



**5601 WILKINSON BOULEVARD  
CHARLOTTE, NORTH CAROLINA 28208  
(704) 359-4000**

**INVITATION TO BID  
AVIA 25-15 MS Switchgear Replacement  
ADDENDUM #3  
October 29, 2024**

This Addendum is hereby made a part of the specifications, as applicable, of the above referenced project. All other requirements of the original plans and specification shall remain in effect in their respective order. Acknowledge receipt of this addendum by inserting its number and date on the addenda acknowledgement of your bid.

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The following documents have been uploaded into the e-Builder portal and/or attached to this addendum:

1. Revised plans dated 10.28.2024 which further clarify scope and panel replacement as part of alternate.
2. Stamped Architectural Specifications.
3. Clarification questions with answers.
4. Updated pricing sheet to include "add alternate" to be submitted with your documents.

The add alternate line has also been added to the bid scope on e-Builder.

Add alternate 01 summary:

*Additional Alternate 01 includes removal of five (5) existing electrical panels, breakers and conductors feeding the panels. Pull new feeder cables back to source panels, install new panels with breakers, confirm existing circuits and label new corresponding panel schedule, and terminate existing circuits to new panels/breakers. Work shall be coordinated to minimize outages to four hours each night or provide temporary power.*

# CLT- MS SWITCHGEAR REPLACEMENT

MCKIM & CREED PROJECT # 08293-0003

CITY OF CHARLOTTE CONTRACT # 2021000970



5501 JOSH BIRMINGHAM PKWY  
CHARLOTTE, NORTH CAROLINA 28208  
NOVEMBER 15, 2023

## ARCHITECT



**Gresham Smith**

GS-NC P.C.  
An Affiliate of Gresham Smith

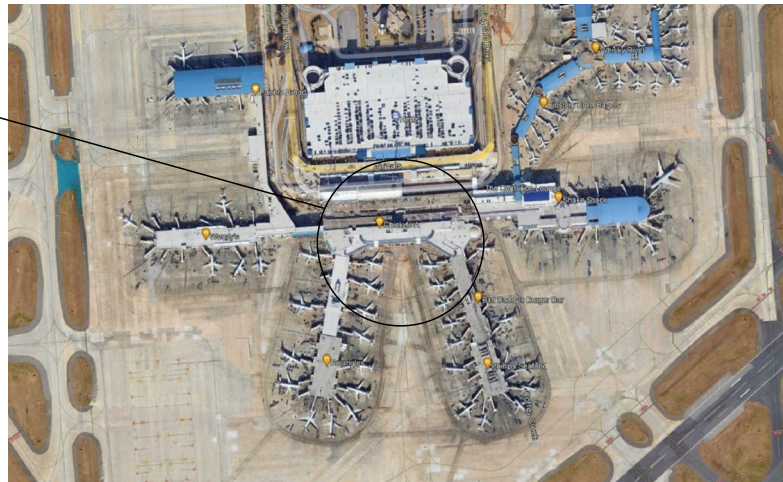
## ENGINEER - MEP



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PROJECT LOCATION



 **AREA LOCATION MAP**  
NOT TO SCALE

## LIST OF DRAWINGS

### GENERAL:

G001 COVER SHEET  
G002 APPENDIX B  
G003 ARCHITECTURAL GENERAL NOTES

### ARCHITECTURAL:

LS100 EXISTING LIFE SAFETY PLAN  
LS101 RENOVATION LIFE SAFETY PLAN  
AD100 OVERALL DEMO FLOOR PLAN  
AD101 ENLARGED DEMO PLAN  
A101 ENLARGED RENOVATION FLOOR PLAN  
I101 ENLARGED FINISH FLOOR PLAN

### ELECTRICAL:

E001 ELECTRICAL GENERAL NOTES, SYMBOLS, AND LEGEND  
E002 ELECTRICAL SPECIFICATIONS  
E003 ELECTRICAL SPECIFICATIONS  
E100 ELECTRICAL BASEMENT LEVEL POWER PLAN  
E101 ELECTRICAL RAMP LEVEL POWER PLAN  
E200 ELECTRICAL RISER DIAGRAM  
E201 ELECTRICAL PANEL SCHEDULES  
E300 ELECTRICAL DETAILS

