

ADDENDUM NO. 4

DATE: May 17, 2018

PROJECT: Cherokee Hard Rock Casino 4
Catoosa, Oklahoma

FROM: JCJ Architecture, Inc.
120 Huyshope Avenue, Suite 400
Hartford, Connecticut 06106
(860) 247-9226

TO: Bidders of Record

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated April 23, 2018. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of five (5) pages and the following attached documents:

1. Specification Sections.
2. Drawings.

PROJECT MANUAL:

1. TABLE OF CONTENTS:
 - a. Replace with attached Table of Contents. Added new Sections.
2. Section 081413 - SLIDING WOOD DOORS.
 - a. Insert new Section.
3. Section 075216 STYRENE-BUTADIENE-STYRENE (SBS) MODIFIED BITUMINOUS ROOFING
 - a. Replace with attached Section. Added roofing materials.
4. Section 096900 - ACCESS FLOORING.
 - a. Insert attached Section.
5. Section 104413 - FIRE PROTECTION CABINETS:
 - a. Replace with attached Section. Added surface mounted cabinet.

6. Section 114000 - FOOD SERVICE
 - a. ITEM -1
PAGE 11 4000 - 34
ITEM NO. 47ED DISHWASHER W/ BOOSTER HEAT
CHANGE paragraph A. to read as follows:
“A. One (1) - MEIKO, model DIV 120.2T, high temperature machine.”

ADD to paragraph D.
“04 Parts are to be stocked and available through the locale service agent.”
 - b. ITEM -2
PAGE 11 4000 - 40
ITEM NO. 09SB BOTTLE WELL
CHANGE to read as follows:

"ITEM NO. 09SB BOTTLE WELL
A One (1) lot - Fabricated, configuration per details and drawings.
B To include:
01 Two (2) 10" x 52" (interior dimensions) wells.
02 Two (2) 16" x 34" (interior dimensions) wells.

C Special instructions:
01 Install on Item No. 05SB, Back-Bar.
02 Install per details and drawings.
03 Coordinate installation with Millwork Contractor"
 - c. ITEM -3
PAGE 11 4000 - 40
ITEM NO. 11SB MUG CHILLER
CHANGE paragraph C., 02 to read as follows:

“02 Install into base of Item No. 05SB, Back-Bar”
7. Section 115213- PROJECTION SCREENS:
 - a. Insert new Section.

DRAWINGS

8. **FS108 Foodservice Equipment Plumbing Connection Plan**
9. **G-003 Life Safety Plan**
 - a. Fire extinguisher cabinets were added to the plans.
10. **A-110.2 Access Floor Plan**
 - a. Access floor removed from Concession 104.
 - b. Adjusted around the platform in Multipurpose room 103.

11. **A-111.1 First Floor Plan –Area 1 Interiors**
 - a. Added detail in Multipurpose Room 103.
 - b. Added elevation in Admission/Coat Room 102.
12. **A-112.1 First Floor Plan –Area 2 Interiors**
 - a. Changed room and door numbers.
 - b. Furred out wall type K has been added against existing Casino 3.
13. **AC-111.1 Reflected Ceiling Plan First Floor–Area 1 Interiors**
 - a. Ceiling has been updated in Multipurpose Room 103.
14. **AC-112.1 Reflected Ceiling Plan First Floor–Area 2 Interiors**
 - a. Soffit has been added in front of Vestibule 118.
15. **A-210 Gaming Interior Elevations**
 - a. Admission/Coat Room coiling door edited.
16. **A-211 Gaming Interior Elevations**
 - a. Dimensions added to Smoke Shop portal.
 - b. Added detail above secondary exit.
17. **A-213 Multipurpose Room Elevations**
 - a. Finishes and details updated.
18. **A-214 Multipurpose Room Elevations**
 - a. Detail for projection screen added.
19. **A-215 Entertainment Venue Elevations**
 - a. Notes for lighting around the bar were added.
20. **A-421 Stair Details**
 - a. Stair 3 detail was updated.
21. **A-422 Elevator Plans, Elevations and Details**
 - a. Missing wall types were identified.
22. **A-430 Enlarged Plans, Elevations and Details**
 - a. Locks were added to the millwork.
 - b. Updated detail callouts.
23. **A-431 Cage Details**
 - a. Millwork has been updated.
24. **A-432 Enlarged Casino Bar Plans, Elevations and Details**
 - a. Location of purse hooks moved.

25. **A-433 Enlarged Standing Bar Plans, Elevations and Details**
 - a. Moveable booth section finishes updated.
26. **A-436 Enlarged Elevations and Details**
 - a. Millwork details were added.
 - b. Finishes were updated.
27. **A-531 Interior Plan Details**
 - a. Bar entry portal was updated.
 - b. Dimensioned and details added.
28. **A-532 Interior Plan Details**
 - a. Door jamb detail was added.
29. **A-540 Interior Vertical Details**
 - a. Details added.
 - b. Finishes updated.
30. **A-550 Ceiling Details**
 - a. Details added.
31. **A-560 Door Schedule and Details**
 - a. Door schedule was updated.
 - b. Details were added.
32. **A-561 Door Details**
 - a. Details were added and updated.
33. **A-580 Miscellaneous Details**
 - a. Details were added.
 - b. Trim profiles were added to the sheet.
34. **AF-100 Interior Finishes Schedule**
 - a. Notes were added to schedule.
 - b. Finishes were updated.
35. **AF-111 First Floor Area 1 Finish Plan**
 - a. Floor finishes were updated in Multipurpose Room 103.
36. Drawing No. **LV001**
 - a. Revised symbols.
37. Drawing No. **LV111**
 - a. Revised multi-purpose room, added data outlets and notes.
38. Drawing No. **LV112**
 - a. Revised cable label tags and added some data outlets.

- 39. Drawing No. **LV113**
 - a. Revised cable tray layout, added conduit, and notes.

- 40. Drawing No. **LV122**
 - a. Added data outlets and notes.

- 41. Drawing No. **LV400**
 - a. Deleted enlarged plans. Revised existing IDF E216 - LV.

- 42. Drawing No. **FP001**
 - a. Added general note P.

- 43. Drawing No. **FP111**
 - a. Revised sprinkler and piping layout.

END OF ADDENDUM NO. 4

Structural revision narrative

Hard Rock Casino Tulsa - Casino 4 - Addendum #4

sheet	revisions
S-111	Revised footprint of stage/raised floor Added raised slab area for concessions Added HSS posts sections and details, revised slab edge at rollup door
S-121	Added HSS posts and header at rollup door Added framing hung from roof structure for barn door support Revised Keynotes
S-131	Added framing for hanging barn door below Revised Keynotes
S-313	Added sections C4 and D4
S-501	Added sections A2, A3, B3, C3 and D4

Hard Rock Casino 4

Addendum 4 Architectural Narrative

Description: [Architectural Drawings:](#)

G-003	Life Safety Plan <ul style="list-style-type: none">• Fire extinguisher cabinets were added to the plans.
A-110	First Floor Plan Overall <ul style="list-style-type: none">• Revised porte cochere column locations.
A-110.2	Access Floor Plan <ul style="list-style-type: none">• Access floor removed from Concession 104.• Adjusted around the platform in Multipurpose room 103.
A-110	First Floor Plan Area 1 <ul style="list-style-type: none">• Revised porte cochere column locations.
A-111.1	First Floor Plan – Area 1 Interiors <ul style="list-style-type: none">• Added detail in Multipurpose Room 103.• Added elevation in Admission/Coat Room 102.
A-112.1	First Floor Plan – Area 2 Interiors <ul style="list-style-type: none">• Changed room and door numbers.• Furred out wall type K has been added against existing Casino 3.
AC-111.1	Reflected Ceiling Plan First Floor– Area 1 Interiors <ul style="list-style-type: none">• Ceiling has been updated in Multipurpose Room 103.
AC-112.1	Reflected Ceiling Plan First Floor– Area 2 Interiors <ul style="list-style-type: none">• Soffit has been added in front of Vestibule 118.
A-130	Roof Plan Overall <ul style="list-style-type: none">• Revised porte cochere layout.• Added roof walkway pads.
A-131	Enlarged Porte Cochere Roof Plan and Details <ul style="list-style-type: none">• Added sheet A-131.
A-201	Exterior Elevations <ul style="list-style-type: none">• Added aluminum frame elevation callouts.
A-202	Exterior Elevations <ul style="list-style-type: none">• Added aluminum frame elevation callouts.
A-205	Metal Panel Elevations <ul style="list-style-type: none">• Revised metal panel dimensions.
A-210	Gaming Interior Elevations <ul style="list-style-type: none">• Admission/Coat Room coiling door edited.
A-211	Gaming Interior Elevations <ul style="list-style-type: none">• Dimensions added to Smoke Shop portal.• Added detail above secondary exit.
A-213	Multipurpose Room Elevations <ul style="list-style-type: none">• Finishes and details updated.
A-214	Multipurpose Room Elevations <ul style="list-style-type: none">• Detail for projection screen added.
A-215	Entertainment Venue Elevations <ul style="list-style-type: none">• Notes for lighting around the bar were added.
A-320	Wall Sections <ul style="list-style-type: none">• Revised roofing system to match specification.• Revised porte cochere to building condition.
A-321	Wall Sections <ul style="list-style-type: none">• Revised roofing system to match specification.
A-322	Wall Sections

