

## **ADDENDUM #2**

### **11/8/2023**

#### **DRAWING REVISIONS:**

1. Drawing A002:
  - a. Added note to the drawing.
2. Drawing A360:
  - a. Revised wall section.
3. Drawing A813:
  - a. Revised window head, jamb & sill details.
4. Drawing A822:
  - a. Revised louver head, jamb & sill details.
5. Drawing A823:
  - a. Revised louver head, jamb & sill details.

#### **SPECIFICATION REVISIONS:**

1. Section 079200:
  - a. Revised Section 079200.
2. Section 072726:
  - a. Revised Section 072726.
3. Section 085113:
  - a. Revised Section 085113.
4. Section 087100:
  - a. Revised Section 087100.

5. Section 099600:

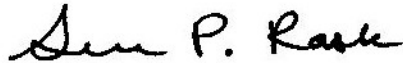
- a. Revised Section 099600.

Distribution: Daniel Fiskeaux (WCU)

Avery Monroe (RMF)

☒ Drawings/sketches attached: A002, A360, A813, A822, A823

☒ Specifications or comment/data sheets attached: 079200, 072726, 085113, 087100, 099600



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Sean Rask, PE, HFDP  
Project Manager

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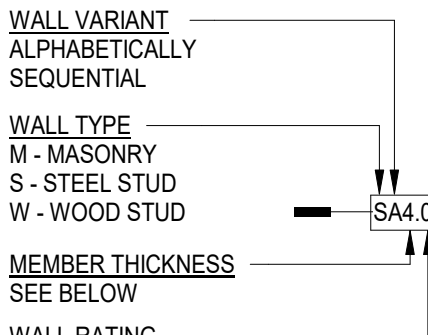
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ROOM FINISH SCHEDULE										
ROOM NO.	ROOM NAME	FLOOR		WALLS				CEILING		COMMENTS
		FINISH	BASE	N	E	S	W	MATERIAL	FINISH	
LEVEL 1										
100	Lobby	EX	EX	EX-CMU	GWB-PT	EX-BRICK	GWB-PT	ACT		
100C	Lobby	EX	EX	EX-BRICK	GWB-PT	EX-BRICK	GWB-PT	ACT		

DOORS SCHEDULE										
FLOOR	DOOR NO.	FROM ROOM	TO ROOM	DOOR				HARDWARE SET	REMARKS	
				WIDTH	HEIGHT	THK.	RATING			
LEVEL 1	109A	Mechanical	EXTERIOR	6'-10"	7'-0"	0'-1 3/4"		H1	EXISTING DOOR TO BE RETROFITTED WITH PANIC HARDWARE, REMOVE EXISTING HARDWARE ON ACTIVE LEAF. HARDWARE CONTRACTOR TO PREP DOOR HEAD AND SILL TO RECIEVE ROD FROM SURFACE MOUNTED PANIC HARDWARE.	
LEVEL 1	111A	Mechanical	EXTERIOR	5'-0"	6'-8"	0'-1 3/4"		H2	EXISTING DOOR TO BE RETROFITTED WITH PANIC HARDWARE, REMOVE EXISTING HARDWARE ON ACTIVE LEAF. HARDWARE CONTRACTOR TO PREP DOOR HEAD AND SILL TO RECIEVE ROD FROM SURFACE MOUNTED PANIC HARDWARE.	

CONTRACTOR TO VERIFY HARDWARE WITH EXISTING DOORS PRIOR TO SUBMITTAL

## WALL TAG LEGEND



FURRING	STEEL STUD	WOOD STUD	SHAFT WALL	MASONRY
L - LAMINATED	1-1 5/8" STUD	2 - 1 1/2" x 1 1/2" NAILER	2 - 2 1/2" SHAFT STUD	4 - 3 5/8" CMU
0 - 7/8" HAT	2 - 2 1/2" STUD	4 - 1 1/2" x 3 1/2" STUD	4 - 4" SHAFT STUD	6 - 5 5/8" CMU
1 - 1 1/2" HAT	3 - 3 5/8" STUD	6 - 1 1/2" x 5 1/2" STUD	6 - 6" SHAFT STUD	8 - 7 5/8" CMU
	4 - 4" STUD	6 - 1 1/2" x 7 1/4" STUD		10 - 9 5/8" CMU
	6 - 6" STUD	12 - 1 1/2" x 11 1/4" STUD		12 - 11 5/8" CMU
	8 - 8" STUD			

### WALL FRAMING PRIORITY

- PARTITIONS SHALL BE PRIORITIZED BASED ON FIRE AND SMOKE RATING.
- PARTITIONS SHALL BE CONSTRUCTED SUCH THAT HIGHER PRIORITY IS FRAMED BEFORE LOWER PRIORITY.
- LOWER PRIORITY PARTITIONS SHALL BE FRAMED TIGHT TO, BUT NOT INTERRUPT HIGHER PRIORITY CONSTRUCTION. (SEE THE EXAMPLE BELOW)

2 HOUR FIRE RATED WITH SMOKE BARRIER  
2 HOUR FIRE RATED  
1 HOUR FIRE RATED WITH SMOKE BARRIER  
1 HOUR FIRE RATED  
NONE RATED

PRIORITY 1 (HIGHEST)  
PRIORITY 2  
PRIORITY 3  
PRIORITY 4  
PRIORITY 5 (LOWEST)

## GENERAL PARTITION NOTES

- PLAN DIMENSIONS ARE FACE OF STUD, CMU OR FINISH FACE OF EXISTING WALL. CONSTRUCTION UNLESS SPECIFICALLY NOTED OTHERWISE.
- GYPSUM WALL BOARD LAYERS ON RATED WALLS SHALL BE CONTINUOUS THROUGH ALL INTERSECTIONS WITH NON-RATED WALLS. REFER TO FIRE WALL PRIORITY DIAGRAM.
- REFERENCE ALL FLOOR PLANS AND LIFE SAFETY PLANS FOR RATED WALL LOCATIONS AND RATINGS.
- PROVIDE TYPE X MOLD AND MOISTURE RESISTANT GYPSUM WALL BOARD IN ALL TOILET AND JANITOR ROOMS.
- PROVIDE CEMENT BOARD IN ALL WET SHOWER AREA WALLS WITH TILE FINISH.
- PROVIDE IMPACT RESISTANT GYPSUM WALL BOARD UP TO 4'-0" IN ALL LOBBIES, CORRIDORS, AND STAIRWELLS.
- AT ALL JOINTS AT TOP OF ALL FIRE RATED PARTITIONS, PROVIDE COMPLETE UL LISTED FIRE RESISTIVE JOINT SYSTEM TO MATCH FIRE RESISTANCE OF WALL ASSEMBLY AND THAT IS ALSO COMPATIBLE WITH JOINT SUBSTRATES.
- ANY PORTION OF GYPSUM WALL BOARD THAT BECOMES WET OR SHOWS SIGNS OF MOISTURE DAMAGE, EITHER BEFORE OR AFTER INSTALLATION, IS TO BE REMOVED IMMEDIATELY AND REPLACED WITH NEW DRY GYPSUM WALL BOARD.
- INTERIOR PARTITIONS MAY HAVE ADDITIONAL FINISHES. REFERENCE FINISH SCHEDULE AND DETAIL SHEETS FOR ADDITIONAL INFORMATION.
- PROVIDE PROJECT SPECIFIC DELGATED DESIGN DATA INCLUDING STUD SPACING, STUD GAUGE, BRACING AND DEFLECTION.
- SOUND ATTENUATION BLANKET IS REQUIRED AT ALL INTERIOR PARTITIONS AND SHALL RUN FULL HEIGHT OF PARTITION UNLESS NOTED OTHERWISE. SOUND ATTENUATION BATT SHALL BE AS FOLLOWS:
  - FIRE RESISTANT PARTITIONS: MINERAL WOOL SOUND ATTENUATION FIRE BLANKET (SAFB) - FULL STUD DEPTH
  - NON-RATED PARTITIONS: UNFACED FIBERGLASS SOUND ATTENUATION BATTS (SAB) - FULL STUD DEPTH
- MINOR WALLS OR OTHER WALLS NOT TAGGED WILL BE OF THE SAME WALL TYPE AS ADJACENT WALLS (UNLESS OTHERWISE NOTED).
- COORDINATE AND PROVIDE ALL REQUIRED BLOCKING WITHIN THE WALLS. THIS INCLUDES BUT IS NOT LIMITED TO, ALL MILLWORK, CASEWORK, GRAB BARS, MONITORS, AND TOILET PARTITIONS.
- INSTALL GYPSUM WALL BOARD ON INTERIOR PARTITIONS WITH A MINIMUM 1/4" GAP BETWEEN THE GYPSUM WALL BOARD AND THE FINISHED FLOOR.
- AT RATED PARTITIONS AND CEILINGS, INSTALL CONTROL JOINTS PER THE TESTED ASSEMBLIES.

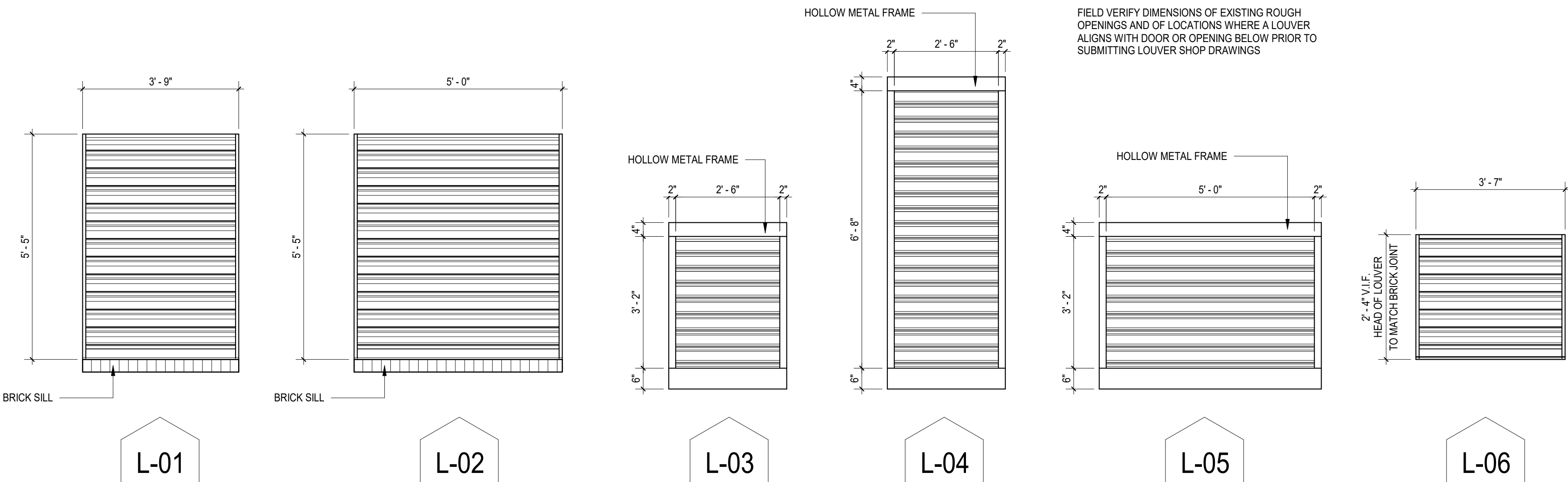
## CONTROL JOINT NOTES

### GYPSUM WALL BOARD:

LOCATE CONTROL JOISTS AS FOLLOWS:

- PROVIDE CONTROL JOINTS IN WIDTHS NO GREATER THAN 30'-0" OC, BUT NO LESS THAN 16'-0".
- INSTALL CONTROL JOINTS ACCORDING TO ASTM C 840 AND IN SPECIFIC LOCATIONS APPROVED BY ARCHITECT FOR VISUAL EFFECT.
- SUBMIT CONTROL JOINT LOCATION PLAN TO ARCHITECT FOR REVIEW PRIOR TO INSTALLATION.
- PROVIDE CONTROL JOINTS ABOVE DOOR JAMBS WHENEVER POSSIBLE.

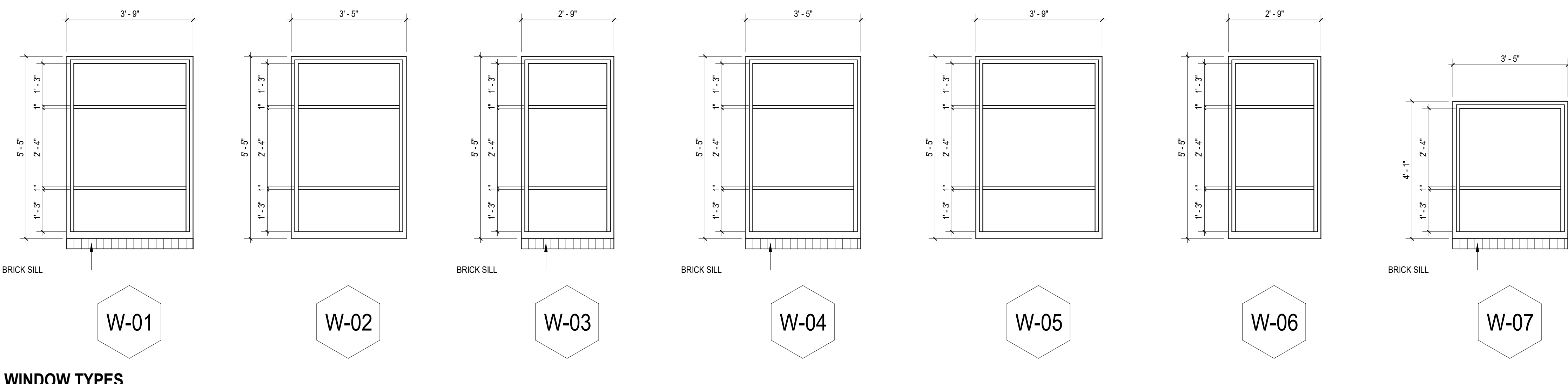
LOUVER SCHEDULE				
Type Mark	Width	Height	Comments	
L-01	3'-9"	5'-5"	ALUMINUM REPLACEMENT LOUVER	
L-02	5'-0"	5'-5"	ALUMINUM REPLACEMENT LOUVER	
L-03	2'-7 1/2"	3'-1 1/2"	STEEL REPLACEMENT LOUVER	
L-04	2'-7 1/2"	6'-3 1/2"	STEEL REPLACEMENT LOUVER	
L-05	5'-1 1/2"	3'-1 1/2"	STEEL REPLACEMENT LOUVER	
L-06	3'-7"	2'-4"	NEW ALUMINUM LOUVER	



### LOUVER TYPES

WINDOW SCHEDULE				
Type Mark	Width	Height	Comments	
W-01	3'-9"	5'-5"	ALUMINUM REPLACEMENT WINDOW	
W-02	3'-5"	5'-5"	ALUMINUM REPLACEMENT WINDOW	
W-03	2'-9"	5'-5"	ALUMINUM REPLACEMENT WINDOW	
W-04	3'-5"	5'-5"	ALUMINUM REPLACEMENT WINDOW	
W-05	3'-9"	5'-5"	ALUMINUM REPLACEMENT WINDOW	
W-06	2'-9"	5'-5"	ALUMINUM REPLACEMENT WINDOW	
W-07	3'-5"	4'-1"	ALUMINUM REPLACEMENT WINDOW	

ALL WINDOWS ON FIRST FLOOR TO USE TEMPERED GLASS ON BOTH PANES. WINDOWS ON SECOND AND THIRD FLOOR TO USE TEMPERED GLASS ON INTERIOR PANE, HEAT-TREATED FLOAT GLASS ON EXTERIOR PANE.



