. Installer Qualifications:

1. Experience: Installer with not less than 5 years experience in performing specified Work similar to scope of this Project, with a record of successful in-service performance and completion of projects for a period of not less than 5 years, and with sufficient production capability, facilities, and personnel to produce required Work.
2. Supervision: Installer shall maintain a competent supervisor who is at Project during times specified Work is in progress, and, who is experienced in installing systems similar to type and scope required for Project.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.
- B. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4 in (100 mm) high wood blocking. Do not store in a manner that traps excess humidity.
  1. Provide minimum 1/4 in (6 mm) space between each stacked door to permit air circulation.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Where products and systems are indicated to fit walls and other construction, verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.7 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.
- B. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Single Source Responsibility: Furnish each type of product from single manufacturer. Provide secondary materials only as recommended by manufacturer of primary materials.

## 2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Engineer products and systems to withstand loads within limits of allowable working stresses of the materials involved under conditions indicated and without permanent deformation or failure of materials.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
  - 1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
- C. Smoke-Control Door Assemblies: Assemblies complying with UL 1784.

## 2.3 COMPONENT MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008 / A 1008M, Designation CS (Commercial Steel), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011 / A 1011M, Designation CS (Commercial Steel), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Frame Anchors: ASTM A 591 / A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.
  - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008 / A 1008M or ASTM A 1011 / A 1011M, hot-dip galvanized according to ASTM A 153 / A 153M, Class B.
- D. Inserts, Bolts, and Fasteners: Device type and size required, hot-dip galvanized according to ASTM A 153 / A 153M, Class B.
- E. Fasteners into Concrete:
  - 1. Powder-Actuated Fasteners: Suitable for application indicated, ANSI A 10.3; low velocity, powder-actuated fasteners; drive pins and clip angles fabricated from corrosion-resistant materials, with clips or other devices for attaching frames into concrete substrate.
  - 2. Available Manufacturers:
    - a. Construction Materials, Inc.
    - b. Heckman Building Products, Inc.
    - c. Hilti Corp.
    - d. ITW Ramset/Red Head.
    - e. Powers Fasteners.
    - f. Simpson Strong Tie Anchor Systems.



## HOLLOW METAL DOORS AND FRAMES

- F. Mineral-Fiber Insulation for Installations in Sound-Rated Partitions: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6 to 12 lb/cu ft (96 to 192 kg/cu m) density; with following characteristics:
  - 1. Flame-Spread Index: 25 maximum.
  - 2. Smoke Development Index: 50 maximum.
  - 3. Combustion Characteristics: Passing ASTM E 136.
- G. Primer: Fast-curing, corrosion-inhibiting, lead and chromate free, universal primer complying with ANSI A224.1 acceptance criteria; compatible with substrate and field-applied finish paint system specified in Division 09 Section "Painting".

### 2.4 FABRICATION, GENERAL

- A. Fabrication Quality Standard: ANSI/NAAMM-HMMA 861.
- B. General Requirements: Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit, and assemble units in manufacturer's plant.
- C. Accessories: Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold- or hot-rolled steel sheet.
- D. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to templates furnished as specified in Division 08 Section "Door Hardware".
  - 1. Locate hardware according to ANSI/NAAMM-HMMA 861.
  - 2. Reinforce doors and frames to receive non-templated, mortised, and surface-mounted door hardware.
  - 3. Comply with applicable requirements in ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
  - 4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.

### 2.5 HOLLOW METAL FRAMES

- A. Fabrication Provisions:
  - 1. Fabricate frames of construction indicated below.
  - 2. Close contact edges of corner joints tight with faces mitered and full-profile continuously welded.
    - a. "Knock-down" frame construction is not acceptable and shall not be used.
  - 3. Close contact edges of stops butted or mitered.
  - 4. Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

B. Joinery:

1. Fabrication Quality Standard: Head-to-jamb joints according to ANSI/NAAMM-HMMA 820 for either of following fabrication techniques with:
  - a. Saw-mitered corners, full-profile continuously welded.
  - b. Machine-mitered corners, full-profile continuously welded.
2. Externally or internally weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and seamless.
3. Internally weld rabbet and soffits continuously; grind, fill, dress, and make smooth.
4. Use of gusset or splice plates as substitute for fully welding is not permitted.

C. Materials and Thickness:

1. Cold-rolled steel sheet for frames in the following locations:
  - a. Interior frames.
2. Thickness for Cold-Rolled Steel Sheet Frames:
  - a. 48 in (1200 mm) Wide or Less: 0.053 in (1.3 mm) (16 gage) thick.
  - b. More than 48 in (1200 mm) Wide: 0.067 in (1.7 mm) (14 gage) thick.

D. Hardware Reinforcement: Fabricate from same material as frame. Minimum thickness of steel reinforcing plates for following hardware:

1. Hinges and Pivots: 0.167 in (4.2 mm) (7 gage) thick by 1-1/2 in wide by 6 in (38 mm by 150 mm) longer than hinge, secured by not less than 6 spot welds.
2. Strikes, Flush Bolts, and Closers: 0.093 in (2.3 mm) (12 gage).
3. Surface-Mounted Hold-Open Arms and Panic Devices: 0.093 in (2.3 mm) (12 gage).

E. Head Reinforcement: Provide minimum 0.093 in (2.3 mm) (12 gage) thick, steel channel or angle stiffener for opening widths more than 48 in (1200 mm).

F. Jamb Anchors:

1. Types: Fabricated of same material as frame:
  - a. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 in (1.10 mm) (18 gage) thick.
  - b. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 in (1.10 mm) (18 gage) thick, with corrugated or perforated straps not less than 2 in (50 mm) wide by 10 in (250 mm) long.
  - c. Postinstalled Expansion Type for In-Place Concrete or Masonry: Countersunk, flat or oval head exposed screws and bolts with expansion shields or inserts, minimum 3/8 in (10 mm) diameter bolts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.

2. Quantity and Location:

- a. Stud-Wall Type: Locate anchors not more than 18 in (450 mm) from top and bottom of frame. Space anchors not more than 32 in (800 mm) on centers and as follows:

- 1) Three anchors per jamb up to 60 in (1500 mm) high.
- 2) Four anchors per jamb from 60 to 90 in (1500 to 2250 mm) high.
- 3) Five anchors per jamb from 90 to 96 in (2250 to 2400 mm) high.
- 4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 in (600 mm) or fraction thereof above 96 in (2400 mm) high.
- 5) Two anchors per head for frames above 42 in (1050 mm) wide and mounted in metal-stud partitions.

- G. Floor Anchors: Formed from same material as frames welded to bottom of jambs and mullions with not less than 4 spot welds, not less than 0.0428 in (1.10 mm) (18 gage) thick, and as follows, terminating bottom of frames at finish floor surface:

- 1. Monolithic Concrete Slabs: Clip type anchors, with two holes to receive fasteners.
- 2. Separate Topping Concrete Slabs: Adjustable type anchors with extension clips, allowing not less than 2 in (50 mm) height adjustment.

- H. Shipping Spreader Bars: Attach two removable metal spreader bars across bottom of frames, tack welded to jambs and mullions.

- I. Door Silencers: Except on weatherstripped doors, drill holes to receive door silencers furnished under Division 08 Section "Door Hardware". Keep holes clear during construction.

- 1. Single-Door Frames: Strike jamb for 3 door silencers.
- 2. Double-Door Frames: Head jamb for 2 door silencers.

2.6 STEEL FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for cleaning, treating, priming, and when specified, finishing.

- B. Finish products specified in this Section after fabrication.

- C. Non-Coated Steel Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning"; remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 3, "Power Tool Cleaning," or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

- D. Prime Coat Finish: Apply manufacturer's standard primer specified below immediately after surface preparation and pretreatment.

- 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

- E. Field-Applied Coatings: As specified in Division 09 Section "Painting".

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.

3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
  - 1. ANSI/NAAMM-HMMA 840.
  - 2. NFPA 80 for fire-rated doors and frames.
  - 3. NFPA 105 for smoke control doors and frames.
  - 4. DHI A115.IG.
  - 5. Respective manufacturer's written installation instructions.
  - 6. Accepted submittals.
  - 7. Contract Documents.

3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.
- B. Pre-Installation Tolerances: Prior to installation, adjust and securely brace hollow metal frames for squareness, alignment, twist, and plumbness to following:
  - 1. Squareness: Plus or minus 1/16 in (1.5 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
  - 2. Alignment: Plus or minus 1/16 in (1.5 mm), measured at jambs on a horizontal line parallel to plane of wall.
  - 3. Twist: Plus or minus 1/16 in (1.5 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
  - 4. Plumbness: Plus or minus 1/16 in (1.5 mm), measured at jambs on a perpendicular line from head to floor.
- C. Hardware Preparation: Drill and tap doors and frames to receive non-templated, mortised, and surface-mounted door hardware.

3.4 INSTALLATION OF HOLLOW METAL DOORS AND FRAMES

- A. Hollow Metal Frames: Install hollow metal frames of size and profile indicated.
1. Setting: Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces and welded-in shipping spreader bars. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
    - a. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    - b. Install frames with removable glazing stops located on secure side of opening.
    - c. Install door silencers in frames before grouting.
    - d. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
  2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors or powder actuated fasteners.
  3. Sound-Rated Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
  4. Installation Tolerances: Adjust hollow metal frames for squareness, alignment, twist, and plumb to following:
    - a. Squareness: Plus or minus 1/16 in (1.5 mm), measured at rabbet on a line 90 degrees from jamb perpendicular to frame head.
    - b. Alignment: Plus or minus 1/16 in (1.5 mm), measured at jambs on a horizontal line parallel to plane of wall.
    - c. Twist: Plus or minus 1/16 in (1.5 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    - d. Plumbness: Plus or minus 1/16 in (1.5 mm), measured at jambs at floor.

3.5 ADJUSTMENTS

- A. Final Adjustments: Remove and replace defective hollow metal work, including work that is warped, bowed, or otherwise unacceptable.
- B. Prime Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of primer compatible with paint specified in Division 09 Section "Painting".
- C. Field-Applied Coatings: As specified in Division 09 Section "Painting".

END OF SECTION

INTERMOUNTAIN HEALTHCARE  
PRIMARY CHILDRENS OUTPATIENT AUDIOLOGY CLINIC  
LAYTON, UTAH

SECTION 08 1416

PREFINISHED FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Prefinished flush wood doors and supplementary items necessary for installation.

1.2 SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product and system indicated.
1. Include manufacturer's specifications for materials, finishes, construction details, installation instructions, and recommendations for maintenance.
  2. Include details of core and edge construction, light frames, and trim for openings.
  3. Include factory-finishing specifications.
  4. Include manufacturer's surface preparation instructions.
  5. Indicate scheduled fire doors that cannot qualify for labeling because of design, size, hardware or other reason.
- B. Shop Drawings: Show details of fabrication and installation, including plans, elevations, sections, details of components and attachments to other work. Distinguish between shop and field-assembled work. Provide dimensioned drawings indicating location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
1. Indicate dimensions and locations of mortises and holes for hardware.
  2. Indicate dimensions and locations of cutouts.
  3. Indicate requirements for door face matching.
  4. Indicate doors to be factory finished and finish requirements.
  5. Indicate fire-protection-ratings for fire-rated doors.
- C. Samples for Verification Purposes: For each type of exposed finish required, prepared on Samples of size indicated below.
1. Plastic Laminate Doors: Plastic laminate door facing, 6 in (150 mm) square, for each color, texture, and pattern selected.
- D. Product Test Reports: Written reports based on evaluation of comprehensive tests performed by qualified testing agency indicating that each product complies with requirements.
- E. Warranty: Sample of warranty.
1. Provide manufacturer's written warranty covering materials and installation (labor) stating obligations, remedies, limitations and exclusions.

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- F. Maintenance Data: To include in maintenance manuals.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with requirements of referenced quality standards and manufacturer's written instructions.
1. Package doors individually.
  2. Protect doors during transit, storage and handling to prevent damage, soiling and deterioration.
  3. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Deliver and install doors only when spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during remainder of construction period.

1.5 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.

1.6 WARRANTY

- A. Manufacturer's Warranty: Furnish manufacturer's written material and labor warranty signed by an authorized representative using manufacturer's standard form agreeing to furnish materials and labor required to repair or replace work which exhibits material defects caused by manufacture or design and installation of product. Warranty shall also include finishing that may be required due to repair or replacement of defective doors. "Defects" is defined to include but not limited to deterioration or failure to perform as required.
1. Defects include, but are not limited to, the following:
    - a. Warping (Bow, Cup, or Twist): Not more than 1/4 in (6 mm) in a 42 by 84 in (1050 by 2100 mm) section.
    - b. Telegraphing of Core Construction: Not more than 0.01 in in a 3 in (0.25 mm in a 75 mm) span in face veneers.
  2. Warranty Period: Manufacturer shall warrant the products to be free from material and labor Defects for a period as follows:
    - a. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements of Contract Documents as judged by the Architect, provide product by one of manufacturers listed. If not listed, submit as substitution according to the Conditions of the Contract and Division 01 Section "Substitution Procedures".

1. Algoma Hardwoods, Inc.
2. Construction Specialties, Inc. (C/S Group)
3. Eggers Industries.
4. Graham Wood Doors.
5. The Maiman Company.

- B. Basis of Design (Product Standard): Contract Documents are based on products and systems specified to establish a standard of quality. Other manufacturers offering products having equivalent characteristics may be considered, provided deviations are minor and comply with requirements of Contract Documents as judged by the Architect.

1. Eggers Industries; eiDoor Impact Resistant Doors.
2. The Maiman Company; Thermal Fused Doors.

## 2.2 MATERIALS, GENERAL

- A. Single Source Responsibility: Furnish each type of product from single manufacturer. Provide secondary materials only as recommended by manufacturer of primary materials.

## 2.3 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics:

1. Fire Resistance Ratings: Products and construction identical to assemblies tested for fire resistance according to NFPA 252 or UL 10C and included under Category GSZN, Category A, published in Underwriters Laboratories, Inc. (UL) "Fire Resistance Directory"; or listing of another testing and inspecting agency acceptable to authorities having jurisdiction.
2. Positive Pressure Testing: After 5 minutes into test, neutral pressure level in furnace shall be established at 40 in (1000 mm) or less above sill.
3. Availability: If specified as fire-rated and labeled door can be obtained from one manufacturer, no consideration will be given to those manufacturers who are not authorized to manufacture such doors.
4. Smoke-Control Door Assemblies: Comply with UL 1784.

## 2.4 DOOR CONSTRUCTION, GENERAL

- A. Product Quality Standard: In addition to standard listed elsewhere, comply with following, unless otherwise specified, for construction, finishes, installation, and other requirements:

1. Standard:
  - a. AWI's "Architectural Woodwork Quality Standards".
  - b. WI's "Manual of Millwork".

- B. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.

- C. Particleboard Core Doors:

1. Particleboard: ANSI A208.1, Grade LD-2.
2. Blocking: Solid wood blocking as needed to eliminate through-bolting hardware and as follows:



## PREFINISHED FLUSH WOOD DOORS

- a. Top Rail: 5 in (125 mm).
- b. Bottom Rail: 5 in (125 mm).
- c. Mid Rail: 5 in (125 mm), in doors indicated to have exit devices.
- d. Lock Blocks: 5 in by 10 in (125 mm by 250 mm), one for lock and two for exit devices.

### D. Fire-Protection-Rated Doors: Mineral core as required for fire-protection-rating indicated.

1. Edge: Construction with intumescent seals; where positive pressure fire testing is required, edge construction with intumescent seals concealed by outer stile matching door face material and laminated backing at hinge stiles for improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
2. Pairs: Fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Comply with specified requirements for exposed edges.

### E. Mineral Core Doors:

1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection-rating indicated.
2. Blocking: Composite blocking with improved screw-holding capability approved for use in doors of fire-protection-ratings indicated as needed to eliminate through-bolting hardware and as follows:
  - a. Top Rail: 5 in (125 mm).
  - b. Bottom Rail: 5 in (125 mm).
  - c. Mid Rail: 5 in (125 mm), in doors indicated to have exit devices.
  - d. Lock Blocks: 5 in by 10 in (125 mm by 250 mm), one for lock and two for exit devices.

## 2.5 PLASTIC LAMINATE FACED DOORS

### A. Low-Pressure Decorative Laminate Faces:

1. Plastic Laminate Faces: Low-pressure decorative laminate faces thermally fused to cores under heat and pressure, complying with Laminating Materials Association's Product Standard and Typical Physical Properties of Decorative Overlays. LMA.2003.
2. Color Selection: Wood Grain, as selected by Architect, to match existing.
3. Exposed Edges: Impact resistant polymer edging minimum .040 inch thick, applied to all four edges after faces.
  - a. Polymer Edging Color or Wood Grain Pattern: Manufacturer's standard color that matches faces.
4. Provide doors with pilot holes factory drilled for vertical edge hinges and lock sets.

## 2.6 FABRICATION OF PREFINISHED FLUSH WOOD DOORS

### A. Fabrication Quality Standards: In addition to standards listed elsewhere, comply with following, unless otherwise specified:

1. NFPA 80 for fire-rated doors.
2. DHI-WDHS-3 and DHI A115-W series standards for hardware.

## PREFINISHED FLUSH WOOD DOORS

- B. Factory Fitting: Factory fit doors to suit frame opening sizes indicated according to installation quality standards. Do not trim stiles and rails in excess of limits permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining with seal coat.
1. Maximum Clearances for non-rated doors:
    - a. Head, Jambs, and Between Pairs of Doors: 1/8 in (3 mm).
    - b. Bottom to Top of Floor Coverings: 1/2 in (12 mm).
    - c. Bottom to Top of Raised Threshold: 3/8 in (10 mm).
  2. Bevel (Doors without Replaceable Secondary Door Stiles): 1/8 in in 2 in (3 mm in 50 mm) (3-1/2 deg) at lock and hinge edges; at fire-rated doors trim stiles and rails only to extent permitted by labeling agency.
- C. Hardware:
1. Factory machine doors for hardware that is not surface applied according to installation quality standards.
  2. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
  3. For doors scheduled to have electrical locks, provide built-in 1/4 in (6 mm) diameter raceway through doors, from lockset location to nearest hinge location, for low voltage wiring for doors scheduled to have electric locks.
- D. Openings: Cut and trim openings through doors in factory.
1. Light Openings: Trim openings with moldings of material and profile indicated.
  2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Division 08 Section "Glazing".

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.
1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
  2. Reject doors with defects.

### 3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
1. NFPA 80 for fire-rated doors.
  2. NFPA 105 for smoke control doors.
  3. Respective manufacturer's written installation instructions.

4. Accepted submittals.
5. Contract Documents.

### 3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.

### 3.4 INSTALLATION OF FLUSH WOOD DOORS

- A. Factory-Fitted Door Clearances: Fit accurately in frames, within following clearances for all doors (smoke control, fire-rated, and non-fire-rated):
  1. Jambs and Head: 1/8 in (3 mm) maximum.
  2. Between Edges of Pairs of Doors: 1/8 in (3 mm) maximum.
  3. Between Bottom of Door and Top of Threshold: Maximum 3/8 in (10 mm).
  4. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (20 mm).
  5. Between Bottom of Door and Top of Finish Surface (No Threshold) when the bottom of the door is more than 38 in (965 mm) above the finished floor: Maximum 3/8 in (10 mm) or as specified by the manufacturer's label service procedure.
- B. Hardware: As specified in Division 08 Section "Door Hardware".
- C. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

### 3.5 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION

INTERMOUNTAIN HEALTHCARE  
PRIMARY CHILDRENS OUTPATIENT AUDIOLOGY CLINIC  
LAYTON, UTAH

SECTION 08 4110

INTERIOR GLAZED ALUMINUM PARTITIONS  
(INTERIOR STOREFRONT)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Interior glazed aluminum partitions (interior storefront) and supplementary items necessary for installation.

1.2 SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product and system indicated.
  - 1. Include manufacturer's specifications for materials, finishes, construction details, installation instructions, and recommendations for maintenance.
- B. Shop Drawings: Show details of fabrication and installation, including plans, elevations, sections, details of components and attachments to other work. Distinguish between shop and field-assembled work.
- C. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- D. Welding Certifications: Qualification certificates required by "Quality Assurance" Article. Include names of firms and personnel certified.

1.3 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to AWS qualification requirements and the following:
  - 1. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum".

1.4 PROJECT CONDITIONS

- A. Field Measurements: Where products and systems are indicated to fit walls and other construction, verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.5 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.

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INTERIOR GLAZED ALUMINUM PARTITIONS  
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## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS AND PRODUCTS

- A. Acceptable Manufacturers: Subject to compliance with requirements of Contract Documents as judged by the Architect, provide product by one of manufacturers listed. If not listed, submit as substitution according to the Conditions of the Contract and Division 01 Section "Substitution Procedures".
  - 1. Kawneer North America; an Alcoa Company.
  - 2. Oldcastle BuildingEnvelope.
- B. Basis of Design (Product Standard): Contract Documents are based on products and systems specified to establish a standard of quality. Other manufacturers offering products having equivalent characteristics may be considered, provided deviations are minor and comply with requirements of Contract Documents as judged by the Architect.
  - 1. Kawneer North America; an Alcoa Company; Trifab VG 450 or 451T, 1-3/4 inch face, 4-1/2 inch depth, glass in center.

### 2.2 PERFORMANCE REQUIREMENTS

- A. Structural Loads: Provide glazed aluminum partition systems capable of withstanding uniform load of 5 lbs per sq. ft. based on testing manufacturer's standard system in assemblies similar to those indicated for this Project.
  - 1. Deflection of framing members normal to wall plane is limited to 1/175 of clear span for spans up to 13 feet 6 inches and to 1/240 of clear span plus 1/4 inch for spans greater than 13 feet 6 inches or an amount that restricts edge deflection of individual glazing lites to 3/4 inch whichever is less.

### 2.3 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
  - 1. Sheet and Plate: ASTM B 209 / B 209M.
  - 2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 / B 221M.
  - 3. Extruded Structural Pipe and Tubes: ASTM B 429 / B 429M.
  - 4. Structural Profiles: ASTM B 308 / B 308M.
  - 5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.
- B. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.
- C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- D. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.