- Revised roof access ladder.
 - Revised drawing A1 attachment to existing building condition.
- A-421 Stair Details**
- Stair 3 detail was updated.
- A-422 Elevator Plans, Elevations and Details**
- Missing wall types were identified.
- A-430 Enlarged Plans, Elevations and Details**
- Locks were added to the millwork.
 - Updated detail callouts.
- A-431 Cage Details**
- Millwork has been updated.
- A-432 Enlarged Casino Bar Plans, Elevations and Details**
- Location of purse hooks moved.
- A-433 Enlarged Standing Bar Plans, Elevations and Details**
- Moveable booth section finishes updated.
- A-436 Enlarged Elevations and Details**
- Millwork details were added.
 - Finishes were updated.
- A-511 Exterior Section Details**
- Revised roofing system to match specification.
 - Revised porte cochere to building condition.
 - Added spray fireproofing to wind girt.
 - Added detail B1.
- A-512 Exterior Section Details**
- Revised roofing system to match specification.
 - Revised roof access ladder detail.
- A-531 Interior Plan Details**
- Bar entry portal was updated.
 - Dimensioned and details added.
- A-532 Interior Plan Details**
- Door jamb detail was added.
- A-540 Interior Vertical Details**
- Details added.
 - Finishes updated.
- A-550 Ceiling Details**
- Details added.
- A-560 Door Schedule and Details**
- Door schedule was updated.
 - Details were added.
- A-561 Door Details**
- Details were added and updated.
- A-561 Door Details**
- Added sheet A-570.
- A-580 Miscellaneous Details**
- Details were added.
 - Trim profiles were added to the sheet.
- AF-100 Interior Finishes Schedule**
- Notes were added to schedule.
 - Finishes were updated.
- AF-111 First Floor Area 1 Finish Plan**
- Floor finishes were updated in Multipurpose Room 103.

DESCRIPTION OF CHANGES NARRATIVE MECHANICAL

Addendum 4

Date: May 17, 2018

Sheets	Description
M-000	Updated drawing index.
M-004	Added diagram 12 as indicated.
M-112	Added diagram 2 as indicated. Revised sheet note #9, added sheet note #10, #11, and #12. Revised boiler flue routing and added boiler combustion air intake duct as indicated.
M-122	Added diagram 2 as indicated. Revised sheet note #9. Revised boiler flue routing and added boiler combustion air intake duct as indicated.
M-162	Revised sheet note #8. Revised boiler flue routing and added boiler combustion air intake duct as indicated.

DESCRIPTION OF CHANGES NARRATIVE ELECTRICAL

Addendum 4

Date: May 17, 2018

Sheets	Description
E-000	Updated drawing index.
E-004	Revised single line diagram as indicated.
E-005	Revised single line diagram as indicated.
E-006	Added/revised panel schedules as indicated.
E-007	Added Panel 'C4MP' as indicated.
E-008	Revised Panel 'XC4L1' as indicated.
E-010	Revised Dimmer/ELTS schedules as indicated. Added Relay Panel schedules as indicated.
E-110	Added electrical equipment and equipment callouts as indicated.
E-111	Added/deleted/relocated outlets and circuiting based on low voltage/AV consultant coordination.
E-112	Revised entire sheet based on owner coordination and low voltage/AV consultant coordination.
E-122	Added/deleted/relocated outlets and circuiting based on owner coordination.
EC-111	Added light fixtures, switches and circuiting based on lighting consultant coordination.
E-400	Added/relocated electrical equipment and equipment callouts as indicated. Revised IDF Room as indicated based on owner/low voltage consultant coordination.
ELT002	New sheet based on lighting consultant coordination.
ELT111	Added/deleted/relocated light fixtures and circuiting based on lighting consultant coordination.
ELT112	Added/deleted/relocated light fixtures and circuiting based on lighting consultant coordination.
ELT122	Added/deleted/relocated light fixtures and circuiting based on lighting consultant coordination.
ELT200	New sheet based on lighting consultant coordination.



This Addendum contains changes to the requirements of the Bidding Documents, Technical Specifications and Construction Drawings which have been issued to date. Such changes are to be incorporated into the Construction Documents and shall apply to the Work with the same meaning and force as if they had been included in the original documents. Wherever this Addendum modifies a portion of a paragraph of the Project Manual, or portion of any Drawings, the remainder of the paragraph or Drawing shall remain in force.

CHANGES TO THE DRAWINGS:

- A. Refer to Drawing No. LV001
 - 1. Revised symbols.
- B. Refer to Drawing No. LV111
 - 1. Revised multi-purpose room, added data outlets and notes.
- C. Refer to Drawing No. LV112
 - 1. Revised cable label tags and added some data outlets.
- D. Refer to Drawing No. LV113
 - 1. Revised cable tray layout, added conduit, and notes.
- E. Refer to Drawing No. LV122
 - 1. Added data outlets and notes.
- F. Refer to Drawing No. LV400
 - 1. Deleted enlarged plans. Revised existing IDF E216 - LV.
- G. Refer to Drawing No. FP001
 - 1. Added general note P.
- H. Refer to Drawing No. FP111
 - 1. Revised sprinkler and piping layout.

END OF ADDENDUM NO. 4

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SECTION 075216 STYRENE-BUTADIENE-STYRENE (SBS) MODIFIED BITUMINOUS ROOFING

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 the following:
 - 1. New 3-ply modified bituminous membrane roofing.
 - 2. Roofing insulation.
 - 3. Walkways.
- B. Related Sections include the following:
 - 1. Division 06 Section "Miscellaneous Rough Carpentry" for wood blocking, curbs, cants, and nailers; and wood-based, structural-use roof deck panels.
 - 2. Division 07 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
 - 3. Division 07 Section "Roof Accessories."
 - 4. Division 07 Section "Joint Sealants."
 - 5. Division 22 Section "Storm Drainage Piping Specialties" for roof drains.

1.3 DEFINITIONS:

- A. Roofing Terminology: Refer to ASTM D 1079 for definitions of terms related to roofing work not otherwise defined in this Section.

1.4 PERFORMANCE REQUIREMENTS:

- A. General: Install a watertight, modified bituminous membrane roofing and base flashing system with compatible components that will not permit the passage of liquid water and will withstand wind loads, thermally induced movement, and exposure to weather without failure.
- B. FM Listing: Provide modified bituminous membrane, base flashings, and component materials that meet requirements of FM 4450 and FM 4470 as part of a roofing system and that are listed in FM's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM markings.
 - 1. Roofing system shall comply with the following:
 - a. Fire/Windstorm Classification: Class 1A-90.
 - b. FM 4450 or UL 1256.
 - c. Hail-Resistance Rating: SH.

- C. Roofing System Design: Provide a roofing system designed for wind uplift that complies with roofing system manufacturer's written design instructions and with the following:

- 1. Wind Speed at Project Site: 110 mph.

1.5 SUBMITTALS:

- A. Product Data: For each type of roofing product specified. Include data substantiating that materials comply with requirements.
- B. Shop Drawings: Include plans, sections, details, and attachments to other work, for the following:
 - 1. Base flashings and membrane terminations.
 - 2. Tapered insulation, including slopes.
 - 3. Crickets, saddles, and tapered edge strips, including slopes.
 - 4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
- C. Samples for Verification: Of the following products:
 - 1. 12-by-12-inch square of base sheet, and base-ply sheet.
 - 2. 12-by-12-inch square of modified bituminous, granule-surfaced cap sheets, of color specified.
 - 3. 12-by-12-inch square of walkway pad.
 - 4. Six insulation fasteners of each type, length, and finish.
- D. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install specified roofing system and is eligible to receive the standard roofing manufacturer's warranty.
- E. Manufacturer Certificates: Signed by roofing system manufacturer certifying that the roofing system complies with requirements specified in the "Performance Requirements" Article. Upon request, submit evidence of complying with requirements.
 - 1. Certificate Of Analysis from the testing laboratory of the primary roofing materials manufacturer, confirming the physical and mechanical properties of the roofing membrane components. Testing shall be in accordance with the parameters published in ASTM D 5147 and ASTM D 6298* and indicate Quality Assurance/Quality Control data as required to meet the specified properties. A separate Certificate Of Analysis for each production run of material shall indicate the following information:
 - a. Material type
 - b. Lot number
 - c. Production date
 - d. Dimensions and Mass (indicate the lowest values recorded during the production run);
 - 1) Roll length
 - 2) Roll width

- 3) Selvage width
 - 4) Total thickness
 - 5) Thickness at selvage (coating thickness)
 - 6) Weight
- e. Physical and Mechanical Properties;
- 1) Low temperature flexibility
 - 2) Maximum load
 - 3) Elongation @ 5% Maximum Load (ultimate elongation)
 - 4) Dimensional stability
 - 5) High Temperature Stability
 - 6) Granule embedment
 - 7) Resistance to thermal shock* (foil faced products)
- F. Qualification Data: For firms and persons specified in the "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.
- G. Research/Evaluation Reports: Evidence of roofing system's compliance with building code in effect for Project from a model code organization acceptable to authorities having jurisdiction.
- H. Maintenance Data: For roofing system to include in the maintenance manuals specified in Division 1.
- I. Warranty: Sample copy of standard roofing manufacturer's warranty stating obligations, remedies, limitations, and exclusions of warranty.
- J. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roof installation.
- K. Letter from the proposed primary roofing manufacturer confirming that the filler content in the elastomeric blend of the proposed roof membrane and flashing components does not exceed 35% in weight.
- L. Complete list of material physical and mechanical properties for each sheet including: weights and thicknesses; low temperature flexibility; maximum load; elongation @ 5% maximum load (ultimate elongation); dimensional stability; high temperature stability; granule embedment and resistance to thermal shock (foil faced products).
- M. Letter from the proposed primary roofing manufacturer confirming that the proposed roof membrane system meets the requirements of ASTM D 5849 Resistance to Cyclic Joint Displacement (fatigue) at 14F (-10°C). Passing results shall show no signs of membrane cracking or interply delamination after 500 cycles in an unaged specimen and 200 cycles in a specimen after heat conditioning.