### WINDOW TYPES

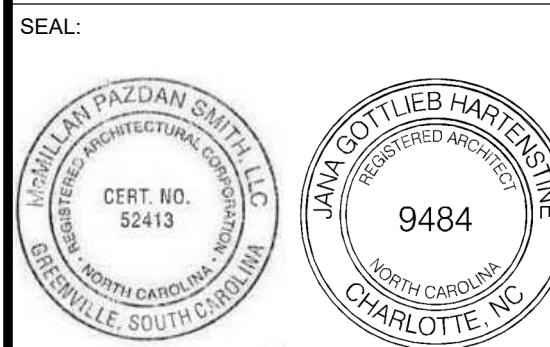


RMF ENGINEERING, INC.  
8720 RED OAK BLVD  
SUITE 370  
CHARLOTTE, NC 28217  
P: 704-909-6612 F: 704-909-6616



REV	DESCRIPTION	DATE
2	ADDENDUM 02	11/07/2023
1	BID SET	10/13/2023

SUBMISSION TITLE:  
CONSTRUCTION  
DOCUMENTATION



DRAWN BY: IH DATE: 05/03/23  
DESIGNED BY: IH SCALE: As indicated  
CHECKED BY: rDC JOB NO.: 022425.00  
PROJ. MGR.: JGH SCO #: 22-24899-01A

PROJECT NAME:  
WCU KILLIAN BUILDING  
HVAC UPGRADES AND  
WINDOW REPLACEMENT  
(PHASE 1)

PROJECT ADDRESS:  
91 Killian Bldg Ln, Cullowhee, NC,  
28723

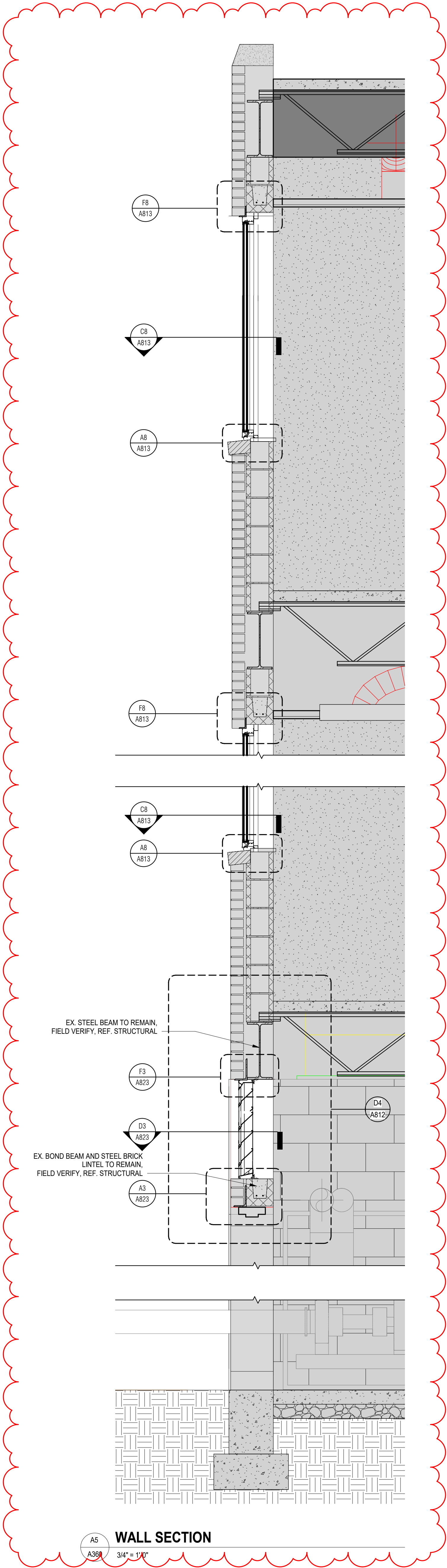
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PARTITION TYPES AND  
SCHEDULES

DRAWING NUMBER:  
A002



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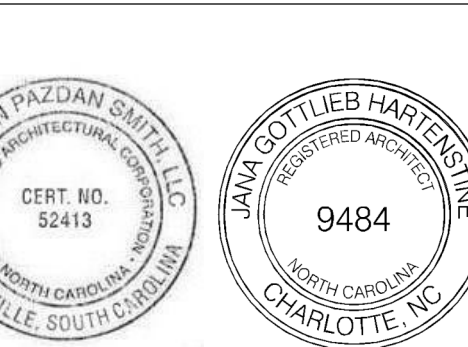
**rmf**  
RMF ENGINEERING, INC.  
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P: 704-909-6612 F: 704-909-6616

**Western  
Carolina  
UNIVERSITY**

**mcmillan  
pazdan  
smith  
ARCHITECTURE**

REV	DESCRIPTION	DATE
2	ADDENDUM 02	11/07/2023
1	BID SET	10/13/2023

SUBMISSION TITLE:  
**CONSTRUCTION  
DOCUMENTATION**



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DESIGNED BY:	IH	SCALE:	3/4" = 1'-0"
CHECKED BY:	IH	JOB NO.:	022425.00
PROJ. MGR.:	JGH	SCO #:	22-24899-01A

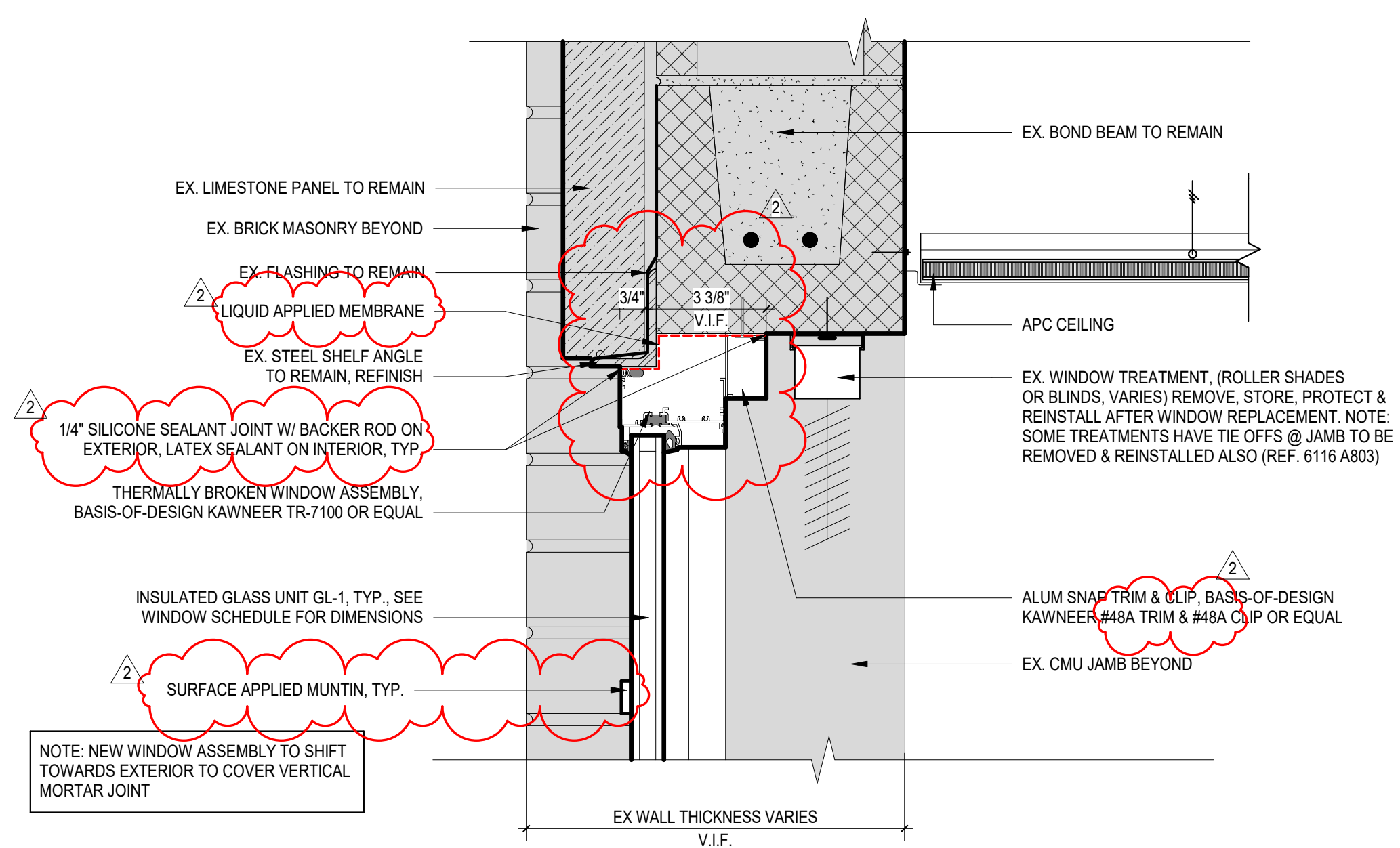
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**WCU KILLIAN BUILDING  
HVAC UPGRADES AND  
WINDOW REPLACEMENT  
(PHASE 1)**

PROJECT ADDRESS:  
**91 Killian Bldg Ln, Cullowhee, NC,  
28723**

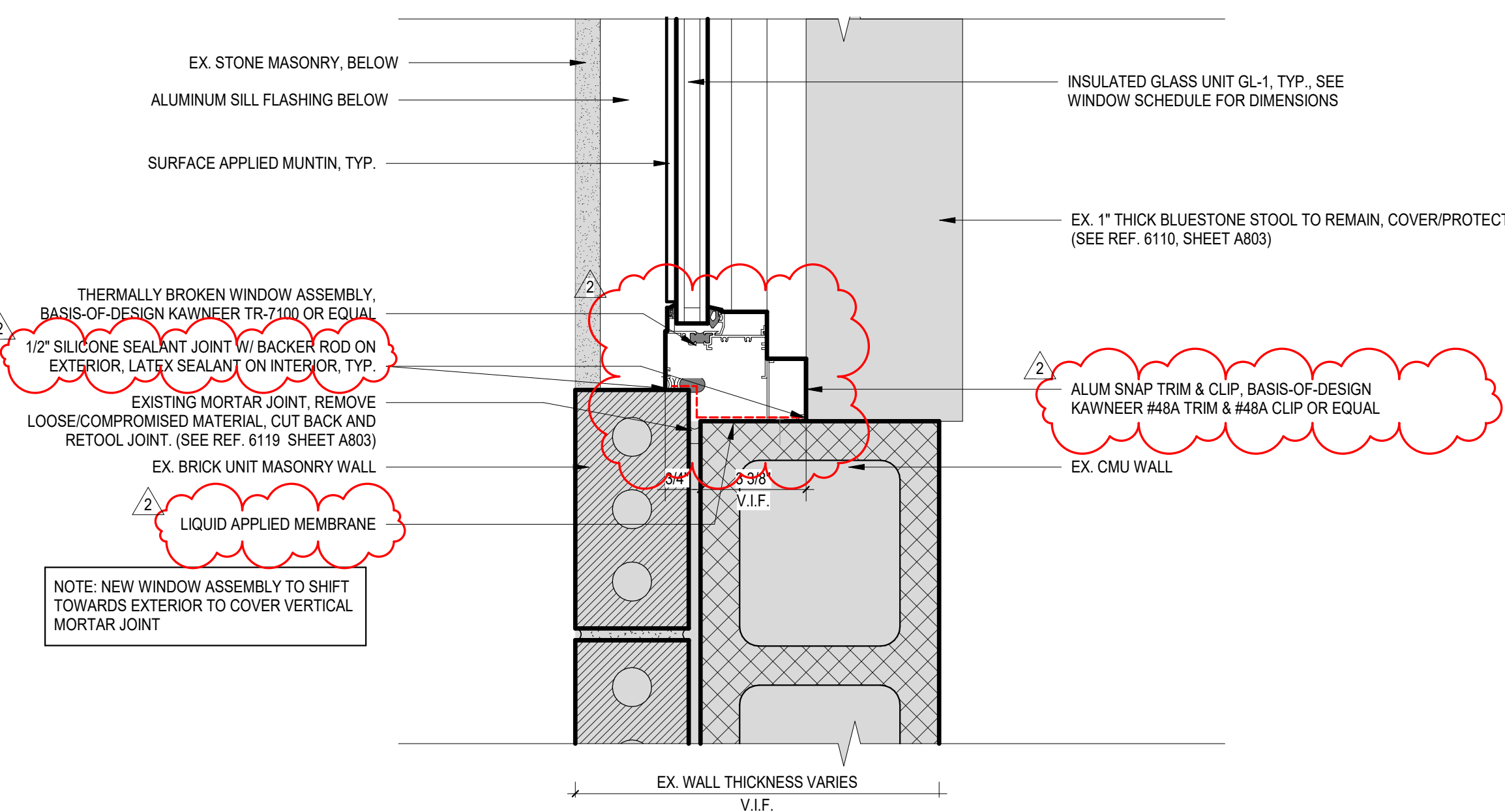
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**PLAN AND SECTION DETAILS**