INTERIOR GLAZED ALUMINUM PARTITIONS  
(INTERIOR STOREFRONT)

2.4 GLAZING

- A. Glazing: Provide glass of types and thicknesses indicated. Fabricate glass to sizes required for openings indicated with edge clearances and tolerances complying with manufacturer's recommendations. Comply with Division 08 Section "Glazing".

2.5 FABRICATION

- A. 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.
- B. Framing Members: 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. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
  - 6. Fabricate for flush glazing (without projecting stops).
- C. Door Frames: Reinforce as required to support loads imposed by door operation and for installing hardware.
  - 1. Provide silencers at stops to prevent metal-to-metal contact. Install three silencers on strike jamb of single-door frames and two silencers on head of frames for pairs of doors.
- D. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.6 ALUMINUM FINISHES

- A. Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.
  - 1. Selections: As scheduled.
- B. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.

3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
  - 1. Respective manufacturer's written installation instructions.
  - 2. Accepted submittals.
  - 3. Contract Documents.
- B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by isolating metals and other materials from direct contact with incompatible materials.
  - 1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer, applying sealant or tape, or installing nonconductive spacers as recommended by manufacturer for this purpose.
  - 2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.

3.4 EXAMINATION

- A. Examine substrate surfaces to receive glazed aluminum partitions and associated work and conditions under which work will be installed. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to installer. Starting work within a particular area will be construed as installer's acceptance of surface conditions.

3.5 INSTALLATION OF GLAZED ALUMINUM PARTITIONS

- A. General:
  - 1. Do not install damaged components.
  - 2. Fit joints between aluminum components to produce hairline joints free of burrs and distortion.
  - 3. Rigidly secure non-movement joints.
  - 4. Install anchors with separators and isolators to prevent impediments to movement of joints.

INTERIOR GLAZED ALUMINUM PARTITIONS  
(INTERIOR STOREFRONT)

5. Do not cut, trim, weld or braze component parts during erection, in any manner which would damage finish, decrease strength or result in visual imperfection or failure in performance of construction.
  6. Weld components in concealed locations to minimize distortion or discoloration of finish. Protect glazing surfaces from welding.
  7. Seal joints within glazed aluminum framing system according to sealant manufacturer's written instructions to produce weatherproof joints. Install joint filler behind sealant as recommended by sealant manufacturer.
- B. Install components plumb and true in alignment with established lines and grades, and without warp or rack. Secure to structure with non-staining and non-corrosive shims, anchors, fasteners, spacers and fillers.
- C. Install glazing as specified in Division 08 Section "Glazing".
- 3.6 ERECTION TOLERANCES
- A. Erection Tolerances: Install to comply with the following non-accumulating maximum erection tolerances:
1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.
  2. Alignment:
    - a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch (1.5 mm).
    - b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch (0.8 mm).
- B. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch (3 mm).

END OF SECTION



INTERIOR GLAZED ALUMINUM PARTITIONS  
(INTERIOR STOREFRONT)

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SECTION 087100.01 – DOOR HARDWARE FOR PRIMARY CHILDREN’S TI

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
  - 1. Swinging doors.
  - 2. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
  - 1. Mechanical door hardware.
  - 2. Electromechanical door hardware.
  - 3. Automatic operators.
  - 4. Cylinders specified for doors in other sections.
- C. Related Sections:
  - 1. Division 08 Section “Door Hardware Schedule”.
  - 2. Division 08 Section “Hollow Metal Doors and Frames”.
  - 3. Division 08 Section “Interior Aluminum Doors and Frames”.
  - 4. Division 08 Section “Flush Wood Doors”.
  - 5. Division 08 Section “Automatic Door Operators”.
  - 6. Division 08 Section “Access Control Hardware”.
  - 7. Division 28 Section “Access Control”.
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
  - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
  - 2. ICC/IBC - International Building Code.
  - 3. NFPA 70 - National Electrical Code.
  - 4. NFPA 80 - Fire Doors and Windows.
  - 5. NFPA 101 - Life Safety Code.
  - 6. NFPA 105 - Installation of Smoke Door Assemblies.
  - 7. UL/ULC and CSA C22.2 – Standards for Automatic Door Operators Used on Fire and Smoke Barrier Doors and Systems of Doors.
  - 8. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards:

1. ANSI/BHMA Certified Product Standards - A156 Series
2. UL10C – Positive Pressure Fire Tests of Door Assemblies

### 1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:
  - a. Type, style, function, size, label, hand, and finish of each door hardware item.
  - b. Manufacturer of each item.
  - c. Fastenings and other pertinent information.
  - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
  - e. Explanation of abbreviations, symbols, and codes contained in schedule.
  - f. Mounting locations for door hardware.
  - g. Door and frame sizes and materials.
  - h. Warranty information for each product.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:

1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access

control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

- a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
  - b. Complete (risers, point-to-point) access control system block wiring diagrams.
  - c. Wiring instructions for each electronic component scheduled herein.
2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Proof of Certification: Provide copy of manufacturer(s) official certification or accreditation document indicating proof of status as a qualified installer of Windstorm assemblies.
- E. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- F. Informational Submittals:
1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- G. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during

the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

- D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
  - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
  - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
  - 1. Function of building, purpose of each area and degree of security required.
  - 2. Plans for existing and future key system expansion.
  - 3. Requirements for key control storage and software.
  - 4. Installation of permanent keys, cylinder cores and software.
  - 5. Address and requirements for delivery of keys.
- G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
  - 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
  - 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
  - 3. Review sequence of operation narratives for each unique access controlled opening.
  - 4. Review and finalize construction schedule and verify availability of materials.
  - 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

#### 1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

#### 1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
  - 1. Structural failures including excessive deflection, cracking, or breakage.
  - 2. Faulty operation of the hardware.
  - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:

1. Ten years for mortise locks and latches.
2. Five years for exit hardware.
3. Twenty five years for manual surface door closer bodies.
4. Two years for electromechanical door hardware.

1.8 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
- C. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- D. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Sets.
1. Quantity: Provide the following hinge quantity, unless otherwise indicated:
    - a. Two Hinges: For doors with heights up to 60 inches.
    - b. Three Hinges: For doors with heights 61 to 90 inches.
    - c. Four Hinges: For doors with heights 91 to 120 inches.
    - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
    - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
    - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
  3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
    - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
    - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
  4. Hinge Options: Comply with the following where indicated in the Hardware Sets or on Drawings:
    - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
  5. Acceptable Manufacturers:
    - a. Hager Companies (HA).
    - b. McKinney Products (MK).
- B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
1. Acceptable Manufacturers:
    - a. McKinney Products (MK).
    - b. Pemko Manufacturing (PE).
- C. Continuous Geared Double-acting Hinges. ANSI/BHMA A156.26 Grade 1-600 Certified continuous geared hinges. Hinges are non-handed and allow the door to swing up to 100 degrees in either direction.
1. Acceptable Manufacturers:
    - a. Pemko Manufacturing (PE) – DHS Series.
- D. Pin and Barrel Continuous Hinges: ANSI/BHMA A156.26 Grade 1-600 certified pin and barrel continuous hinges with minimum 14 gauge Type 304 stainless steel hinge leaves, concealed teflon coated stainless pin, and twin self lubricated nylon bearings at each knuckle separation. Factory trim hinges to suit door height and prepare for electrical cut-outs.
1. Acceptable Manufacturers:



- a. Markar Products (MR).
- b. McKinney Products (MK).

## 2.3 POWER TRANSFER DEVICES

- A. Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Acceptable Manufacturers:

- a. Pemko Manufacturing (PE) – EL-CEPT Series.
- b. Securitron (SU) - EL-CEPT Series.
- c. Von Duprin (VD) - EPT-10 Series.

- B. Concealed Quick Connect Electric Data Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified access control door hardware. Furnish with Molex™ or RJ-45 standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Acceptable Manufacturers:

- a. Securitron (SU) - CEPT-C5E Series.

- C. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.

1. Provide one each of the following tools as part of the base bid contract:

- a. McKinney Products (MK) - Electrical Connecting Kit: QC-R001.
- b. McKinney Products (MK) - Connector Hand Tool: QC-R003.

2. Acceptable Manufacturers:

- a. McKinney Products (MK) – QC-C Series.
- b. McKinney Products (MK) – PoE Series.

## 2.4 DOOR OPERATING TRIM

- A. Door Push Plates and Pulls: ANS/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
  - 1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
  - 2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
  - 3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
  - 4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
  - 5. Acceptable Manufacturers:
    - a. Rockwood Manufacturing (RO).
    - b. Trimco (TC).

## 2.5 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
- C. Cylinders: Original manufacturer cylinders complying with the following:
  - 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
  - 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
  - 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
  - 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
  - 5. Keyway: Match Facility Restricted Keyway.
- D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
  - 1. Interchangeable Cores: Core insert, removable by use of a special key; usable with other manufacturers' cylinders.
- E. Patented Cylinders: ANSI/BHMA A156.5, Grade 1, certified patented cylinders employing a utility patented and restricted keyway requiring the use of a patented key. Cylinders are to be protected from unauthorized manufacture and distribution by manufacturer's United States patents. Cylinders are to be factory keyed with owner having the ability for on-site original key cutting.

1. Acceptable Manufacturers:

- a. Medeco (MC) - X4 Series.

F. Keying System: Each type of lock and cylinders to be factory keyed.

1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. Existing System: Key locks to Owner's existing system.

G. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Two (2)
2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).
4. Construction Control Keys (where required): Two (2).
5. Permanent Control Keys (where required): Two (2).

H. Construction Keying: Provide temporary keyed construction cores.

I. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

## 2.6 MECHANICAL LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.

1. Acceptable Manufacturers:

- a. Corbin Russwin Hardware (RU) – ML2000 Series.
- b. Sargent Manufacturing (SA) – 8200 Series.

## 2.7 ELECTROMECHANICAL LOCKING DEVICES

A. Electromechanical Mortise Locksets, Grade 1 (Heavy Duty): Subject to same compliance standards and requirements as mechanical mortise locksets, electrified locksets to be of type and design as specified below.

1. Electrified Lock Options: Where indicated in the Hardware Sets, provide electrified options including: outside door lock/unlock trim control, latchbolt and lock/unlock status monitoring, deadbolt monitoring, and request-to-exit signaling. Support end-of-line

resistors contained within the lock case. Unless otherwise indicated, provide electrified locksets standard as fail secure.

2. Energy Efficient Design: Provide lock bodies which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.
  3. Acceptable Manufacturers:
    - a. Corbin Russwin Hardware (RU) - ML20900 Series.
    - b. Sargent Manufacturing (SA) - 8200 Series.
- B. IP Enabled Power-over-Ethernet (PoE) Integrated Card Reader Mortise Lock: IP enabled, PoE ANSI/BHMA A156.13 Grade 1 mortise lockset with integrated proximity card reader, request-to-exit, latchbolt and deadbolt monitoring, and door position signaling in one complete unit. Motor driven locking/unlocking control of the lever handle trim, 3/4" deadlocking anti-friction latch, and 1" case-hardened steel deadbolt (optional). Lock is U.L listed and labeled for use on up to 3 hour fire rated openings. Available with or without keyed high security cylinder override.
1. Completely intelligent and integrated locking unit with Ethernet power and communication connection capability directly from the locking unit back to the central system host server without additional access control interfaces or components (excluding PoE switches and Mid-Span devices) via an existing or newly installed TCP/IP network.
  2. Networked locks are able to read, analyze, and control access to level of authorization encoded on keycard. Real-time software accessible alarms for forced door, unknown card and door held open, with inside lever handle (request-to-exit), auxiliary latchbolt, deadbolt, and door position (open/closed status) monitoring.
  3. 2,400 users and 10,000 event transaction history (audit trail). Distributed intelligence allows stand alone operation in absence of network communication allowing for system operational redundancy.
  4. Power and communication from one Ethernet (CAT5e or higher) cable. Compliant with 802.3af specifications requiring 12.95 watts for Power over Ethernet.
  5. Emergency override access capability through system-generated special access keycards and keypad codes, which are time, date, and location specific.
    - a. Provide high security mechanical key override capability with no electronic activation necessary for latch or lock retraction.
    - b. Deadbolt overriding capability available from outside on any level keycard, keypad code or mechanical key.
  6. Supports real-time system lockdown capabilities. Inside lever retracts latch bolt and deadbolt simultaneously.
  7. Ethernet system framework, network cabling and mounting boxes, and PoE switches (by others) are required for complete system functionality.
    - a. Network Drop Cable Specifications: Cat5e or higher (Belden 153P D15A1000) or equivalent). TIA/EIB-568-B shielded with drain wire. 24 AWG Plenum rated.
    - b. Network Surface Mount Box: Cat5e or higher (RJ45); TIA/EIB-568-B

8. Manufacturer/Model:

- a. Corbin Russwin Hardware (CR) – IN220 - ML2000 Series.
- b. Sargent Manufacturing (SA) – IN220 – 8200 Series.

2.8 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
  - 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
  - 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
  - 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
  - 4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.
- B. Standards: Comply with the following:
  - 1. Strikes for Mortise Locks and Latches: BHMA A156.13.
  - 2. Strikes for Bored Locks and Latches: BHMA A156.2.
  - 3. Strikes for Auxiliary Deadlocks: BHMA A156.5.
  - 4. Dustproof Strikes: BHMA A156.16.

2.9 ELECTRIC STRIKES

- A. Standard Electric Strikes: Heavy duty, cylindrical and mortise lock electric strikes conforming to ANSI/BHMA A156.31, Grade 1, UL listed for both Burglary Resistance and for use on fire rated door assemblies. Stainless steel construction with dual interlocking plunger design tested to exceed 3000 lbs. of static strength and 350 ft-lbs. of dynamic strength. Strikes tested for a minimum 1 million operating cycles. Provide strikes with 12 or 24 VDC capability and supplied standard as fail-secure unless otherwise specified. Option available for latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike.
  - 1. Acceptable Manufacturers:
    - a. Folger Adam EDC (FO).
    - b. HES (HS).

2.10 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
5. Electromechanical Options: Subject to same compliance standards and requirements as mechanical exit devices, electrified devices to be of type and design as specified in hardware sets. Include any specific controllers when conventional power supplies are not sufficient to provide the proper inrush current.
6. Motorized Electric Latch Retraction: Devices with an electric latch retraction feature must use motors which have a maximum current draw of 600mA. Solenoid driven latch retraction is not acceptable.
7. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
  - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
  - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
8. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
9. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
10. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
11. Rail Sizing: Provide exit device rails factory sized for proper door width application.
12. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
1. Acceptable Manufacturers:
    - a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
    - b. Sargent Manufacturing (SA) - 80 Series.
- C. IP Enabled Power-over-Ethernet (PoE) Integrated Card Reader Exit Hardware: IP enabled, PoE ANSI/BHMA A156.3 Grade 1 rim and mortise exit device hardware with integrated proximity card reader, touchbar monitoring, and request-to-exit signaling in one complete unit. Motor driven locking/unlocking control of the lever handle exit trim with 3/4" throw latch bolt. U.L listed and labeled for either panic or "fire exit hardware" for use on up to 3 hour fire rated openings. Available with or without keyed high security cylinder override trim.
1. Completely intelligent and integrated locking unit with Ethernet power and communication connection capability directly from the locking unit back to the central system host server without additional access control interfaces or components (excluding PoE switches and Mid-Span devices) via an existing or newly installed TCP/IP network.
  2. Networked exit trim is able to read, analyze, and control access to level of authorization encoded on keycard. Real-time software accessible alarms for forced door, unknown card and door held open, with inside push bar (request-to-exit) signaling and door position (open/closed status) monitoring (via separately connected in-door DPS).
  3. 2,400 users and 10,000 event transaction history (audit trail). Distributed intelligence allows stand alone operation in absence of network communication allowing for system operational redundancy.
  4. Power and communication from one Ethernet (CAT5e or higher) cable. Compliant with 802.3af specifications requiring 12.95 watts for Power over Ethernet.
  5. Emergency override access capability through system-generated special access keycards and keypad codes, which are time, date, and location specific.
    - a. Provide high security mechanical key override capability with no electronic activation necessary for latch or lock retraction.
  6. Supports real-time system lockdown capabilities.
  7. Ethernet system framework, network cabling and mounting boxes, and PoE switches (by others) are required for complete system functionality.
    - a. Network Drop Cable Specifications: Cat5e or higher (Belden 153P D15A1000) or equivalent). TIA/EIB-568-B shielded with drain wire. 24 AWG Plenum rated.
    - b. Network Surface Mount Box: Cat5e or higher (RJ45); TIA/EIB-568-B
  8. Manufacturer/Model:
    - a. Corbin Russwin Hardware (CR) – IN220 - ED5000 Series.
    - b. Sargent Manufacturing (SA) – IN220 - 80 Series.

## 2.11 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates, and through-bolt and security type fasteners as required for proper installation.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

1. Acceptable Manufacturers:
  - a. Sargent Manufacturing (SA) - 351 Series.
  - b. Norton Door Controls (NO) - 7500 Series.

## 2.12 SURFACE MOUNTED CLOSER HOLDERS

A. Multi-Point Closer Holders with Motion Sensor: ANSI A156.15, Grade 1 certified multi-point, closer holder devices designed to keep doors in a held-open position if presence is detected within the opening. Push side or pull side mounting applications having a maximum opening of 180° (hold open to 175°) and dual voltage input (24V /120V). Voltage to be 24VDC unless



otherwise specified. Units are fail safe, closing the door in the event of fire alarm system or electrical power interruption.

1. Safe Zone Detection: Closer holders units to have an integral motion sensor device monitoring a "zone of safety" at the door opening. Safe zone detection prevents the door from closing in event of movement within the adjustable sensing field. Movement is detectable in both directions with selectable closer hold open time and sensor sensitivity. Provide optional handheld device for programming safe zone sensor settings.
2. Acceptable Manufacturers:
  - a. Norton Door Controls (NO) - 7100SZ Series.

## 2.13 ELECTROMECHANICAL DOOR OPERATORS

- A. General: Provide low energy operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for compliance with UL 325. Coordinate operator mechanisms with door operation, hinges, and activation devices.
  1. Fire-Rated Doors: Provide door operators for fire-rated door assemblies that comply with NFPA 80 for fire-rated door components and are listed and labeled by a qualified testing agency.
- B. Standard: Certified ANSI/BHMA A156.19.
- C. Performance Requirements:
  1. Opening Force if Power Fails: Not more than 15 lbf required to release a latch if provided, not more than 30 lbf required to manually set door in motion, and not more than 15 lbf required to fully open door.
  2. Entrapment Protection: Not more than 15 lbf required to prevent stopped door from closing or opening.
- D. Configuration: Surface mounted or in-ground as required. Door operators to control single swinging and pair of swinging doors.
- E. Operation: Power opening and spring closing operation capable of meeting ANSI A117.1 accessibility guideline. Provide time delay for door to remain open before initiating closing cycle as required by ANSI/BHMA A156.19.
- F. Features: Operator units to have full feature adjustments for door opening and closing force and speed, backcheck, motor assist acceleration from 0 to 30 seconds, time delay, vestibule interface delay, obstruction recycle, and hold open time from 0 up to 30 seconds.
- G. Provide outputs and relays on board the operator to allow for coordination of exit device latch retraction, electric strikes, magnetic locks, card readers, safety and motion sensors and specified auxiliary contacts.

- H. Brackets and Reinforcements: Manufacturer's standard, fabricated from aluminum with nonferrous shims for aligning system components.
- I. Acceptable Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Besam Automated Entrance Systems (BE) – SW200i Series.
  - 2. Record (RE) – 6100 Series

## 2.14 ACTIVATION DEVICES

- A. General: Provide activation devices in accordance with ANSI/BHMA A156.19 standard, for condition of exposure indicated and for long term, maintenance free operation under normal traffic load operation. Coordinate activation control with electrified hardware and access control interfaces. Activation switches are standard SPST, with optional DPDT availability.
- B. Push-Plate Switch: Momentary contact door control switch with push-plate actuator.
  - 1. Configuration: Square or round push-plate control switch with single or double gang junction box mounting. Provide narrow profile face plate where indicated for jamb or mullion mounting.
    - a. Mounting Location: As indicated on Drawings.
  - 2. Push-Plate Material: Stainless steel.
  - 3. Message: International symbol of accessibility with "Push (Press) to Open (Operate)" text.
  - 4. Acceptable Manufacturers:
    - a. Alarm Controls (AK) – JP1 Series.
    - b. Norton Door Controls (NO) – 500 Series.

## 2.15 ARCHITECTURAL TRIM

- A. Door Protective Trim
  - 1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
  - 2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
  - 3. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:

- a. Stainless Steel: 300 grade, 050-inch thick.
- 4. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
- 5. Acceptable Manufacturers:
  - a. Rockwood Manufacturing (RO).
  - b. Trimco (TC).

## 2.16 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
  - 1. Acceptable Manufacturers:
    - a. Rockwood Manufacturing (RO).
    - b. Trimco (TC).
- C. Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
  - 1. Acceptable Manufacturers:
    - a. Rixson Door Controls (RF).
    - b. Rockwood Manufacturing (RO).

## 2.17 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
  1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and UBC 7-2, Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Acceptable Manufacturers:
  1. National Guard Products (NG).
  2. Pemko Manufacturing (PE).

## 2.18 ELECTRONIC ACCESSORIES

- A. Switching Power Supplies: Provide UL listed or recognized filtered and regulated power supplies. Provide single, dual, or multi-voltage units as shown in the hardware sets. Units must be expandable up to eight Class 2 power limited outputs. Units must include the capability to incorporate a battery backup option with integral battery charging capability in addition to operating the DC load in event of line voltage failure. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
  1. Acceptable Manufacturers:
    - a. Securitron (SU) - AQ Series.

## 2.19 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

## 2.20 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

#### 3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

#### 3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
  - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
  - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
  - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
  - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
  - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

### 3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

### 3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

### 3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

### 3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

### 3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

B. Manufacturer's Abbreviations:

1. MK - McKinney
2. PE - Pemko
3. MR - Markar
4. RO - Rockwood
5. SA - Sargent
6. MC - Medeco
7. HS - HES
8. RF - Rixson
9. NO - Norton
10. BM - Besam
11. SU - Securitron

#### **Hardware Schedule**

**Set: 1.0** (Lobby entry to corridor)  
Doors: 34241

1 Continuous Hinge	CFM HD1 EL-CEPTx32D		PE
1 Exit Device	55 56 72 AD8504	US32D	SA
1 SFIC Core	33700006K GMK	26	MC
1 Stop	415	US26D	RO
1 Gasketing	by door mfg.		
1 Frame Harness	QC-C1500 (as required)		MK
1 Door Harness	QC-C__ (as required)		MK
1 Power Supply	AQD3		SU
1 Card Reader	provided by access control.		