### MECHANICAL AND PLUMBING:

M001 GENERAL NOTES, LEGEND, AND SCHEDULE  
MP002 SPECIFICATIONS  
MP100 BASEMENT LEVEL DEMOLITION PLAN  
MP101 BASEMENT LEVEL NEW WORK PLAN  
M201 RAMP LEVEL NEW WORK PLAN  
MP300 DETAILS  
M400 CONTROLS

CONSTRUCTION DOCUMENTS  
COVER SHEET G001



















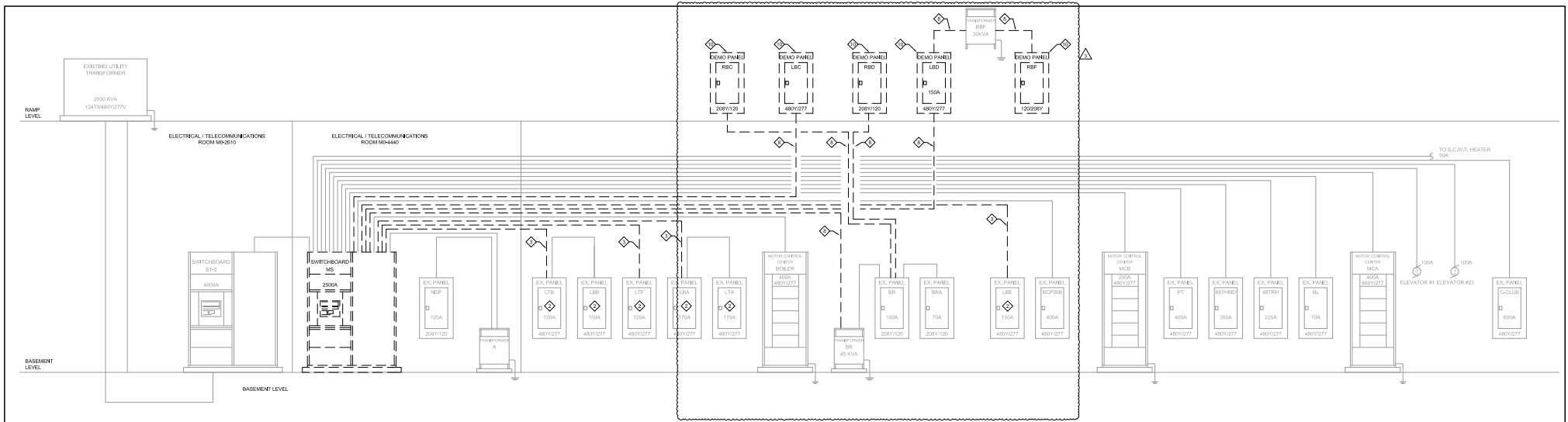




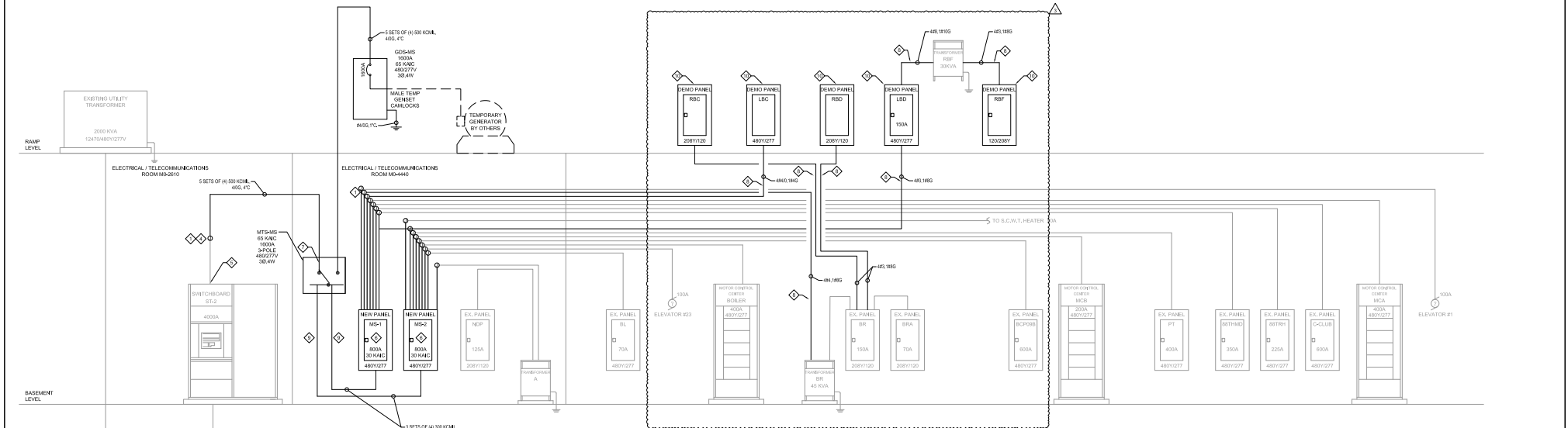








**1 ELECTRICAL RISER DIAGRAM (EXISTING & DEMOLITION)**



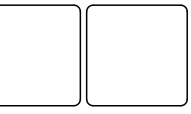
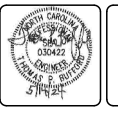
**2 ELECTRICAL RISER DIAGRAM (NEW WORK)**

- KEYED NOTES:**
- EXTEND CONDUIT AS AVAILABLE BY DEMOLITION, AS REQUIRED, REFER TO PANEL SCHEDULE FOR FEEDER SIZES. UTILIZE EXISTING CONDUIT IF NOT DAMAGED AND IN GOOD CONDITION. TYPICAL FOR ALL INTERFEDER FEEDERS FROM MS-1 AND MS-2.
  - PANEL BEING REMOVED BY OTHERS.
  - CONTRACTOR SHALL REMOVE CONDUIT, CONDUCTORS, AND SUPPORTS BACK TO SOURCE.
  - EXISTING PANELS REMOVED BECAUSE OF SPACE AFTER CONSTRUCTION AND CONSTRUCTION COMPLETION. SCAM SHALL BE MADE UNDER NORMAL LOAD CONDITIONS.
  - CONTRACTOR SHALL INSTALL METERS FOR ALL FEEDER BREAKERS ON MS-1 AND THE MAIN SERVICE BREAKER. CONTRACTOR SHALL PROVIDE PANOX METER, OR OWNER APPROVED EQUAL, PERMANENT WORK ON MS-2 SUPPLY SHUTDOWN.