DRAWING NUMBER:  
**A360**

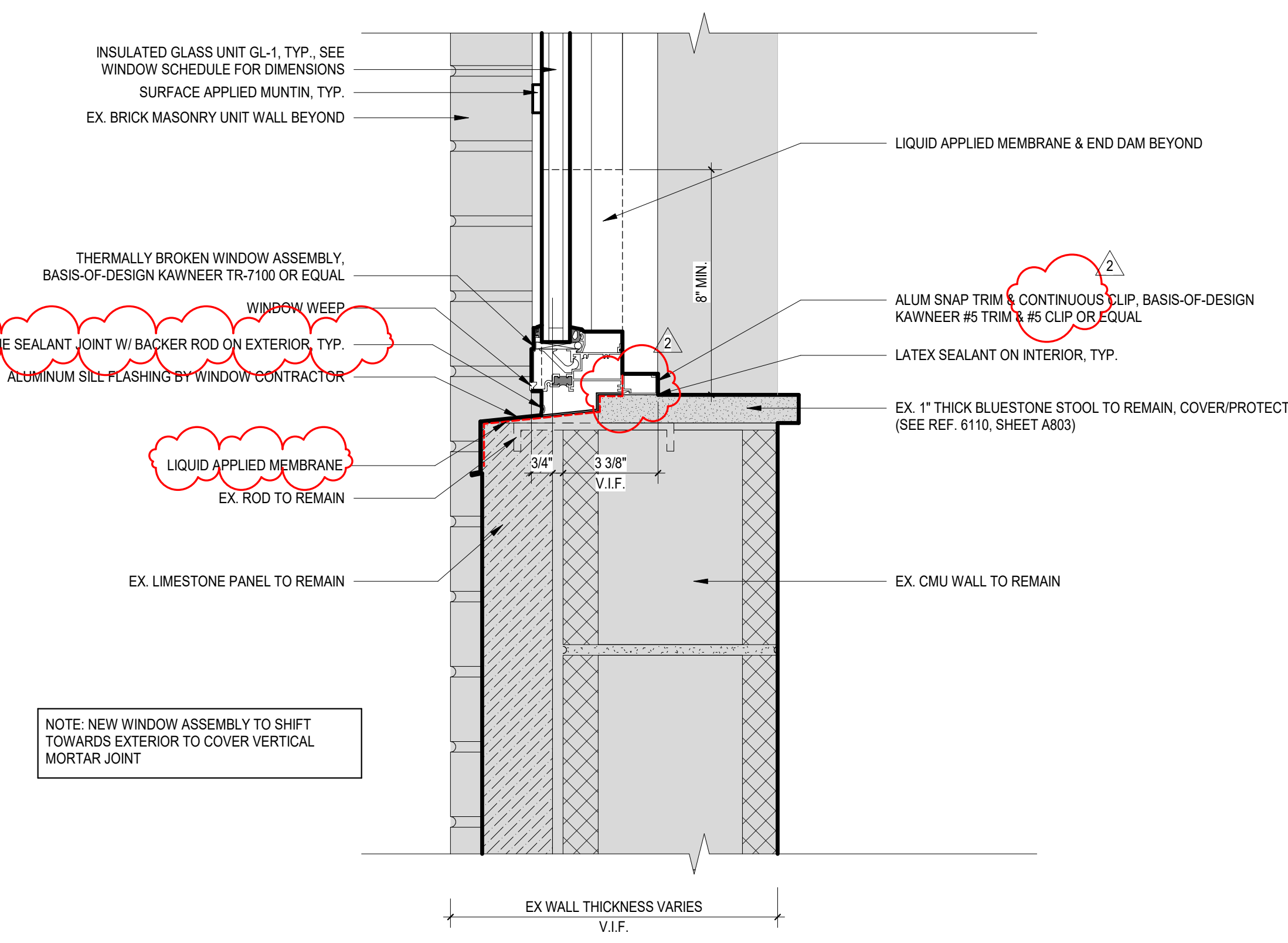




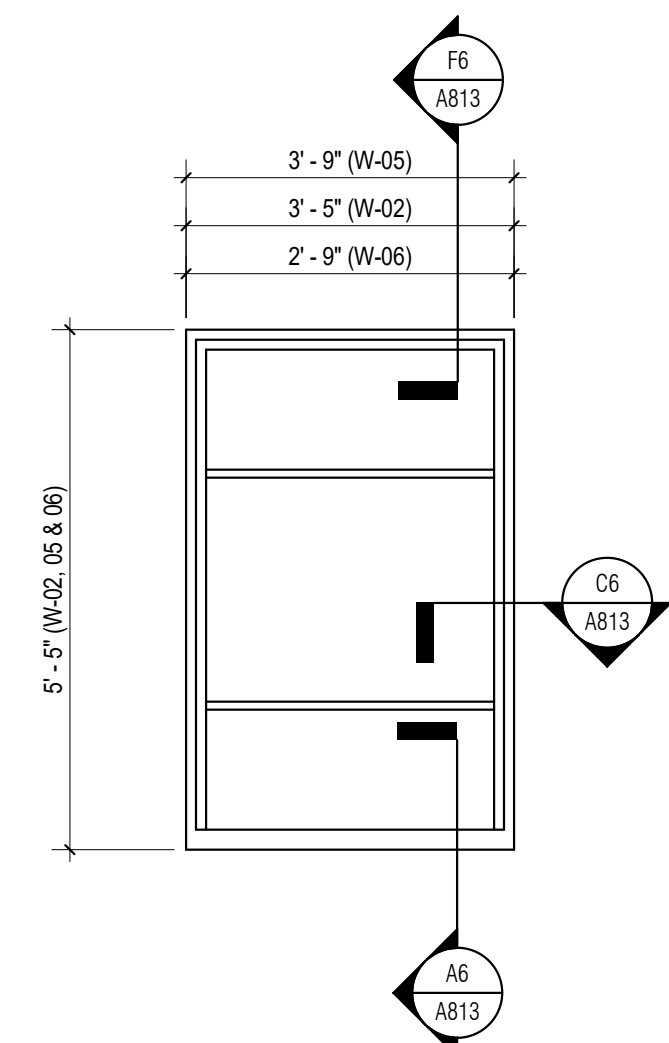
F6 WINDOW HEAD DETAIL AT LIMESTONE PANEL  
A813 3" = 1'-0"



C6 WINDOW JAMB DETAIL AT LIMESTONE PANEL  
A813 3" = 1'-0"



**WINDOW SILL DETAIL AT LIMESTONE PANEL**

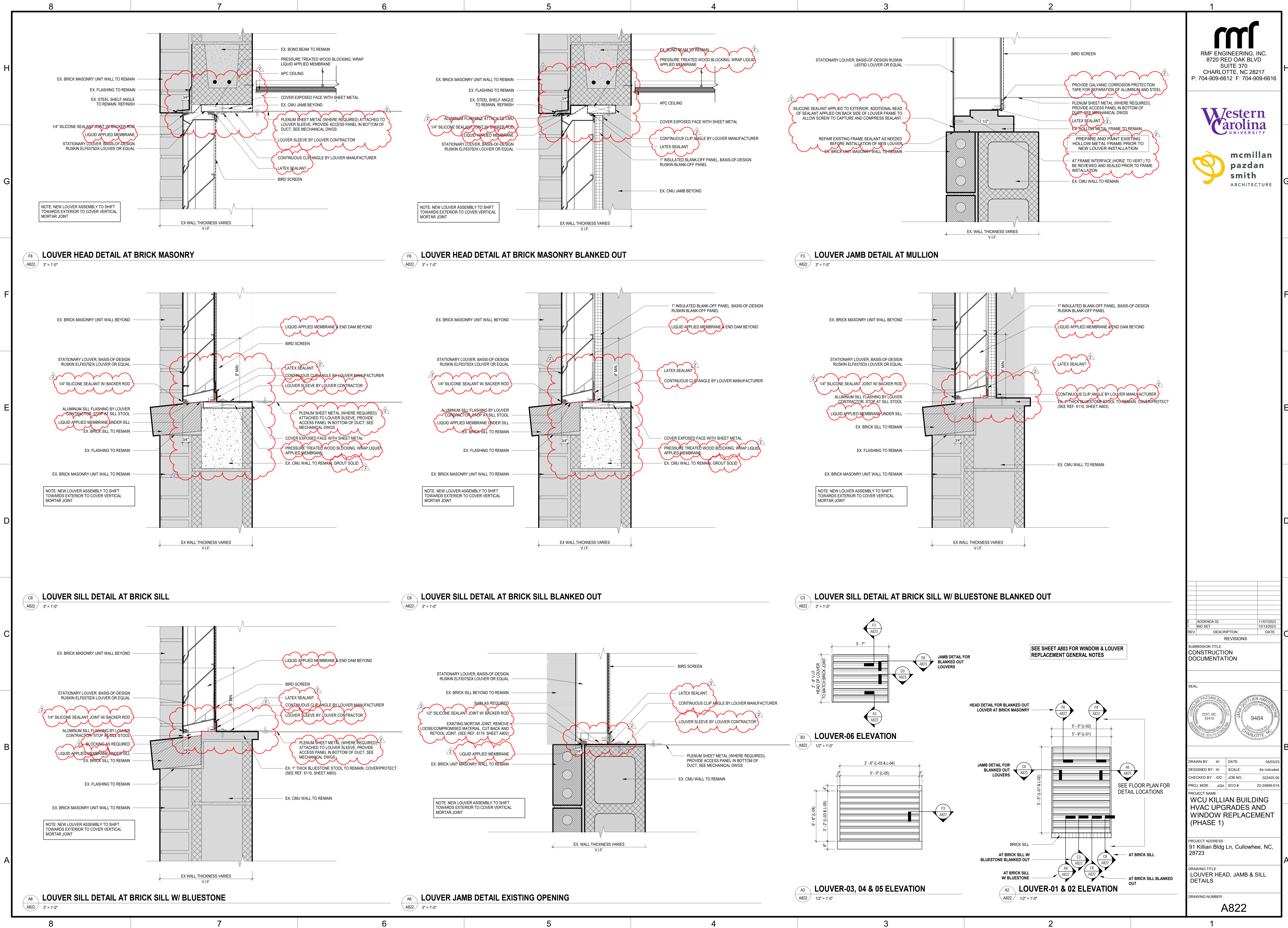


**WINDOW 02, 05 & 06 ELEVATION**

DRAWING NUMBER :  
**A813**



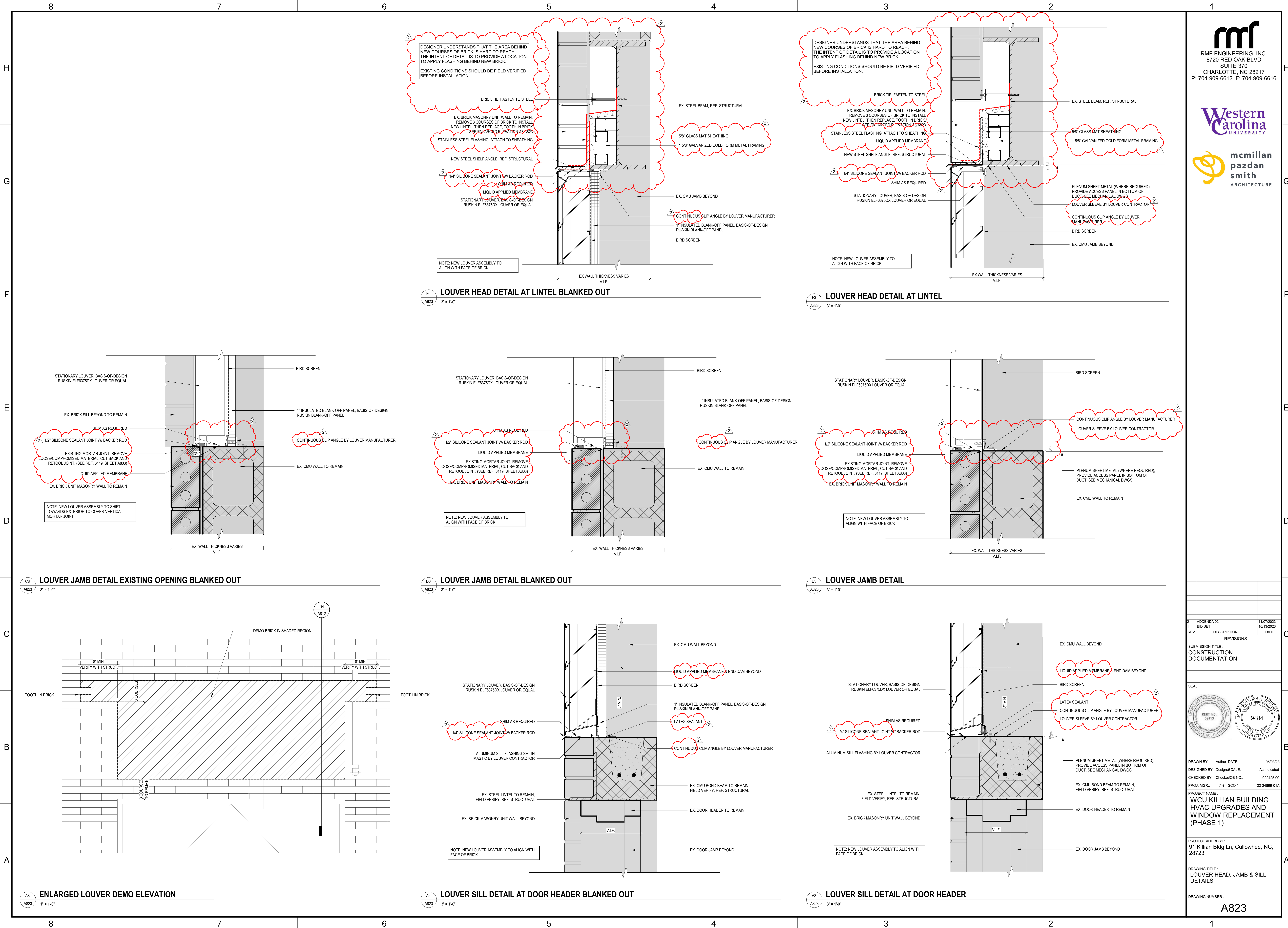
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REV	DESCRIPTION	DATE
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1	BID SET	10/13/2023
REVISIONS		
SUBMISSION TITLE: CONSTRUCTION DOCUMENTATION		
SEAL:		
DRAWN BY: IH DATE: 05/03/23		
DESIGNED BY: IH SCALE: As indicated		
CHECKED BY: IDC JOB NO.: 022425.00		
PROJ. MGR.: JGH SCO #: 22-24899-01A		
PROJECT NAME: WCU KILLIAN BUILDING HVAC UPGRADES AND WINDOW REPLACEMENT (PHASE 1)		
PROJECT ADDRESS: 911 Killian Bldg Ln, Cullowhee, NC, 28723		
DRAWING TITLE: LOUVER HEAD, JAMB & SILL DETAILS		
DRAWING NUMBER: A822		