Notes: Coordination required for door operator and card access use.

#### **Set: 10.1**

Doors: 34241A

3 Hinge	TA2714	US26D	MK
1 Storeroom Lock	70 8204 LNL	US26D	SA
1 Door Closer	(P) 7500	689	NO
1 Kick Plate	K1050 10"	US32D	RO
1 Stop	400/403/441H (as required)	US26D	RO
1 Gasketing	S44BL		PE

**Set: 11.0** (Office, Lab)

Doors: 34229, 34235

3 Hinge	TA2714	US26D	MK
1 Office Lock	LB 70 8205 LNL	US26D	SA
1 SFIC Core	33700006K GMK	26	MC
1 Stop	400/403/441H (as required)	US26D	RO
3 Silencer	608		RO

**Set: 21.0** (Exam rooms)

Doors: 34227, 34233

3 Hinge	TA2714	US26D	MK
1 Passage Set	8215 LNL	US26D	SA
1 Stop	400/403/441H (as required)	US26D	RO
3 Silencer	608		RO

END OF SECTION 087100.01



INTERMOUNTAIN HEALTHCARE  
PRIMARY CHILDRENS OUTPATIENT AUDIOLOGY CLINIC  
LAYTON, UTAH

SECTION 08 8000

GLAZING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Glass, glazing, and supplementary items necessary for installation; including glass specified in other Sections where glazing requirements are specified by reference to this Section.

1.2 DEFINITIONS

- A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product and system indicated.
  - 1. Include manufacturer's specifications for materials, installation instructions, and recommendations for maintenance.
- B. Shop Drawings: Show details of each type of glazing in conjunction with the appropriate framing system; indicate type of glass, sizes, shapes, glazing material, and quantity. Include details indicating glazing thickness, bite on glass, glass edge clearance, and depth of rabbet.
- C. Product Test Reports: Written reports based on evaluation of comprehensive tests performed by qualified testing agency indicating that each product complies with requirements.
  - 1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.
- D. Field Quality Control Reports: Written report of testing and inspection required by "Field Quality Control".
- E. Manufacturer's Project Acceptance Documents: Certifications by the manufacturer that its products and systems are approved, acceptable, suitable for use in specific locations, for specific details, and for applications indicated, specified, or required, and that a warranty will be issued.
  - 1. Certifications attesting face pressure of heat-strengthened glass units falls within limits specified. Glass determined to be outside these limits shall be replaced at no cost to Owner.
- F. Qualification Data: For installer.
  - 1. For firms and persons specified in "Quality Assurance" to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.
- G. Warranty: Sample of warranty.

1. Provide manufacturer's written warranty covering materials and installation (labor) stating obligations, remedies, limitations and exclusions.

H. Maintenance Data: To include in maintenance manuals.

#### 1.4 QUALITY ASSURANCE

A. Installer Qualifications:

1. Experience: Installer with not less than 5 years experience in performing specified Work similar to scope of this Project, with a record of successful in-service performance and completion of projects for a period of not less than 5 years, and with sufficient production capability, facilities, and personnel to produce required Work.
2. Supervision: Installer shall maintain a competent supervisor who is at Project during times specified Work is in progress, and, who is experienced in installing systems similar to type and scope required for Project.
3. Manufacturer Acceptance: Installer shall be certified, approved, licensed, or acceptable to manufacturer to install products.
4. Certification: Installer shall be certified under the National Glass Association's Certified Glass Installer Program as Level 2 (Senior Glaziers) or Level 3 (Master Glaziers).

B. Safety Glass:

1. Acceptable Products: Complying with CSPC 16 CFR 1201, Category II.
2. Subject to compliance with requirements, permanently mark safety glass with certification label of Safety Glazing Certification Council (SGCC) or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
3. Products Not Permitted: Wired Glass.

C. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

#### 1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or below 40 deg F (4.4 deg C).

B. Field Measurements: Where products and systems are indicated to fit within other construction, verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

## 1.7 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.

## 1.8 WARRANTY

- A. **Manufacturer's Warranty:** Furnish manufacturer's written material warranty signed by an authorized representative using manufacturer's standard form agreeing to furnish materials required to repair or replace work which exhibits material defects caused by manufacture or design of product. "Defects" is defined in "Definitions" Article above to include, but not limited to, deterioration or failure to perform as required.
- B. **Installer's Warranty:** Furnish installer's written workmanship warranty signed by an authorized representative using installer's standard form agreeing to provide labor required to repair or replace work which exhibits workmanship defects. "Defects" is defined to include but not limited to deterioration or failure to perform as required.
  - 1. **Warranty Period:** Installer shall warrant the installation to be free from workmanship Defects for a period of 2 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. **Acceptable Manufacturers:** Subject to compliance with requirements of Contract Documents as judged by the Architect, provide product by one of manufacturers listed. If not listed, submit as substitution according to the Conditions of the Contract and Division 01 Section "Substitution Procedures".
- B. **Basis of Design (Product Standard):** Contract Documents are based on products and systems specified to establish a standard of quality. Other manufacturers offering products having equivalent characteristics may be considered, provided deviations are minor and comply with requirements of Contract Documents as judged by the Architect.
- C. **Glass Type Schedules:**
  - 1. **Interior:** As indicated on the drawings. Provide glazing panes 1/4 in (6 mm) thick unless noted otherwise on the drawings or in other specification Sections.

### 2.2 MATERIALS, GENERAL

- A. **Single Source Responsibility:** Furnish each type of product from single manufacturer. Provide secondary materials only as recommended by manufacturer of primary materials.

### 2.3 PERFORMANCE REQUIREMENTS

- A. **General Performance:** Engineer products and systems to withstand loads within limits of allowable working stresses of the materials involved under conditions indicated and without permanent deformation or failure of materials.

- B. Design Loads: Engineer to withstand design loads according to ASTM E 1300 including, but not limited to, gravity, wind, seismic, and erection design loads and thermal movements established by authorities having jurisdiction, applicable local building codes, and as indicated.
  - 1. Structural Movement: Engineer to withstand movements of structure including, but not limited to, drift, twist, column shortening, long-term creep and deflection from uniformly distributed and concentrated live loads. Contractor shall obtain required design data and identify movements accommodated on submittal drawings.
    - a. System shall accommodate plus or minus 3/8 in (10 mm) differential vertical deflection of floors.
- C. Thermal Movements: Engineer products and systems to accommodate thermal movements of supporting elements resulting from the following maximum change (range) in ambient and surface temperatures without buckling, damaging stresses, damaging loads on fasteners, failure of operating units to function properly, and other detrimental effects.
  - 1. Temperature Change (Range): 120 deg F (49 deg C), ambient; 180 deg F (82 deg C), material surfaces.
- D. Glass Design: Glass thicknesses indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites for various size openings in nominal thicknesses indicated, but not less than thicknesses and in strengths (heat treated, unless noted otherwise) required to meet or exceed the following criteria:
  - 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
    - a. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set vertically 15 degrees or less from vertical and under wind action for minimum of 60 seconds duration.
    - b. Maximum Lateral Deflection: For the following types of glass supported on all four edges, provide thickness required that limits center deflection at design wind pressure to 1/50 times the short side length or 1 in (25 mm), whichever is less.
      - 1) Monolithic-glass lites heat treated to resist wind loads.
  - 2. Human Impact Loads: Locations indicated, and as defined by building code; glazed with safety glass.
- E. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
  - 1. For monolithic-glass lites, properties are based on units with lites 1/4 in (6 mm) thick.

## 2.4 GLASS PRODUCTS

- A. Glass Manufacturers:
  - 1. AGC Glass Co. North America, Inc.
  - 2. Guardian Industries Corporation
  - 3. Pilkington North America, Inc.
  - 4. PPG Industries, Inc.

- B. Heat-Treated Float Glass: ASTM C 1048, Type I (transparent glass, flat), Quality-Q3 (glazing select), kind and class as indicated below.
  - 1. Kind HS (heat strengthened) at exterior conditions and where recommended by manufacturer to comply with system performance requirements specified.
  - 2. Kind FT (fully tempered) where indicated or required for safety glazing.
  - 3. Class 1 (clear) unless otherwise indicated.
  - 4. Class 2 (tinted), where indicated.
  - 5. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
  - 6. For uncoated glass, comply with requirements for Condition A.
  - 7. For coated vision glass, comply with requirements for Condition C (other coated glass).

## 2.5 GLAZING GASKETS

- A. Dense Compression Gaskets: ASTM C 864 or C 1115, molded or extruded gaskets of EPDM, silicone, thermoplastic polyolefin rubber and of profile and hardness required to maintain watertight seal and compatible with sealants.
- B. Soft Compression Gaskets: Extruded or molded closed-cell, integral-skinned gaskets of EPDM, silicone, or thermoplastic polyolefin rubber, complying with ASTM C 509, Type II, black, and of profile and hardness required to maintain watertight seal and compatible with sealants.
  - 1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.
- C. Provide factory pre-molded, vulcanized or heat welded corners, for continuous, joint-free glazing material around sides of the glazing rabbet. Field-cut corners not allowed.
- D. Provide gasket slightly longer than opening to be filled, as recommended by gasket manufacturer.

## 2.6 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

## 2.7 FABRICATION OF GLAZING UNITS

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.
- B. Examine framing glazing, with Installer present, for compliance with the following:
  - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
  - 2. Presence and functioning of weep system.
  - 3. Minimum required face or edge clearances.
  - 4. Effective sealing between joints of glass-framing members.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
  - 1. Respective manufacturer's written installation instructions.
  - 2. Accepted submittals.
  - 3. Contract Documents.

## 3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.
- B. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- C. Examine glazing units to locate interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

## 3.4 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
  - E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
  - F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
  - G. Provide spacers for glass lites where length plus width is larger than 50 in (1270 mm).
    - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
    - 2. Provide 1/8 in (3 mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
  - H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
  - I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
  - J. Set glass lites with proper orientation so that coatings face exterior or interior as specified.
- 3.5 GASKET GLAZING (DRY)
- A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with stretch allowance during installation.
  - B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
  - C. Center glass lites in openings on setting blocks and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
  - D. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
  - E. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.
- 3.6 PROTECTION AND CLEANING
- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
  - B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.

## GLAZING

- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scum, alkaline deposits, or stains; remove as recommended by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents, and vandalism, during construction period.
- E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

### 3.7 GLAZING SCHEDULE

- A. Compression Gasket Glazing:
  - 1. Interior store fronts

END OF SECTION



INTERMOUNTAIN HEALTHCARE  
PRIMARY CHILDRENS OUTPATIENT AUDIOLOGY CLINIC  
LAYTON, UTAH

SECTION 09 2900

GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Metal framing systems, interior gypsum board faced walls, partitions, and ceiling assemblies, and supplementary items necessary for installation.

1.2 DEFINITIONS

- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 for definitions of terms not defined in this Section or in other referenced quality standards.
- B. Damage: Stored or installed paper-faced gypsum board materials not specifically manufactured as "moisture-resistant products" shall be classified as defective and nonconforming Work if they have been exposed to wetness or dampness at any time prior to Substantial Completion or if they exhibit evidence of active or dormant mold or mildew.

1.3 DELEGATED ENGINEERING REQUIREMENTS FOR GYPSUM BOARD ASSEMBLIES WITHSTANDING SEISMIC LOADS

- A. Contract Documents Design Intent: Drawings and Specifications indicate design intent for products and systems required to withstand seismic loads and do not necessarily indicate or specify total Work required and shall not be construed as engineered design. Furnish and install all Work required for a complete installation.
- B. Delegated Engineering Responsibility: Contractor shall employ a qualified professional engineer to provide engineering for products and systems required to withstand seismic loads including attachment to building structure required to meet design intent of Contract Documents including, but not limited to, the following.
  - 1. Preparation of structural analysis data including engineering calculations, shop drawings and other submittals signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Coordination of Contract Documents and Work:
  - 1. Product Variations: In the event of minor differences between products and systems of acceptable or available manufacturer/fabricators. Contractor shall notify Architect of such differences and resolve conflicts in a timely manner. Failure of Contractor to provide notification shall be construed as acceptance of conditions indicated, and changes caused by minor differences between products and Contract Documents shall be included in the Work at no additional cost to Owner.
  - 2. Allowable Adjustments: Minor dimension and profile adjustments may be made in interest of fabrication or erection methods or techniques or ability to satisfy design intent, provided design intent is maintained as determined by Architect. Proposed deviations shall include a detailed analysis of impact to adjacent substrates or other building systems, including related design or construction cost impacts. If accepted by Architect, deviations causing changes in

materials, constructability, substrates, or conditions shall be included in the Work at no additional cost to Owner.

#### 1.4 SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product and system indicated.
  - 1. Include manufacturer's specifications for materials, finishes, construction details, installation instructions, and recommendations for maintenance.
- B. Shop Drawings: Show details of fabrication and installation, including plans, elevations, sections, details of components and attachments to other work. Include scaled and dimensioned drawings showing locations of control joints.
  - 1. Gypsum Board Location Schedule: Provide detailed schedule in format similar to "Gypsum Board Schedule" at end of this Section indicating gypsum board products to be installed and their respective locations.
- C. Shop Drawings for Engineered Gypsum Board Assemblies - Seismic Loads: Scaled and dimensioned drawings showing locations, fabrication, and installation of gypsum board assemblies required to withstand seismic loads, including plans, elevations, sections, details of components, and attachments to building structure; include seal and signature of delegated engineering professional responsible for their preparation.
- D. Delegated Engineering Calculations: Informational submittal for products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation; test reports are not acceptable substitute for calculations.
- E. Product Test Reports: Written reports based on evaluation of comprehensive tests performed by qualified testing agency indicating that each product complies with requirements.
- F. Field Quality Control Reports: Written report of testing and inspection required by "Field Quality Control".
- G. Manufacturer's Project Acceptance Document: Certification by the manufacturer that its product(s) are approved, acceptable, suitable for use in specific locations, for specific details, and for applications indicated, specified, or required.
- H. Qualification Data: For manufacturer, installer, and professional engineer.
  - 1. For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer with not less than 5 years experience with successful production of products and systems similar to scope of this Project, with a record of successful in-service performance and completion of projects for a period of not less than 5 years, and with sufficient production capability, facilities, and personnel to produce required Work.
- B. Installer Qualifications:
  - 1. Experience: Installer with not less than 5 years experience in performing specified Work similar to scope of this Project, with a record of successful in-service performance and

- completion of projects for a period of not less than 5 years and with sufficient production capability, facilities, and personnel to produce required Work.
2. Supervision: Installer shall maintain a competent supervisor who is at Project site during times specified Work is in progress that is experienced in installing systems similar to type and scope required for Project.
- C. Delegated Engineering Professional Qualifications: Professional engineer legally authorized to practice in jurisdiction where Project is located and experienced in providing engineering services of kind indicated that have resulted in installations of products and systems similar to this Project and has a record of successful in-service performance.
- D. Manufacturer's Technical Representative Qualifications: Direct employee of technical services department of manufacturer with minimum of 5 years experience in providing recommendations, observations, evaluations, and problem diagnostics. Sales representatives are not acceptable.
- E. Mock-ups: Prior to fabrication and installation, build mock-up for each form of construction and finish required to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mock-up to comply with the following requirements, using materials indicated for the completed Work:
1. Build mock-up in the location and of the size indicated or, if not indicated, as directed by Architect. Contractor shall provide structural support framework.
    - a. Show typical components, attachments to building structure, and requirements of installation.
    - b. Field Samples for Gypsum Board Finishing: Build 10 ft (3 m) square gypsum board (attached to metal studs) area for each finish level specified. Include not less than one tapered-to-tapered edge gypsum board joint and cut edge-to-cut edge gypsum board joint.
  2. Clean exposed faces of mock-up.
  3. Notify Architect seven days in advance of the dates and times when mock-up will be installed.
  4. Demonstrate the proposed range of aesthetic effects and workmanship.
  5. Protect accepted mock-up from the elements with weather-resistant membrane.
  6. Obtain Architect's acceptance of mockups before starting fabrication.
  7. Maintain mock-ups during construction in an undisturbed condition as a standard for review of the completed Work.
  8. Acceptance of mock-ups does not constitute approval of deviations from the Contract Documents contained in mock-ups unless such deviations are specifically noted by Contractor, submitted to Architect in writing, and accepted by Architect in writing.
  9. Demolish and remove mock-ups when directed by Architect unless accepted to become part of the completed Work.
- F. Fire Resistance Rated Assembly Characteristics: Provide materials and construction identical to those tested according to ASTM E 119/NFPA 251/UL 263 by one of following independent testing and inspecting agency as evidenced by design designation included in their associated approval manual:
1. UL - "Fire Resistance Directory", Category BXUV.
  2. GA 600 - "Fire Resistance Design Manual".
  3. Other agency acceptable to authorities having jurisdiction.
- G. Smoke Resistance Rated Assembly Characteristics: Provide materials and construction identical to those tested according to indicated fire resistance rated assemblies by independent testing and inspecting agency acceptable to authorities having jurisdiction.

- H. Sound (STC) Resistance Rated Assembly Characteristics: Provide materials and construction identical to those tested according to ASTM E 90 and classified according to ASTM E 413 by independent and testing agency acceptable to authorities having jurisdiction.

#### 1.6 PRE-INSTALLATION CONFERENCE

- A. Pre-Installation Conference: Before Work begins, conduct conference at Project site to comply with requirements of applicable Division 01 Sections.
  - 1. Required Attendees:
    - a. Owner.
    - b. Architect.
    - c. Contractor, including superintendent.
    - d. Installer, including project manager and supervisor.
    - e. Manufacturer's qualified technical representative.
    - f. Installers of other construction interfaced with Work.
  - 2. Minimum Agenda: Installer shall demonstrate understanding of the Work required by describing detailed procedures for preparing, installing, and cleaning the Work. Demonstration shall include, but not be limited to, following topics:
    - a. Tour representative areas of Work, inspect and discuss condition of substrate, and other preparatory work performed by other trades.
    - b. Review Work requirements (Drawings, Specifications, and other Contract Documents).
    - c. Review required submittals, both completed and yet to be completed.
    - d. Review and finalize construction schedule related to Work and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
    - e. Review required inspection, testing, certifying, and material usage accounting procedures.
    - f. Review environmental conditions and procedures for coping with unfavorable conditions.
    - g. Resolve deviations or differences between Contract Documents and the manufacturer's specifications.
  - 3. Contractor shall record discussions of conference, including decisions and agreements reached, and furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

#### 1.8 PROJECT CONDITIONS

- A. Environmental Conditions: Comply with ASTM C 840 requirements or respective gypsum board manufacturer's written recommendations, whichever are more stringent.

## 1.9 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS AND PRODUCTS

- A. Available Manufacturers and Products: Subject to compliance with requirements of Contract Documents as judged by the Architect, manufacturers offering products that may be incorporated into the Work include, but are not limited to, those listed.
- B. Basis of Design (Product Standard): Contract Documents are based on products and systems specified to establish a standard of quality. Other available manufacturers offering products having equivalent characteristics may be considered, provided deviations are minor and comply with requirements of Contract Documents as judged by the Architect.

### 2.2 MATERIALS, GENERAL

- A. Single Source Responsibility: Furnish each type of product from single manufacturer. Provide secondary materials only as recommended by manufacturer of primary materials.

### 2.3 PERFORMANCE REQUIREMENTS

- A. General Performance: Engineer products and systems to withstand loads within limits of allowable working stresses of the materials involved under conditions indicated and without permanent deformation or failure of materials.
- B. Design Loads: Engineer to withstand design loads including but not limited to gravity, wind, seismic, and erection design loads established by authorities having jurisdiction, applicable local building codes, and as indicated.
  - 1. Structural Movement: Engineer to withstand movements of structure including, but not limited to, drift, twist, column shortening, long-term creep and deflection from uniformly distributed and concentrated live loads. Contractor shall obtain required design data and identify movements accommodated on submittal drawings.
    - a. Accommodate plus or minus 3/8 in (10 mm) differential vertical deflection of floors.
- C. Dimensional Tolerances: Engineer products and systems to accommodate dimensional tolerances of framing members and adjacent construction.

### 2.4 SUSPENDED GRID SYSTEM FOR INTERIOR CEILINGS

- A. Suspension System:
  - 1. Material Quality Standard: ASTM C 645, heavy-duty rating.
  - 2. Description: Manufacturer's standard direct-hung suspended grid system composed of main beams and cross furring members that interlock to form a modular supporting network for application of gypsum board.
  - 3. Protective Coating - Standard Applications: ASTM A 653/A 653M, not less than G40 (Z120), hot-dip galvanized coating, unless otherwise indicated.

4. Main Beams: Inverted T-shaped profile of single or double mounting flange; minimum 1 1/2 in (38 mm) profile height with top bulb and minimum 1-3/8 in (35 mm) wide knurled mounting flange; factory punched for hanger wire, and to receive cross furring members.
5. Cross Furring Members:
  - a. Tees: Inverted T-shaped profile of single or double mounting flange; 1-1/2 in (38 mm) profile height with top bulb and minimum 1-3/8 in (35 mm) wide knurled mounting flange; with ends formed for positive interlocking with main beam.
  - b. Channels: Inverted hat shaped profile; minimum 7/8 in (21 mm) profile height and minimum 1-3/8 in (35 mm) wide knurled mounting flange; with ends formed for positive interlocking with main beam.
6. Wall Angle: Angle shaped profile with each leg not less than 1-1/4 in (32 mm).
7. Curved Members: Where curved ceilings are indicated, members shall be rolled by manufacturer; field fabricated curved members not permitted.
8. Accessories: Specifically designed as an integral part of suspended grid system.
9. Manufacturers and Products:
  - a. Armstrong World Industries Inc.; Drywall Grid System.
  - b. Chicago Metallic Corporation; 650-C/670-C Fire-Rated Drywall Grid System.
  - c. United States Gypsum Company (USG Interiors, Inc.); Drywall Suspension System.