- N. Letter from the proposed primary roofing manufacturer confirming that proposed membrane manufacturer has been producing SBS products in the United States for a minimum of 5 years without a change in the basic product design or SBS modified bitumen blend, polymer specification, asphalt and filler formulation.
- O. Evidence that the manufacturer of the proposed roofing system utilizes a quality management system that is ISO 9001:2000 certified. Documentation of ISO 9001:2000 certification of foreign subsidiaries without domestic certification will not be accepted.
- P. Evidence and description of manufacturer's quality control/quality assurance program for the primary roofing products supplied. The quality assurance program description shall include all methods of testing for physical and mechanical property values. Provide confirmation of manufacturer's certificate of analysis for reporting the tested values of the actual material being supplied for the project prior to issuance of the specified guarantee.

1.6 QUALITY ASSURANCE:

- A. **Installer Qualifications:** Engage an experienced installer to perform Work of this Section who has specialized in installing roofing similar to that required for this Project; who is approved, authorized, or licensed by the roofing system manufacturer to install manufacturer's product; and who is eligible to receive the standard roofing manufacturer's warranty.
- B. **Fire-Test-Response Characteristics:** Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method indicated below by UL, FM, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
 - 1. Exterior Fire-Test Exposure: Class A; complying with ASTM E 108, for application and slopes indicated.
 - 2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing materials are a part.
- C. **Preliminary Roofing Conference:** Before starting any work for the Project, conduct conference at Project site. Meet with the same participants and review the same items listed for the preinstallation conference. In addition, review status of submittals and coordination of work related to roof construction. Notify participants at least 5 working days before conference.
- D. **Preinstallation Conference:** Before installing roofing system, conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings." Notify participants at least 5 working days before conference.
 - 1. Meet with Owner; Architect; Owner's insurer, if applicable; testing and inspecting agency representative; roofing Installer; roofing system manufacturer's representative; deck Installer; and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.

3. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and attachment to structural members.
4. Review loading limitations of deck during and after roofing.
5. Review flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing.
6. Review governing regulations and requirements for insurance, certifications, and inspection and testing, if applicable.
7. Review temporary protection requirements for roofing system during and after installation.
8. Review roof observation and repair procedures after roofing installation.
9. Document proceedings, including corrective measures or actions required, and furnish copy of record to each participant.

1.7 DELIVERY, STORAGE, AND HANDLING:

- A. Store roofing materials in a dry, well-ventilated, weathertight location to ensure no significant moisture pickup and maintain at a temperature exceeding roofing system manufacturer's written instructions. Store rolls of felt and other sheet materials on end on pallets or other raised surfaces. Do not double-stack rolls.
 1. Handle and store roofing materials and place equipment in a manner to avoid significant or permanent damage to deck or structural supporting members.
- B. Do not leave unused felts and other sheet materials on the roof overnight or when roofing work is not in progress unless protected from weather and moisture and unless maintained at a temperature exceeding 50 deg F.
- C. Deliver and store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer.
- D. Protect roofing insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

1.8 PROJECT CONDITIONS:

- A. Weather Limitations: Proceed with roofing work only when existing and forecasted weather conditions permit roofing to be installed according to manufacturers' written instructions and warranty requirements.

1.9 WARRANTY:

- A. General Warranty: The warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of built-up roofing such as built-up roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, and walkway products, for the following warranty period:
 - 1. Warranty Period: Twenty years from date of Substantial Completion.
- C. 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 MANUFACTURERS:

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. SBS-Modified Bituminous Sheet:
 - a. Firestone Building Products.
 - b. GAF Materials Corporation.
 - c. Johns Manville.
 - d. Siplast, Inc.
 - e. Soprema Roofing and Waterproofing, Inc.
- B. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
 - 1. Products: Subject to compliance with requirements, provide one of the products specified.

2.2 SBS-MODIFIED BITUMINOUS SHEET:

- A. Cap Sheet: ASTM D 6164, Grade S, Type II, SBS-modified asphalt sheet (reinforced with polyester fabric); smooth surfaced; suitable for application method specified.
 - 1. Firestone; SBS Premium FR Torch.
 - 2. Soprema; Sopralene Flam 250 FR GR.
 - 3. GAF Materials Corporation; Ruberoid SBS Heat-Weld Plus Granule FR.
- B. Cap Sheet: ASTM D 6163, Grade G, Type I, glass-fiber-reinforced, SBS-modified asphalt sheet; granular surfaced; with a white granular surface; suitable for application method specified, and as follows:
 - 1. Siplast; Paradiene 30 FR TG.
 - ** 2. Soprema; Elastophene Flam LS FR GR.**

- C. Cap Sheet Color: Gray.

2.3 BASE-PLY SHEET MATERIALS:

- A. Base-Ply Sheet: ASTM D 6164, Grade S, Type I polyester-reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified.
 - 1. Firestone; Poly Torch Base.
 - 2. Soprema; Flam 180.
- B. Base-Ply Sheet: ASTM D 6163, Grade S, Type I, glass-fiber-reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified.
 - 1. Siplast Paradiene 20 TG
 - 2. GAF Materials Corporation; Ruberoid 20.
 - ** 3. Soprema; Elastophene Flam 2.2.**

2.4 BASE-SHEET MATERIALS:

- A. Base Sheet: ASTM D 6164, Grade S, Type I polyester-reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified.
 - 1. Firestone; Poly Torch Base.
 - 2. Soprema; Flam 180
- B. Base Sheet: ASTM D 6163, Grade S, Type I, glass-fiber-reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified.
 - 1. Siplast Paradiene 20 TG
 - 2. GAF Materials Corporation; Ruberoid 20.

2.5 BASE FLASHING SHEET MATERIALS:

- A. Backer Sheet: ASTM D 6164, Grade S, Type I or II, polyester or fiberglass-reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified.
- B. Flashing Sheet: ASTM D 6198, SBS-modified bituminous sheet material using foil facing; suitable for application method specified, and as follows:
 - 1. Firestone SBS Metal Flash-AL.
 - 2. Soprema Sopralast 50 TV ALU.
 - 3. Siplast Veral Aluminum.

2.6 AUXILIARY MEMBRANE MATERIALS:

- A. General: Furnish auxiliary materials recommended by roofing system manufacturer for intended use and compatible with SBS-modified bituminous roofing.
 - 1. Furnish liquid-type auxiliary materials that meet VOC limits of authorities having jurisdiction.
- B. Mastic Sealant: Polyisobutylene, plain or modified bituminous, nonhardening, nonmigrating, nonskinning, and nondrying.
- C. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions of FM 4470; designed for fastening for backnailing modified bituminous membrane to substrate; tested by manufacturer for required pullout strength; and acceptable to roofing system manufacturer.
- D. Metal Flashing Sheet: Metal flashing sheet is specified in Division 7 Section "Sheet Metal Flashing and Trim."
- E. Wood Nailer Strips: Furnish wood nailer strips complying with requirements of Division 6 Section "Miscellaneous Carpentry."
- F. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 sieve and 98 percent of mass retained on No. 40 sieve.
 - 1. Color: To match color of cap sheet.
- G. Cold-Applied Adhesive: Roofing system manufacturer's standard asphalt-based, one- or two-part, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with roofing membrane and base flashings.
- H. Glass-Fiber Fabric: Woven glass cloth, treated with asphalt; complying with ASTM D 1668, Type 1.
- I. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer for intended use.
- J. Substrate Joint Tape: 6 or 8 inches wide, coated, glass-fiber joint tape.
- K. Liquid Flashing:
 - 1. Alsan Flashing resin; Soprema.
 - a. Tensile strength @ break, (psi) 368 ASTM D 412
 - b. Elongation (%) 672 ASTM D 412
 - c. Tear resistance (lbf) 23.0 ASTM D 903
 - d. Tear resistance (lbf) 57.27 ASTM D 41547 Sec. 7
 - e. Water vapor transmission 11 ASTM D 1653 (perms)

- f. Impact resistance Shore A 74 ASTM D 2240
- g. Low temperature flexibility (°C) - 26 ASTM D 5147 Sec. 11
- h. Usage time > 2 hours
- i. Rainproof after 2 - 12 hours
- j. Fully cured 3 days -

- 2. Soprema Alsan PolyFleece is used as flashing reinforcement with Alsan Flashing and other Alsan liquid-applied resins. It is highly flexible, conforms to any shape, irregular penetrations and other surfaces. It has excellent coating saturation capabilities into elastomeric resins.