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## SECTION 07 9200 - JOINT SEALANTS

### 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. Silicone joint sealants. (Exterior)
  - 2. Latex joint sealants. (Interior)
- B. Related Sections:
  - 1. Section 08 8000 "Glazing" for glazing sealants.
  - 2. Section 32 1373 "Concrete Paving Joint Sealants" for sealing joints in pavements, walkways, and curbing.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- C. Joint-Sealant Schedule: Include the following information:
  - 1. Joint-sealant application, joint location, and designation.
  - 2. Joint-sealant manufacturer and product name.
  - 3. Joint-sealant formulation.
  - 4. Joint-sealant color.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.



- B. Warranties: Sample of special warranties.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

## 1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
  - 2. When joint substrates are wet.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

## PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - 1. Architectural Sealants: 250 g/L.
  - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
  - 3. Sealant Primers for Porous Substrates: 775 g/L.
- C. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids: Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.
- D. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- E. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- F. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

## 2.2 SILICONE JOINT SEALANTS

- A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.
  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. Dow Corning Corporation; .
    - b. GE Advanced Materials - Silicones; SilPruf LM SCS2700.
    - c. May National Associates, Inc.; .
    - d. Pecora Corporation; .
    - e. Tremco Incorporated; .

## 2.3 LATEX JOINT SEALANTS

- A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
  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. BASF Building Systems; Sonolac.
    - b. Bostik, Inc.; Chem-Calk 600.
    - c. May National Associates, Inc.; Bondaflex Sil-A 700.
    - d. Pecora Corporation; AC-20+.
    - e. Schnee-Morehead, Inc.; SM 8200.
    - f. Tremco Incorporated; Tremflex 834.



## 2.4 SILYL-TERMINATED POLYETHER (STPE) JOINT SEALANTS

A. Silyl-Terminated Polyether (STPE) Sealant: ASTM C920, Grade NS, Uses M and A; single component; not expected to withstand continuous water immersion or traffic.

1. Movement Capability: Plus and minus 50 percent, minimum.

2. Hardness Range: 15 to 25, Shore A, when tested in accordance with ASTM C661.

3. Color: To be selected by Architect from manufacturer's standard range.

4. Service Temperature Range: Minus 75 to 300 degrees F.

5. Application: Masonry, Window perimeters, and silicone strips

6. Products:

a. Dow; DOWSIL Contractors Paintable Sealant - CPS: [www.dow.com/#sle](http://www.dow.com/#sle).

b. Franklin International Inc; Titebond WeatherMaster ULTIMATE MP Sealant: [www.titebond.com/#sle](http://www.titebond.com/#sle).

c. Tremco Commercial Sealants and Waterproofing; Dymonic FC : [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).

d. Henry; 925 BES Sealant: [www.https://henry.com/](https://henry.com/).

e. Substitutions: See Section 01 25 00 - Substitution Procedures.

## 2.5 ACOUSTICAL JOINT SEALANTS

A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

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. Pecora Corporation; .

b. USG Corporation; SHEETROCK Acoustical Sealant.

## 2.6 JOINT SEALANT BACKING

A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

- C. Sealant Backing Rods: ASTM C 1330, Type B (Bi-Cellular), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

## 2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.



2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
    - a. Concrete.
    - b. Masonry.
    - c. Unglazed surfaces of ceramic tile.
    - d. Exterior insulation and finish systems.
  3. Remove laitance and form-release agents from concrete.
  4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
    - a. Metal.
    - b. Glass.
    - c. Porcelain enamel.
    - d. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  1. Do not leave gaps between ends of sealant backings.
  2. Do not stretch, twist, puncture, or tear sealant backings.
  3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
  
- E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
  - 4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
  - 5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.
    - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.
  
- F. Installation of Preformed Silicone-Sealant System: Comply with the following requirements:
  - 1. Apply masking tape to each side of joint, outside of area to be covered by sealant system.
  - 2. Apply silicone sealant to each side of joint to produce a bead of size complying with preformed silicone-sealant system manufacturer's written instructions and covering a bonding area of not less than 3/8 inch. Hold edge of sealant bead 1/4 inch inside masking tape.
  - 3. Within 10 minutes of sealant application, press silicone extrusion into sealant to wet extrusion and substrate. Use a roller to apply consistent pressure and ensure uniform contact between sealant and both extrusion and substrate.
  - 4. Complete installation of sealant system in horizontal joints before installing in vertical joints. Lap vertical joints over horizontal joints. At ends of joints, cut silicone extrusion with a razor knife.
  
- G. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping. Do not pull or stretch material. Produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures, apply heat to sealant in compliance with sealant manufacturer's written instructions.



- H. Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations.

#### 3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

#### 3.5 PROTECTION

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

END OF SECTION 07 9200

## SECTION 072726 - FLUID-APPLIED MEMBRANE AIR BARRIERS

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. High-build air barriers, vapor permeable.
2. Medium-build air barriers, vapor permeable.
3. Low-build air barriers, vapor permeable.

#### 1.2 DEFINITIONS

- A. Air-Barrier Accessory: A transitional component of the air barrier that provides continuity.
- B. Air-Barrier Assembly: The collection of air-barrier materials and accessories applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.
- C. Air-Barrier Material: A primary element that provides a continuous barrier to the movement of air.

#### 1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at [Project site] <Insert location>.
1. Review air-barrier requirements and installation, special details, mockups, air-leakage and bond testing, air-barrier protection, and work scheduling that covers air barriers.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: Include manufacturer's written instructions for evaluating, preparing, and treating each substrate; technical data; dry film thickness; and tested physical and performance properties of products.
1. High-build air barriers, vapor permeable.
  2. Medium-build air barriers, vapor permeable.
  3. Low-build air barriers, vapor permeable.
- B. Shop Drawings: For air-barrier assemblies.
1. Show locations and extent of air-barrier materials, accessories, and assemblies specific to Project conditions.

2. Include details for substrate joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
3. Include details of interfaces with other materials that form part of air barrier.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer. Include list of ABAA-certified installers and supervisors employed by Installer, who work on Project.
- B. Product Certificates: From air-barrier manufacturer, certifying compatibility of air barriers and accessory materials with Project materials that connect to or that come in contact with the barrier.
- C. Product Test Reports: For each air-barrier assembly, for tests performed by a qualified testing agency.
- D. Field quality-control reports.

#### 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Remove and replace liquid materials that cannot be applied within their stated shelf life.
- B. Protect stored materials from direct sunlight.

#### 1.8 FIELD CONDITIONS

- A. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended in writing by air-barrier manufacturer.
  1. Protect substrates from environmental conditions that affect air-barrier performance.
  2. Do not apply air barrier to a damp or wet substrate or during snow, rain, fog, or mist.

### PART 2 - PRODUCTS

#### 2.1 SOURCE LIMITATIONS

- A. Obtain primary air-barrier materials and air-barrier accessories from single manufacturer.



## 2.2 PERFORMANCE REQUIREMENTS

- A. Air-Barrier Performance: Air-barrier assembly and seals with adjacent construction to be capable of performing as a continuous air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air-barrier assemblies to be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, tie-ins to installed waterproofing, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.
- B. Air-Barrier Assembly Air Leakage: Maximum 0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft., when tested in accordance with ASTM E2357.
- C. Air Permeance: Maximum 0.004 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft. pressure difference; ASTM E2178.
- D. Ultimate Elongation: Minimum 200 percent; ASTM D412, Die C.
- E. Adhesion to Substrate: Minimum 30 lbf/sq. in. when tested in accordance with ASTM D4541.
- F. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
- G. UV Resistance: Can be exposed to sunlight for 90 days in accordance with manufacturer's written instructions.

## 2.3 HIGH-BUILD AIR BARRIERS, VAPOR PERMEABLE

- A. High-Build, Vapor-Permeable Air Barrier, Modified Bituminous Type: Modified Bituminous membrane with an installed dry film thickness, according to manufacturer's written instructions, of 35 mils or thicker over smooth, void-free substrates.
  - 1. Henry, Air-Bloc All Weather (STPE).
  - 2. GCP, Perm-A-Barrier VPL 5CRS (STPE).
  - 3. Siplast, WALLcontrol Modified Silicone VP Liquid AWP (STPE).
- B. High-Build, Vapor-Permeable Air Barrier, Synthetic Polymer Type: Synthetic polymer membrane with an installed dry film thickness, according to manufacturer's written instructions, of 35 mils or thicker over smooth, void-free substrates.
  - 1. Henry, Air-Bloc All Weather (STPE).
  - 2. GCP, Perm-A-Barrier VPL 5CRS (STPE).
  - 3. Siplast, WALLcontrol Modified Silicone VP Liquid AWP (STPE).
- C. Vapor Permeance: Minimum 5 perms; ASTM E96/E96M, Procedure A, Desiccant Method or Procedure B, Water Method.

## 2.4 MEDIUM-BUILD AIR BARRIERS, VAPOR PERMEABLE

- A. Medium-Build, Vapor-Permeable Air Barrier: Synthetic polymer material with an installed dry film thickness, according to manufacturer's written instructions, of 16 to 34 mils over smooth, void-free substrates.
  - 1. Henry, Air-Bloc All Weather (STPE).
  - 2. GCP, Perm-A-Barrier VPL 5CRS (STPE).
  - 3. Siplast, WALLcontrol Modified Silicone VP Liquid AWP (STPE).
- B. Vapor Permeance: Minimum 5 perms; ASTM E96/E96M, Procedure A, Desiccant Method or Procedure B, Water Method.

## 2.5 LOW-BUILD AIR BARRIERS, VAPOR PERMEABLE

- A. Low-Build, Vapor-Permeable Air Barrier: Synthetic polymer material with an installed dry film thickness, according to manufacturer's written instructions, of 6 to 15 mils over smooth, void-free substrates.
  - 1. Henry, Air-Bloc All Weather (STPE).
  - 2. GCP, Perm-A-Barrier VPL 5CRS (STPE).
  - 3. Siplast, WALLcontrol Modified Silicone VP Liquid AWP (STPE).
- B. Vapor Permeance: Minimum 5 perms; ASTM E96/E96M, Procedure A, Desiccant Method or Procedure B, Water Method.

## 2.6 ACCESSORY MATERIALS

- A. Provide primers, transition strips, termination strips, joint reinforcing fabric and strips, joint sealants, counterflashing strips, flashing sheets and metal termination bars, termination mastic, substrate patching materials, adhesives, tapes, foam sealants, lap sealants, and other accessory materials that are recommended in writing by air-barrier manufacturer to produce a complete air-barrier assembly and that are compatible with primary air-barrier material and adjacent construction to which they may seal.
- B. Primer: Liquid waterborne primer recommended for substrate by air-barrier material manufacturer.
- C. Stainless Steel Sheet: ASTM A240/A240M, Type 304, 0.0187 inch or 0.0250 inch thick, and Series 300 stainless steel fasteners.
- D. Preformed Silicone Extrusion: Manufacturer's standard system consisting of cured low-modulus silicone extrusion, sized to fit opening widths, with a single-component, neutral-curing, Class 100/50 (low-modulus) silicone sealant for bonding extrusions to substrates.
  - 1. Dowsil Silicone Transition Strip and System.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
  - 1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.
  - 2. Verify that substrates have cured and aged for minimum time recommended in writing by air-barrier manufacturer.
  - 3. Verify that substrates are visibly dry and free of moisture. Test concrete substrates for capillary moisture by plastic sheet method in accordance with ASTM D4263.
  - 4. Verify that masonry joints are flush and completely filled with mortar.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 SURFACE PREPARATION

- A. Clean, prepare, treat, fill, and seal substrate and joints and cracks in substrate in accordance with manufacturer's written instructions and details. Provide clean, dust-free, and dry substrate for air-barrier application.
- B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.
- C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate-patching material.
- E. Remove excess mortar from masonry ties, shelf angles, and other obstructions.
- F. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.
- G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.
- H. Bridge isolation joints, expansion joints, and discontinuous wall-to-wall, deck-to-wall, and deck-to-deck joints with air-barrier accessory material that accommodates joint movement in accordance with manufacturer's written instructions and details.