B. Hanger Attachments to Concrete:

1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching hanger wires and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by a qualified independent testing agency.
  - a. Cast-in-place anchor, designed for attachment to concrete.
  - b. Post-installed chemical anchor.
  - c. Post-installed expansion anchor.
2. Powder-Actuated Fasteners: Suitable for application indicated, ANSI A 10.3; low velocity, powder-actuated fasteners; drive pins and clip angles fabricated from corrosion-resistant materials, with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, an ultimate load capacity not less than 10 times that imposed by construction as determined by testing according to ASTM E 1190 by a qualified independent testing agency.
3. Manufacturers:
  - a. Construction Materials, Inc.
  - b. Heckman Building Products, Inc.
  - c. Hilti Corp.
  - d. ITW Ramset/Red Head.
  - e. Powers Fasteners.
  - f. Simpson Strong Tie Anchor Systems.
4. For post-tensioned concrete, anchors shall not exceed 1 in (25 mm) embedment. Obtain Structural Engineer's written approval for all proposed anchors in post-tensioned concrete prior to installation.

C. Wire:

1. Material Quality Standard: ASTM A 641 / A 641M, Class 1, zinc-coated, soft annealed, mild steel wire.

2. Tie Wire Minimum Size: Single 0.0625 in (16 gage) (1.6 mm) diameter strand, or double 0.0475 in (18 gage) (1.2 mm) diameter strands. Preformed furring channel clips are acceptable.
  3. Hanger Wire Minimum Size: 0.1620 in (8 gage) (4.12 mm) diameter.
- D. Rod Hangers: ASTM A 1008 / A 1008M, 7/32 in (0.56 mm) diameter mild carbon steel rod, with primer painted finish.
  - E. Flat Hangers: ASTM A 1008 / A 1008M, 1 in by 3/16 in (25 mm by 5 mm) by length indicated or required, with primer painted finish.
  - F. Angle Hangers: ASTM A 36 / A 36M, rolled steel angle, 2 in by 2 in (50 mm by 50 mm), with primer painted finish.

## 2.5 METAL FRAMING COMPONENTS

- A. Material Quality Standard: Provide components of sizes indicated but not less than that required to comply with ASTM C 754 for conditions indicated.
  1. Sheet Steel: ASTM C 645 for metal.
  2. Protective Coating - Standard Applications: ASTM A 653/A 653M, not less than G40 (Z120), hot-dip galvanized coating, unless otherwise indicated.
- B. Metal Studs and Floor Track (Runners):
  1. Standard Metal Framing Components for Typical Partitions:
    - a. Stud Description: C-shaped members formed from galvanized sheet steel with 1 1/4 in (32 mm) flange edges bent back 90 degrees and doubled over to form 13/64 in (5 mm) wide minimum return lip; of web depth indicated on Drawings and uncoated base metal thickness indicated in "Metal Framing Schedule" at end of this Section; with web punchouts.
      - 1) Alternative Jamb Stud Members - Contractor's Option: "Heavy Duty" or "King" studs; C-shaped members formed from galvanized sheet steel with 3 in (75 mm) flange width; of web depth indicated on Drawings and uncoated base metal thickness indicated in "Metal Framing Schedule" at end of this Section.
    - b. Track (Runner) Description: U-shaped members formed from galvanized sheet steel with depth compatible with studs and flange dimension indicated to hold studs by friction; of same web size and uncoated base metal thickness as studs.
      - 1) Floor Track (Runner): 1-1/4in (32 mm).
      - 2) Top of Wall Track (Runner): 3 in (75 mm).
  2. Metal Framing for Shaftwall Partitions:
    - a. Stud Description: C-H, double E, C-T, or I-shaped members formed from galvanized sheet steel; of web depth indicated on Drawings and uncoated base metal thickness indicated in "Metal Framing Schedule" at end of this Section; with web punchouts.
    - b. Track (Runner) and Jamb Description: J-shaped track or jamb members formed from galvanized sheet steel with depth compatible with studs and flange dimension indicated to hold studs by friction; of same web size and uncoated base metal thickness as studs.

3. Conversion of Gage to Minimum Thickness for Metal Framing: When metal framing is indicated to be of a specific gage thickness, following shall be uncoated base metal thickness according to SSMA's "Product Technical Information", 2000 :
  - a. 25 Gage: 0.0188 in (0.48 mm) design thickness; 18 mils minimum thickness.
  - b. 22 Gage: 0.0283 in (0.72 mm) design thickness; 27 mils minimum thickness.
  - c. 20 Gage Drywall: 0.0312 in (0.79 mm) design thickness; 30 mils minimum thickness.
  - d. 20 Gage Structural: 0.0346 in (0.88 mm) design thickness; 33 mils minimum thickness.
  - e. 18 Gage: 0.0451 in (1.15 mm) design thickness; 43 mils minimum thickness.
  - f. 16 Gage: 0.0566 in (1.44 mm) design thickness; 54 mils minimum thickness.
  - g. 14 Gage: 0.0713 in (1.81 mm) design thickness; 68 mils minimum thickness.
  - h. 12 Gage: 0.1017 in (2.58 mm) design thickness; 97 mils minimum thickness.
  - i. Optional Equivalent Products: Thickness as required for meeting specified criteria for deformed metal studs and tracks (runners) specified elsewhere in this Article.
4. Minimum thickness represents 95 percent of design thickness and is minimum acceptable thickness of material for Work.
5. Optional Equivalent Products - Deformed Metal Studs and Tracks (Runners):
  - a. Evaluation Criteria: Product test reports and certifications from independent testing agency indicating products comply with requirements and are acceptable to authorities having jurisdiction.
  - b. Material Quality Standard: ASTM A 1003 / A 1003M sheet steel with galvanized coating.
  - c. Stud Description: C-shaped members formed from deformed surface galvanized sheet steel with 1-1/4 in (32 mm) flange edges bent back 90 degrees and bent again to form 3/16 in (5 mm) wide minimum return lip; of web depth indicated on Drawings and uncoated base metal thickness indicated in "Metal Framing Schedule" at end of this Section; with web punchouts.
  - d. Track (Runner) Description: U-shaped members formed from deformed surface galvanized sheet steel with depth compatible with studs and flange dimension indicated to hold studs by friction; of same web size and uncoated base metal thickness as studs.
  - e. Manufacturers and Products:
    - 1) Clark Dietrich Building Systems; ProSTUD.
- C. Flat Straps and Back-Up Plates: Galvanized sheet steel for blocking and bracing in length and width indicated, of same uncoated base metal thickness as adjacent metal studs.
- D. Bridging:
  1. Channel: U-shaped members formed from galvanized sheet steel not less than 0.0566 in (16 gage) (1.44 mm) minimum uncoated base metal thickness, with 1/2 in (12 mm) flanges and depth fitting stud punchouts.
  2. Clip Angle: 1-1/2 in by 1-1/2 in (38 mm by 38 mm) L-shaped members formed from galvanized sheet steel not less than 0.0713 in (14 gage) (1.81 mm) uncoated base metal thickness.



- E. Rigid Furring Channels: Hat-shaped members formed from galvanized sheet steel not less than 0.0312 in (20 gage) (0.78 mm) minimum uncoated base metal thickness; 7/8 in (21 mm) depth and minimum 1-3/8 in (35 mm) wide knurled mounting flange.
- F. Framing Accessories for Spanning Multiple Floors: Framing manufacturers standard connectors, bracings, brackets, clips, gussets, and other framing devices as required by conditions, formed from galvanized sheet steel complying with requirements of main support system.

## 2.6 PRE-ENGINEERED METAL FRAMING COMPONENTS

### A. Deflection and Firestop Track (Runner):

- 1. Description: Proprietary track (runner) formed from galvanized sheet steel manufactured to accommodate movement of building structure without transferring stress to partition (to prevent cracking of gypsum board resulting from deflection of building structure above) while maintaining continuity of fire resistance rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
- 2. Manufacturers:
  - a. Metal Stud Framing Manufacturer.
  - b. Fire Trak Corp.
  - c. The Steel Network.

### B. Flexible Track (Runner):

- 1. Description: Proprietary track (runner) formed from galvanized sheet steel manufactured to be flexible and adjustable to fit design requirements; in thickness not less than indicated for studs and in width to accommodate depth of studs.
- 2. Manufacturers:
  - a. Metal Stud Framing Manufacturer.
  - b. Accu-Arc Curved Wall Products.
  - c. Flex-Ability Concepts.
  - d. Radius Track Corp.

### C. Headers:

- 1. Description: Proprietary header assembly formed from galvanized sheet steel manufactured to bear partition load above openings without transferring stress to partition (to prevent cracking of gypsum board); in thickness not less than indicated for studs and in width to accommodate depth of studs.
- 2. Manufacturers:
  - a. Metal Stud Framing Manufacturer.
  - b. Brady Construction Innovations, Inc.

## 2.7 GYPSUM BOARD PRODUCTS

- A. Sizes: Maximum lengths and widths available that will minimize short edge-to-short edge butt joints and to correspond to support system indicated.
- B. Typical Paper-Faced Gypsum Board Products:
  - 1. Paper-Faced Type X Gypsum Board:
    - a. Material Quality Standard: ASTM C 1396 / C 1396M, Type X.

- b. Description: Noncombustible fire resistant gypsum core with paper surfacing on face, back, and long edges; tapered long edges; 5/8 in (15 mm) thick.
- c. Manufacturers and Products:
  - 1) CertainTeed Corporation; ProRoc Type X Gypsum Board.
  - 2) Georgia-Pacific Gypsum LLC; ToughRock Fireguard Gypsum Board.
  - 3) National Gypsum Company; Gold Bond Fire-Shield Gypsum board.
  - 4) United States Gypsum Company (USG); Sheetrock Firecode Core.

2. Paper-Faced Type C Gypsum Board:

- a. Material Quality Standard: ASTM C 1396 / C 1396M, Type X.
- b. Description: Noncombustible fire resistant gypsum core, with additives to enhance fire resistance, with paper surfacing on face, back, and long edges; tapered long edges; 5/8 in (15 mm) thick.
- c. Manufacturers and Products:
  - 1) CertainTeed Corporation; ProRoc Type C Gypsum Board.
  - 2) Georgia-Pacific Gypsum LLC; ToughRock Fireguard C Gypsum Board.
  - 3) National Gypsum Company; Gold Bond Fire-Shield C Gypsum board.
  - 4) United States Gypsum Company (USG); Sheetrock Firecode C Core Gypsum Panels.

2.8 CEMENTITIOUS BOARDS

A. Cementitious Backer Units:

- 1. Material Quality Standard: ANSI A118.9 or ASTM C 1325.
- 2. Description: Cementitious panels composed of portland cement, aggregates, glass mesh on both faces, and manufacturer's proprietary ingredients; capable of remaining unaffected by prolonged exposure to water; 1/2 in (12 mm) thick.
- 3. Manufacturers and Products:
  - a. Custom Building Products; WonderBoard.
  - b. FinPan, Inc.; Util-A-Crete Concrete Backer Board.
  - c. National Gypsum Company.
    - 1) Straight: PermaBase Cement Board.
    - 2) Curved: PermaBase Flex Cement Board.
  - d. United States Gypsum Company (USG); DUROCK Interior Cement Board.

2.9 TRIM ACCESSORIES

A. Typical Drywall Trim Accessories:

- 1. Material Quality Standard: ASTM C 1047.
- 2. Description: Trim profile fabricated of galvanized steel sheet; of size suitable for gypsum board thickness; with recessed, perforated flange formed to receive joint compound.
- 3. Trim Products:
  - a. Cornerbead:
    - 1) Purpose: For protecting outside (external) corners.
    - 2) Basis of Design: United States Gypsum Company (USG); Dur-A-Bead Corner Bead, 103.

- b. LC-Bead (J-Bead):
    - 1) Purpose: For protecting exposed edges of gypsum board where back flange can be used.
    - 2) Basis of Design: United States Gypsum Company (USG); J-Trim, 200-A.
  - c. L-Bead:
    - 1) Purpose: For protecting exposed edges of gypsum board where back flange cannot be used.
    - 2) Basis of Design: United States Gypsum Company (USG); L-Trim, 200-B.
  - d. J-Stop:
    - 1) Purpose: For protecting edges of gypsum board that does not require finishing.
    - 2) Basis of Design: United States Gypsum Company (USG); J-Stop, 402.
  - e. Control Joint:
    - 1) Description: One-piece trim formed with V-shaped slot, with removable strip covering slot opening.
    - 2) Purpose: For conditions requiring expansion and contraction stresses of large areas of gypsum board to be relieved.
    - 3) Basis of Design: United States Gypsum Company (USG); Control Joint, 093.
  - f. Other Trim or Special Shapes: Products as required by condition.
4. Manufacturers:
- a. Dietrich Industries, Inc.; Unimast.
  - b. Fry Reglet Architectural Metals.
  - c. Marino Ware; Division of Ware Industries.
  - d. Niles Building Products Co.
  - e. Superior Metal Trim; Division of Delta Star, Inc.
  - f. United States Gypsum Company (USG)

B. Accent Trim Accessories:

- 1. Description: Extruded aluminum accessories of profiles and dimensions indicated of alloy and temper with not less than strength and durability properties of ASTM B 221, alloy 6063-T5.
- 2. Manufacturers:
  - a. Fry Reglet Architectural Metals.
  - b. Gordon, Inc.
  - c. Pittcon Industries.

2.10 FASTENERS

A. Limitations: Nails and staples are not permitted.

B. Fasteners for Attaching Metal Framing to Concrete Structure:

- 1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching hanger wires and capable of sustaining, without failure, a load equal to 5 times that imposed

by construction as determined by testing according to ASTM E 488 by a qualified independent testing agency.

- a. Cast-in-place anchor, designed for attachment to concrete.
  - b. Post-installed chemical anchor.
  - c. Post-installed expansion anchor.
2. Powder-Actuated Fasteners: Suitable for application indicated, ANSI A 10.3; low velocity, powder-actuated fasteners; drive pins and clip angles fabricated from corrosion-resistant materials, with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, an ultimate load capacity not less than 10 times that imposed by construction as determined by testing according to ASTM E 1190 by a qualified independent testing agency.
  3. Manufacturers:
    - a. Construction Materials, Inc.
    - b. Heckman Building Products, Inc.
    - c. Hilti Corp.
    - d. ITW Ramset/Red Head.
    - e. Powers Fasteners.
    - f. Simpson Strong Tie Anchor Systems.
  4. For post-tensioned concrete, anchors shall not exceed 1 in (25 mm) embedment. Obtain Structural Engineer's written approval for all proposed anchors in post-tensioned concrete prior to installation.
- C. Metal Framing Screws: Screw fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten metal framing and furring members securely to substrates involved; complying with recommendations of gypsum board manufacturers for applications indicated.
- D. Gypsum Board Screws:
1. Material Quality Standards:
    - a. Metal Framing Members less than 0.03 in (0.75 mm) Thick: ASTM C 1002, Type S.
    - b. Metal Framing Members from 0.033 in to 0.112 in (0.79 mm to 2.9 mm) Thick: ASTM C 954, Type S-12.
  2. Product Description - Standard Applications: Bugle head, self-drilling, self-tapping, steel screws with Phillips-head recess of size, holding power, and other properties recommended by respective gypsum board manufacturer; minimum 1 in (25 mm) long; with corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.
- E. Cementitious Board Screws: Self-drilling, self-tapping, steel screws of type, material, size, corrosion resistance, holding power, and other properties recommended by respective cementitious board manufacturer.
- F. Miscellaneous Fasteners: For conditions not indicated, fasteners shall be type, finish, size, and holding power recommended by respective gypsum board manufacturer and conditions.

## 2.11 JOINT TREATMENT MATERIALS

- A. Material Quality Standard: ASTM C 475 / C 475M.

B. Joint Tape:

1. Paper Tape: Nominal 2 in (50 mm) wide cross-fibered paper tape with finish suitable for bonding, creased in center for easy folding, and compatible with joint compound.
2. Mesh Tape: Nominal 2 in (50 mm) wide self-adhering 10-by-10 fiberglass mesh tape.

C. Joint Compound:

1. Setting-Type: Job-mixed powder for mixing with water, chemical-hardening compound; includes taping types.
2. Drying-Type: Ready-mixed or job-mixed powder for mixing with water, air-drying, vinyl based compounds; includes taping, topping, and all-purpose types.

2.12 INTERIOR SURFACING COMPOUNDS

A. Level 5 Primer and Surfacers: Latex based compound containing polyvinyl acetate (PVA) polymer that can be spray or roller applied to change a Level 4 finish to a Level 5 finish.

1. Manufacturers and Products:

- a. CertainTeed Corporation; ProRoc Level V Wall and Ceiling Primer/Surfacer.
- b. United States Gypsum Company (USG); Sheetrock Brand Tuff-Hide Primer-Surfacer.

2.13 RELATED MATERIALS

A. General: Provide auxiliary materials for gypsum board construction that comply with referenced quality standards and recommendations of gypsum board manufacturer.

B. Firestopping Products at Penetrations: As specified in Division 07 Section "Penetration Firestopping".

C. Fiberglass Sound Attenuation Blankets:

1. Material Quality Standard: ASTM C 665, Type I.
2. Description: Unfaced blankets produced by bonding inorganic glass fibers with a thermosetting binder; free of formaldehyde.
3. Surface Burning Characteristics: According to ASTM E 84/NFPA 255/UL 723:
  - a. Flame Spread: Class A - no greater than 25.
  - b. Smoke Developed: No greater than 50.
4. Thickness: Not less than 2-1/2 in (62 mm), unless otherwise indicated.
5. Basis of Design: Johns Manville; Sound Control Batts, Formaldehyde Free.

D. Mineral Wool Sound Attenuation Blankets:

1. Material Quality Standard: ASTM C 665, Type I.
2. Description: Unfaced mineral-fiber blanket insulation produced by combining mineral fibers of rock or slag with thermosetting resins.
3. Surface Burning Characteristics: According to ASTM E 84/NFPA 255/UL 723:
  - a. Flame Spread: Class A - no greater than 25.
  - b. Smoke Developed: No greater than 50.
4. Thickness: Not less than 3 in (75 mm), unless otherwise indicated.

5. Density: Not less than nominal 2.5 pounds per cubic foot.
  6. Manufacturers:
    - a. Fibrex Insulations, Inc.
    - b. Rock Wool Manufacturing Co.
    - c. Roxul.
    - d. Thermafiber LLC.
- E. Acoustical Sealant for Non-Fire Resistance Rated Joints:
1. Description: Manufacturer's standard nonsag, paintable, nonstaining sealant complying with ASTM C 834 or ASTM C 920. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E 90 or other acceptable test method.
    - a. Preconstruction Compatibility Testing: Test sealant for compatibility with copper substrates. Testing will not be required if data submitted on previous testing of current sealant products matches those submitted.
    - b. Do not use acrylic, neoprene, and nitrile based sealants that are not recommended for use with copper substrates.
- F. Fire-Resistance Rated and Acoustical Putty Pads:
1. Product Quality Standard: UL 1479.
  2. Description: Fire-rated, non-hardening, moldable, intumescent compound formed into sheets designed to seal penetrations, construction gaps, and around electrical boxes against spread of fire, smoke, and toxic gases.
  3. Manufacturers and Products:
    - a. Grace Construction Products; Flamesafe FSP 1077 Putty Pads.
    - b. Hilti; CP 617 Intumescent Acoustic Putty Pads.
    - c. KnaufDrywall; Putty Pads.
    - d. Specified Technologies, Inc; Series SSP Putty Pads.
    - e. Tremco; TREMstop Electrical Box Insert.
    - f. 3M; Fire Barrier Moldable Putty+Pads.
- G. Fire Resistive Sealants: Intumescent elastomeric sealant as specified in Division 07 Section "Fire-Resistive Joint Firestopping".
- H. Sealants: Sealant as specified in Division 07 Section "Joint Sealants".

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.

### 3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
  - 1. Respective Manufacturer's written installation instructions.
  - 2. Accepted submittals.
  - 3. Contract Documents.
  - 4. Gypsum Association GA 216.
  - 5. United States Gypsum Company (USG); Gypsum Construction Handbook, if no other installation quality standard applies to condition.
- B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by isolating metals and other materials from direct contact with incompatible materials.

### 3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.
- B. Suspended Gypsum Ceilings: Coordinate installation of ceiling suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hanger wires at spacing required to support ceilings and that hangers will develop their full strength.
- C. Coordination with Sprayed Fire-Resistance Materials:
  - 1. Pre-Application Coordination: Before sprayed fire-resistance materials are applied, attach Z shaped clips and offset mounting plates to structural steel members with powder actuated fasteners, leaving portion of flange exposed outside of sprayed fire-resistive materials to attach head of wall track for gypsum board assembly.
  - 2. Post-Application Coordination: After sprayed fire-resistive materials are applied, remove materials only to extent necessary for installation of gypsum board assemblies, attach Z shaped clips and offset mounting plates to structural steel members with powder actuated fasteners, leaving portion of flange exposed outside of sprayed fire-resistive materials to attach head of wall track for gypsum board assembly, and patch with fire-resistive material specified in Division 07 Section "Sprayed Fire-Resistive Materials" that is required to obtain fire-resistance rating indicated.

### 3.4 INSTALLATION OF GYPSUM BOARD ASSEMBLIES

- A. Resistance Rated Partitions: Construct fire resistance rated, smoke resistance rated, and sound resistance rated partitions according to respective assembly test reports. Ensure every material used within an assembly shall comply with manufacturers listed and product qualities indicated in respective assembly test report.
- B. Penetrations and Openings: Construct within gypsum board assemblies work as required to properly form penetration or opening to receive firestopping materials specified in following Sections:
  - 1. Division 07 Section "Penetration Firestopping".
  - 2. Division 07 Section "Fire-Resistive Joint Firestopping".
- C. Control Joints: Install control joints at locations indicated on Drawings, in specific locations approved by Architect for visual effect and according to the following:

1. Spaced not more than 30 feet in either direction for uninterrupted straight planes of ceilings and walls.
2. Where different substrates occur at ceilings and walls.
3. Where control joints occur in substrates at ceilings and walls.
4. Where ceilings and walls abut inside face of exterior walls.
5. Where L, U, or T shaped ceiling configurations are joined.
6. At less-than-ceiling-height cased opening frames and gypsum board openings over 60 inches in width; extend control joints from both corners at top of frame or opening up to ceiling.
7. Where less than ceiling height door frames occur on walls less than 30 feet in length; extend control joints from top of frame up to ceiling at corner of hinge side of door.
8. Where less than ceiling height window frames occur on walls less than 30 feet in length; extend control joints from top of frame up to ceiling and from bottom of frame to floor at both corners.