2.7 ROOF INSULATION:

- A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.
 - 1. R-Value: Provide insulation thickness (minimum 2-layer application) as required to provide an average, aged "R" value of 20.0, when tested in accordance with 15 year Long Term Thermal Resistance values determined in accordance with CAN/ULC S 770 .
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.
 - 1. Manufacturers:
 - a. Atlas Roofing Corporation.
 - b. Firestone Building Products Company.
 - c. GAF Materials Corporation.
 - d. Hunter Panels, LLC.
 - e. Johns Manville.
- C. Composite Polyisocyanurate Board Insulation: ASTM C 1289, faced with insulation board on one major surface, as indicated below by type, and felt or glass-fiber mat facer on the other.
 - 1. Manufacturers:
 - a. Atlas Roofing Corporation.
 - b. Firestone Building Products Company.
 - c. GAF Materials Corporation.
 - d. Hunter Panels, LLC.
 - e. Johns Manville International, Inc.
- D. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches, unless otherwise indicated.
- E. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.8 INSULATION ACCESSORIES:

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
- B. Insulation Cover Board:
 - 1. Available Products: 1/2" minimum. Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Dens-Deck Prime; Georgia Pacific.
 - b. DuraBoard; Johns Manville.
 - c. CertainTeed Corporation; GlasRoc Sheathing.
 - d. National Gypsum Company; Gold Bond eXP Extended Exposure Sheathing.
 - e. Sheathing.
 - f. Temple-Inland Building Products by Georgia-Pacific; GreenGlass Exterior Sheathing.
 - g. United States Gypsum Company; Securock Glass Mat Roof Board.
- C. Cold Fluid-Applied Adhesive: Manufacturer's standard cold fluid-applied adhesive formulated to adhere roof insulation to substrate.
 - 1. Cold Adhesive: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Fast Adhesive: Carlisle SynTec Incorporated.
 - b. High Velocity Insulation Adhesive; Soprema.
 - c. Armorlock Insulation Adhesive; Honeywell.
 - d. Para-Stik Insulation Adhesive, Siplast.
- D. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- E. Insulation Cant Strips: ASTM C 728, perlite insulation board.
- F. Wood Nailer Strips: Comply with requirements in Division 6 Section "Miscellaneous Carpentry."
- G. Tapered Edge Strips: ASTM C 728, perlite insulation board.
- H. Substrate Joint Tape: 6- or 8-inch- wide, coated, glass-fiber joint tape.

2.9 ROOF WALKWAYS:

- A. Walkway Pads: Mineral-surfaced asphaltic composition panels, factory formed, nonporous, with a slip-resisting surface texture, manufactured specifically for adhering to modified bituminous membrane roofing as a protection course for foot traffic, of the following thickness:
 - 1. Thickness: 3/4 inch.
 - 2. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Whitewalk Roof Pads; W.R. Meadows.
 - b. Suprawalk; Suprema.
 - c. Trafbloc by Siplast.
 - d. Paratread; Siplast.

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Examine substrates, areas, and conditions under which roofing will be applied, with Installer present, for compliance with requirements.
- B. Verify that roof openings and penetrations are in place and set and braced and that roof drains are properly clamped into position.
- C. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at roof penetrations and terminations and match the thicknesses of insulation required.
 - 1. Verify that wood nailer strips are located perpendicular to roof slope and are spaced according to requirements of roofing system manufacturer.
- D. Verify that flatness and fastening of metal roof decks comply with installation tolerances specified in Division 5 Section "Steel Deck."
- E. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch out of plane.
- F. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION:

- A. Clean substrate of dust, debris, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

3.3 GENERAL INSTALLATION REQUIREMENTS:

- A. Install modified bituminous membrane roofing system according to roofing system manufacturer's written instructions and applicable recommendations of NRCA/ARMA's "Quality Control Recommendations for Polymer Modified Bitumen Roofing."
 - 1. Install roofing system according to applicable specification plates of NRCA's "The NRCA Roofing and Waterproofing Manual."
- B. Start installation of modified bituminous membrane roofing in presence of roofing system manufacturer's technical personnel.
- C. Shingling Plies: Install modified bituminous membrane roofing system with ply sheets shingled uniformly to achieve required number of membrane plies throughout. Shingle in direction to shed water.
 - 1. Where roof slope exceeds 1/2 inch per 12 inches, run sheets of modified bituminous membrane roofing parallel with slope. Backnail top ends of sheets to nailer strips if the slope is greater than 2-1/2 inches per 12 inches.
- D. Cooperate with inspecting and testing agencies engaged or required to perform services for installing modified bituminous membrane roofing system.
- E. Coordinate installing roofing system components so insulation and roofing plies are not exposed to precipitation or left exposed at the end of the workday or when rain is forecast.
 - 1. Provide cutoffs at end of each day's work to cover exposed ply sheets and insulation with a course of coated felt with joints and edges sealed.
 - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
 - 3. Remove and discard temporary seals before beginning work on adjoining roofing.

3.4 INSULATION INSTALLATION:

- A. Comply with roofing system manufacturer's written instructions for installing roof insulation.
- B. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing membrane system with vertical surfaces or angle changes greater than 45 degrees.
- C. Install tapered insulation under area of roofing to conform to slopes indicated.
- D. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
 - 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.

- E. Install one or more layers of insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 1-1/2 inches or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
- F. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- G. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
- H. Mechanically Fastened and Adhered Insulation: Install each layer of insulation and secure first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
 - 1. Fasten first layer of insulation according to requirements in FM Approvals' "RoofNav" for specified Windstorm Resistance Classification.
 - 2. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.
 - 3. Fasten first layer of insulation to metal deck using mechanical fasteners.
 - 4. Install subsequent layers of insulation in cold adhesive.
- I. Install overboards over insulation with long joints in continuous straight lines with end joints staggered between rows. Stagger joints from joints in insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together and fasten to roof deck. Tape joints if required by roofing system manufacturer.
 - 1. Fasten cover boards according to requirements in FM Approvals' "RoofNav" for specified Windstorm Resistance Classification.
 - 2. Adhere to substrate in a uniform coating of cold-applied adhesive.

3.5 ROOF MEMBRANE INSTALLATION:

- A. General: Install modified bituminous membrane over area to receive roofing, according to manufacturer's written instructions. Extend modified bituminous membrane over and terminate beyond cants.
 - 1. Unroll sheet and allow it to relax for the minimum time period required by manufacturer.
- B. Three-Ply, Modified Bituminous Membrane: Install 3 plies of modified bituminous membrane, consisting of a base ply, an intermediate ply and a finish ply, starting at low point of roofing system.
 - 1. Base-, Intermediate and Finish-Ply Application: Torch apply to substrate.
- C. Laps: Accurately align sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
 - 1. Repair tears and voids in laps and lapped seams not completely sealed.
 - 2. Apply granules, while asphalt is hot, to cover asphalt bead exuded at laps.

- D. Install modified bituminous membranes with side laps shingled with slope of roof deck where possible.
 - 1. Install modified bituminous membranes with side laps shingled in direction to shed water on each large area of roofing, where slope exceeds 1/2 inch per 12 inches.

3.6 FLASHING AND STRIPPING INSTALLATION:

- A. Install modified bituminous membrane base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:
 - 1. Backer Sheet Application: Install base-sheet backer and mechanically fasten to substrate. Adhere flashing backer sheet over roof membrane at cants in cold-applied adhesive.
 - 2. Base Flashing Application: Adhere modified bituminous membrane base flashing to substrate in cold-applied adhesive, applied to substrate and back of base flashing at rate required by roofing system manufacturer.
- B. Extend base flashing up the wall a minimum of 8 inches above roof membrane and 4 inches onto field of roof membrane.
- C. Mechanically fasten top of modified bituminous membrane base flashing securely at terminations and perimeter of roofing.
 - 1. Seal top termination of base flashing.

3.7 LIQUID FLASHING AT ROOF PENETRATIONS:

- A. SURFACE PREPARATION: Ensure that the modified membrane is clean, dry and free from dust, laitance, grease, oil and any other contaminants.
- B. Install liquid flashing system according to manufacturer's recommendations.
 - 1. Extend liquid flashing not less than 3 inches (76 mm) in all directions from edges of item being flashed.
 - 2. Embed granules, matching color of roof membrane, into wet compound.

3.8 WALKWAY INSTALLATION:

- A. Walkway Cap Sheet Strips: Install roofing membrane walkway cap sheet strips over roofing membrane by torch application, or set in 5inch squares of roof cement.