### 3.3 INSTALLATION OF ACCESSORIES

- A. Install accessory materials in accordance with air-barrier manufacturer's written instructions and details to form a seal with adjacent construction and ensure continuity of air and water barrier.
  - 1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
  - 2. Install transition strip on roofing membrane or base flashing so that a minimum of 3 inches of coverage is achieved over each substrate.
  - 3. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
  - 4. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.
- B. Connect and seal exterior wall air-barrier material continuously to roofing-membrane air barrier, concrete below-grade structures, floor-to-floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.
- C. At end of each working day, seal top edge of strips and transition strips to substrate with termination mastic.
- D. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- E. Wall Openings: Prime concealed, perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply transition strip or preformed silicone extrusion so that a minimum of 3 inches of coverage is achieved over each substrate. Maintain 3 inches of full contact over firm bearing to perimeter frames, with not less than 1 inch of full contact.
  - 1. Transition Strip: Roll firmly to enhance adhesion.
  - 2. Preformed Silicone Extrusion: Set in full bed of silicone sealant applied to walls, frame, and air-barrier material.
- F. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air-barrier material with foam sealant.
- G. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic.
- H. Seal top of through-wall flashings to air barrier with an additional 6-inch- wide, transition strip.
- I. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.

- J. Repair punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches beyond repaired areas in strip direction.

### 3.4 INSTALLATION OF PRIMARY AIR-BARRIER MATERIAL

- A. Apply air-barrier material to form a seal with strips and transition strips and to achieve a continuous air barrier in accordance with air-barrier manufacturer's written instructions and details. Apply air-barrier material within manufacturer's recommended application temperature ranges.
1. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
  2. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.
  3. Where multiple prime coats are needed to achieve required bond, allow adequate drying time between coats.
- B. High-Build Air Barriers: Apply continuous unbroken air-barrier material to substrates according to the following thickness. Apply air-barrier material in full contact around protrusions such as masonry ties.
1. Vapor-Permeable, High-Build Air Barrier: Total dry film thickness as recommended in writing by manufacturer to comply with performance requirements, but not less than 35 mils, applied in one or more equal coats.
- C. Medium-Build Air Barriers: Apply continuous unbroken air-barrier material to substrates according to the following thickness. Apply an increased thickness of air-barrier material in full contact around protrusions such as masonry ties.
1. Vapor-Permeable, Medium-Build Air Barrier: Total dry film thickness as recommended in writing by manufacturer to comply with performance requirements, applied in one or more equal coats. Apply additional material as needed to achieve void- and pinhole-free surface, but do not exceed thickness on which required vapor permeability is based.
- D. Low-Build Air Barriers: Apply continuous unbroken air-barrier material to substrates according to the following thickness. Apply an increased thickness of air-barrier material in full contact around protrusions such as masonry ties.
1. Vapor-Permeable, Low-Build Air Barrier: Total dry film thickness as recommended in writing by manufacturer to comply with performance requirements applied in one or more equal coats. Apply additional material as needed to achieve void- and pinhole-free surface, but do not exceed thickness on which required vapor permeability is based.
- E. Do not cover air barrier until it has been tested and inspected by testing agency.
- F. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air-barrier components.

### 3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Inspections: Air-barrier materials, accessories, and installation are subject to inspection for compliance with requirements. Inspections may include the following:
1. Continuity of air-barrier system has been achieved throughout the building envelope with no gaps or holes.
  2. Air-barrier dry film thickness.
  3. Continuous structural support of air-barrier system has been provided.
  4. Site conditions for application temperature and dryness of substrates have been maintained.
  5. Maximum exposure time of materials to UV deterioration has not been exceeded.
  6. Surfaces have been primed, if applicable.
  7. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.
  8. Termination mastic has been applied on cut edges.
  9. Strips and transition strips have been firmly adhered to substrate.
  10. Compatible materials have been used.
  11. Transitions at changes in direction and structural support at gaps have been provided.
  12. Connections between assemblies (air-barrier and sealants) have complied with requirements for cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
  13. All penetrations have been sealed.
- C. Tests: As determined by testing agency from among the following tests:
1. Air-Leakage-Location Testing: Air-barrier assemblies will be tested for evidence of air leakage in accordance with ASTM E1186, chamber pressurization or depressurization with smoke tracers or ASTM E1186, chamber depressurization using detection liquids.
  2. Air-Leakage-Volume Testing: Air-barrier assemblies will be tested for air-leakage rate in accordance with ASTM E783 or ASTM E2357.
  3. Adhesion Testing: Air-barrier assemblies will be tested for required adhesion to substrate in accordance with ASTM D4541 for each 600 sq. ft. of installed air barrier or part thereof.
- D. Air barriers will be considered defective if they do not pass tests and inspections.
1. Apply additional air-barrier material, in accordance with manufacturer's written instructions, where inspection results indicate insufficient thickness.
  2. Remove and replace deficient air-barrier components for retesting as specified above.
- E. Repair damage to air barriers caused by testing; follow manufacturer's written instructions.
- F. Prepare test and inspection reports.



### 3.6 CLEANING AND PROTECTION

- A. Protect air-barrier system from damage during application and remainder of construction period, in accordance with manufacturer's written instructions.
  - 1. Protect air barrier from exposure to UV light and harmful weather exposure as recommended in writing by manufacturer. If exposed to these conditions for longer than recommended, remove and replace air barrier or install additional, full-thickness, air-barrier application after repairing and preparing the overexposed materials in accordance with air-barrier manufacturer's written instructions.
  - 2. Protect air barrier from contact with incompatible materials and sealants not approved by air-barrier manufacturer.
- B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended in writing by manufacturer of affected construction.
- C. Remove masking materials after installation.

END OF SECTION 072726

## SECTION 085113 - ALUMINUM WINDOWS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes aluminum windows for exterior locations and sill flashing.
- B. Related Sections:
  - 1. 08 8000 "Glazing" for Insulated Glazing Unit.

#### 1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 2. Review and discuss the finishing of aluminum windows that is required to be coordinated with the finishing of other aluminum work for color and finish matching.
  - 3. Review, discuss, and coordinate the interrelationship of aluminum windows with other exterior wall components. Include provisions for anchoring, flashing, weeping, sealing perimeters, and protecting finishes.
  - 4. Review and discuss the sequence of work required to construct a watertight and weathertight exterior building envelope.
  - 5. Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes for aluminum windows.
- B. Shop Drawings: For aluminum windows.

1. Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.
- C. Samples: For each exposed product and for each color specified, 2 by 4 inches in size.
- D. Samples for Initial Selection: For units with factory-applied finishes.
  1. Include Samples of hardware and accessories involving color selection.
- E. Product Schedule: For aluminum windows. Use same designations indicated on Drawings.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer and Installer.
- B. Product Test Reports: For each type of aluminum window, for tests performed by a qualified testing agency.
- C. Sample Warranties: For manufacturer's warranties.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A manufacturer capable of fabricating aluminum windows that meet or exceed performance requirements indicated and of documenting this performance by test reports and calculations.
- B. Installer Qualifications: An installer acceptable to aluminum window manufacturer for installation of units required for this Project.
- C. 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 in one location as selected by Owner and Architect.
  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 Final Acceptance.

#### 1.7 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period.
  1. Failures include, but are not limited to, the following:
    - a. Failure to meet performance requirements.



- b. Structural failures including excessive deflection, water leakage, condensation, and air infiltration.
    - c. Faulty operation of movable sash and hardware.
    - d. Deterioration of materials and finishes beyond normal weathering.
    - e. Failure of insulating glass.
  - 2. Warranty Period:
    - a. Window: 20 years from date of Final Acceptance.
    - b. Glazing Units: 20 years from date of Final Acceptance.
    - c. Aluminum Finish: 20 years from date of Final Acceptance.
- B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
- 1. Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Warranty Period: 20 years from date of Final Acceptance.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Source Limitations: Obtain aluminum windows from single source from single manufacturer.

### 2.2 WINDOW PERFORMANCE REQUIREMENTS

- A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.
  - 1. Window Certification: AAMA certified with label attached to each window.
- B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 and to meet wind loads, including corner zones, as defined in drawings Appendix B as follows:
  - 1. Minimum Performance Class: AW.
  - 2. Minimum Performance Grade: 100.
- C. Thermal Transmittance: NFRC 100 maximum whole-window U-factor of 0.35 Btu/sq. ft. x h x deg F.
- D. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC of 0.25.
- E. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 45.

- F. Thermal Movements: Provide aluminum windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change: 120 deg F ambient; 180 deg F material surfaces.
- G. Air-Leakage Rate: as defined in 3.3 Field Quality Control.
- H. Water Infiltration: as defined in 3.3 Field Quality Control.

## 2.3 ALUMINUM WINDOWS

- A. Basis of Design: Subject to compliance with requirements, provide Traco TR7100 with H374 muntin grid or equal by one of the following:
  - 1. EFCO Corporation.
  - 2. Graham Architectural Products Corporation.
  - 3. Kawneer Company, Inc.; Arconic Corporation.
  - 4. TRACO.
  - 5. Wausau Window and Wall Systems; Apogee Wausau Group, Inc.
  - 6. Wojan M950
- B. Operating Types: Provide the following operating types in locations indicated on Drawings:
  - 1. Fixed.
- C. Frames and Sashes: Aluminum extrusions complying with AAMA/WDMA/CSA 101/I.S.2/A440.
  - 1. Thermally Improved Construction: Fabricate frames, sashes, and muntins with an integral, concealed, low-conductance thermal barrier located between exterior materials and window members exposed on interior side in a manner that eliminates direct metal-to-metal contact.
- D. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.
- E. Hardware, General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely lock windows, and sized to accommodate sash weight and dimensions.
  - 1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range.
- F. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.

- G. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.

- 1. Exposed Fasteners: Do not use exposed fasteners to greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

## 2.4 ACCESSORIES

- A. Subsills: Thermally broken, extruded-aluminum subsills in configurations indicated on Drawings and finished to match window.
- B. Interior Trim: Extruded-aluminum profiles in sizes and configurations as indicated on Drawings.
- C. Panning Trim: Extruded-aluminum profiles in sizes and configurations as indicated on Drawings.
- D. Receptor System: Two-piece, snap-together, thermally broken, extruded-aluminum receptor system that anchors windows in place.
- E. Muntin: As indicated by Manufacturer Basis of Design in section 2.3.A, 1 in. x 5/16 in.

## 2.5 FABRICATION

- A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.
- B. Glaze aluminum windows in the factory.
- C. Weather strip each operable sash to provide weathertight installation.
- D. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.
- E. Provide water-shed members above side-hinged sashes and similar lines of natural water penetration.
- F. Mullions: Provide mullions and cover plates, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections. Provide mullions and cover plates capable of withstanding design wind loads of window units.
- G. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.

## 2.6 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.7 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.
- C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure weathertight window installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 INSTALLATION

- A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E 2112.
- B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.



- C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.
- D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

### 3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
  - 1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.
- B. Testing Services: Testing and inspecting of installed windows shall take place as follows:
  - 1. Testing Methodology: Testing of windows for air infiltration and water resistance shall be performed according to AAMA 502.
  - 2. Air-Infiltration Testing:
    - a. Test Pressure: That required to determine compliance with AAMA/WDMA/CSA 101/I.S.2/A440 performance class indicated.
    - b. Allowable Air-Leakage Rate: 1.5 times the applicable AAMA/WDMA/CSA 101/I.S.2/A440 rate for product type and performance class rounded down to one decimal place.
  - 3. Water-Resistance Testing:
    - a. Test Pressure: Two-thirds times test pressure required to determine compliance with AAMA/WDMA/CSA 101/I.S.2/A440 performance grade indicated.
    - b. Allowable Water Infiltration: No water penetration.
  - 4. Testing Extent: 10 percent of installed windows, spread out over the four elevations of the building as selected by Architect and a qualified independent testing and inspecting agency. Windows shall be tested after perimeter sealants have cured. Contractor is responsible for repairing or replacing fenestration components that have failed designated field testing, and to retest to verify performance complies with specified requirements.
  - 5. Test Reports: Prepared according to AAMA 502.
- C. Windows will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports.

### 3.4 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.
- B. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
  - 1. Keep protective films and coverings in place until final cleaning.

- C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.

END OF SECTION 085113

## **SECTION 08 71 00**

## **DOOR HARDWARE**

### **PART 1 : GENERAL**

#### **1.01 SECTION INCLUDES**

- A. Finish hardware for doors as specified and as listed in "Hardware Groups" and required by actual conditions.
  - 1. Include screws, special screws, bolts, special bolts, expansion shields, and other devices for proper application of hardware.

#### **1.02 GENERAL REQUIREMENTS**

- A. Provide items, articles, materials, operations and methods listed, mentioned or scheduled herein or on drawings, in quantities as required to complete project. Provide hardware that functions properly. Prior to furnishing hardware, advise Architect of items that will not operate properly, are improper for conditions, or will not remain permanently anchored.

#### **1.03 SUBMITTALS**

- A. Product Data: Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
- B. Door Hardware Schedule: Submit 5 copies of hardware schedule in vertical format as illustrated by the Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Schedules which do not comply will be returned for correction before checking. Indicate complete designations of each item required for each door or opening, include:
  - 1) Door Index; include door number, heading number, and Architects hardware set number.
  - 2) Opening Lock Function Spreadsheet: List locking device and function for each opening.
  - 3) Type, style, function, size, and finish of each hardware item.
  - 4) Name and manufacturer of each item.
  - 5) Fastenings and other pertinent information.
  - 6) Location of each hardware set cross-referenced to indications on Drawings.
  - 7) Explanation of all abbreviations, symbols, and codes contained in

schedule.