D. Isolation from Building Structure: Isolate gypsum board assemblies from building structure to prevent transfer of loading imposed by structural movement.

1. Provide isolation joints as indicated or required by installation quality standards.
2. Isolate ceiling assemblies abutting or penetrated by building structure.
3. Isolate partition framing and wall furring abutting or penetrated by building structure, except at floor.

E. Fire-Resistance Rated and Acoustical Putty Pads: Hand apply pads to surfaces indicated, packing tightly into gaps and openings, in such a manner that pad will remain secured to surface; pinch pleat excess material together to close gaps.

F. Supplemental Accessories: Install supplementary framing, blocking, reinforcing, and bracing in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, hand rails, furnishings, or similar construction. Comply with details indicated and recommendations of installation quality standards or manufacturer.

### 3.5 INSTALLING SUSPENDED GRID SYSTEM FOR INTERIOR CEILINGS

A. Installation Quality Standard: In addition to standards listed elsewhere, perform suspended ceiling work according to following, unless otherwise specified in this Section:

1. ASTM C635 and ASTM C 636 / C 636M.
2. CISCA - "Recommendations for Direct-Hung Acoustical Tile and Lay-In Ceilings - Seismic Zones 3 - 4", except as may be modified by building code.

B. Pattern: Lay out spaces and arrange suspension system in a regular pattern, parallel or perpendicular to surrounding walls.

C. Hangers for Ceiling System: Suspend hangers from building structural members and as follows:

1. Install hangers plumb and free from contact with mechanical and electrical equipment, insulation or other objects within ceiling plenum that are not part of supporting structural frame or ceiling suspension system. Within limitations allowed by installation quality standards, splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.



2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers required to support suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by installation quality standards.
  3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
  4. Secure the appropriate hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
  5. Install metal framing components for suspended ceilings so that members are level to within 1/8 in in 12 ft (3 mm in 3.6 m) as measured both lengthwise on each member and transversely between parallel members.
  6. Attach hangers to structural members.
  7. Do not connect or suspend any ceiling components from ducts, pipes or conduit.
- D. Perimeters: Using gypsum board screws through gypsum board into metal studs, attach perimeter wall angle where suspended grid system meets vertical surfaces unless otherwise indicated; cut main beams and cross furring members to fit into wall angle.
- E. Main Beams:
1. Suspend main beams spaced 48 in (1200 mm) on center from structure with wire hangers spaced not greater than 48 in (1200 mm) on center.
  2. Install main beams level within 1/8 in in 12 ft (3 mm in 3.6 m) with hanger wire taut and tightly wrapped to prevent vertical movement or rotation.
  3. Do not make local kinks or bends in hanger wires as a means of leveling.
- F. Cross Furring Members:
1. Install cross furring members at right angles to main beams, spaced as required and join to main beams with positive interlock.
  2. Install cross furring members to within 1/32 in (0.8 mm) of their required location and within 0.015 in (0.38 mm) of same horizontal plane as main beam, and never below continuous member.
  3. Install additional cross furring members at right angles to beams and cross furring members to support ends of recessed light fixtures, diffusers or grilles.
- G. Concentrated Load Conditions: Provide additional hanger wires at each corner of recessed light fixtures and other concentrated load conditions to prevent excess deflection.
- H. Seismic Conditions: Install bracing wires, compression struts, and other components as required by installation quality standard.
- ### 3.6 INSTALLING METAL FRAMING COMPONENTS
- A. Priority: Assemble various assemblies giving priority to partitions with higher rating; extend partition with higher rating intact through partition with lower rating.
- B. Joinery and Connections: Install various metal framing components according to details indicated; for situations and conditions not indicated, comply with installation quality standards and with respective manufacturer's recommendations.

- C. General Requirements: Construct partition framing of studs, tracks, and headers using screws of number and spacing required.
1. Install studs of uncoated base metal thickness as determined by Metal Framing Schedule at end of this Section.
  2. Extend partition framing full height to underside of structure above, except where partitions are indicated to terminate at, or immediately above, suspended ceilings.
  3. Continue framing over door frames and openings to provide support for gypsum board.
  4. Space studs as indicated on Metal Framing Schedule at end of this section.
  5. Cut studs 1 in (25 mm) short of full height to provide deflection relief at head of wall conditions.
  6. Install studs so that flanges point in same direction.
  7. Attach with screws through each stud flange and track (runner) flange, except top deflection track assemblies.
  8. For fire resistance rated, smoke resistance rated, and sound resistance rated assemblies that are required to extend to underside of structure above to obtain ratings, install framing around structural and other members extending below floor slabs or roof decks, as needed to support gypsum board closures and make partitions continuous from floor to underside of structure above.
  9. Do not lap studs.
  10. At intersections and corners, locate studs no more than 2 in (50 mm) from partition intersections and corners and secure with screws through both flanges of studs and tracks.
- D. Metal Track (Runner) Requirements:
1. Floors: Install tracks (runners) using appropriate fasteners spaced not more than 16 in (400 mm) on centers.
  2. Head of Wall: Where indicated, install proprietary deflection and firestop track (runner) using appropriate fasteners for the substrate and installation conditions.
- E. Support for Wall Mounted Accessories or Equipment: Install back-up plate or track (runner) turned on its side, using screws as indicated or as required, to studs to properly transfer accessory or equipment load to metal framing.
- F. Openings: Frame single door, double door, above ceiling openings, and below ceiling openings using studs, tracks (runners), clip angles, and headers.
1. Install 2 studs on each side of each opening in configuration indicated, including strap plates; extend from floor to underside of structure above; do not cut these studs under any circumstances.
  2. Construct header of appropriate configuration for type of opening to be spanned and secure with clip angles; include sound attenuation blankets within cavity when partition is scheduled to have a sound resistance rating.
  3. Install short intermediate studs 16 in (400 mm) on center between top track and header.
  4. At partitions indicated to terminate immediately above ceiling, install diagonal bracing at not less than spacing as indicated.
- G. Supplementary Framing: Install around openings and as required for blocking, bracing, and support of gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings, and similar items that cannot be supported directly by metal framing.
- H. Penetrations: Maintain fire-resistance rating of assembly by installing supplementary steel framing around perimeter of penetration and fire protection behind boxes containing wiring devices, elevator call buttons, elevator floor indicators, and similar items.

I. Furred Walls:

1. Erect furring channels vertically, spaced 16 in (400 mm) on centers maximum, unless otherwise indicated.
2. Attach with appropriate fasteners, staggered on flanges.
3. Splice ends by nesting channels 8 in (200 mm) and securely anchoring to surface.
4. Miter 24 in (600 mm) long horizontal furring channels at corners and space 24 in (600 mm) on centers vertically.
5. Locate furring channels around perimeter of openings and secure to surfaces.

J. Control Joints:

1. Construct metal framing as indicated by installation quality standard to allow gypsum board control joints to function as intended.
2. For control joints located in fire resistance rated walls and partitions, construct of metal studs and mineral wool, full height of partition, according to assembly fire test reports.

- K. Installation Tolerances: Install each metal stud metal framing and furring member so that fastening surfaces do not vary more than 1/8 in (3 mm) from plane formed by faces of framing members.

### 3.7 INSTALLING GYPSUM BOARD PRODUCTS

A. General Requirements:

1. Install type of gypsum board at location indicated by gypsum board schedule at end of this Section.
2. Do not install damaged gypsum boards.
3. Install gypsum boards with finishable face side out.
4. Butt gypsum boards together for a light contact at edges and ends with not more than 1/16 in (1.5 mm) of open space between panels.
5. Do not force gypsum boards into place.
6. Do not place tapered edges against cut edges or ends.
7. Locate panel joints so that no joint will align with the edge of an opening unless control joints are installed at these locations.

B. Isolation from Building Structure:

1. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments or surfaces where movement is anticipated. Provide 1/4 in to 1/2 in (6 mm in 12 mm) wide spaces at these locations or as indicated below:
  - a. At top of wall or where partitions intersect open building structure members projecting below underside of floor slabs and roof decks, cut to fit profile formed by coffers, joists, beams, and other structural members; form proper annular joint to receive firestopping at rated partitions and form 3/4 in (20 mm) joint at top of wall at non-rated partitions.
2. Trim edges with edge trim where edges of gypsum boards are exposed.
3. Seal joints between edges and abutting structural surfaces with firestopping at rated locations and acoustical sealant at non-rated locations.

C. Single-Layer Board Assemblies:

1. At typical conditions, install gypsum board vertically (long dimension parallel to metal framing), to minimize short end-to-short end joints unless otherwise indicated or required by assembly fire test reports.

2. At interior of stairwells and other high walls, install gypsum boards horizontally, unless otherwise indicated or required by assembly fire test reports. Stagger abutting end joints not less than one framing member in alternate courses of gypsum boards.

D. Ceiling Applications:

1. Apply gypsum board at right angles to main beams of suspension framing to minimize number of abutting end joints and avoid abutting end joints in central area of each ceiling.
2. Stagger abutting end joints of adjacent panels not less than one framing member.
3. Locate both edge or end joints of gypsum boards over intermediate supports or gypsum board back-blocking where metal framing is not present.

E. Typical Wall Applications:

1. Attach gypsum boards to metal studs so that leading edge or end of each board is attached to open (unsupported) edges of stud flanges first.
2. Stagger vertical joints on opposite sides of partitions.
3. Do not make joints other than control joints at corners of framed openings.
4. Attach gypsum boards to framing provided at doors, openings and cutouts. Install gypsum boards over door heads and extend to not less than one stud space - 16 in (400 mm) at each side of door or opening.
5. Cover both faces of metal framing with gypsum boards as indicated, except in chase walls that are braced internally.
6. Cut and fit gypsum boards around ducts, pipes, conduits, and other penetrations to form proper annular joint to receive firestopping at rated partitions.
  - a. At non-rated partitions, annular space around ducts, pipes, conduit or other penetrations to be properly sized to receive sealant; 3/4 in (20 mm) maximum.
  - a. "Blow-out" patches are not allowed.
7. Where partitions intersect open building structure members projecting below underside of floor slabs and roof decks, cut to fit profile formed by coffers, joists, beams, and other structural members; form proper annular joint to receive firestopping.
8. Support both edge and end joints of gypsum boards over metal framing.

F. Screw Attachments:

1. Attach gypsum board to metal framing with screw fasteners of type appropriate for gypsum board materials and installation conditions:
  - a. Length shall be as required by condition and penetrating metal framing not less than 3/8 in (10 mm).
  - b. Spacing shall be as recommended by installation quality standard, gypsum board manufacturer, or respective assembly test report.
  - c. Use properly adjusted, positive-clutch electric power tool equipped with adjustable screw-depth head and a Phillips bit. Nails and staples are not permitted.
2. Drive screws to slightly dimple surface without breaking face paper, fracturing core, or stripping metal framing member around screw shank.

3. Space screws for non-fire resistance rated partitions and ceilings as recommended by installation quality standards.
  4. Space screws for fire resistance rated partitions as required by assembly fire test reports.
  5. Start field screwing near center and work towards edges.
  6. Space screws not less than 3/8 in (10 mm) from gypsum boards edges.
  7. Do not attach gypsum boards to top runner where wall or partition extends to building structure unless required by fire test reports.
- G. Control Joints: Form control joints and expansion joints at locations indicated with required space between edges of adjoining gypsum boards.
- H. Sound Attenuation Blankets: Install blankets within stud cavities set so that they are held in place by friction with metal studs; ensure blankets are secure within cavity and will not become displaced when second gypsum board side is closed.
- I. Sealant:
1. Comply with ASTM C 919 and manufacturers written recommendations for closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.
  2. Seal wall assemblies at perimeters, behind control joints, and at openings and penetrations with a continuous bead of sealant material according to following:
    - a. Fire Resistance Sealant: Joints within fire resistance rated assemblies.
    - b. Water Resistance Sealant: Joints within non-fire resistance rated assemblies exposed to possible water infiltration.
    - c. Acoustical Sealant: All other joints.

### 3.8 INSTALLING TRIM ACCESSORIES

- A. General: Fasten trim accessories continuously according to accessory manufacturer's instructions using gypsum board screws; installation by clinch-on tool and staples not permitted.
- B. Typical Trim Accessories:
1. Corner Beads: Install trim at external corners; use screws at each flange at 9 in (225 mm) on centers, opposite each other.
  2. Edge Trim: Install trim where gypsum boards abut dissimilar material, and where edge of gypsum boards would otherwise be exposed; use screws at flange at 9 in (225 mm) on centers.
    - a. LC-Bead (J-Bead): Install trim at exposed conditions where back flange can be attached to framing or supporting substrate before gypsum board installation.
    - b. L-Bead: Install trim at exposed conditions where trim can only be installed after gypsum board installation.
    - c. J-Stop: Install trim at concealed conditions where trim can only be installed after gypsum board installation.
  3. Control Joints: Install trim at appropriate locations, ensuring gypsum board is not continuous over joint; use screws at each flange at 6 in (150 mm) on centers.
- C. Accent Trim Accessories: Install at locations indicated, mitering corners and intersections to form tight, flush and uniform joints; use screws at each flange at 9 in (225 mm) on centers.

- D. Trim Accessories at Exterior Windows: Install at locations indicated, mitering corners and intersections to form tight, flush and uniform joints; use screws at each flange at 9 in (225 mm) on centers.

### 3.9 FINISHING GYPSUM BOARD PRODUCTS

- A. General: Treat board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare surfaces for decoration.
- B. Joint Tape: Finish joints according to following:
  - 1. Typical Paper-Faced Gypsum Board: Paper.
  - 2. Cementitious Backer Units: Mesh tape.
- C. Finishing: Finish boards and units to achieve specified level of finish as indicated in schedule at end of Section:
  - 1. Typical Paper-Faced Gypsum Board: Either or combination of the following as recommended by manufacturer:
    - a. Setting-type joint compounds.
    - b. Drying-type joint compounds.
  - 2. Cementitious Backer Unit: Setting-type joint compounds.

### 3.10 INTERIOR SURFACING COMPOUNDS

- A. Skim Coat Finishing with Joint Compound:
  - 1. Prepare concrete surfaces for applied finishes.
    - a. Grind ridges, fins, and high areas.
    - b. Remove form oil, efflorescence and greasy deposits.
    - c. Fill offsets, voids, bugholes, rock pockets level with surrounding surfaces with joint compound.
    - d. Apply as many coats of joint compound as necessary to eliminate cracks.
    - e. Verify that resulting concrete surface is uniformly smooth and free of irregularities.
  - 2. Apply setting-type joint compound or Level 5 Primer and Surfer over entire surface in thickness recommended by manufacturer.

### 3.11 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Manufacturer's qualified technical representative shall inspect first day's Work and periodically inspect Work to ensure installation is proceeding in accordance with manufacturer's designs, recommendations, and instructions. Representative shall submit written reports of each visit indicating observations, findings, and conclusions of inspection.

### 3.12 ADJUSTMENTS

- A. Damaged Materials: Stored or installed paper-faced gypsum board materials not specifically manufactured as "moisture-resistant products" shall be classified as damaged, defective, and nonconforming Work if they have been exposed to wetness or dampness at any time prior to Substantial Completion or if they exhibit evidence of active or dormant mold or mildew. Damaged materials and assemblies shall be replaced with new and dry materials and assemblies.

### 3.13 PROTECTION

- A. Procedures: Protect products and systems from damage during installation and remainder of construction period according to manufacturer's instructions.

### 3.14 METAL FRAMING SCHEDULE

- A. Metal Stud Framing Schedule:

1. Stud Depth: As indicated on Drawings.
2. Spacing: Maximum 16 in (400 mm) on centers, unless otherwise indicated, or as required to comply with respective assembly test report.
3. Minimum Performance Requirements - unless otherwise indicated:
  - a. Typical Partitions: L/240 at 5 lb/sq ft (239 Pa) lateral load
4. Minimum Uncoated Base Metal Thickness:
  - a. Typical Gypsum Board Assemblies: As determined by manufacturer's limiting height engineering data unless otherwise indicated.
    - 1) 25 Gage or 25 Gage Equivalent Studs: Not acceptable.
    - 2) 22 Gage Studs: Typical partitions unless otherwise indicated.
    - 3) 20 Gage or 20 Gage Equivalent Studs:
      - a) Partitions supporting ceramic or stone tile.
      - b) Partitions with gypsum board on one side only.
      - c) At door jambs.
      - d) Partitions supporting wall hung cabinets or shelving.
      - e) Partitions with lead lining.
  - b. Gypsum Board Assemblies required to Withstand Seismic Loads: As required by delegated engineering professional but not less than minimum uncoated base metal thickness indicated above.

### 3.15 GYPSUM BOARD SCHEDULE

- A. Gypsum Board Schedule, General: Install the designated gypsum board product based on exposure classification to water and / or moisture and applied finish system as follows, unless otherwise indicated or scheduled on the Drawings.
- B. No Exposure: Surfaces not normally exposed to water and / or moisture sources including but not limited to the following:
  1. Typical walls and ceilings.
    - a. Paint and Wall Coverings Only: Typical paper-faced gypsum board.
    - b. Tile and Adhered Sheet/Panel Coverings: Moisture-resistant coated-glass-mat gypsum board.
  2. Horizontal fire-rated assemblies and ceilings:
    - a. Paint Only: Paper-faced Type C gypsum board.
  3. Walls in acoustical barriers as indicated in the Drawings.

- a. Paint and Wall Coverings Only: Paper-faced acoustically enhanced gypsum board.
- C. Incidental Exposure: Surfaces immediately adjacent to water and / or moisture sources including, but not limited to, the following locations:
  - 1. Top of walls above ceilings adjacent to mechanical equipment in corridors.
  - 2. Walls and ceilings in mechanical equipment rooms and janitor closets.
  - 3. Walls within 24 inches of centerline of drinking fountains, isolated wall-hung lavatories, and countertop sinks and other similar water sources.
  - 4. Interior face of exterior walls.
  - 5. Acceptable gypsum board products for the above listed conditions:
    - a. Paint and Wall Coverings: Moisture-resistant paper-faced or moisture-resistant paperless glass-mat gypsum board.
    - b. Tile and Adhered Sheet/Panel Coverings: Moisture-resistant coated-glass-mat gypsum board.

### 3.16 GYPSUM BOARD FINISHING SCHEDULE

- A. Gypsum Board Finishing Schedule, General: Finish panels to Levels of Finish indicated below. Apply joint tape over panel joints, except those with trim having flanges not intended for tape. Sand between coats and after last coat to produce a surface free of defects and ready for applied finish system.
- B. Preparation: Apply joint compound at open joints, panel edges, and damaged surface areas.
- C. Level 1: At following locations, embed tape at joints in joint compound unless a higher level of finish is required for fire resistance rated assemblies:
  - 1. Ceiling plenum areas above ceilings.
  - 2. Concealed areas.
  - 3. Unfinished areas designated for future expansion.
- D. Level 3: At following locations, embed tape and apply separate first and second coats of joint compound to tape, fasteners, and trim flanges:
  - 1. Areas to receive paint with flat sheen or medium/heavy texture.
  - 2. Mechanical, electrical, data and elevator equipment rooms.
  - 3. Stair towers.
- E. Level 4: At following locations, embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges:
  - 1. Areas to receive paint with eggshell/satin sheen or light texture.
- F. Level 5: At following locations, embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges, and apply skim coat of joint compound or Level 5 Primer and Surfacers over entire surface:
  - 1. Areas to receive paint with semi-gloss or gloss sheen.
  - 2. Curved ceilings and partitions.
  - 3. Areas where critical lighting conditions occur.
  - 4. Other areas as indicated on the Drawings.

END OF SECTION



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SECTION 09 6500

RESILIENT FLOORING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Resilient flooring products and systems and supplementary items necessary for installation.
- B. Related Section:
  - 1. Resilient wall base, reducer strips, and other accessories installed with resilient flooring are specified in Division 09 Section "Resilient Base and Accessories".

1.2 SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product and system indicated.
  - 1. Include manufacturer's specifications for materials, finishes, construction details, installation instructions, and recommendations for maintenance.
- B. Shop Drawings for Special Patterns: Show layout and details of special patterns for resilient flooring.
- C. Product Schedule: Use same designations indicated on the Finish Schedule and Drawings.
- D. Samples for Verification Purposes: In manufacturer's standard size, but not less than 6 in by 9 in (150 mm by 230 mm) sample of each different color and pattern of resilient flooring product specified, showing the full range of variations expected in these characteristics. Label each sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in Schedules.
  - 1. Heat-Welded Sheet Flooring: For heat-welding bead, manufacturer's standard-size samples, but not less than 9 in (230 mm) long, of each color specified.
- E. Product Test Reports: Written reports based on evaluation of comprehensive tests performed by qualified testing agency indicating that each product complies with requirements.
- F. Manufacturer's Project Acceptance Document: Certification by the manufacturer that its product(s) are approved, acceptable, suitable for use in specific locations, for specific details, and for applications indicated, specified, or required.
- G. Qualification Data: For installer.
  - 1. For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.
- H. Maintenance Instructions: Include in operation and maintenance manual as required by Division 01 Section "Closeout Procedures". Submit manufacturer's instructions for maintenance of installed

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work, including methods and frequency for maintaining optimum condition under anticipated use. Include precautions against cleaning materials and methods which may be detrimental to finishes and performance.

### 1.3 QUALITY ASSURANCE

#### A. Installer Qualifications:

1. Experience: Installer with not less than 5 years experience in performing specified Work similar to scope of this Project, with a record of successful in-service performance and completion of projects for a period of not less than 5 years and with sufficient production capability, facilities, and personnel to produce required Work.
2. Supervision: Installer shall maintain a competent supervisor who is at Project site during times specified Work is in progress that is experienced in installing systems similar to type and scope required for Project.
3. Manufacturer Acceptance: Installer shall be certified, approved, licensed, or acceptable to manufacturer to install products.

#### B. Slip Resistance: Provide products identical to those tested for slip resistance per ASTM D 2047 with a static coefficient of friction not less than 0.6 for level surfaces and 0.8 for ramped surfaces.

#### C. Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.

1. Critical Radiant Flux: Class I, 0.45 W/sq. cm or greater when tested per ASTM E 648.
2. Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.