3.9 FIELD QUALITY CONTROL:

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.
 - 1. Notify Architect and Owner 48 hours in advance of the date and time of inspection.

3.10 PROTECTING AND CLEANING:

- A. Protect modified bituminous membrane roofing from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove modified bituminous roofing that does not comply with requirements, repair substrates, reinstall roofing, and repair base flashings to a condition free of damage and deterioration at the time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.11 ROOFING INSTALLER'S WARRANTY:

- A. WHEREAS <NAME> of <ADDRESS>, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
 - 1. Owner:
 - 2. Address:
 - 3. Building Name/Type:
 - 4. Address:
 - 5. Area of Work:
 - 6. Acceptance Date:
 - 7. Warranty Period:
 - 8. Expiration Date:
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
 - 1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. lightning;
 - b. peak gust wind speed exceeding 72 mph;
 - c. fire;
 - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;

- e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. vapor condensation on bottom of roofing; and
 - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
- 2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof has been paid by Owner or by another responsible party so designated.
 - 3. The Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents, resulting from leaks or faults or defects of work.
 - 4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void, unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
 - 5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
 - 6. The Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
 - 7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this <DAY> day of <MONTH>, 20<YEAR>.

- 1. Authorized Signature:
- 2. Name:
- 3. Title:

END OF SECTION 075216

SECTION 081473SLIDING WOOD DOORSPART 1 - GENERAL1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including Division 00 and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
1. Interior sliding wood doors and hardware.
 2. Electric sliding door operator.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
1. Include details of construction and glazing.
 2. Include factory-finishing specifications.
- B. Sustainable Design Submittals:
1. Product Data: For adhesives, indicating that product contains no urea formaldehyde.
 2. Laboratory Test Reports: For adhesives, indicating compliance with requirements for low-emitting materials.
 3. Product Data: For composite wood products, indicating that product contains no urea formaldehyde.
 4. Laboratory Test Reports: For composite wood products, indicating compliance with requirements for low-emitting materials.
- C. Shop Drawings: For stile and rail wood doors. Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data, including those for stiles, rails, panels, and moldings (sticking); and other pertinent data, including the following:
1. Dimensions of doors for field assembly.
 2. Locations and dimensions of mortises and holes for hardware.
 3. Doors to be factory finished and finish requirements.
- D. Samples for Verification: Corner sections of doors, approximately 8 by 10 inches (200 by 250 mm), with door faces and edgings representing typical range of color and grain for each species of veneer and solid lumber required. Finish Sample with same materials proposed for factory-finished doors.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of door, from manufacturer.
- B. Sample Warranty: For special warranty.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in opaque plastic bags or cardboard cartons.
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until 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.

1.7 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship, or have warped (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch (1067-by-2134-mm) section, within specified warranty period.
 - 1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 - 2. Warranty shall be in effect during the following period of time from date of Substantial Completion:
 - a. Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain stile and rail wood doors from single manufacturer.

2.2 MATERIALS

- A. General: Use only materials that comply with referenced standards and other requirements specified.
- B. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of ornamental woodwork and quality grade specified unless otherwise indicated.
 - 1. Wood Moisture Content for Interior Materials: 5 to 10 percent.

2.3 INTERIOR SLIDING WOOD BARN DOORS

- A. Interior Sliding Wood Doors:
 - 1. Basis-of-Design Product: TBD.
 - a. Door Slab: Stile and Rail, factory finished Walnut Veneer AA Grade, 0.6 mm veneer, 5 mm MDF+Engineered Solid Wood Core, and solid walnut.

2.4 WOOD DOOR FABRICATION

- A. Fabricate sliding wood doors in sizes indicated for field fitting.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.

2.5 FINISHING

- A. Finish wood doors at factory.
- B. Transparent Finish:
 - 1. Grade: Premium.
 - 2. Finish: AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" System 11, catalyzed polyurethane.
 - 3. Staining: Premium finish, walnut medium stain. Match Architects sample
 - 4. Sheen: As selected by the Architect.

2.6 ELECTRIC SLIDING DOOR OPERATOR

- A. Type: Biparting.
- B. Track Length: 24feet.
- C. Horsepower: 1(one) hp, heavy duty.
- D. Product: Edison Sliding Opener; Real Sliding Hardware, Gig Harbor, WA.

2.7 SLIDING DOOR TRACK

- A. Manufacturer: Crown Industrial, San Francisco, CA:
 - 1. Hanger: Model No. 25P4BLE.
 - a. Construction: 3" diameter machined wheels. Fame malleable iron, ball bearings, lateral and vertical adjustment. Painted.
 - 2. Track: No. 25.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
 - 1. Verify that installed frames comply with indicated requirements for type, size, and location, and have been installed with level heads and plumb jambs.
 - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Section 064116 "Plastic-Laminate-Faced Architectural Cabinets".
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
- C. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

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

END OF SECTION 081473

SECTION 096900ACCESS FLOORINGPART 1 - GENERAL1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Access-flooring panels.
 - 2. Understructure.
- B. Related Requirements:
 - 1. Section 030130 "Maintenance of Cast-In-Place Concrete" for concrete slab sealers.

1.3 COORDINATION

- A. Seal concrete prior to installation of electrical, mechanical or access flooring work.
- B. Coordinate location of mechanical and electrical work in underfloor cavity to prevent interference with access-flooring pedestals.
- C. Mark pedestal locations on subfloor using a grid to enable mechanical and electrical work to proceed without interfering with access-flooring pedestals.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review connection with mechanical and electrical systems.
 - 2. Review requirements related to sealing the plenum.
 - 3. Review procedures for keeping underfloor space clean.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include layout of access-flooring system and relationship to adjoining Work based on field-verified dimensions.
 - 1. Details and sections with descriptive notes indicating materials, finishes, fasteners, typical and special edge conditions, accessories, and understructures.
- C. Samples for Verification: For the following products:
 - 1. Exposed Metal Accessories: Approximately 10 inches (250 mm) in length.
 - 2. One complete full-size floor panel, pedestal, and understructure unit for each type of access-flooring system required.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Certificates: For each type of access-flooring system.
- C. Product Test Reports: For each type of flooring material and exposed finish, for tests performed by a qualified testing agency.
- D. Seismic Design Calculations: For seismic design of access-flooring systems including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- E. Preconstruction Test Reports: For preconstruction adhesive field test.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Flooring Panels: 25 units.
 - 2. Pedestals: 100.
 - 3. Stringers: 100.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Mockups: Build mockups to verify selections made under Sample submittals to demonstrate aesthetic effects and to set quality standards for materials and execution.
 - 1. Build mockup of typical access-flooring assembly as shown on Drawings. Size to be an area no fewer than five floor panels in length by five floor panels in width.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on field mockups.
 - 1. Use personnel, materials, and methods of construction that will be used at Project site.
 - 2. Notify Architect seven days in advance of the dates and times when laboratory mockups will be tested.
- B. Preconstruction Adhesive Field Test: Before installing pedestals, field test their adhesion to subfloor surfaces by doing the following:
 - 1. In areas representative of each subfloor surface, set typical pedestal assemblies in same adhesive and use methods required for the completed Work.

2. Allow test installation to cure for manufacturer's recommended cure time, with a pressure of 25 lbf (111 N) applied vertically to pedestals during this period.
3. After curing, apply lateral load against a straight steel bar inserted 2 inches (51 mm) into pedestal stems. Measure the force needed to cause adhesive failure of pedestal base.
4. Remove and discard failed pedestals, and clean pedestals of adhered residue.
5. Proceed with installation only after tests show compliance with performance requirement specified for pedestals' capability to resist overturning moment.

1.10 FIELD CONDITIONS

- A. Environmental Limitations: Do not install access flooring until spaces are enclosed, subfloor has been sealed, ambient temperature is between 50 and 90 deg F (10 and 32 deg C), and relative humidity is not less than 20 and not more than 70 percent.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Access flooring shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
- B. Structural Performance: Provide access-flooring systems capable of complying with the following performance requirements according to testing procedures in Cisca's "Recommended Test Procedures for Access Floors":
 1. Access Flooring System (**AF-1**):
 - a. Concentrated Loads: 2500 lbf (11,121 N) with the following deflection and permanent set:
 - 1) Top-Surface Deflection: 0.10 inch (2.54 mm).
 - 2) Permanent Set: 0.010 inch (0.25 mm).
 - b. Ultimate Loads: 5000 lbf (2268 kg).
 - c. Rolling Loads: With local or overall deformation not to exceed 0.040 inch (1.02 mm).
 - d. Cisca Wheel 1: 10 passes at 2000 lbf.
 - e. Cisca Wheel 2: 10,000 passes at 2000 lbf.
 - f. Pedestal Axial Load Test: 6000 lbf (26 690 N).
 - g. Stringer Load Test: 450 lbs. at center of span with a permanent set not to exceed 0.010 inch (0.25 mm).
 - h. Pedestal Overturning Moment Test: 1000 lbf x inches (113 N x meters).
 - i. Drop Impact Load Test: 200 lbs.
- C. Fire Performance:
 1. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - a. Flame-Spread Index: 25 or less.
 - b. Smoke-Developed Index: 50 or less.
 2. Combustion Characteristics: ASTM E 136.