- 8) Mounting locations for hardware.
- 9) Door and frame sizes and materials

- C. The schedule shall be reviewed prior to submission by a certified Architectural Hardware Consultant (AHC), who shall affix his or her seal attesting to the completeness and correctness of the schedule.
  - 1. Provide 2 copies of illustrations from manufacturer's catalogs and data in brochure form.
  - 2. Check specified hardware for suitability and adaptability to details and surrounding conditions. Indicate unsuitable or incompatible items and proposed substitutions in hardware schedule.
  - 3. Provide listing of manufacturer's template numbers for each item of hardware in hardware schedule.
  - 4. Furnish other Contractors and Subcontractors concerned with copies of final approved hardware schedule. Submit necessary templates and schedules as soon as possible to hollow metal, wood door, and aluminum door fabricators in accordance with schedule they require for fabrication.
  - 5. Samples: Lever design or finish sample: Provide 3 samples if requested by architect.
- D. Installation Instructions: Provide manufacturer's written installation and adjustment instructions for finish hardware. Send installation instructions to site with hardware.
- E. Templates: Submit templates and "reviewed Hardware Schedule" to door and frame supplier and others as applicable to enable proper and accurate sizing and locations of cutouts and reinforcing.
- F. Contract Closeout Submittals: Comply with specific requirements indicated below.
  - 1. Operating and maintenance manuals: Submit 3 sets containing the following:
  - 2. Complete information in care, maintenance, and adjustment, and data on repair and replacement parts, and information on preservation of finishes.
  - 3. Catalog pages for each product.
  - 4. Name, address, and phone number of local representative for each manufacturer.
  - 5. Parts list for each product.
  - 6. Copy of final approved hardware schedule, edited to reflect "As installed".
  - 7. Copy of final keying schedule.

8. One complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- G. Warranty (Date set from Final Acceptance)
  1. Exit Devices
    - a. Mechanical: 3 years.
  2. Key Blanks: Lifetime

#### **1.04 QUALITY ASSURANCE**

- A. Manufacturer: Obtain each type of hardware (ie. latch and locksets, hinges, closers) from single manufacturer, although several may be indicated as offering products complying with requirements.
- B. Supplier: Recognized architectural finish hardware supplier, with warehousing facilities, who has been providing hardware for period of not less than 3 years. The supplier shall be, or employ, a certified Architectural Hardware Consultant (AHC), who is registered in the continuing education program as administered by the Door and Hardware Institute. The hardware schedule shall be prepared and signed by a certified AHC.
- C. Installer: Firm with 3 years' experience in installation of similar hardware to that required for this project, including specific requirements indicated.
- D. Regulatory Label Requirements: Provide nationally recognized testing agency label or stamp on hardware for labeled openings. Where UL requirements conflict with drawings or specifications, hardware conforming to UL requirements shall be provided. Conflicts and proposed substitutions shall be clearly indicated in hardware schedule.
- E. Pre-Installation Conference: Prior to the installation of hardware, manufacturer's representatives for locksets, closers, and exit devices shall arrange and hold a jobsite meeting to instruct the installing contractor's personnel on the proper installation of their respective products. A letter of compliance, indicating when this meeting is held and who is in attendance, shall be sent to the Architect and Owner.

#### **1.05 DELIVERY, STORAGE AND HANDLING**

- A. Deliver hardware to jobsite in manufacturer's original packaging, marked to correspond with approved hardware schedule. Do not deliver hardware until suitable locked storage space is available. Check hardware against reviewed hardware schedule. Store hardware to protect against loss, theft or damage.



- B. Deliver hardware required to be installed during fabrication of hollow metal, aluminum, wood, or stainless steel doors prepaid to manufacturer.
- C. Provide ten year factory warranty on door closer body against defects in material and workmanship from date of occupancy of Project.
- D. Replace shortages and incorrect items with correct material at no additional cost to Owner.
- E. At completion of project, qualified factory representative shall inspect closer installations. After this inspection, letter shall be sent to Architect reporting on conditions, verifying that closers have been properly installed and adjusted.

#### **1.06 COORDINATION**

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete. Concrete, reinforcement, and formwork requirements are specified in Division 03.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

#### **1.07 WARRANTY**

- A. Guarantee workmanship and material provided against defective manufacture. Repair or replace defective workmanship and material appearing within period of one year after Final Acceptance.

### **PART 2 : PRODUCTS**

#### **2.01 LOCKSETS – Mortise**

- A. Acceptable Manufacturer and Series:

Manufacturer	Series
Schlage	L9000 x 17A
Corbin Russwin(Owner Preferred)	Lockset with Lustra, LWM Trim

Best	Coremax Cylinders
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- B. Provide lock functions specified in Hardware Groups, with following provisions:
1. Cylinders: Manufacturer's standard 6-pin cylinder.
  2. Locksets shall meet the requirements of ANSI/BHMA A156.13-1994, Operational Grade 1, and Security Grade 1.
  3. Corbin Russwin locksets with 6-pin Corbin Pyramid cores.
  4. Plastic parts in locksets are not acceptable.
  5. Mortise-type locksets shall comply with ANSI A156, Grade 1, with 3/4 inch throw latch bolt. Inside trim shall include a turn lever to permit egress when door is locked.
  6. Locksets shall have a concealed internal set screw for securing the cylinder to the body. Corbin Russwin ML2000 series shall be provided.
  7. Deadbolts shall be constructed of hardened stainless steel and shall extend a minimum of 1" into the door casing, beyond the door strike. Levers shall be operated with a roller bearing spindle hub mechanism. The use of dead bolts shall be approved by UPL.
  8. Latch bolts shall extend a minimum of 3/8" into the door casing, beyond the door strike.
  9. Furnish locksets with sufficient curved strike lip to protect door trim.
  10. Locksets to have self-aligning, thru-bolted trim.
  11. Auxiliary dead latches shall be constructed of one piece hardened stainless steel, permanently lubricated.
  12. Lever handles shall be forged of cast brass, bronze, or stainless steel and shall conform to ANSI A117.1. Hollow cavity levers are not acceptable.

## 2.02 **KEYING**

- A. Master key or Grand master key cylinders and key in groups, unless otherwise specified. Factory masterkey with manufacturer retaining permanent keying records.
- B. Provide 6 masterkeys for each masterkey set. Provide 3 change keys for each lock. Stamp keys "DO NOT DUPLICATE."
- C. Submit proposed keying schedule to Architect. Meet with Owner and Architect to review schedule.
- D. Provide cylinders, keyed to WCU existing key system, for each lock.
- E. Provide construction keying for all locks or as directed by Owner.

## 2.03 **CORES**

- A. Permanent cores shall be Corbin Russwin provided by the Contractor. Contractor to provide construction cores during the construction phase. Near the end of the project, WCU FM will remove the construction cores, install the permanent cores, and return the construction cores to the Contractor. WCU FM shall develop the final keying schedule prior to purchasing and delivery of the permanent cores to WCU.

## 2.04 **EXIT DEVICES**

### A. Acceptable Manufacturers and Types:

Von Duprin 99 Series (Owner Preferred)	Sargent	Precision
99 Series Rim Device	19-43-GL-90	Apex Series

- B. Provide exit device series and functions as specified in Hardware Groups. Von Duprin product numbers are referenced in the Hardware Groups.
- C. All exit devices shall be UL listed for panic/Accident Hazard. Exit devices for labeled doors shall be UL listed as “Fire Exit Hardware”.
- D. Where lever trim is specified, provide lever design to match lockset levers.
- E. Provide cylinders for exit devices with locking trim.
- F. Provide flush end caps for exit devices.
- G. Provide exit devices with manufacturer’s approved strikes.
- H. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
- I. Mount mechanism case flush on face of doors, or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
- J. Manual/key latching or cylinder dogging is not acceptable.
- K. Where lever handles are specified as outside trim for exit devices, provide heavy-duty lever trims with forged or cast escutcheon plates. Provide vandal-resistant levers that will travel to 90-degree down position when more than 35 pounds of torque are applied, and which can easily be re-set.
  - 1. Lever Style: Match lever style of locksets (17).
- L. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
- M. Outside trim shall be pull without a movable handle. Vertical rod devices are not acceptable.

## 2.05 **WEATHERSTRIPPING**

### A. Acceptable Manufacturers and Product:

Zero	National Guard	Pemko
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- B. Where weatherstripping is specified in hardware groups, provide 700SA unless detailed otherwise.

- C. Provide self-tapping fasteners for weatherstripping being applied to hollow metal frames.
- D. Where sweeps are specified in hardware groups, provide 201NA unless detailed otherwise.
- E. Where rain drips are specified in hardware groups, provide 16A x full frame width, unless detailed otherwise.

## **2.06 GASKETING**

- A. Acceptable Manufacturers: Zero, National Guard, and Reese Enterprises. Refer to drawings for special details. Provide accessories, shims and fasteners.

Zero	National Guard	Pemko
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- B. Where smoke gasket is specified in hardware groups, provide 5050, unless detailed otherwise.
- C. Provide gaskets for 20-minute doors and doors designated for smoke and draft control.
- D. Where frame applied intumescent seals are required by the manufacturer, provide gaskets that comply with UBC 7-2, 1997 and UL 10C positive pressure tests.

## **2.07 FASTENERS**

- A. Including, but not limited to, wood or machine screws, bolts, nuts, anchors, etc. of proper type, material, and finish required for installation of hardware.
- B. Use Phillips head for exposed screws. Do not use aluminum screws to attach hardware.
- C. Provide self-tapping (TEC) screws for attachment of sweeps and stop-applied weatherstripping only.

## **2.08 TYPICAL FINISHES AND MATERIALS**

- A. Finishes, unless otherwise specified:
  - 1. Exit Devices:
    - a. US26D (BHMA 626) on Brass or Bronze
  - 2. Locks and Latches:
    - a. US26D (BHMA 626) on Brass or Bronze
  - 3. Push Plates, Pulls and Push Bars:
    - a. US32D (BHMA 630) on Stainless Steel
  - 4. Overhead Stops and Holders:
    - a. US26D (BHMA 626) on Brass or Bronze
  - 5. Closers: Surface mounted.
    - a. Sprayed Aluminum Lacquer.
  - 6. Miscellaneous Hardware:

- a. US26D (BHMA 626) on Brass or Bronze
- 7. Thresholds:
  - a. US28 (BHMA 628) on Aluminum (AL).
- B. On renovation projects, other finishes may be submitted to the UPL for review, if matching the existing finishes is desired.

## **PART 3 : EXECUTION**

### **3.01 EXAMINATION**

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Existing Door and Frame Compatibility: Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with the existing door and frame preparation and existing conditions.
- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.02 INSTALLATION**

- A. Install finish hardware in accordance with reviewed hardware schedule and manufacturer's printed instructions, using only fasteners provided by manufacturer. Pre-fit hardware before finish is applied, remove and reinstall after finish is completed. Install hardware so that parts operate smoothly, close tightly and do not rattle.
- B. Do not install surface mounted items until finishes have been completed on substrate.
- C. Installation of hardware shall comply with NFPA 80 and NFPA 101 requirements.
- D. Set units level, plumb and true to line and location. Adjust and reinforce attachment to substrate as necessary for proper installation and operation.
- E. The Contract Hardware Distributor (CHD) shall install all Hardware using Factory Trained / Approved Installers. At Project Completion, prior to turn over, the CHD and Security Integrator will jointly inspect each opening, make final adjustments to insure a complete functional installation and turn over to Owner.
- F. Mounting Heights: Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
  - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8
- G. Lock Cylinders: Install construction cores to secure building and areas during construction period.
  - 1. Replace construction cores with permanent cores as indicated in keying section.



2. Furnish permanent cores to Owner for installation.

### **3.03 FIELD QUALITY CONTROL**

- A. After installation has been completed, provide services of qualified hardware consultant to check Project to determine proper application of finish hardware according to schedule. Also check operation and adjustment of hardware items.
- B. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

### **3.04 ADJUSTING AND CLEANING**

- A. At final completion, hardware shall be left clean and free from disfigurement. Make final adjustment to door closers and other items of hardware. Where hardware is found defective repair or replace or otherwise correct as directed.
- B. Adjust door closers to meet opening force requirements of Uniform Federal Accessibility Standards.
- C. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of space or area, return to work during week prior to acceptance or occupancy, and make final check and adjustment of hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors.
- D. Instruct Owner's personnel in proper adjustment and maintenance of door hardware and hardware finishes.
- E. Clean adjacent surfaces soiled by hardware installation.

### **3.05 PROTECTION**

- A. Provide for proper protection of items of hardware until Owner accepts Project as complete.
- B. Protect all installed hardware during painting

### **3.06 HARDWARE GROUPS**

HARDWARE GROUP H1

TO BE USED ON DOOR (#)S: 109A

QTY	CATALOG NUMBER	DESCRIPTION	FINISH	MFR
1 EA	9827-EO-LBR-626	PANIC, EXIT ONLY		VON
1 EA	9827-NL-LBR-626	PANIC, NIGHT LATCH		VON
1 EA	30-3-7-200-6 CT6	RIM CYLINDER	626	C-R
1 EA	8020	PERMANENT CORE	626	C-R
1 EA	44STST	ASTRAGAL		ZER
1 EA	CB1-652	CARRY BAR		IVE
1 EA	COR60-628	CORDINATOR		IVE
2 EA	MB1/MB2	MOUNTING BRACKETS AS REQ		IVE
1 EA	39A, 429A, 142A	WEATHERSTRIPPING		ZER

HARDWARE GROUP H2

TO BE USED ON DOOR (#)S: 111A

QTY	CATALOG NUMBER	DESCRIPTION	FINISH	MFR
1 EA	9827-EO-LBR-626	PANIC, EXIT ONLY		VON
1 EA	9827-NL-LBR-626	PANIC, NIGHT LATCH		VON
1 EA	30-3-7-200-6 CT6	RIM CYLINDER	626	C-R
1 EA	8020	PERMANENT CORE	626	C-R
1 EA	44STST	ASTRAGAL		ZER
1 EA	CB1-652	CARRY BAR		IVE
1 EA	COR42-628	CORDINATOR		IVE
2 EA	MB1/MB2	MOUNTING BRACKETS AS REQ		IVE
1 EA	39A, 429A, 142A	WEATHERSTRIPPING		ZER

## SECTION 099600 - HIGH-PERFORMANCE COATINGS

### 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.

### PART 1 - GENERAL

#### 1.01 SCOPE

- A. The work of this section includes the surface preparation and painting of all surfaces related to the painting and high performance coating on exposed existing steel headers and supports.