### 1.4 PRE-INSTALLATION CONFERENCE

#### A. Pre-Installation Conference: Before Work begins, conduct conference at Project site to comply with requirements of applicable Division 01 Sections.

##### 1. Required Attendees:

- a. Owner.
- b. Architect.
- c. Contractor, including superintendent.
- d. Installer, including project manager and supervisor.
- e. Installers of other construction interfaced with Work.

##### 2. Minimum Agenda: Installer shall demonstrate understanding of the Work required by describing detailed procedures for preparing, installing, and cleaning the Work. Demonstration shall include, but not be limited to, following topics:

- a. Tour representative areas of Work, inspect and discuss condition of substrate, and other preparatory work performed by other trades.
- b. Review Work requirements (Drawings, Specifications, and other Contract Documents).
- c. Review required submittals, both completed and yet to be completed.
- d. Review and finalize construction schedule related to Work and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.

- e. Review required inspection, testing, certifying, and material usage accounting procedures.
  - f. Review environmental conditions and procedures for coping with unfavorable conditions.
  - g. Resolve deviations or differences between Contract Documents and the manufacturer's specifications.
3. Contractor shall record discussions of conference, including decisions and agreements reached, and furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store flooring products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C).
1. Resilient Sheet Flooring: Store sheet flooring rolls upright.

1.6 PROJECT CONDITIONS

- A. Maintain a temperature of not less than 70 deg F (21 deg C) or more than 85 deg F (29 deg C) in spaces to receive products for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless otherwise recommended by manufacturer.
- B. Maintain flooring products prior to installation at the same temperature as the space where they are to be installed.
- C. Close spaces to traffic during flooring installation and for time period after installation recommended by manufacturer.
- D. Install flooring products after other finishing operations, including painting, have been completed.
- E. Do not install flooring over concrete substrates until slabs have cured and are sufficiently dry to bond with adhesive, as determined by flooring manufacturer's recommended tests. Refer to "Preparation" Article for requirements.

1.7 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.

1.8 MAINTENANCE

- A. Extra Materials: Furnish the following extra materials that match and are from same production runs as products installed, packaged with protective covering for storage and identified with labels describing contents:
- 1. Resilient Tile Flooring: Furnish not less than 1 box for each 50 boxes or fraction thereof, of each type, color, pattern, class, wearing surface, and size of tile flooring product installed.
  - 2. Resilient Sheet Flooring: Furnish not less than 10 linear ft (3 linear m) in roll form and full roll width, for each 500 linear ft (150 linear m) or fraction thereof, of each color, pattern, and type of sheet flooring product installed.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis of Design (Product Standard): Contract Documents are based on products and systems specified to establish a standard of quality. Other available manufacturers offering products having equivalent characteristics may be considered, provided deviations are minor and comply with requirements of Contract Documents as judged by the Architect.

- 1. Selections: As indicated in Design Selections on drawings.

### 2.2 MATERIALS, GENERAL

- A. Single Source Responsibility: Furnish each type of product from single manufacturer. Provide secondary materials only as recommended by manufacturer of primary materials.

### 2.3 RESILIENT SHEET FLOORING MATERIALS

- A. Vinyl Sheet Floor Coverings: ASTM F 1303, Type I or II, Grade 1, Class A (fibrous) or B (nonfoamed plastic) backing or ASTM F 1913 unbacked as required by product selection.
- B. Rubber Sheet Floor Coverings: ASTM F 1859, Type I (homogeneous rubber sheet).
- C. Sheet Flooring Thickness: 0.125 in (3 mm).
- D. Heat-Welding Seam Bead: Solid-strand product of floor covering manufacturer for heat welding seams.

- 1. Selections: Match field color of sheet floor covering.

- E. Integral Cove Base Accessories: Resilient accessories recommended by flooring manufacturer with selections as follows:

- 1. Basis of Design: Burke Mercer Flooring Products; Division of Burke Industries, Inc.

- a. Cap Strip: No. 040 round vinyl cap.
- b. Cove Strip: No. 070 flexible vinyl cove stick with nominal 1 in (25 mm) radius.
- c. Reducer: No. 633 vinyl reducer, 1 in (25 mm) wide by 1/8 in (3 mm) high

### 2.4 ACCESSORY MATERIALS

- A. Concrete Slab Primer: Non-staining type as recommended by flooring manufacturer.
- B. Trowelable Leveling and Patching Compounds: Latex-modified, Portland-cement-based formulation provided or approved by flooring manufacturer for products and applications indicated.
- C. Adhesives: Water-resistant type recommended by flooring manufacturer suitable for products, applications, and substrate conditions indicated.

- 1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

- a. Typical Flooring: Not more than 50 g/L.
- b. Rubber Flooring: Not more than 60 g/L.

D. Concrete Moisture Barrier Floor Treatment:

1. Epoxy-Based Moisture Barrier Floor Treatment: Two-component, high-performance, non-flammable, rapid drying, water based, low odor, low VOC, two-component, penetrating epoxy; formulated to reduce moisture vapor transmission and surface alkalinity from concrete substrates, including aged or freshly placed ("green") concrete, prior to installation of impervious glued-down finish flooring specified in other Division 09 sections.
  - a. Basis of Design (Product Standard): Bostik, Inc.; D-250.
2. Cementitious Overcoat: Fast-setting latex-fortified Portland cement skim coating intended for interior uses.
  - a. Basis of Design (Product Standard): Bostik, Inc.; Webcrete 95.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.

### 3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
  1. Respective manufacturer's written installation instructions.
  2. Accepted submittals.
  3. Contract Documents.

### 3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.
- B. Concrete Substrates: Prepare according to ASTM F 710.
  1. Verify that concrete substrate finishes comply with requirements specified in Division 03 Section "Concrete Finishing" for concrete substrates receiving resilient flooring.
  2. Verify that concrete substrates are free of cracks, ridges, depressions, scale, and foreign deposits.
  3. Verify that concrete substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Unless concrete has been water-cured, then proceed with the following:
    - a. Shot-blast concrete substrate with an apparatus that abrades the surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
    - b. Repair damaged and deteriorated concrete according to flooring manufacturer's written recommendations.
  4. Determine adhesion and dryness characteristics by performing the following tests as recommended by flooring manufacturer.
  5. Alkalinity and Adhesion Testing: Perform tests recommended by flooring manufacturer. A pH range of 5 to 9 is required when substrate is wetted with distilled water and pHydron paper is applied. Proceed with installation only after concrete substrates pass testing.

6. Moisture Testing: Perform one or both of the following tests as recommended by flooring manufacturer. Perform 3 moisture tests for first 1000 sf (92.9 sm) of concrete substrate scheduled to receive flooring and 1 test for each additional 1000 sf (92.9 sm) or fraction thereof. Proceed with installation only after concrete substrates pass testing.
  - a. Perform anhydrous calcium chloride test in accordance with ASTM F 1869. Proceed with installation only after concrete substrates have maximum moisture-vapor-emission rate of 3 lbs of water/1000 sf (1.36 kg of water/92.9 sm) in 24 hours.
  - b. Perform relative humidity test using in situ probes in accordance with ASTM F 2170. Proceed with installation only after concrete substrates have a maximum 75 percent relative humidity level measurement.
7. Moisture Barrier Floor Treatment: For concrete substrates not meeting moisture test standards specified above, apply epoxy-based moisture floor treatment and cementitious overcoat to concrete substrate in accordance with manufacturer's written instructions.

- C. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.
- D. Broom and vacuum clean substrates to be covered immediately before flooring product installation. After cleaning, reexamine substrates for moisture, alkaline salts, carbonation, or dust. Do not proceed with installation until unsatisfactory conditions have been corrected.

#### 3.4 INSTALLATION OF RESILIENT FLOORING, GENERAL

- A. Apply concrete slab primer, if recommended by flooring manufacturer, prior to applying adhesive. Apply according to manufacturer's directions.
- B. Scribe, cut, and fit flooring to butt neatly and tightly to vertical surfaces and permanent fixtures, including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.
- C. Extend flooring into toe spaces, door reveals, closets, and similar openings. Extend flooring to center of door openings.
- D. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on substrate. Use chalk or other nonpermanent, non-staining marking device.
- E. Adhere flooring to substrates using a full spread of adhesive applied to substrate to comply with flooring manufacturer's written instructions, including those for trowel notching, adhesive mixing, and adhesive open and working times.
  1. Provide completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- F. Hand-roll flooring in both directions from center out to embed flooring in adhesive and eliminate trapped air according to manufacturer's written instructions. At walls, door casings, and other locations where access by roller is impractical, press flooring firmly in place with flat-bladed instrument.

#### 3.5 INSTALLATION OF RESILIENT SHEET FLOORING

- A. Unroll sheet flooring and allow it to stabilize before cutting and fitting, if recommended in writing by manufacturer.

- B. Lay out sheet flooring to comply with the following requirements:
  - 1. Maintain uniformity of sheet flooring direction.
  - 2. Arrange for a minimum number of seams and place them in inconspicuous and low-traffic areas, and not less than 6 in (150 mm) away from parallel joints in flooring substrates.
  - 3. Match edges of sheet flooring for color shading and pattern at seams according to manufacturer's written recommendations.
  - 4. Avoid cross seams.
- C. Integral Cove Base: Form integral cove base by flashing sheet flooring up vertical surfaces. Support flooring at horizontal and vertical junction with cove strip. Butt flooring at top of base against cap strip.
- D. Heat-Welded Seams: Rout joints and heat weld with welding bead, permanently fusing sections into seamless flooring. Prepare, weld, and finish seams according to manufacturer's written instructions and ASTM F 1516 to produce surfaces flush with adjoining flooring surfaces.

### 3.6 FIELD QUALITY CONTROL

- A. Testing: Engage a qualified testing agency to test electrical resistance of static-control resilient floor covering systems for compliance with requirements.
  - 1. Arrange for testing after installation static-control adhesives have fully cured and floor covering systems have stabilized to ambient conditions and after ground connections are completed.
- B. Static-control resilient floor coverings will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

### 3.7 CLEANING AND PROTECTING

- A. Perform the following operations immediately after installing flooring products:
  - 1. Remove adhesive and other surface blemishes from exposed surfaces using cleaner recommended by flooring manufacturer.
  - 2. Sweep or vacuum floor thoroughly.
  - 3. Do not wash floor until after time period recommended by flooring manufacturer.
  - 4. Damp-mop floor to remove marks and soil.
- B. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods recommended in writing by flooring manufacturer.
  - 1. Cover products installed on floor surfaces with undyed, untreated building paper until just prior to Substantial Completion.
  - 2. Do not move heavy and sharp objects directly over floor surfaces. Place plywood or hardboard panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.

END OF SECTION



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SECTION 09 6513

RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Resilient wall base, resilient flooring accessories, and supplementary items necessary for installation.

1.2 SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product and system indicated.
  - 1. Include manufacturer's specifications for materials, finishes, construction details, installation instructions, and recommendations for maintenance.
- B. Product Schedule: Use same designations indicated on the Finish Schedule and Drawings.
- C. Samples for Verification Purposes: In manufacturer's standard size, but not less than 12 in (300 mm) sample of each different color and pattern of resilient product specified, showing the full range of variations expected in these characteristics.
- D. Qualification Data: For installer.
  - 1. For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.
- E. Product Test Reports: Written reports based on evaluation of comprehensive tests performed by qualified testing agency indicating that each product complies with requirements.
- F. Maintenance Data: To include in maintenance manuals.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications:
  - 1. Experience: Installer with not less than 5 years experience in performing specified Work similar to scope of this Project, with a record of successful in-service performance and completion of projects for a period of not less than 5 years and with sufficient production capability, facilities, and personnel to produce required Work.
  - 2. Supervision: Installer shall maintain a competent supervisor who is at Project site during times specified Work is in progress that is experienced in installing systems similar to type and scope required for Project.
  - 3. Manufacturer Acceptance: Installer shall be certified, approved, licensed, or acceptable to manufacturer to install products.

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- B. Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.

1. Critical Radiant Flux: Class I, 0.45 W/sq. cm or greater when tested per ASTM E 648.
2. Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.

#### 1.4 PRE-INSTALLATION CONFERENCE

- A. Pre-Installation Conference: Before Work begins, conduct conference at Project site to comply with requirements of applicable Division 01 Sections.

1. Required Attendees:
  - a. Owner.
  - b. Architect.
  - c. Contractor, including superintendent.
  - d. Installer, including project manager and supervisor.
  - e. Installers of other construction interfaced with Work.
2. Minimum Agenda: Installer shall demonstrate understanding of the Work required by describing detailed procedures for preparing, installing, and cleaning the Work. Demonstration shall include, but not be limited to, following topics:
  - a. Tour representative areas of Work, inspect and discuss condition of substrate, and other preparatory work performed by other trades.
  - b. Review Work requirements (Drawings, Specifications, and other Contract Documents).
  - c. Review required submittals, both completed and yet to be completed.
  - d. Review and finalize construction schedule related to Work and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - e. Review required inspection, testing, certifying, and material usage accounting procedures.
  - f. Review environmental conditions and procedures for coping with unfavorable conditions.
  - g. Resolve deviations or differences between Contract Documents and the manufacturer's specifications.
3. Contractor shall record discussions of conference, including decisions and agreements reached, and furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by product manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C).

1.6 PROJECT CONDITIONS

- A. Maintain a temperature of not less than 70 deg F (21 deg C) or more than 85 deg F (29 deg C) in spaces to receive resilient products for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless otherwise recommended by product manufacturer.
- B. Maintain resilient products prior to installation at the same temperature as the space where they are to be installed.
- C. Close spaces to traffic during installation and for time period after installation recommended by manufacturer.
- D. Install resilient products after other finishing operations, including painting, have been completed.
- E. Resilient Stair Accessories: Do not install resilient stair accessories over concrete substrates until slabs have cured and are sufficiently dry to bond with adhesive, as determined by resilient accessory manufacturer's recommended tests. Refer to "Examination" Article for requirements.

1.7 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.

1.8 MAINTENANCE

- A. Extra Materials: Furnish the following extra materials that match and are from same production runs as products installed, packaged with protective covering for storage and identified with labels describing contents:
  - 1. Furnish not less than 10 linear ft (3 linear m) for each 500 linear ft (150 linear m) or fraction thereof, of each different type, color, pattern, and size of resilient product installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements of Contract Documents as judged by the Architect, provide product by one of manufacturers listed. If not listed, submit as substitution according to the Conditions of the Contract and Division 01 Section "Substitution Procedures".
  - 1. Armstrong World Industries, Inc.
  - 2. Burke Mercer Flooring Products; Division of Burke Industries, Inc.
  - 3. Johnsonite.
  - 4. Roppe Corporation, USA.
- B. Basis of Design (Product Standard): Contract Documents are based on products and systems specified to establish a standard of quality. Other available manufacturers offering products having equivalent characteristics may be considered, provided deviations are minor and comply with requirements of Contract Documents as judged by the Architect.

1. Selections: As indicated in Interior Design Selections on drawings.

## 2.2 MATERIALS, GENERAL

- A. Single Source Responsibility: Furnish each type of product from single manufacturer. Provide secondary materials only as recommended by manufacturer of primary materials.

## 2.3 RESILIENT MATERIALS

- A. Rubber Wall Base:

1. Standard: ASTM F 1861, Type TS (rubber, vulcanized thermoset) or TP (rubber, thermoplastic), Group 1 and 2.
2. Thickness: Nominal 1/8 in (3 mm).
3. Outside and Inside Corners:
  - a. Job-formed.

- B. Resilient Molding Accessories:

1. Carpeting Accessories: Carpet cove cap, carpet step-off, carpet reducer, carpet edge bar.
2. Resilient Flooring Accessories: Reducer strip and others as required.
3. Material: Rubber.
4. Color and finish as selected by Architect from manufacturer's standard colors.

- C. Resilient Stair Accessories:

1. Standard: ASTM F 2169, Type TS (rubber, vulcanized thermoset) or TP (rubber, thermoplastic), Class 1 and 2.
2. Rubber Stair Treads:
  - a. Nosing Style: Square, adjustable to cover angles between 60 and 90 degrees.
  - b. Nosing Height: 1-1/2 in (38 mm) to 2 in (50 mm).
  - c. Thickness: 1/4 in (6 mm) at nosing, tapered to 1/8 in (3 mm).
  - d. Size: Lengths and depths to fit each stair tread in one piece or, for treads exceeding maximum lengths manufactured, in equal-length units.
  - e. Manufacturing Method: Group 1, tread with embedded abrasive strips; and Group 2, tread with contrasting color for the visually impaired; as selected by Architect.
3. Risers: Smooth, flat, coved-toe, 1/4 in (6 mm) thick by 7 in (175 mm) high by length matching treads produced by same manufacturer as treads and recommended by manufacturer for installation with treads.
4. Stringers: Of same thickness as risers, height and length after cutting to fit risers and treads and to cover stair stringers; produced by same manufacturer as treads and recommended by manufacturer for installation with treads.

## 2.4 ACCESSORY MATERIALS

- A. Adhesives: Water-resistant type recommended by product manufacturer suitable for products, applications, and substrate conditions indicated.
  1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

- a. Wall Base: Not more than 50 g/L.
- b. Rubber Stair Treads: Not more than 60 g/L.

B. Resilient Stair Accessory Materials:

- 1. Concrete Slab Primer: Non-staining type as recommended by product manufacturer.
- 2. Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based formulation provided or approved by product manufacturer for products and applications indicated.
- 3. Stair Tread-Nose Filler: Two-part epoxy compound recommended by rubber stair tread manufacturer to fill nosing substrates that do not conform to tread contours.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.
- B. Concrete Substrates for Resilient Stair Accessories: Prepare according to ASTM F 710.
  - 1. Verify that concrete substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing the following tests as recommended by resilient accessory manufacturer.
  - 2. Verify that concrete substrate finishes comply with requirements specified in Division 03 Section "Concrete Finishing" for concrete substrates receiving resilient flooring.
  - 3. Verify that concrete substrates are free of cracks, ridges, depressions, scale, and foreign deposits.
  - 4. Alkalinity and Adhesion Testing: Perform tests recommended by resilient accessory manufacturer. A pH range of 5 to 9 is required when substrate is wetted with distilled water and pHydration paper is applied. Proceed with installation only after concrete substrates pass testing.
  - 5. Moisture Testing: Perform one or both of the following tests as recommended by resilient accessory manufacturer. Perform 3 moisture tests for first 1000 sf (92.9 sm) of concrete substrate scheduled to receive resilient stair accessories. Proceed with installation only after concrete substrates pass testing.
    - a. Perform anhydrous calcium chloride test in accordance with ASTM F 1869. Proceed with installation only after concrete substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sf (1.36 kg of water/92.9 sm) in 24 hours.
    - b. Perform relative humidity test using in situ probes in accordance with ASTM F 2170. Proceed with installation only after concrete substrates have a maximum 75 percent relative humidity level measurement.

3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:

1. Respective manufacturer's written installation instructions.
2. Accepted submittals.
3. Contract Documents.

### 3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.
- B. Resilient Stair Accessories:
  1. Remove substrate coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
  2. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.
  3. Broom and vacuum clean substrates to be covered by resilient stair accessories immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.
  4. Apply concrete slab primer, if recommended by product manufacturer, prior to applying adhesive. Apply according to manufacturer's directions.

### 3.4 INSTALLATION OF RESILIENT WALL BASE

- A. Apply wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- B. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- C. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates. Seal bottom of base at resilient flooring, with clear silicon sealant bead.
- D. Do not stretch wall base during installation.
- E. Masonry Wall Surfaces: On masonry surfaces or other similar irregular substrates, fill voids along top edge of wall base with manufacturer's recommended adhesive filler material.
- F. Job-Formed Corners: Use straight pieces of maximum lengths possible.
  1. Outside Corners: Form without producing discoloration (whitening) at bends. Shave back of base at points where bends occur and remove strips perpendicular to length of base that are only deep enough to produce a snug fit without removing more than half the wall base thickness.
  2. Inside Corners: Form by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.

### 3.5 INSTALLATION OF RESILIENT FLOORING ACCESSORIES

#### A. Resilient Stair Accessories:

1. Use stair tread-nose filler to fill nosing substrates that do not conform to tread contours.
2. Tightly adhere to substrates throughout length of each piece.
3. For treads installed as separate, equal-length units, install to produce a flush joint between units.

#### B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor coverings that would otherwise be exposed.

### 3.6 CLEANING AND PROTECTING

#### A. Perform the following operations immediately after installing resilient products:

1. Remove adhesive and other surface blemishes from exposed surfaces using cleaner recommended by manufacturer.
2. Sweep or vacuum horizontal surfaces thoroughly.
3. Do not wash resilient products until after time period recommended by manufacturer.
4. Damp-mop surfaces to remove marks and soil.

#### B. Protect resilient products against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by resilient product manufacturer.

END OF SECTION



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SECTION 09 6800

CARPETING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Carpeting products and systems and supplementary items necessary for installation.
- B. Resilient wall base and resilient molding accessories installed with carpeting are specified in Division 09 Section "Resilient Base and Accessories".

1.2 SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product and system indicated.
  - 1. Include manufacturer's specifications for materials, finishes, construction details, installation instructions, and recommendations for maintenance.
- B. Shop Drawings: Provide floor plans, including columns, doorways, enclosing walls or partitions, built-in cabinets, and locations of cutouts, to indicate the following:
  - 1. Carpeting type and color.
  - 2. Type of substrate.
  - 3. Type of installation.
  - 4. Pattern type, location, and direction.
  - 5. Pile direction.
  - 6. Type, color, and location of insets and borders.
  - 7. Type, color, and location of edge, transition, and other accessory strips.
  - 8. Transition details to other flooring materials.
- C. Product Schedule: Use same designations indicated on the Finish Schedule and Drawings.
- D. Samples for Verification Purposes: In manufacturer's standard size, but not less than 6 in by 9 in (150 mm by 230 mm) sample of each different color, texture, and pattern of carpeting product specified, showing the full range of variations expected in these characteristics. Label each sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in Schedules.
- E. Product Test Reports: Written reports based on evaluation of comprehensive tests performed by qualified testing agency indicating that each product complies with requirements.
- F. Manufacturer's Project Acceptance Document: Certification by the manufacturer that its product(s) are approved, acceptable, suitable for use in specific locations, for specific details, and for applications indicated, specified, or required.
- G. Qualification Data: For installer.