2.2 MANUFACTURERS

- A. Source Limitations: Obtain access-flooring system from single source from single manufacturer.

2.3 FLOOR PANELS

- A. Floor Panels, General: Provide modular panels interchangeable with other field panels without disturbing adjacent panels or understructure.
 - 1. Size: Nominal 24 by 24 inches (610 by 610 mm).
 - 2. Attachment to Understructure: Bolted.
 - 3. One-to-One Carpet Tile: Fabricate panels to accept one-to-one carpet tile.
- B. Cementitious-Core Steel Panels (**AF-1**): Fabricated from cold-rolled steel sheet, with the die-cut flat top sheet and die-formed and stiffened bottom pan welded together, and with metal surfaces protected against corrosion by manufacturer's standard factory-applied finish. Fully grout internal spaces of completed units with manufacturer's standard cementitious fill.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide ConCore 2500; Tate Access Floors, Inc or comparable product by one of the following:
 - a. ASM Modular Systems, Inc.
 - b. Bergvik North America, Inc.
 - c. Camino Modular Systems, Inc.
 - d. Computer Environments, Inc.
 - e. Haworth, Inc.

2.4 UNDERSTRUCTURE

- A. Pedestals: Assembly consisting of base, column with provisions for height adjustment, and head (cap); made of steel.
 - 1. Provide pedestals designed for use in seismic applications.
 - 2. Base: Square or circular base with not less than 16 sq. in. (103 sq. cm) of bearing area.
 - 3. Column: Of height required to bring finished floor to elevations indicated. Weld to base plate.
 - 4. Provide vibration-proof leveling mechanism for making and holding fine adjustments in height over a range of not less than 2 inches (51 mm) and for locking at a selected height, so deliberate action is required to change height setting and prevent vibratory displacement.
 - 5. Head: Designed to support the panel system indicated.
- B. Stringer Systems: Modular steel stringer systems designed to bolt to pedestal heads and form a grid pattern. Protect steel components with manufacturer's standard galvanized or corrosion-resistant paint finish.
 - 1. Continuous Gaskets: At contact surfaces between panel and stringers to deaden sound, seal off the underfloor cavity from above, and maintain panel alignment and position.

2.5 FABRICATION

- A. Fabrication Tolerances:
 - 1. Size: Plus or minus 0.020 inch (0.50 mm) of required size.

2. Squareness: Plus or minus 0.015 inch (0.38 mm) between diagonal measurements across top of panel.
 3. Flatness: Plus or minus 0.035 inch (0.89 mm), measured on a diagonal on top of panel.
- B. Panel Markings: Clearly and permanently mark floor panels on their underside with panel type and concentrated-load rating.
- C. Bolted Panels: Provide panels with holes drilled in corners to align precisely with threaded holes in pedestal heads and to accept countersunk screws with heads flush with top of panel.
1. Captive Fasteners: Provide fasteners held captive to panels.
- D. Cutouts: Fabricate cutouts in floor panels for cable penetrations and service outlets. Provide reinforcement or additional support, if needed, to make panels with cutouts comply with structural performance requirements.
1. Number, Size, Shape, and Location: As indicated.
 2. Grommets: Where indicated, fit cutouts with manufacturer's standard grommets; or, if size of cutouts exceeds maximum grommet size available, trim edge of cutouts with manufacturer's standard plastic molding with tapered top flange. Furnish removable covers for grommets.
 3. Provide foam-rubber pads for sealing annular space formed in cutouts by cables.

2.6 ACCESSORIES

- A. Adhesives: Manufacturer's standard adhesive for bonding pedestal bases to subfloor.
1. Adhesive shall have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- B. Plenum-Wall Brush Grommets: Self-sealing cable brush grommet with 4-by-13-inch (102-by-330-mm) rectangular usable area for passage of power and signal cables through plenum walls. Frame of ABS plastic with passageway consists of intermediate layer of flexible EPDM rubber and interwoven nylon filaments. Provide units with plastic cable tray for support of cables and protection of wallboard.
- C. Cavity Dividers: Provide manufacturer's standard metal dividers located where indicated to divide underfloor cavities.
- D. Closures: Where underfloor cavity is not enclosed by abutting walls or other construction, provide metal-closure plates with manufacturer's standard finish.
- E. Ramps: Manufacturer's standard ramp construction of width and slope indicated, but not steeper than 1:12, with raised-disc or textured rubber or vinyl-tile floor coverings, and of same materials, performance, and construction requirements as access flooring.
- F. Railings: Standard extruded-aluminum railings at ramps and open-sided perimeter of access flooring where indicated. Include handrail, intermediate rails, posts, brackets, end caps, wall returns, wall and floor flanges, plates, and anchorages where required.
1. Provide railings that comply with structural performance requirements specified in Section 055213 "Pipe and Tube Railings."
- G. Panel Lifting Device: Panel manufacturer's standard portable lifting device for each type of panel required for each computer room.

- H. Perimeter Support: Where indicated, provide manufacturer's standard method for supporting panel edge and forming transition between access flooring and adjoining floor coverings at same level as access flooring.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer and manufacturer's representative present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. Verify that substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, foreign deposits, and debris that might interfere with attachment of pedestals.
 - 2. Verify that concrete floor sealer and finish have been applied and cured.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Lay out floor panel installation to keep the number of cut panels at floor perimeter to a minimum. Avoid using panels cut to less than 6 inches (152 mm).
- B. Locate each pedestal, complete any necessary subfloor preparation, and vacuum subfloor to remove dust, dirt, and construction debris before beginning installation.

3.3 INSTALLATION

- A. Install access-flooring system and accessories under supervision of access-flooring manufacturer's authorized representative to produce a rigid, firm installation that complies with performance requirements and is free of instability, rocking, rattles, and squeaks.
- B. Adhesive Attachment of Pedestals: Set pedestals in adhesive, according to access-flooring manufacturer's written instructions, to provide full bearing of pedestal base on subfloor.
- C. Adjust pedestals to permit top of installed panels to be set flat, level, and to proper height.
- D. Stringer Systems: Secure stringers to pedestal heads according to access-flooring manufacturer's written instructions.
- E. Install flooring panels securely in place, properly seated with panel edges flush. Do not force panels into place.
- F. Scribe perimeter panels to provide a close fit with adjoining construction with no voids greater than 1/8 inch (3 mm) where panels abut vertical surfaces.
- G. Cut and trim access flooring and perform other dirt-or-debris-producing activities at a remote location or as required to prevent contamination of subfloor under already-installed access flooring.
- H. Underfloor Dividers: Scribe and install underfloor-cavity dividers to closely fit against subfloor surfaces, and seal with mastic.

- I. Closures: Scribe closures to closely fit against subfloor and adjacent finished-floor surfaces. Set in mastic and seal to maintain plenum effect within underfloor cavity.
- J. Clean dust, dirt, and construction debris caused by floor installation, and vacuum subfloor area as installation of floor panels proceeds.
- K. Seal underfloor air cavities at construction seams, penetrations, and perimeter to control air leakage, according to manufacturer's written instructions.
- L. Install access flooring without change in elevation between adjacent panels and within the following tolerances:
 - 1. Plus or minus 1/16 inch (1.5 mm) in any 10-foot (3-m) distance.
 - 2. Plus or minus 1/8 inch (3 mm) from a level plane over entire access-flooring area.

3.4 PROTECTION

- A. Prohibit traffic on access flooring for 24 hours and removal of floor panels for 72 hours after installation to allow pedestal adhesive to set.
- B. After completing installation, vacuum access flooring and cover with continuous sheets of reinforced paper or plastic. Maintain protective covering until time of Substantial Completion.
- C. Replace access-flooring panels that are stained, scratched, or otherwise damaged or that do not comply with specified requirements.

END OF SECTION 096900

SECTION 104413

FIRE PROTECTION CABINETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Fire-protection cabinets for the following:
 - a. Portable fire extinguishers.
- B. Related Requirements:
 - 1. Section 104416 "Fire Extinguishers."

1.3 PREINSTALLATION CONFERENCE

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to fire-protection cabinets including, but not limited to, the following:
 - a. Schedules and coordination requirements.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Show door hardware, cabinet type, trim style, and panel style. Include roughing-in dimensions and details showing recessed-, semirecessed-, or surface-mounting method and relationships of box and trim to surrounding construction.
- B. Shop Drawings: For fire-protection cabinets. Include plans, elevations, sections, details, and attachments to other work.
- C. Samples for Verification: For each type of exposed finish required, prepared on Samples 6 by 6 inches (150 by 150 mm) square.
- D. Product Schedule: For fire-protection cabinets. Indicate whether recessed, semirecessed, or surface mounted. Coordinate final fire-protection cabinet schedule with fire-extinguisher schedule to ensure proper fit and function. Use same designations indicated on Drawings.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For fire-protection cabinets to include in maintenance manuals.