#### 1.02 RELATED WORK SPECIFIED ELSEWHERE (if applicable)

- A. Coating and painting of all other surfaces is specified in Section 9.

#### 1.03 REFERENCE SPECIFICATIONS AND STANDARDS

- A. Without limiting the general aspects of other requirements of these specifications, all surface preparation, coating and painting of surfaces shall conform to the applicable requirements of the Steel Structures Painting Council, NACE, ICRI and the manufacturer's printed instructions.
- B. The Architect's decision shall be final as the interpretation and/or conflict between any of the referenced specifications and standards contained herein.

#### 1.04 CONTRACTOR

- A. The Contractor shall have five years practical experience and successful history in the application of specified products in similar projects. He shall substantiate this requirement by furnishing a list of references and job completions.
- B. Applicator must successfully demonstrate to the product manufacturer the ability to apply the material correctly and within the confines of the specifications. The Contractor must provide a letter from the manufacture stating their acceptance of the Contactor for this project to apply these products.

- C. The Contractor shall possess the applicable license to perform the work as herein described and as specified by local, state and federal laws. The Contractor's licenses shall appear in the lower left-hand corner of the envelope containing the bids.

#### 1.05 QUALITY ASSURANCE

- A. General: Quality assurance procedures and practices shall be utilized to monitor all phases of surface preparation, application, and inspection throughout the duration of the project. Procedures or practices not specifically defined herein may be utilized provided they meet recognized and accepted professional standards and are approved by the Architect.
- B. Surface Preparation: Surface preparation will be based upon comparison with: "Pictorial Surface Preparation Standards for Painting Steel Surfaces", SSPC-Vis-1 and ASTM Designation D2200; "Standard Methods of Evaluating Degree of Rusting on Painted Steel Surfaces" SSPC-Vis-2 and ASTM Designation D610; "Visual Standard for Surfaces of New Steel Airblast Cleaned with Sand Abrasive" or "Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays" and ICRI CSP Surface Profile Chips.
- C. Application: No coating or paint shall be applied: When the surrounding air temperature or the temperature of the surface to be coated is below the minimum required temperature for the specified product; to wet or damp surfaces or in fog or mist; when the temperature is less than 5 degrees F. above the dewpoint; when the air temperature is expected to drop below 40 degrees F. within six hours after application of coating. Dewpoint shall be measured by use of an instrument such as a Sling Psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychrometric Tables. If above conditions are prevalent, coating or painting shall be delayed or postponed until conditions are favorable. The day's coating or painting shall be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions.
- D. Thickness and Holiday Checking: Thickness of coatings and paint shall be checked with a non-destructive, magnetic type thickness gauge. The integrity of coated interior surfaces shall be tested with an approved inspection device. Non-destructive holiday detectors shall not exceed the voltage recommended by the manufacturer of the coating system. For thicknesses between 10 and 20 mils (250 microns and 500 microns), a non-sudsing type wetting agent, such as Kodak Photo-Flo, may be added to the water prior to wetting the detector sponge. All pinholes shall be marked, repaired in accordance with the manufacturer's printed recommendations, and retested. No pinholes or other irregularities will be permitted in the final coating.
- E. Inspection Devices: The Contractor shall furnish, until final acceptance of coating and painting, inspection devices in good working condition for detection of holidays and measurement of dry-film thickness of coating and paint. The Contractor shall also furnish U.S. Department of Commerce; National Bureau of Standard certified thickness

calibration plates to test accuracy of dry film thickness gauges and certified instrumentation to test accuracy of holiday detectors.

- F. All necessary testing equipment shall be made available for the Architect's use at all times until final acceptance of application. Holiday detection devices shall be operated in the presence of the Architect.

#### 1. 06 SAFETY AND HEALTH REQUIREMENTS

- A. General: In accordance with requirements set forth by regulatory agencies applicable to the construction industry and manufacturer's printed instructions and appropriate technical bulletins and manuals, the Contractor shall provide and require use of personnel protective lifesaving equipment for persons working on or about the project site.
- B. Head and Face Protection and Respiratory Devices: Equipment shall include protective helmets, which shall be worn by all persons while in the vicinity of the work. In addition, workers engaged in or near the work during sandblasting shall wear eye and face protection devices and air purifying halfmask or mouthpiece respirators with appropriate filters. Barrier creams shall be used on any exposed areas of skin.
- C. Ventilation: Where ventilation is used to control hazardous exposure, all equipment shall be explosion-proof. Ventilation shall reduce the concentration of air contaminant to the degree a hazard does not exist. Air circulation and exhausting of solvent vapors shall be continued until coatings have fully cured.
- D. Sound Levels: Whenever the occupational noise exposure exceeds maximum allowable sound levels, the Contractor shall provide and require the use of approved ear protective devices.
- E. Illumination: Adequate illumination shall be provided while work is in progress, including explosion-proof lights and electrical equipment. Whenever required by the Architect, the Contractor shall provide additional illumination and necessary supports to cover all areas to be inspected. The Architect shall determine the level of illumination for inspection purposes.
- F. Confined Space: When applicable it is mandatory that all work be performed in compliance with OSHA'S rules and regulations for working in confined space. Atmospheres within confined spaces as defined by the Occupational Safety and Health Administration are classified as being either a Class A, Class B or Class C environment.

#### 1. 07 WARRANTY

- A. Correct defective Work within a five year period after Date of Substantial Completion.
- B. Warranty: Include coverage for bond to substrate.



## PART 2 - PRODUCTS

### 2.01 GENERAL

- A. Materials specified are those that have been evaluated for the specific service. Products of the Tnemec Co. are listed to establish a standard of quality. Equivalent materials of other manufacturers may be substituted on written approval of the Architect.

Basis of Design: Tnemec Company, Incorporated 101 Rice Bent Way Unit #5 Columbia, SC 29229 (803) 736-1553. Contact is Mr. Nick Vause (803) 422-3650 or Or equal by

1. PPG
2. Valspar

Requests for substitution shall include manufacturer's literature for each product giving the name' product number, generic type, descriptive information, solids by volume, recommended dry film thickness, cost savings and certified test reports showing results to equal the performance criteria of the products specified herein. No request for substitution shall be considered that will decrease film thickness, the number of coats or offer a change in the generic type of coatings specified. In addition, a list of five similar projects shall be submitted in which each product has been used and rendered satisfactory service.

Requests for product substitution shall be made at least thirty (30) days prior to bid date.

Any material savings shall be passed to the owner in the form of a contract dollar reduction.

Manufacturer's color charts shall be submitted to the Architect at least 30 days prior to paint application. General contractor and painting contractor shall coordinate work so as to allow sufficient time (five to ten days) for paint to be delivered to the jobsite.

- B. All materials shall be brought to the jobsite in original, sealed containers. They shall not be used until the Architect has inspected contents and obtained data from information on containers or labels. Materials exceeding storage life recommended by the manufacturer shall be rejected.
- C. All coatings and paints shall be stored in enclosed structures to protect them from weather and excessive heat or cold. Flammable coatings or paint must be stored to conform to City, County, State and Federal safety codes for flammable coating or paint materials. At all times, coating and paints shall be protected from freezing.
- D. A NACE certified technical representative from the paint manufacturer shall visit the job site to support the Contractor's personnel, the Owner and/or the Architect as needed and/or requested. Visits shall be made as needed to help with hold point inspections for the Owner or Architect. Additional visit shall be made as needed and/or

requested by Owner, Architect or Contractor. 48 hours' notice is required by the Contractor for each hold point inspection.

- E. All parties, to include the owner or owners representative, architect, general contractor, installer, any subs and the product manufacture, shall meet prior to any work is started to review the spec and discuss job specific expectations, need and requirements

F. Coating Systems

Exterior Exposed Galvanized

Surface Preparation: Remove any storage stains per Section 6.2 of ASTM D6386. Sweep (Abrasive) Blasting per ASTM D 6386 to achieve a uniform anchor profile (1.0 - 2.0 mils). The surface must be clean and dry before painting.

1<sup>st</sup> Coat: 100% Solid Inorganic Hybrid Water-Based Epoxy applied at 2.0 – 8.0 dry mils.  
(performance equal to Tnemec Series 27WB-15BL Typoxy)

2<sup>nd</sup> Coat: Aliphatic Acrylic Polyurethane applied at 2.0 – 3.0 dry mils.  
(performance equal to Tnemec Series 73 Endura Shield)

3<sup>rd</sup> Coat: Advanced Thermoset Solution Fluoropolymer applied at 2.0 – 3.0 dry mils.  
(performance equal to Tnemec Series 1070 Fluoronar)

PART 3 – EXECUTION

3.01 GENERAL

- A. All surface preparation, coating and painting shall conform to applicable standards of the Steel Structures Painting Council, NACE, ICRI and the manufacturer's printed instructions. Material applied prior to approval of the surface by the Architect shall be removed and reapplied to the satisfaction of the Architect at the expense of the Contractor.
- B. All work shall be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards of practice. Continuity of personnel shall be maintained and transfers of key personnel shall be coordinated with the Architect.
- C. The Contractor shall provide an English speaking supervisor at the work site during cleaning and application operations. The supervisor shall have the authority of sign

change orders, coordinate work, and make decisions pertaining to the fulfillment of the contract.

- D. Dust, dirt, oil, grease or any foreign matter that will affect the adhesion or durability of the finish must be removed by washing with clean rags dipped in an approved cleaning solvent and wiped dry with clean rags.
- E. The Contractor's coating and painting equipment shall be designed for application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. Contractor's equipment shall be subject to approval of the Architect.
- F. Application of the first coat shall follow immediately after surface preparation and cleaning and before rust bloom or flash rusting occurs. Any cleaned areas not receiving first coat within this period shall be recleaned prior to application of first coat.

### 3.02 SURFACE PREPARATION

- A. The latest revision of the following surface preparation specifications of the Steel Structures Painting Council and NACE shall form a part of this specification:
  - 1. Solvent Cleaning (SSPC-SP1): Removal of oil, grease, soil and other contaminants by use of solvents, emulsions, cleaning compounds, steam cleaning or similar materials and methods which involve a solvent or cleaning action.
  - 2. Hand Tool Cleaning (SSPC-SP2): Removal of loose rust, loose mill scale and other detrimental foreign matter to degree specified by hand chipping, scraping, sanding and wire brushing.
  - 3. Power Tool Cleaning (SSPC-SP3): Removal of loose rust' loose mill scale and other detrimental foreign matter to degree specified by power wire brushing, power impact tools or power sanders.
  - 4. Brush-Off Blast Cleaning (SSPC-SP7/NACE 4): Brush-off blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust, and loose coating. Tightly adherent mill scale, rust, and coating may remain on the surface. Mill scale, rust, and coating are considered tightly adherent if they cannot be removed by lifting with a dull putty knife after abrasive blast cleaning has been performed.
  - 5. Commercial Blast Cleaning (SSPC-SP6/NACE 3): Blast cleaning until at least 66 percent of each element of surface area is free of all visible residues.
  - 6. Near White Blast Cleaning (SSPC-SP10/NACE 2): Blast cleaning to nearly white metal cleanliness, until at least 95 percent of each element of surface area is free of all visible residues.

7. Surface Preparation of Concrete (SSPC-SP13/NACE 6): This standard gives requirements for surface preparation of concrete by mechanical, chemical, or thermal methods prior to the application of bonded protective coating or lining systems.
  8. Power Tool Cleaning to Bare Metal (SSPC-SP11): This standard covers the requirements for power tool cleaning to produce a bare metal surface and to retain or produce a minimum 25 micrometer (1.0 mil) surface profile. This standard is suitable where a roughened, clean, bare metal surface is required, but where abrasive blasting is not feasible or permissible.
- B. Blast cleaning for all surfaces shall be by dry method unless otherwise directed.
- C. Particle size of abrasives used in blast cleaning shall be that which will produce a 1.5 – 2.0 mil (37.5 microns - 50.0- microns) surface profile or in accordance with recommendations of the manufacturer of the specified coating or paint system to be applied.
- D. Abrasive used in blast cleaning operations shall be new, washed, graded and free of contaminants that would interfere with adhesion of coating or paint and shall not be reused unless specifically approved by the Architect.
- E. During blast cleaning operations, caution shall be exercised to insure that surrounding existing coatings or paint are not exposed to abrasion from blast cleaning.
- F. The Contractor shall keep the area of his work and the surrounding environment in a clean condition. He shall not permit blasting materials to accumulate as to constitute a nuisance or hazard to the accomplishment of the work, the operation of the existing facilities, or nuisance to the surrounding environment.
- G. Blast cleaned surfaces shall be cleaned prior to application of specified coatings or paint. No coatings or paint shall be applied over damp or moist surfaces.
- H. Specific Surface Preparation: Surface preparation for the specific system shall be as noted in Section 2.01 Paragraphs D.

### 3.03 APPLICATION, GENERAL

- A. Coating and paint application shall conform to the requirements of the Steel Structures Painting Council Paint Application Specification SSPC-PA1, latest revision, for "Shop, Field and Maintenance Painting," and the manufacturer of the coating and paint materials.
- B. Thinning shall be permitted only as recommended by the manufacturer approved by the Architect, and utilizing the thinners stated in Section 2.01 Paragraphs D.
- C. Each application of coating or paint shall be applied evenly, free of brush marks, sags, runs, with no evidence of poor workmanship. Care shall be exercised to avoid lapping

on glass or hardware. Coatings and paints shall be sharply cut to lines. Finished surfaces shall be free from defects or blemishes.

- D. Protective coverings or drop cloths shall be used to protect floors, fixtures, and equipment. Care shall be exercised to prevent coatings or paint from being spattered onto surfaces that are not to be coated or painted. Surfaces from which materials cannot be removed satisfactorily shall be recoated or repainted as required to produce a finish satisfactory to the Architect.
- E. When two coats of coating or paint are specified, where possible, the first coat shall contain sufficient approved color additive to act as an indicator of coverage or the two coats must be of contrasting color.
- F. Film thickness per coat specified in Section 2.01 Paragraphs D are minimum required. If roller application is deemed necessary, the Contractor shall apply additional coats as to achieve the specified thickness.
- G. All material shall be applied as specified.
- H. All welds, edges and other irregular surfaces shall receive a brush coat of the specified product prior to application of the first complete coat.