1. For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.

H. Warranty: Sample of warranty.

1. Provide manufacturer's written warranty covering materials and installation (labor) stating obligations, remedies, limitations and exclusions.

I. Maintenance Instructions: Include in operation and maintenance manual as required by Division 01 Section "Closeout Procedures". Submit manufacturer's instructions for maintenance of installed work, including methods and frequency for maintaining optimum condition under anticipated use. Include precautions against cleaning materials and methods which may be detrimental to finishes and performance.

### 1.3 QUALITY ASSURANCE

A. Installer Qualifications:

1. Experience: Installer with not less than 5 years experience in performing specified Work similar to scope of this Project, with a record of successful in-service performance and completion of projects for a period of not less than 5 years and with sufficient production capability, facilities, and personnel to produce required Work.
2. Supervision: Installer shall maintain a competent supervisor who is at Project site during times specified Work is in progress that is experienced in installing systems similar to type and scope required for Project.
3. Manufacturer Acceptance: Installer shall be certified, approved, licensed, or acceptable to manufacturer to install products.

B. Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.

1. Critical Radiant Flux: Class I, 0.45 W/sq. cm or greater when tested per ASTM E 648.
2. Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.

### 1.4 PRE-INSTALLATION CONFERENCE

A. Pre-Installation Conference: Before Work begins, conduct conference at Project site to comply with requirements of applicable Division 01 Sections.

1. Required Attendees:

- a. Owner.
- b. Architect.
- c. Contractor, including superintendent.
- d. Installer, including project manager and supervisor.
- e. Installers of other construction interfaced with Work.

2. Minimum Agenda: Installer shall demonstrate understanding of the Work required by describing detailed procedures for preparing, installing, and cleaning the Work. Demonstration shall include, but not be limited to, following topics:

- a. Tour representative areas of Work, inspect and discuss condition of substrate, and

- other preparatory work performed by other trades.
  - b. Review Work requirements (Drawings, Specifications, and other Contract Documents).
  - c. Review required submittals, both completed and yet to be completed.
  - d. Review and finalize construction schedule related to Work and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - e. Review required inspection, testing, certifying, and material usage accounting procedures.
  - f. Review environmental conditions and procedures for coping with unfavorable conditions.
  - g. Resolve deviations or differences between Contract Documents and the manufacturer's specifications.
3. Contractor shall record discussions of conference, including decisions and agreements reached, and furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with CRI 104, Section 5, "Storage and Handling".

#### 1.6 PROJECT CONDITIONS

- A. General: Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity".
- B. Environmental Limitations: Do not install carpeting until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- C. Maintain carpeting products prior to installation at the same temperature as the space where they are to be installed.
- D. Close spaces to traffic during carpeting installation and for time period after installation recommended by manufacturer.
- E. Install carpeting products after other finishing operations, including painting, have been completed.
- F. Do not install carpeting over concrete substrates until slabs have cured and are sufficiently dry to bond with adhesive, as determined by carpeting manufacturer's recommended tests. Refer to "Preparation" Article for requirements.

#### 1.7 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.

#### 1.8 WARRANTY

- A. Manufacturer's Warranty for Carpeting: Furnish manufacturer's written material and labor warranty signed by an authorized representative using manufacturer's standard form agreeing to furnish materials and labor required to repair or replace work which exhibits material defects caused by manufacture or design and installation of product. "Defects" is defined to include but not limited to deterioration or failure to perform as required.

1. Coverage of warranty includes but is not limited to more than 10 percent edge raveling, snags, runs, dimensional stability, loss of tuft bind strength, loss of face fiber, and delamination.
  2. Warranty Period: Manufacturer shall warrant the products to be free from material and labor Defects for a period of 10 years from date of Substantial Completion.
- B. Warranty does not include deterioration or failure of carpeting due to unusual traffic, failure of substrate, vandalism, or abuse.
- 1.9 MAINTENANCE
- A. Extra Materials: Furnish the following extra materials that match and are from same production runs as products installed, packaged with protective covering for storage and identified with labels describing contents:
1. Tile Carpeting: Furnish full-size units of tile carpeting equal to 5 percent of amount installed for each color and type indicated, but not less than 10 sq yd (8.4 sq m).

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements of Contract Documents as judged by the Architect, provide product by one of manufacturers listed. If not listed, submit as substitution according to the Conditions of the Contract and Division 01 Section "Substitution Procedures".
- B. Basis of Design (Product Standard): Contract Documents are based on products and systems specified to establish a standard of quality. Other available manufacturers offering products having equivalent characteristics may be considered, provided deviations are minor and comply with requirements of Contract Documents as judged by the Architect.

### 2.2 MATERIALS, GENERAL

- A. Single Source Responsibility: Furnish each type of product from single manufacturer. Provide secondary materials only as recommended by manufacturer of primary materials.
- B. Emissions: Provide carpet that complies with testing and product requirements of CRI's "Green Label Plus" program.

### 2.3 TILE CARPETING

- A. Basis of Design (Product Standard):
1. Selections: As indicated in Interior Design Selections.

### 2.4 ACCESSORY MATERIALS

- A. Concrete Slab Primer: Non-staining type as recommended by carpeting manufacturer.
- B. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided by or recommended by carpeting manufacturer.

- C. Adhesives: Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and is recommended or provided by carpet manufacturer.
  - 1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
    - a. Not more than 50 g/L.
- D. Seaming Adhesive for Sheet Carpet: Hot-melt adhesive tape or similar product recommended by carpeting manufacturer for sealing and taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.
- E. Concrete Moisture Barrier Floor Treatment:
  - 1. Epoxy-Based Moisture Barrier Floor Treatment: Two-component, high-performance, non-flammable, rapid drying, water based, low odor, low VOC, two-component, penetrating epoxy; formulated to reduce moisture vapor transmission and surface alkalinity from concrete substrates, including aged or freshly placed ("green") concrete, prior to installation of impervious glued-down finish flooring specified in other Division 09 sections.
    - a. Basis of Design (Product Standard): Bostik, Inc.; D-250.
  - 2. Cementitious Overcoat: Fast-setting latex-fortified Portland cement skim coating intended for interior uses.
    - a. Basis of Design (Product Standard): Bostik, Inc.; Webcrete 95.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.

### 3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
  - 1. Respective manufacturer's written installation instructions.
  - 2. Accepted submittals.
  - 3. Contract Documents.

### 3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.

- B. Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation" and carpeting manufacturer's written installation instructions for preparing substrates indicated to receive carpeting installation.
- C. Concrete Substrates: Prepare according to ASTM F 710.
  - 1. Verify that concrete substrate finishes comply with requirements specified in Division 03 Section "Concrete Finishing" for concrete substrates receiving carpeting.
  - 2. Verify that concrete substrates are free of cracks, ridges, depressions, scale, and foreign deposits.
  - 3. Verify that concrete substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Unless concrete has been water-cured, then proceed with the following:
    - a. Shot-blast concrete substrate with an apparatus that abrades the surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
    - b. Repair damaged and deteriorated concrete according to flooring manufacturer's written recommendations.
  - 4. Determine adhesion and dryness characteristics by performing the following tests as recommended by flooring manufacturer.
  - 5. Alkalinity and Adhesion Testing: Perform tests recommended by flooring manufacturer. A pH range of 5 to 9 is required when substrate is wetted with distilled water and pHydron paper is applied. Proceed with installation only after concrete substrates pass testing.
  - 6. Moisture Testing: Perform one or both of the following tests as recommended by flooring manufacturer. Perform 3 moisture tests for first 1000 sf (92.9 sm) of concrete substrate scheduled to receive flooring and 1 test for each additional 1000 sf (92.9 sm) or fraction thereof. Proceed with installation only after concrete substrates pass testing.
    - a. Perform anhydrous calcium chloride test in accordance with ASTM F 1869. Proceed with installation only after concrete substrates have maximum moisture-vapor-emission rate of 3 lbs of water/1000 sf (1.36 kg of water/92.9 sm) in 24 hours.
    - b. Perform relative humidity test using in situ probes in accordance with ASTM F 2170. Proceed with installation only after concrete substrates have a maximum 75 percent relative humidity level measurement.
  - 7. Moisture Barrier Floor Treatment: For concrete substrates not meeting moisture test standards specified above, apply epoxy-based moisture barrier treatment and cementitious overcoat to concrete substrate in accordance with manufacturer's written instructions.
- D. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.
- E. Broom and vacuum clean substrates to be covered immediately before installing carpeting. After cleaning, reexamine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.4 INSTALLATION OF CARPETING, GENERAL

- A. Scribe, cut, and fit carpeting to butt neatly and tightly to vertical surfaces and permanent fixtures, including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.
- B. Extend carpeting into toe spaces, door reveals, closets, and similar openings. Extend carpeting to center of door openings.

- C. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish carpeting as marked on substrate. Use chalk or other nonpermanent, non-staining marking device.
- D. Do not bridge building expansion joints with carpet.
- E. Bind or seal cut edges as recommended by carpeting manufacturer.
- F. Install pattern parallel to walls and borders unless otherwise indicated.
- G. Hand-roll carpeting in both directions from center out to embed carpeting in adhesive and eliminate trapped air according to manufacturer's written instructions. At walls, door casings, and other locations where access by roller is impractical, press carpeting firmly in place with flat-bladed instrument.

### 3.5 INSTALLATION OF TILE CARPETING

- A. Sheet Carpet at Concrete Substrates: Comply with CRI 104, Section 13, "Carpet Modules (Tiles)" and carpet manufacturer's written recommendations for full glue-down installation of every tile with releasable adhesive.
- B. Install pattern parallel to walls and borders unless otherwise indicated.

### 3.6 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpeting:
  - 1. Remove excess adhesive and other surface blemishes from exposed surfaces using cleaner recommended by carpeting manufacturer.
  - 2. Remove yarns that protrude from carpeting surface.
  - 3. Vacuum carpeting using commercial machine with face-beater element.
- B. Protect installed carpeting to comply with CRI 104, Section 16, "Protecting Indoor Installations".
- C. Protect carpeting against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpeting manufacturer.

END OF SECTION



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SECTION 099100

PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Surface preparation and field painting of exposed interior items, exterior items and surfaces.
  - 1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- B. Paint exposed surfaces, except where indicated that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels, unless indicated otherwise.
  - 1. Prefinished items include the following factory-finished components:
    - a. Prefinished wood doors.
    - b. Acoustical materials.
    - c. Prefinished Architectural woodwork and cabinets.
    - d. Finished mechanical and electrical equipment.
    - e. Light fixtures.
    - f. Distribution cabinets.
    - g. Baked enamel coated items.
    - h. Fluorocarbon coated items.
    - i. Integral colored plaster.
    - j. Integral colored PVC.
  - 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
    - a. Foundation spaces.
    - b. Furred areas.
    - c. Ceiling plenums.
    - d. Utility tunnels.
    - e. Pipe spaces.
    - f. Duct shafts.
    - g. Elevator shafts.
  - 3. Finished metal surfaces include the following:
    - a. Anodized aluminum.

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- b. Stainless steel.
  - c. Chromium plate.
  - d. Copper and copper alloys.
  - e. Bronze and brass.
- 4. Operating parts include moving parts of operating equipment and the following:
  - a. Valve and damper operators.
  - b. Linkages.
  - c. Sensing devices.
  - d. Motor and fan shafts.
- 5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
  - a. Embossed UL labels may be used and painted where acceptable to authority having jurisdiction

D. Related Sections:

- 1. Division 09 Section "Gypsum Board Assemblies" for surface preparation of gypsum board assemblies.

1.2 SPECIAL PAINTING REQUIREMENTS

- A. Access panels shall be field painted in place after installation with panels in open position and allowed to completely dry
  - 1. Sheen at Ceilings: Match adjacent ceiling surfaces
  - 2. Sheen at Walls: Match adjacent wall surfaces
  - 3. Sheen at Wall Trim: Match adjacent wall trim

1.3 DEFINITIONS

- A. MPI Gloss Levels: MPI Gloss and Sheen Standard values are measured per ASTM D523, Method D and are as follows:
  - 1. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees.
  - 2. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees.
  - 3. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees.
  - 4. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees.
  - 5. Gloss Level 5: 35 to 70 units at 60 degrees.
  - 6. Gloss Level 6: 70 to 85 units at 60 degrees.
  - 7. Gloss Level 7: More than 85 units at 60 degrees.

- B. Interior Painting: Generally includes surfaces located in conditioned spaces.

1.4 ACTION SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product and system indicated.

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1. Include manufacturer's specifications for materials, finishes, installation instructions, and recommendations for maintenance.
  - B. Product List: For each product indicated, include the following:
    1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
  - C. Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.
    1. Submit Samples on rigid backing, 8 in (200 mm) square.
    2. Step coats on Samples to show each coat required for system.
    3. Label each coat of each Sample.
    4. Label each Sample for location and application area.
- 1.5 INFORMATIONAL SUBMITTALS
- A. Qualification Data:
    1. For firms and persons specified in "Quality Assurance" to demonstrate their capabilities and experience. Include list of completed projects.
- 1.6 MAINTENANCE MATERIAL SUBMITTALS
- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
    1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.
- 1.7 QUALITY ASSURANCE
- A. Manufacturer Qualifications: Manufacturer with not less than 10 years of experience in the successful production and in-service performance of products and systems similar to scope of this Project.
- 1.8 DELIVERY, STORAGE, AND HANDLING
- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
    1. Maintain containers in clean condition, free of foreign materials and residue.
    2. Remove rags and waste from storage areas daily.
- 1.9 PROJECT CONDITIONS
- A. Apply paints only when temperatures of surfaces to be painted and surrounding air are between minimum and maximum range recommended by manufacturer.

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1.10 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers and Products: Subject to compliance with requirements of Contract Documents as judged by the Architect, manufacturer shall be the same manufacturer as the facility paint.
- B. Color and Gloss: Match facility standard.

2.2 PAINT, GENERAL

- A. Material Compatibility:
  - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to shop applicators to ensure use of compatible primers.

3.2 INSTALLATION

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform work according to the following, unless otherwise specified in this Section:
  - 1. Respective manufacturer's written installation instructions.
  - 2. Approved submittals.
  - 3. Contract Documents.

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3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations and specifications for cleaning and surface preparation. Surfaces shall have no defects or errors which would result in poor or potentially defective installation or would cause latent defects in Work.
- B. Comply with manufacturer's written instructions and recommendations.
- C. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
  - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates, unless expressly permitted by authorities having jurisdiction for labels intended to be painted.
- D. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- E. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
  - 1. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.
- F. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

3.4 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable items, equipment, and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items, equipment, or furniture with prime coat only.
  - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  - 4. The number of coats and film thickness required are the same regardless of application method.
  - 5. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
  - 6. Omit primer over metal surfaces that have been shop primed and touchup painted.
  - 7. Allow sufficient time between successive coats to permit proper drying.

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- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat. Tint per manufacturer's technical data for each type of primer or undercoat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve total dry film thickness of the entire system as recommended by manufacturer.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
- E. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces to match approved samples.

3.6 INTERIOR PAINTING SCHEDULE

- A. Steel Substrates:
  - 1. Water-Based Dry-Fall System: MPI INT 5.1C.
    - a. Prime Coat: Quick-drying alkyd metal primer (shop primed, MPI #76, VOC 350g/L max.
    - b. Topcoat: Dry fall, latex, flat, MPI #118, VOC 150 g/L max.
    - c. Topcoat: Dry fall, water based, for galvanized steel, flat (MPI Gloss Level 1), MPI #133, VOC 150 g/L max.
    - d. Topcoat: Dry fall, latex (MPI Gloss Level 3), MPI #155, VOC 150 g/L max.
    - e. Topcoat: Dry fall, latex (MPI Gloss Level 5), MPI #226 VOC 150 g/L max.
    - f. Gloss and Sheen: Match adjacent surfaces
  - 2. Institutional Low-Odor/VOC Latex System: MPI INT 5.1S.

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- a. Prime Coat: Rust-inhibitive primer (water based), MPI #107, VOC 100 g/L max.
- b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
- c. Topcoat: Latex, interior, institutional low odor/VOC, flat (MPI Gloss Level 1), MPI #143, VOC 10 g/L max.
- d. Topcoat: Latex, interior, institutional low odor/VOC (MPI Gloss Level 2), MPI #144, VOC 10 g/L max.
- e. Topcoat: Latex, interior, institutional low odor/VOC (MPI Gloss Level 3), MPI #145, VOC 10 g/L max.
- f. Topcoat: Latex, interior, institutional low odor/VOC (MPI Gloss Level 4), MPI #146, VOC 10 g/L max.
- g. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (MPI Gloss Level 5), MPI #147, VOC 10 g/L max.
- h. Topcoat: Latex, interior, institutional low odor/VOC, gloss (MPI Gloss Level 6), MPI #148, VOC 10 g/L max.
- i. Gloss and Sheen: Match adjacent surfaces.

B. Gypsum Board Substrates:

1. Institutional Low-Odor/VOC Latex System: MPI INT 9.2M.

- a. Prime Coat: Institutional low-odor/VOC primer/sealer, MPI 149, VOC 10 g/L max.
- b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
- c. Topcoat: Latex, interior, institutional low odor/VOC, flat (MPI Gloss Level 1), MPI #143, VOC 10 g/L max.
- d. Topcoat: Latex, interior, institutional low odor/VOC (MPI Gloss Level 2), MPI #144, VOC 10 g/L max.
- e. Topcoat: Latex, interior, institutional low odor/VOC (MPI Gloss Level 3), MPI #145, VOC 10 g/L max.
- f. Topcoat: Latex, interior, institutional low odor/VOC (MPI Gloss Level 4), MPI #146, VOC 10 g/L max.
- g. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (MPI Gloss Level 5), MPI #147, VOC 10 g/L max.
- h. Topcoat: Latex, interior, institutional low odor/VOC, gloss (MPI Gloss Level 6), MPI #148, VOC 10 g/L max.
- i. Gloss and Sheen: Match adjacent walls and ceilings.

3.7 PAINTING FINISH SCHEDULE

- A. Interior Paint Colors: Refer to drawings for paint information

END OF SECTION



INTERMOUNTAIN HEALTHCARE  
PRIMARY CHILDRENS OUTPATIENT AUDIOLOGY CLINIC  
LAYTON, UTAH

SECTION 10 2115

CUBICLE SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Work required for this section includes cubicle specialties and supplementary items necessary to complete their installation.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications to evidence compliance with these specifications.
- B. Shop Drawings:
  - 1. Show details of the system, related construction and reflected layout of ceiling areas showing location of tracks in relation to other ceiling mounted items.
  - 2. Indicate materials, finishes, dimensions, thicknesses and/or gages of parts, reinforcement, where applicable, and anchorage including items of hardware and accessories necessary for complete installation.
- C. Samples for Verification: Full-size units of each type of the following products:
  - 1. Curtain Track: Not less than 4 inches long.
  - 2. Curtain Carrier: Full-size unit.
- D. Cubicle Schedule: Use same room designations as indicated on Drawings.
- E. Maintenance Data: For each product if specified to include in maintenance manuals specified in Division 01.

1.3 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install cubicle specialties until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Field Measurements: Where cubicle specialties are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.4 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Curtain Carriers and Track End Caps: Full-size units equal to 3 percent of quantity installed for each size indicated, but not less than 10 units.
  - 2. Curtains: Full-size units equal to 10 percent of quantity installed, but not less than 2 units.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS AND PRODUCTS

- A. Acceptable Manufacturers/Fabricators and Products: Subject to compliance with requirements of Contract Documents as judged by the Architect, provide product by one of manufacturers/fabricators listed
  - 1. On The Right Track Systems, Inc. (Hospital Standard)

### 2.2 CURTAIN TRACKS

- A. Extruded-Aluminum Track: Not less than 1-1/4 inches wide by 3/4 inch high, with minimum wall thickness of 0.058 inch.
  - 1. Curved Track: Factory fabricated 12-inch-radius bends.
  - 2. Finish: Baked enamel, acrylic, or epoxy, white color.
- B. Track Accessories: Fabricate splices, end caps, connectors, end stops, coupling and joining sleeves, wall flanges, brackets, ceiling clips, and other accessories from same material and with same finish as track.
- C. Curtain Carriers: Two nylon rollers and nylon axle with chrome-plated steel, stainless steel, or aluminum hook with nickel plated steel beaded chain curtain drop
- D. Exposed Fasteners: Stainless steel.
- E. Concealed Fasteners: Hot-dip galvanized.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, and other conditions affecting performance of work.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Install tracks level and plumb, according to manufacturer's written instructions. Provide track fabricated from one continuous length up to 16 feet.
  - 1. Track Mounting:
    - a. Ceilings Heights 9'-0" and Less: Surface.
    - b. Ceilings Heights Greater than 9'-0": Suspended.

## CUBICLE SPECIALTIES

- B. Surface Track Mounting: Fasten surface-mounted tracks at intervals of not less than 24 inches. Fasten support at each splice and tangent point of each corner. Center fasteners in track to ensure unencumbered carrier operation. Mechanically fasten to suspended ceiling grid with screws.
- C. Track Accessories: Install splices, end caps, connectors, end stops, coupling and joining sleeves, and other accessories as required for a secure and operational installation.
- D. Curtain Carriers: Provide curtain carriers adequate for 6-inch spacing along the full length of the curtain plus an additional carrier.

END OF SECTION

INTERMOUNTAIN HEALTHCARE  
PRIMARY CHILDRENS OUTPATIENT AUDIOLOGY CLINIC  
LAYTON, UTAH

SECTION 10 2613

WALL AND CORNER GUARDS

PART 1 - GENERAL

1.1 SUMMARY

- A. Scope: Impact-resistant wall protection systems, wall and corner guards, and supplementary items necessary for installation.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's technical literature for each wall protection system component indicated; include physical characteristics, such as durability, resistance to fading, and flame resistance.
- B. Shop Drawings: Submit showing locations, extent, and installation details of each wall protection system component; indicate methods of attachment to adjoining construction.
- C. Qualification Data: For installer.
  - 1. For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.
- D. Maintenance Data: Include for each wall protection system component to include in maintenance manuals specified in Division 1. Include recommended methods and frequency for maintaining optimum condition of plastic covers under anticipated traffic and use conditions, and precautions against using cleaning materials and methods that may be detrimental to plastic finishes and performance.