1.6 COORDINATION

- A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.
- B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

1.7 SEQUENCING

- A. Apply vinyl lettering on field-painted fire-protection cabinets after painting is complete.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E 814 for fire-resistance rating of walls where they are installed.

2.2 FIRE-PROTECTION CABINET (FEC-1)

- A. Cabinet Type: Suitable for fire extinguisher.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Model Alpine; Nystrom, Inc., or comparable product by one of the following:
 - a. Fire-End & Croker Corporation.
 - b. GMR International Equipment Corporation.
 - c. Guardian Fire Equipment, Inc.
 - d. JL Industries, Inc.; a division of the Activar Construction Products Group.
 - e. Modern Metal Products, Division of Technico Inc.
 - f. Larsens Manufacturing Company
 - g. Potter Roemer LLC.
 - h. Strike First Corporation of America.
- B. Basis-of-Design Product: Subject to compliance with requirements, provide **#FC-7057; Nystrom; Alpine™ Fire Extinguisher Cabinet**.
 - 1. Description: Steel unit construction, continuous piano hinge with 180 degree opening. Weld joints and grind smooth.
 - 2. Cabinet Mounting: Recessed, 1/2 inch (12.7 mm)
 - 3. Components:
 - a. Door and Frame:
 - 1) 0.0652 inch (1.66mm) stainless steel.
 - 2) Color and Finish: Type 304 Stainless Steel with #4 finish.
 - b. Tub: 0.036 inch (0.9mm) cold rolled steel
 - 1) Color Finish: White factory applied powder coat paint finish.
 - c. Door Type: Full glass with tempered safety glass.
 - 4. Options:
 - a. Lettering: Vertical decal, red, 2-inch high lettering.
 - b. Latching: Pull handle roller catch.

5. Cabinet Dimensions: Size to match extinguisher type.
6. Fire Rating: Non-fire rated.

2.3 FIRE-PROTECTION CABINET (FEC-2)

A. Cabinet Type: Suitable for fire extinguisher.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Model Alpine; Nystrom, Inc., or comparable product by one of the following:
 - a. Fire-End & Croker Corporation.
 - b. GMR International Equipment Corporation.
 - c. Guardian Fire Equipment, Inc.
 - d. JL Industries, Inc.; a division of the Activar Construction Products Group.
 - e. Modern Metal Products, Division of Technico Inc.
 - f. Larsens Manufacturing Company
 - g. Potter Roemer LLC.
 - h. Strike First Corporation of America.

B. Basis-of-Design Product: Subject to compliance with requirements, provide **#FRC-7057; Nystrom; Alpine™ Fire Extinguisher Cabinet.**

1. Description: Steel unit construction, continuous piano hinge with 180 degree opening. Weld joints and grind smooth.
2. Cabinet Mounting: Recessed, 1/2 inch (12.7 mm)
3. Components:
 - a. Door and Frame:
 - 1) 0.0652 inch (1.66mm) stainless steel.
 - 2) Color and Finish: Type 304 Stainless Steel with #4 finish.
 - b. Tub: 0.036 inch (0.9mm) cold rolled steel
 - 1) Color Finish: White factory applied powder coat paint finish.
 - c. Door Type: Full glass with tempered safety glass.
4. Options:
 - a. Lettering: Vertical decal, red, 2-inch high lettering
 - b. Latching: Pull handle roller catch.
5. Cabinet Dimensions: Size to match extinguisher type.
6. Fire Rating: Fire rated for 1 hour or 2 hour combustible and non-combustible wall systems.

2.4 FIRE-PROTECTION CABINET (FEC-3)

A. Cabinet Type: Suitable for fire extinguisher.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Model Ridge; Nystrom, Inc., or comparable product by one of the following:
 - a. Fire-End & Croker Corporation.
 - b. GMR International Equipment Corporation.
 - c. Guardian Fire Equipment, Inc.
 - d. JL Industries, Inc.; a division of the Activar Construction Products Group.

- e. Modern Metal Products, Division of Technico Inc.
 - f. Larsens Manufacturing Company
 - g. Potter Roemer LLC.
 - h. Strike First Corporation of America.
- B. Basis-of-Design Product: Subject to compliance with requirements, provide #FC-7337; Nystrom; Ridge™ Fire Extinguisher Cabinet.
- 1. Description: Steel unit construction, continuous piano hinge with 180 degree opening, architectural convex, clear “bubble” window.
 - 2. Cabinet Mounting: Recessed, 1/2 inch (12.7 mm)
 - 3. Components:
 - a. Door and Frame:
 - 1) 6063-T5 anodized aluminum.
 - 2) Color and Finish: Satin finish, clear polyester coating.
 - b. Tub: 0.036 inch (0.9mm) cold rolled steel
 - 1) Color Finish: White factory applied powder coat paint finish.
 - c. Door Type: Convex Clear Full Bubble.
 - 4. Options:
 - a. Lettering: Vertical decal, red, 2-inch high lettering.
 - b. Latching: Pull handle roller catch.
 - 5. Cabinet Dimensions: Size to match extinguisher type.
 - 6. Fire Rating: [Non-fire rated][Fire rated for 1 hour or 2 hour combustible and non-combustible wall systems]

2.5 FIRE-PROTECTION CABINET (FEC-4)

- A. Cabinet Type: Suitable for fire extinguisher.
- 1. Basis-of-Design Product: Subject to compliance with requirements, provide Model Ridge; Nystrom, Inc., or comparable product by one of the following:
 - a. Fire-End & Croker Corporation.
 - b. GMR International Equipment Corporation.
 - c. Guardian Fire Equipment, Inc.
 - d. JL Industries, Inc.; a division of the Activar Construction Products Group.
 - e. Modern Metal Products, Division of Technico Inc.
 - f. Larsens Manufacturing Company
 - g. Potter Roemer LLC.
 - h. Strike First Corporation of America.
- B. Basis-of-Design Product: Subject to compliance with requirements, provide #FC-FRC-7338; Nystrom; Ridge™ Fire Extinguisher Cabinet.
- 1. Description: Steel unit construction, continuous piano hinge with 180 degree opening, architectural convex, clear “bubble” window.
 - 2. Cabinet Mounting: Semi-Recessed-2inch (50.8 mm)
 - 3. Components:
 - a. Door and Frame:
 - 1) 6063-T5 anodized aluminum.

- 2) Color and Finish: Satin finish, clear polyester coating.
- b. Tub: 0.036 inch (0.9mm) cold rolled steel
 - 1) Color Finish: White factory applied powder coat paint finish.
- c. Door Type: Convex Clear Full Bubble.
4. Options:
 - a. Lettering: Vertical decal, red, 2-inch high lettering.
 - b. Latching: Pull handle roller catch.
5. Cabinet Dimensions: Size to match extinguisher type.
6. Fire Rating: Fire rated for 1 hour or 2 hour combustible and non-combustible wall systems.

2.6 FIRE-PROTECTION CABINET (FEC-5)**

- A. Cabinet Type: Suitable for fire extinguisher.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Model Ridge; Nystrom, Inc., or comparable product by one of the following:
 - a. Fire-End & Croker Corporation.
 - b. GMR International Equipment Corporation.
 - c. Guardian Fire Equipment, Inc.
 - d. JL Industries, Inc.; a division of the Activar Construction Products Group.
 - e. Modern Metal Products, Division of Technico Inc.
 - f. Larsens Manufacturing Company
 - g. Potter Roemer LLC.
 - h. Strike First Corporation of America.
- B. Basis-of-Design Product: Subject to compliance with requirements, provide #FC-FRC-7339; Nystrom; Ridge™ Fire Extinguisher Cabinet.
 1. Description: Steel unit construction, continuous piano hinge with 180 degree opening, architectural convex, clear “bubble” window.
 2. Cabinet Mounting: Surface mounted.
 3. Components:
 - a. Door and Frame:
 - 1) 6063-T5 anodized aluminum.
 - 2) Color and Finish: Satin finish, clear polyester coating.
 - b. Tub: 0.036 inch (0.9mm) cold rolled steel
 - 1) Color Finish: White factory applied powder coat paint finish.
 - c. Door Type: Convex Clear Full Bubble.
 4. Options:
 - a. Lettering: Vertical decal, red, 2-inch high lettering.
 - b. Latching: Pull handle roller catch.
 5. Cabinet Dimensions: Size to match extinguisher type.
 6. Fire Rating: Fire rated for 1 hour or 2 hour combustible and non-combustible wall systems.

2.7 FABRICATION

- A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.
 - 1. Weld joints and grind smooth.
 - 2. Provide factory-drilled mounting holes.
 - 3. Prepare doors and frames to receive locks.
 - 4. Install door locks at factory.

- B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles.
 - 1. Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum 1/2 inch (13 mm) thick.
 - 2. Fabricate door frames of one-piece construction with edges flanged.
 - 3. Miter and weld perimeter door frames.