#### 3.04 COATING SYSTEMS APPLICATION

- A. After completion of surface preparation as specified for the specific system, materials shall be applied as noted in Section 2.01 Paragraphs D.

#### 3.05 COLOR SCHEME

- A. Colors: Submittals will be made to the Architect for approval prior to application.
  - 1. Galvanized Steel Headers : Match Brick Color
  - 2. Galvanized Circular Window Headers/Supports : Match Precast Color

#### 3.06 SOLVENT VAPOR REMOVAL

- A. Where appropriate all solvent vapors shall be completely removed by suction-type exhaust fans and blowers before placing in operating service.

#### 3.07 CLEAN UP

- A. Upon completion of the work, all staging, scaffolding, and containers shall be removed from the site or destroyed in a manner approved by the Architect. Coating or paint spots and oil or stains upon adjacent surfaces shall be removed and the jobsite cleaned. All damage to surfaces resulting from the work of this section shall be cleaned, repaired, or refinished to the satisfaction of the Architect at no cost to the Owner.

### 3.8 WARRANTY

- A. The Contractor will warrant the work free of defects in material and workmanship for a period of one year from the acceptance of the work. At the end of one year, the Contractor will return for a one-year anniversary inspection of the work. The Contractor will correct any deficiencies found with no cost to the owner. Inspections shall be conducted in to conform to owners spec.

END OF SECTION 099600



## Cladding and Fenestrations – General

7. It is recommended that all stainless-steel drip flashings be set into a bed of sealant if and where used.

MPS Response: **Accepted.**

8. Recommend monolithic liquid applied flashings be used at the perimeter of all openings. This material does not require laps and conforms to the existing surface forming a monolithic condition / flashing. These flashings are typically a STPE product and very user friendly and work even in damp conditions.

MPS Response: **Accepted – MPS to add liquid applied flashing to specs.**

9. Recommend thermally broken assemblies.

MPS Response: **Accepted.**

10. No metal flashings should extend from exterior to interior as this condition is a thermal bridge.

MPS Response: **Accepted.**

## Cladding and Fenestrations – Specs

11. Joint Sealants 079200

- a. Section 079200-1, 1.2, A – Recommend the addition of a STPE sealant.

MPS Response: **Included/Revised**

- b. Section 079200-4, 2.5, B – Recommend the addition of a Bi-cellular backer rod be included.

MPS Response: **Included/Revised**

- c. Section 079200-7, 3.5, A – Recommend a quality assurance testing program be included. This should include on-site testing at the mockup and also in the field. Testing should be performed in the first sections installed and then in specified quantities through the installation. A log should be kept of each area installed regarding dates, locations and also temperatures and humidity conditions.

MPS Response: **Accepted – we will recommend to owner.**

12. Recommend a Division 7 – Flashing section and sheet metal section be included for drip and head flashing material, sill and rough opening flashing materials.

MPS Response: **Accepted - Sheetmetal Flashing & Trim Section 076200 was added 10.13.2023.**

13. Aluminum Windows 085113

- a. Section 085113-2, 1.6, C – Is there a specific drawing for the mockup to illustrate the desired information?

MPS Response: **Rejected – Mockup is a field mockup. Architecture details to be followed.**

- b. Section 085113-3, 2.2, B – Please confirm the performance clarification matches the local design wind loading requirements for project (including corner zones).

MPS Response: **Included/Revised - Clarified that performance class must match wind loads as defined in Appendix B.**

- c. Section 085113-5, 2.4, C – System illustrated does not appear to have an exterior panning. Please clarify.

MPS Response: **Revised – removed**

- d. Section 085113-5, 2.4, D – System illustrated does not appear to be a receptor system. Please clarify.

**MPS Response: Revised – removed**

- e. Section 085113-6, 3.1, A – ASTM E2112 is a very complete document. However, most installers are not aware of all the requirements. Recommend clarifying which items are to be used or applied to this design.

**MPS Response: Rejected**

- f. Section 085113-7, 3.3, C – If the testing fails, who is responsible for retesting. Also, what are the retesting requirements regarding quantity of additional tests or is it only the failed unit. Please clarify.

**MPS Response: Included/Revised - Contractor is responsible for retesting.**

14. Glazing 08800

- a. Section 08800-5, 2.2, B – Please clarify where the Heat-Treated Float glass is on the project.

**MPS Response: Clarified on drawings.**

- b. Section 08800-7, 2.7, A – Please clarify that tempered is the Heat-treated float glass. Also where is the clear float glass installed?

**MPS Response: Clarified on drawings.**

15. High-performance Coatings 099600

- a. Section 099600-6, 3.02 – Question – The prep should be based upon the existing condition of the existing steel. Typical this is defined by designer during review and design phase. Different prep requirements cost differently and may create change orders. What is the basis of the design/bidding?

**MPS Response: Rejected – quality, materials, and execution are provided – prep is considered to be means and method and should be decided by the contractor.**

- b. Section 099600-8, 3.8 – Only a one-year warranty seems low. Please review.

**MPS Response: Included/Revised – Warranty revised.**

**Cladding and Fenestrations - Drawings**

- 16. Sheet D301 - It is noted that brick is being removed and a new steel lintel is being installed. See comment regarding removal and flashings on specific detail F6/A823 and D4/A812. The upper brick above the lintel must be removed to install new lintel. See specific detail for other comments.

**MPS Response: Included/Revised - Already revised in drawings as of 10.13.2023 to remove and replace brick.**

- 17. Sheet A301 – Where precast panels are present, SKA would recommend installation of new sealant joints be installed along the vertical transitions of the panels. Access will be present, and this will prevent leakage outside of the window area creating future issues.

**MPS Response: Rejected w/ conditions - This is a change of scope and requires discussion with the owner about whether they would like to accept this.**

- 18. Sheet A360 – Recommend illustration of full height section to clarify design intent.

**MPS Response: Included/Revised.**

19. Sheet A812:

- a. Has existing upper head flashing that is remaining been tested regarding water infiltration? This is recommended to ensure the existing flashing is functioning.

MPS Response: **Rejected w/ conditions** - This is a change of scope and requires discussion with the owner about whether they would like to accept this.

- b. Recommend that the lower TWF below the brick rowlock at the sill be clarified regarding termination of the existing. Does it get cut off?

MPS Response: **Clarification** - Existing details in as-built drawings are unclear of TWF condition. It is unlikely that any sort of modification will be required to existing flashing.

- c. Detail D4 – All other details call out existing head flashing/TWF at the steel lintels. Is there one present here. Please confirm / clarify.

MPS Response: **Clarification** - Existing detail was not in as-builts. Reworking of bond beam, lintel, and door frame is not in scope of project budget.

20. Sheet A813, A822, A823:

- a. Typical notes: - (These notes apply to most all fenestration and louver details on these sheets.)
  - i. Recommend consideration be given to receptor frames as noted in the specifications for field tolerances or installation of wood blocking be used at the perimeter for field tolerances (similar to louver details). This provides additional tolerances for openings and adjustments.

MPS Response: **Included/Revised w/ exceptions** – system is not a receptor system. Removed reference from spec.

- ii. Recommend monolithic liquid applied flashings be used at the perimeter of all openings. This material does not require laps and conforms to the existing surface forming a monolithic condition / flashing. These flashings are typically a STPE product and very user friendly and work even in damp conditions.

MPS Response: **Included/Revised**

- iii. Recommend all clips at the back of the window frame be continuous to help form the back dam conditions. Recommend this be used as the structural connection from the opening to the window (Unless a receptor is utilized).

MPS Response: **Clarification** - Clip is continuous, but the window is anchored at the jambs & head due to existing conditions.

- iv. Do not recommend installation of anchors down through the sill pan flashings.

MPS Response: **Accepted** - There are no anchors through sill pan flashings.

- v. At all sill details, recommend turning the monolithic flashing up on the continuous clip to form a back dam and extend over the jambs and continue the flashing to form a continuous sill/jamb flashing condition.

MPS Response: **Included/Revised.**

- vi. Recommend all continuous clips be sealed to the wall/sill/head condition and also be sealed to the window.

MPS Response: **Accepted**

- vii. Recommend perimeter joints be sized to confirm with minimum sealant manufacturer requirements such that all joints are warrantable.

MPS Response: **Included/Revised.**

- b. Detail A8:
  - i. See all typical notes above.

MPS Response: **Accepted.**

- ii. Ensure anchor of lower clip is confirmed. The lower blue stone is noted to be protected and left in place. Clips anchorage/securement may be into the stone, but anchorage/securement would be dependent on lower blue stone for wind loading. Anchor may be required to go through the stone into the lower CMU. However, confirmation must be made regarding solid engagement into a filled CMU cavity. Please confirm.

MPS Response: **Clarification** - Window is not anchored at sill condition, only at jambs & head.

- iii. Clarify what happens to existing TWF below brick rowlock sill at opening interface.

MPS Response: **Clarification** - Existing TWF to remain. No modification expected.

c. Detail C8

- i. See all typical notes above.

MPS Response: **Accepted**.

- ii. Recommend jamb flashing be installed. See typical notes above.

MPS Response: **Included/Revised**.

- iii. Recommend that the jamb be considered for low expansive foam filled cavity to enhance the thermal value of the unit.

MPS Response: **Rejected** – basis of design unit is already thermally broken and we are unsure if manufacturer would even allow this modification.

- iv. Recommend sealing up of the collar joint / cavity to prevent migration of air/water traveling laterally into the cavity of the fenestration.

MPS Response: **Included/Revised** – cavities to be filled.

d. Detail F8

- i. See all typical notes above.

MPS Response: **Accepted**.

- ii. Recommend head flashing be installed. See typical notes above and item / note iii below.

MPS Response: **Included/revised with modifications** – self adhered membrane added.

- iii. Recommend clarification that existing upper lintel / head flashing is working. If not recommend that this be corrected. Negative side head flashing may or may not work.

MPS Response: **Rejected** - Existing flashing to remain, no problems reported at this time.

- iv. Recommend that the head be considered for low expansive foam filled cavity to enhance the thermal value of the unit.

MPS Response: **Rejected** – basis of design unit is already thermally broken and we are unsure if manufacturer would even allow this modification.

21. Sheet A822 – (See typical notes above):

a. Detail A8 and A6

- i. See all typical notes above.

MPS Response: **Accepted**.

- ii. Verify there is enough room to install rear clips as noted.

MPS Response: **Included/Revised** – detail modified to allow for install of clips & plenum.

- iii. Clarify what happens to existing TWF below brick rowlock sill at opening interface.

MPS Response: **Clarification** – Existing TWF to remain. No modification expected.

b. Detail C8:

- i. See all typical notes above.

MPS Response: **Accepted.**

- ii. Verify there is enough room to install rear clips as noted.

MPS Response: **Included/Revised** – detail modified to allow for install of clips & plenum.

- iii. Ensure anchor of lower clip is confirmed. The lower blue stone is noted to be protected and left in place. Clips anchorage/securement may be into the stone, but anchorage/securement would be dependent on lower blue stone for wind loading. Anchor may be required to go through the stone into the lower CMU. However, confirmation must be made regarding solid engagement into a filled CMU cavity. Please confirm.

MPS Response: This comment appears to reference a different detail but has been confirmed.

- iv. Verify there is enough room to install rear clips as noted.

MPS Response: **Included/Revised** – detail modified to allow for install of clips & plenum.

- v. Verify wood blocking anchorage/securement. This anchorage/securement should meet the design pressure window loading requirements.

MPS Response: **Included/revised** – CMU note revised to grout solid, blocking extends to edge.

c. Detail F8:

- i. See all typical notes above.

MPS Response: **Accepted.**

- ii. Verify there is enough room to install rear clips as noted.

MPS Response: **Included/Revised** – detail modified to allow for install of clips & plenum.

- iii. Existing head flashing is noted. See notes above regarding existing head flashing and recommendation for testing and use of negative side flashing.

MPS Response: **Included/revised** – self adhered membrane only, negative side flashing removed.

d. Detail F3:

- i. Existing frame members should be properly coated/prepped for new coating. All interface between frame members should also be reviewed to ensure frame is secure and watertight.

MPS Response: **Included/Revised**

- ii. Installation of sealant at exterior should be installed with correct sizing and back up materials (backer rod or bond breaker tape).

MPS Response: **Accepted.**

- iii. Recommend sealant behind all flanged conditions.

MPS Response: **Included/revised**

22. Sheet A823 – (See typical notes above):

a. a) Detail A6

- i. See all typical notes above.

MPS Response: **Accepted.**

- ii. Most all other details call out for TWF at existing lintels. Please verify if this existing lintel has TWF/head flashing. If so, see other detailed comments regarding existing head flashings and their condition.

MPS Response: **Clarification** - Existing detail was not in as-builts. Reworking of bond beam, lintel, and door frame is not in scope of project budget.

- iii. This detail is noted with an exterior metal dip. This extends to the interior side and does not form a metal pan. SKA does not like thermal bridging conditions. If drip is used, recommend stopping the drip and allow the recommended monolithic material to create a lower sill pan flashing condition as noted in the typical notes above.

MPS Response: **Clarification** - Extended sill by louver contractor forms sill pan. This stops before reaching the interior.

- b. b) Detail C8:
  - i. See all typical notes above.

MPS Response: **Accepted.**

- ii. Recommend jamb flashing.
- c. c) Detail F6:
  - i. See all typical notes above.

MPS Response: **Accepted.**

- ii. It is noted that brick is being removed and a new steel lintel is being installed. The upper brick above the lintel must be removed to install new lintel. Recommend installation of positive side head flashing / TWF above lintel. See comments on detail.

MPS Response: **Included/revised** – This detail was revised previously as of 10.13.2023. Changes incorporated.

- iii. Recommend back up support for new positive side head flashing / TWF.

MPS Response: **Included/revised** – back up support added.