1.3 QUALITY ASSURANCE

- A. Source Limitations: Obtain each color, grade, finish, and type of wall protection system component from a single source with resources to provide components of consistent quality in appearance and physical properties.

B. Installer Qualifications:

1. Experience: Installer with not less than 5 years experience in performing specified Work similar to scope of this Project, with a record of successful in-service performance and completion of projects for a period of not less than 5 years and with sufficient production capability, facilities, and personnel to produce required Work.
2. Supervision: Installer shall maintain a competent supervisor who is at Project site during times specified Work is in progress that is experienced in installing systems similar to type and scope required for Project.
3. Manufacturer Acceptance: Installer shall be certified, approved, licensed, or acceptable to manufacturer to install products.

C. Fire-Test-Response Characteristics: Provide wall protection system components with surface-burning characteristics indicated, as determined by testing identical materials according to ASTM E 84 by a testing and inspecting agency acceptable to authorities having jurisdiction. Identify wall protection system components with appropriate markings of applicable testing and inspecting agency.

D. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install impact-resistant wall protection units until building is enclosed and weatherproof, wet work is complete and dry, and HVAC system is operating and maintaining temperature at 70 deg F (21 deg C) for not less than 72 hours before beginning installation and for the remainder of the construction period.

1.5 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.

1.6 MAINTENANCE

- A. Extra Materials: Furnish as described below packaged with protective covering and identified with labels describing contents.
1. Full-size units of maximum length, including plastic cover and aluminum retainer, equal to 2 percent of each type, color, and texture of each type of unit installed, but not less than 2 units.
  2. Accessory components from same production run as materials installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements of Contract Documents as judged by the Architect, provide product by one of manufacturers listed. If not listed, submit as substitution according to the Conditions of the Contract and Division 01 Section "Substitution Procedures". **(Match facility standard)**

1. Construction Specialties, Inc. (C/S Group)
2. IPC Door and Wall Protection Systems; Division of InPro Corporation.
3. Korogard Wall Protection Systems; a division of RJF International Corporation.

- B. Basis of Design (Product Standard): Contract Documents are based on products and systems specified to establish a standard of quality. Other manufacturers/fabricators offering products having equivalent characteristics may be considered, provided deviations are minor and comply with requirements of Contract Documents as judged by the Architect.

## 2.2 MATERIALS

- A. Engineered PETG (Polyethylene Terephthalate Glycol) Material: Textured, chemical- and stain-resistant, high-impact-resistant co-polymer plastic with integral color throughout; PVC-free with no PBTs or BPA, extruded and sheet material, thickness as indicated.
1. Impact Resistance: Minimum 25.4 ft-lbf/in. (1356 J/m) of notch when tested according to ASTM D 256, Test Method A.
  2. Chemical and Stain Resistance: Tested according to ASTM D 543 or ASTM D 1308.
  3. Self-extinguishing when tested according to ASTM D 635.
  4. Flame-Spread Index: 25 or less.
  5. Smoke-Developed Index: 450 or less.
  6. Color and Texture: Refer to Interior Design Selections.
- B. Aluminum Extrusions: Alloy and temper recommended by manufacturer for type of use and finish indicated, but with not less than strength and durability properties specified in ASTM B 221 (ASTM B 221M) for Alloy 6063-T5.
- C. Fasteners: Aluminum, nonmagnetic stainless-steel, or other noncorrosive metal screws, bolts, and other fasteners compatible with items being fastened. Use security-type fasteners where exposed to view.
- D. Adhesive: As recommended by impact-resistant plastic wall protection manufacturer and with a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

## 2.3 WALL AND CORNER GUARDS

- A. Basis of Design (Product Standard): Contract Documents are based on products and systems specified to establish a standard of quality. Other manufacturers/fabricators offering products having equivalent characteristics may be considered, provided deviations are minor and comply with requirements of Contract Documents as judged by the Architect.

1. Manufacturers and Products: As indicated in Interior Design Selections.

## 2.4 FABRICATION

- A. General Requirements: Fabricate wall protection system components to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including thicknesses of components.
1. Preassemble components in shop to greatest extent possible to minimize field assembly.
  2. Fabricate components with tight seams and joints with exposed edges rolled. Provide surfaces free of wrinkles, chips, dents, uneven coloration, and other imperfections. Fabricate members and fittings to produce flush, smooth, and rigid hairline joints.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.

## 3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
  - 1. Respective manufacturer/fabricator's written installation instructions.
  - 2. Accepted submittals.
  - 3. Contract Documents.

## 3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.

## 3.4 EXAMINATION

- A. Acceptance of Conditions: Examine substrate surfaces to which wall protection system components will be installed for compliance with requirements, installation tolerances and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance.

## 3.5 INSTALLATION

- A. General: Install impact-resistant wall protection units level, plumb, and true to line without distortions. Do not use materials with chips, cracks, voids, stains, or other defects that might be visible in the finished Work.
  - 1. Install impact-resistant wall protection units in locations and at mounting heights indicated on Drawings.
  - 2. Provide splices, mounting hardware, anchors, and other accessories required for a complete installation.
    - a. Provide anchoring devices to withstand imposed loads.

## 3.6 CLEANING

- A. Immediately after completion of installation, clean plastic covers and accessories using a standard, ammonia-based, household cleaning agent.
- B. Remove excess adhesive using methods and materials recommended in writing by manufacturer.

END OF SECTION

INTERMOUNTAIN HEALTHCARE  
PRIMARY CHILDRENS OUTPATIENT AUDIOLOGY CLINIC  
LAYTON, UTAH

SECTION 10 2813

TOILET ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Toilet accessories and supplementary items necessary for installation.

1.2 SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product indicated.
1. Include manufacturer's specifications for materials, finishes, construction details, installation instructions, dimensions, and profiles of individual components.
  2. Include details for cutouts required in other Work; include templates, substrate preparation instructions, and directions for preparing cutouts and installing anchoring devices.
- B. Accessory Schedule: Organized by rooms, indicating types, quantities, sizes, and installation locations of each accessory, using drawing designations and room names and numbers as indicated on Drawings.
- C. Qualification Data: For installer.
1. For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.
- D. Warranty: Sample of special warranty.
1. Provide manufacturer's written warranty covering materials and installation (labor) stating obligations, remedies, limitations and exclusions.
- E. Maintenance Data: For inclusion in operation and maintenance manual as required by Division 01 Section "Operation and Maintenance Data". Include manufacturer's instructions for maintenance of installed Work, including methods and frequency for maintaining optimum condition under anticipated use. Include precautions against cleaning products and methods which may be detrimental to finishes and performance.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications:



1. Experience: Installer with not less than 5 years experience in performing specified Work similar to scope of this Project, with a record of successful in-service performance and completion of projects for a period of not less than 5 years and with sufficient production capability, facilities, and personnel to produce required Work.
2. Supervision: Installer shall maintain a competent supervisor who is at Project site during times specified Work is in progress that is experienced in installing systems similar to type and scope required for Project.
3. Manufacturer Acceptance: Installer shall be certified, approved, licensed, or acceptable to manufacturer to install products.

#### 1.4 COORDINATION

- A. Coordinate installation of products with interfacing and adjoining construction to provide a successful installation without failure.

#### 1.5 WARRANTY

- A. Mirror Manufacturer's Warranty: Furnish warranty for a period of 15 years from date of Substantial Completion agreeing to replace mirrors that develop visible silver spoilage defects, signed by an authorized representative using manufacturer's standard form.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS AND PRODUCTS

- A. Acceptable Manufacturers and Products: Subject to compliance with requirements of Contract Documents as judged by the Architect, provide product by one of manufacturers listed. If not listed, submit as substitution according to Conditions of the Contract and Division 01 Section "Substitution Procedures".
  1. A & J Washroom Accessories, Inc.
  2. American Specialties, Inc.
  3. Bobrick Washroom Equipment, Inc.
  4. Bradley Corp.
  5. Brey Krause Manufacturing
  6. GAMCO - General Accessory Manufacturing Co.
- B. Basis of Design: Contract Documents are based on products specified to establish a standard of quality. Other available manufacturers with products having equivalent characteristics may be considered, provided deviations are minor and do not change intended aesthetic, functional and performance requirements as judged by Architect.

#### 2.2 MATERIALS, GENERAL

- A. Single Source Responsibility: Furnish each type of product from single manufacturer. Provide secondary materials only as recommended by manufacturer of primary materials.
- B. General Requirements:
  1. Unless otherwise indicated, fabricate units of all-welded construction, with corners and returns as indicated, tight seams and joints, and exposed edges rolled.
  2. Fabricate frames drawn and leveled, one-piece seamless construction.
  3. Hang doors and access panels with full-length, stainless-steel hinges.
  4. Equip units for concealed anchorage and with corrosion-resistant backing plates.

## TOILET ACCESSORIES

- C. Manufacturer Names or Labels: Not permitted on exposed faces of accessories. Provide printed label or stamped metal nameplate indicating manufacturer's name and product model number on an easily noticeable interior surface or on back surface of each accessory.
- D. Keys: Provide minimum of 6 universal keys for internal access to accessories for servicing and resupplying.
- E. Accessibility Requirements: Products and installation shall comply with Americans with Disabilities Act (ADA), ANSI A 117.1, and state and local accessibility standards.

### 2.3 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, with No. 4 satin finish; minimum 0.0312 in (0.8 mm) (22 gage) nominal thickness unless otherwise indicated.
- B. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
- C. ABS Plastic: Moldable acrylonitrile-butadiene-styrene resin formulation.
- D. HDPE Plastic: Moldable high-density polyethylene resin formulation.
- E. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of non-corrosive metal when concealed.

### 2.4 PAPER TOWEL DISPENSERS

- A. Drawing Designation A2 - Owner Furnished Paper Towel Dispenser: Refer to Division 01 Sections "Summary" and "Execution" for general requirements.

### 2.5 SOAP DISPENSERS

- A. Drawing Designation J1 - Owner Furnished Soap Dispenser: Refer to Division 01 Sections "Summary" and "Execution" for general requirements.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.

### 3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, install toilet accessories according to the following, unless otherwise specified in this Section:
  - 1. Respective manufacturer's written installation instructions.
  - 2. Accepted submittals.
  - 3. Contract Documents.

3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.

3.4 INSTALLATION

- A. General Requirements: Install toilet accessories level, plumb, and firmly anchored in locations and at heights indicated. Use fasteners that are appropriate to substrate indicated and as recommended by respective product manufacturer.

END OF SECTION

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INTERMOUNTAIN HEALTHCARE  
PRIMARY CHILDRENS OUTPATIENT AUDIOLOGY CLINIC  
LAYTON, UTAH

SECTION 10 4400

FIRE-PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Work required for this section includes fire protection specialties (fire extinguishers, cabinets, accessories) and supplementary items necessary to complete their installation.

1.2 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire-protection specialties.
  - 1. Fire Extinguishers: Include rating and classification.
  - 2. Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.

1.3 QUALITY ASSURANCE

- A. Source Limitations: Obtain fire extinguishers and cabinets through one source from a single manufacturer.
- B. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Standard for Portable Fire Extinguishers."
- C. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS AND PRODUCTS

- A. Acceptable Manufacturers/Fabricators and Products: Subject to compliance with requirements of Contract Documents as judged by the Architect, provide product by one of manufacturers/fabricators listed. If not listed, submit as substitution according to the Conditions of the Contract and Division 01 Section "Substitution Procedures".
  - 1. J. L. Industries, Inc.; a division of Activar Construction Products Group.
  - 2. Larsen's Manufacturing Company.
  - 3. Potter Roemer LLC.

## 2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: Carbon steel, complying with ASTM A 1008/A 1008M, commercial quality, stretcher leveled, temper rolled.

## 2.3 PORTABLE FIRE EXTINGUISHERS

- A. General: Provide fire extinguishers of type, size, and capacity for each cabinet and other locations indicated.
- B. Multipurpose Dry Chemical Type; typical unless otherwise indicated or specified: UL-rated 2-A:10-B:C, 10-lb nominal capacity, in enameled steel container.

## 2.4 FIRE-PROTECTION CABINETS

- A. Cabinet Construction: Provide manufacturer's standard box (tub), with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth. Miter and weld perimeter door frames.
- B. Cabinet: (intent is to match existing cabinets)
  - 1. Material:
    - a. Steel sheet.
  - 2. Type: Suitable for 10 lb. Fire extinguisher.
  - 3. Mounting:
    - a. Semi-recessed Cabinet: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
  - 4. Trim Style: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth. Same metal and finish as door
    - a. 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: 1-1/4- to 1-1/2-inch backbend depth.
  - 5. Door Material: (intent is to match existing cabinets)
    - a. Steel sheet.
  - 6. Door Glazing: Manufacturer's standard tempered float glass (clear).
  - 7. Door Style: Manufacturer's standard vertical duo panel design.
  - 8. Door Construction: Fabricate doors according to manufacturer's standards, of materials indicated, and coordinated with cabinet types and trim styles selected. Provide minimum 1/2-inch-thick door frames, fabricated with tubular stiles and rails, and hollow-metal design.
  - 9. 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 lever handle with cam-action latch, or exposed or concealed door pull and friction latch. Provide concealed or continuous-type hinge permitting door to open 180 degrees.

## 2.5 ACCESSORIES

- A. Mounting Brackets: Manufacturer's standard steel, designed to secure extinguisher, of sizes required for types and capacities of extinguishers indicated, with plated or baked-enamel finish. Provide brackets for extinguishers not located in cabinets.
- B. Identification: Provide lettering to comply with authorities having jurisdiction for letter style, color, size, spacing, and location.
  - 1. Bracket-Mounted Extinguishers: Identify with the words "FIRE EXTINGUISHER" in red letter decals applied to wall surface.
  - 2. Fire Extinguisher Cabinet: Identify with the words "FIRE EXTINGUISHER" in black die cut vinyl letters applied to door.

## 2.6 GENERAL FINISH REQUIREMENTS, FIRE-PROTECTION CABINETS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces of fire protection cabinets from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish fire protection cabinets after assembly.
- D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.7 STEEL FINISHES, FIRE-PROTECTION CABINETS

- A. Surface Preparation: Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning" or SSPC-SP 8, "Pickling". After cleaning, apply a conversion coating suited to the organic coating to be applied over it.
- B. Baked-Enamel or Powder-Coat Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils (0.05 mm).
  - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrate surfaces to receive fire extinguishers, cabinets and associated work and conditions under which work will be installed. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Installer. Starting work within a particular area will be construed as applicator's acceptance of surface conditions.
- B. Examine fire extinguishers for proper charging and tagging.
  - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.

3.2 INSTALLATION

- A. Comply with manufacturer's written instructions for installing fire-protection specialties.
- B. Install in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.
  - 1. Prepare recesses for cabinets as required by type and size of cabinet and trim style.
  - 2. Fasten cabinets to structure, square and plumb.

3.3 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust cabinet doors that do not swing or operate freely.
- B. Refinish or replace cabinets and doors damaged during installation.
- C. Provide final protection and maintain conditions that ensure that cabinets and doors are without damage or deterioration at the time of Substantial Completion.

END OF SECTION



INTERMOUNTAIN HEALTHCARE  
PRIMARY CHILDRENS OUTPATIENT AUDIOLOGY CLINIC  
LAYTON, UTAH

SECTION 12 3661

SIMULATED STONE COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: The following simulated stone countertops along with supplementary items necessary for installation:

1. Solid surfacing countertops.

1.2 SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product and system indicated.
1. Include manufacturer's specifications for materials, finishes, construction details, installation instructions, and recommendations for maintenance.
- B. Shop Drawings: Show details of fabrication and installation, including plans, elevations, sections, details of components and attachments to other work. Distinguish between shop and field-assembled work. Show locations and sizes of cutouts and holes for plumbing fixtures, accessories and other items installed in countertops.
- C. Samples for Verification Purposes: For simulated stone material, 6 in (150 mm) square, showing color and pattern selected.
- D. Manufacturer's Project Acceptance Document: Certification by the manufacturer that its product(s) are approved, acceptable, suitable for use in specific locations, for specific details, and for applications indicated, specified, or required, and that a warranty will be issued.
- E. Qualification Data: For installer.
1. For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.
- F. Warranty: Sample of warranty.
1. Provide manufacturer's written warranty covering materials and installation (labor) stating obligations, remedies, limitations and exclusions.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications:
1. Experience: Installer with not less than 5 years experience in performing specified Work similar to scope of this Project, with a record of successful in-service performance and

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SIMULATED STONE COUNTERTOPS  
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completion of projects for a period of not less than 5 years, and with sufficient production capability, facilities, and personnel to produce required Work.

2. Supervision: Installer shall maintain a competent supervisor who is at Project during times specified Work is in progress, and, who is experienced in installing systems similar to type and scope required for Project.

- B. Fire-Test-Response Characteristics: Provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction.

#### 1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Where products and systems are indicated to fit walls and other construction, verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

#### 1.5 COORDINATION

- A. Coordinate installation of products and systems with interfacing and adjoining construction to provide a successful installation without failure.

#### 1.6 WARRANTY

- A. Manufacturer's Warranty: Furnish manufacturer's written material and labor warranty signed by an authorized representative using manufacturer's standard form agreeing to furnish materials and labor required to repair or replace work which exhibits material defects caused by manufacture or design and installation of product. "Defects" is defined to include but not limited to deterioration or failure to perform as required.

1. Warranty Period: Manufacturer shall warrant the products to be free from material and labor Defects for a period of 10 years from date of Substantial Completion

### PART 2 - PRODUCTS

#### 2.1 ACCEPTABLE MANUFACTURERS

- A. Basis of Design (Product Standard): Contract Documents are based on products and systems specified to establish a standard of quality. Other manufacturers/fabricators offering products having equivalent characteristics may be considered, provided deviations are minor and comply with requirements of Contract Documents as judged by the Architect.

1. Color(s): As indicated in Design Selections on drawings.

#### 2.2 MATERIALS, GENERAL

- A. Single Source Responsibility: Furnish each type of product from single manufacturer/fabricator. Provide secondary materials only as recommended by manufacturer/fabricator of primary materials.

2.3 SIMULATED STONE COUNTERTOP MATERIALS

- A. Solid Surface Material: Homogeneous solid sheets of filled plastic resin complying with ANSI SS1.
  - 1. Panel Thickness: Minimum 1/2 in (12 mm) or as indicated on drawings.

2.4 ACCESSORIES

- A. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded and other requirements as specified in Division 06 Section "Miscellaneous Rough Carpentry".
- B. Adhesives: Manufacturers recommended adhesive.
  - 1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
    - a. Not more than 250 g/L.
  - 2. Integral Lavatory Bowl (Oval): Made of solid surfacing material; nominal 13 in (325 mm) front-to-back by 15 in (375 mm) side-to-side inside plan dimension by 3-3/4 in (95 mm) deep; drain 3-1/2 in (90 mm) from rear side, provide unit with overflow; seam-mount installation.
    - a. Manufacturer and Product: Gemstones Sinks; model 1512-VO-ADA.
  - 3. Under-slung or Self-Rimming Lavatory Bowls: Where indicated, provide as specified in Division 22 Plumbing Sections.
- C. Backsplash: Preformed 4 in (100 mm) high coved backsplash, to match countertop.
- D. Front Edge Trim: Preformed 1-1/2 in (38 mm), to match countertops.
- E. Accessories: Provide joint seam adhesives and other items required for a complete installation as recommended in writing by simulated stone manufacturer.
- F. Sealant: Mildew resistant silicone sealant as specified in Division 07 Section "Joint Sealants".

2.5 FABRICATION OF SIMULATED STONE COUNTERTOPS

- A. Accurately cut holes and drill countertop panels to receive plumbing, fixtures, soap dispensers and other accessories. Obtain field measurements prior to fabrication and maintain minimum clearance at walls.
- B. Fabricate tops in one piece with shop-applied backsplashes and edges, unless otherwise indicated. Comply with simulated stone manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions: Examine substrates to receive products and systems and associated work for compliance with requirements and other conditions affecting performance. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents. Starting work within a particular area will be construed as acceptance of surface conditions.

## 3.2 INSTALLATION, GENERAL

- A. Installation Quality Standards: In addition to standards listed elsewhere, perform Work according to following, unless otherwise specified:
  - 1. Respective manufacturer's written installation instructions.
  - 2. Accepted submittals.
  - 3. Contract Documents.

## 3.3 PREPARATION

- A. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.

## 3.4 CONSTRUCTION TOLERANCES

- A. Variation from Plumb: For vertical lines and surfaces, do not exceed 1/16 in per 48 in (1.5 mm per 1200 mm).
- B. Variation from Level: Do not exceed 1/8 in per 96 in (3 mm per 2400 mm), 1/4 in (6 mm) maximum.
- C. Variation in Joint Width: Do not vary joint thickness more than 1/4 of nominal joint width.
- D. Variation in Plane at Joints (Lipping): Do not exceed 1/64 in (0.4 mm) difference between planes of adjacent units.
- E. Variation in Line of Edge at Joints (Lipping): Do not exceed 1/64 in (0.4 mm) difference between edges of adjacent units, where edge line continues across joint.

## 3.5 INSTALLATION OF SIMULATED STONE COUNTERTOPS

- A. Install countertops over plywood sub-tops secured to sub-framing supports with full spread of silicone adhesive in accordance with manufacturer's recommendations.
- B. Set countertops to comply with requirements indicated on Drawings and Shop Drawings. Shim and adjust to locations indicated, with uniform joints of widths indicated and with edges and faces aligned according to established relationships and indicated tolerances.
- C. Align adjacent countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop.

## SIMULATED STONE COUNTERTOPS

- D. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- E. Secure backsplashes to tops and walls with adhesive.
- F. Caulk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants".
- G. Prepare ends and edges of simulated stone pieces to be joined according to the manufacturer's/fabricator's recommendations for position and angle of butted joint. Lightly sand and thoroughly clean to remove dirt and grease. Join pieces with adhesive clamped until fully cured. Buff and sand to produce a smooth uniform seamless surface.
- H. Apply sealant and compress to form bond with simulated stone material and adjacent surfaces and tool sealant surface to clean, straight lines.

### 3.6 CLEANING

- A. Promptly clean simulated stone as work progresses to minimize final cleaning. Do not leave adhesive or sealant to dry on simulated stone faces.
- B. Final clean and protect installed countertops in accordance with manufacturer's instructions.

END OF SECTION

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