- C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

2.8 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's AMP 500, "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.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls and partitions for suitable framing depth and blocking where semirecessed cabinets will be installed.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare recesses for recessed fire-protection cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION

- A. General: Install fire-protection cabinets in locations and at mounting heights indicated or, if not indicated, at heights indicated below:
 - 1. Fire-Protection Cabinets: 54 inches (1372 mm) above finished floor to top of cabinet.
- B. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
 - 1. Fasten mounting brackets to inside surface of fire-protection cabinets, square and plumb.
- C. Identification: Apply vinyl lettering at locations indicated.

3.4 ADJUSTING AND CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as fire-protection cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
- D. Touch up marred finishes, or replace fire-protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire-protection cabinet and mounting bracket manufacturers.
- E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 104413

SECTION 115213PROJECTION SCREENSPART 1 - GENERAL1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
1. Electrically operated, front-projection screens and controls.
 2. Projector lift.
- B. Related Requirements:
1. Section 055000 "Metal Fabrications" for metal support framing for front-projection screens.
 2. Section 061053 "Miscellaneous Rough Carpentry" for wood blocking for screen installation.

1.3 DEFINITIONS

- A. Gain: Ratio of light reflected from screen material to that reflected perpendicularly from a magnesium carbonate surface as determined per SMPTE RP 94.
- B. Half-Gain Angle: The angle, measured from the axis of the screen surface to the most central position on a perpendicular plane through the horizontal centerline of the screen where the gain is half of the peak gain.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Show layouts and types of front-projection screens. Include the following:
1. Drop lengths.
 2. Location of seams in viewing surfaces.
 3. Location of screen centerline relative to ends of screen case.
 4. Anchorage details, including connection to supporting structure for suspended units.
 5. Details of juncture of exposed surfaces with adjacent finishes.
 6. Location of wiring connections for electrically operated units.
 7. Wiring diagrams for electrically operated units.
 8. Accessories.
- C. Samples for Initial Selection: For finishes of surface-mounted screen cases.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For front-projection screens to include in maintenance manuals.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Environmental Limitations: Do not deliver or install front-projection screens until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.7 COORDINATION

- A. Coordinate layout and installation of front-projection screens with adjacent construction, including ceiling suspension systems, light fixtures, HVAC equipment, fire-suppression system, and partitions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Projection Screens: Obtain front-projection screens from single manufacturer. Obtain accessories, including necessary mounting hardware, from screen manufacturer.

2.2 ELECTRICALLY OPERATED, FRONT-PROJECTION SCREENS

- A. General: Manufacturer's standard units consisting of case, screen, motor, controls, mounting accessories, and other components necessary for a complete installation. Provide units that are listed and labeled as an assembly by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
 1. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. Controls: Remote, three-position control switch installed in recessed device box with flush cover plate matching other electrical device cover plates in room where switch is installed.
 - a. Provide two control switches for each screen.
 3. Motor in Roller: Instant-reversing motor of size and capacity recommended by screen manufacturer; with permanently lubricated ball bearings, automatic thermal-overload protection, preset limit switches to automatically stop screen in up and down positions, and positive-stop action to prevent coasting. Mount motor inside roller with vibration isolators to reduce noise transmission.
 4. Screen Mounting: Top edge securely anchored to rigid metal roller and bottom edge formed into a pocket holding a 3/8-inch- (9.5-mm-) diameter metal rod with ends of rod protected by plastic caps.
 - a. Roller for motor in roller is supported by vibration- and noise-absorbing supports.
 5. Tab Tensioning: Provide units that have a durable low-stretch cord, such as braided polyester, on each side of screen that is connected to edge of screen by tabs to pull screen flat horizontally.

- B. Suspended, Electrically Operated Screens with Automatic Ceiling Closure, with Motor-in Roller, and with Tab Tensioning: Units designed and fabricated for suspended mounting; with bottom of case composed of two panels, fully enclosing screen, motor, and wiring; one panel hinged and designed to open and close automatically when screen is lowered and fully raised, the other removable or openable for access to interior of case.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Da-Lite Screen Company; Tensioned Advantage Deluxe Electrol.
 - b. Draper Inc; Signature/Series V.
 - 2. Provide metal or metal-lined wiring compartment.
 - 3. Screen Case: Made from metal.
 - 4. Provide screen case constructed to be installed with ceiling finish applied to underside].
 - 5. Finish on Exposed Surfaces: Prime painted.

2.3 FRONT-PROJECTION SCREEN MATERIAL

- A. Matte-White Viewing Surface: Peak gain of not less than 0.9, and gain of not less than 0.8 at an angle of 50 degrees from the axis of the screen surface.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Da-Lite Screen Company; HD Progressive 0.6.
- B. Material: Vinyl-coated, glass-fiber fabric or vinyl sheet.
- C. Mildew-Resistance Rating: Zero or 1 when tested according to ASTM G 21.
- D. Flame Resistance: Passes NFPA 701.
- E. Flame-Spread Index: Not greater than 75 when tested according to ASTM E 84.
- F. Seamless Construction: Provide screens, in sizes indicated, without seams.
- G. Edge Treatment: Without black masking borders.
- H. Size of Viewing Surface: 78 by 139 inches.
- I. Provide extra drop length of dimensions and at locations indicated.
 - 1. Color: Same as viewing surface.

2.4 MOTORIZED PROJECTOR LIFTS

- A. Type:
 - 1. Model: SVS 7 series lift- Electrically operated scissor projector lift to lower projector from a storage position to a show position for operation and a service position for service. This model is supplied with a 24vac low voltage controller and a standard video cable management system (either retainers or retractors located in the rear of the lift).
 - 2. SVS 7-9 Projector Lift – Maximum lowering distance 9'0" [2.7m].

3. SVS Mechanism: On an SVS lift, the projector is raised and lowered by 2 sets of scissors positioned on each side of the projector. The precision grooved drum insures accurate, level tracking and consistent screen image. The projector weight is suspended by two 3/16" steel cables capable of supporting 1780 lbs each. All lifting or stress areas have hardened 3/8" bolts with a very high shear strength. The eye bolts for the cable are secured by hardened flange nuts and backed by a jam nut. The cables are flexible and the scissor stabilizers are secured by hardened bolts. Lift operated by 110V/60Hz with reversible, thermally protected and lubricated gear motor. Lift controlled by supplied wall plate controller via contact closure with key switch to select off, show, or service modes and toggle switch to control up/down travel of the lift (includes 75-feet of cable).
4. Patented Fail Safe drum lock system which insures fail-safe lowering of the projector in all modes.
5. Video cable management system: Verify with Owners equipment.

B. Lift Details:

1. Dimensions:
 - a. SVS 7- 9 Projector Lift – 37" Wide x 45" Deep x 16" High*
2. Weight:
 - a. SVS 7- 9 Projector Lift – 165 lbs Net weight [Shipping weight: 255 lbs].
3. Voltage:110v/60hz
4. Low Voltage:24VAC- Low voltage control with switch control- Security key switch for an authorized person to operate the lift in service and show position- supplied with 75' of LV cable
5. Current Draw: 1.5 Amps
6. Dual power relays with solid state motor control capable of breaking both sides of the AC line to motor.
7. Show position adjustable anywhere from the top limit to the lower limit of the lift with accuracy of +/-1/8"
8. Low voltage control delay between direction changes of motor.
9. Protective circuit so only one direction can be activated at any time, with the other direction locked out if an additional command is sent from an external source.All steel construction except for the drum lock pawl, which is made of nylon for quiet operation.
10. UL approved gear motor with a magnetic brake.
11. Drive to the lifting drum is heavy No. 40 steel chain for safety.
12. Output sprocket is welded directly to the cable drum – no keyways.
13. Cable drum equipped with USA patented fail-safe drum lock.
14. Drum lock uses a low voltage solenoid to release on the down command with a nylon pawl that can override and turn the motor off in case the drum exceeds the speed of the gear motor.
15. Precision grooved drum & channel scissors for stabilization.
16. Redundant limit switches

C. Lift Accessories:

1. Accessory FPI Closure Panel (Lipped). Fixed-mounted flat closure panel, supplied unpainted, overlaps ceiling T-Bar. Ceiling tile/material may be attached to bottom of panel, supplied with 15/16" Tbar off-white powdered coated finish trim kit.
2. Projector Mount: Accessory #9 Projector Mount- Mounting bracket to attach projector to lift's bottom frame. SVS Accessory #9 Projector Mount or equivalent.
3. Accessory #5 Power Sensor with screen control- Lift and screen descend to show/operation position when projector is turned on - Return to ceiling when projector is turned off.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install front-projection screens at locations indicated to comply with screen manufacturer's written instructions.
- B. Install front-projection screens with screen cases in position and in relation to adjoining construction indicated. Securely anchor to supporting substrate in a manner that produces a smoothly operating screen with vertical edges plumb and viewing surface flat when screen is lowered.
 - 1. Install low-voltage controls according to NFPA 70 and complying with manufacturer's written instructions.
 - a. **Wiring Method:** Install wiring in raceway except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Use UL-listed plenum cable in environmental air spaces, including plenum ceilings. Conceal raceway and cables except in unfinished spaces.
 - 2. Test electrically operated units to verify that screen controls, limit switches, closures, and other operating components are in optimum functioning condition.

END OF SECTION 115213