  - CONTRACTOR SHALL PROVIDE PANOX METER, OR OWNER APPROVED EQUAL, FOR ALL FEEDER CIRCUIT BREAKERS.
  - CONTRACTOR SHALL PROVIDE PANOX METER, OR OWNER APPROVED EQUAL, TO MONITOR THE NORMAL BRANCH OF THE MTS. CONTRACTOR SHALL PROVIDE A MONITORING PANEL THAT WILL INDICATE WHEN ANY FAULTS OCCURS.
  - SCOPE ALTERNATE B-C CONTRACTOR SHALL REMOVE CONDUCTORS AND PROVIDE NEW CONDUIT SHALL REMOVE NEW CONDUCTORS SHALL MATCH EXISTING CONDITIONS.
  - CONDUIT ROUTE AND SIZES TO BE LIMITED TO 30 FEET MAXIMUM RUN.
  - SCOPE ALTERNATE B-C CONTRACTOR SHALL REPLACE EXISTING PANEL AND BREAKERS IN KIND WITH NEW PANEL AND BREAKERS. EXISTING LOAD SIDE CONDUIT AND CONDUCTORS TO REMAIN AND BE RECONNECTED.

**LINE LEGEND**

	EXISTING TO REMAIN
	DEMOLISH
	NEW WORK

NO.	REVISION	DATE
1	ISSUE FOR REVIEW	11/26/24
2	OWNER REVIEW COMMENTS	12/13/24
3	OWNER COMMENT IS A SCOPE CLARIFICATION	11/26/24



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 Phone: (704)359-4013

**CLT - MS SWITCHGEAR REPLACEMENT**

**ELECTRICAL RISER DIAGRAM**

ISSUE DATE:	2024.11.16	SCALE:	AS SHOWN
ISSUE NO. / P.:	00000000 / 00000000	HORIZONTALS:	AS SHOWN
DRAWN:	HSP	VERTICALS:	AS SHOWN
CHECKED:	HSP	DATE:	11/26/24
DESIGNED:	JLT	BY:	NA
PROJECT NO.:	0000	DATE:	11/26/24

STATUS: **E200**

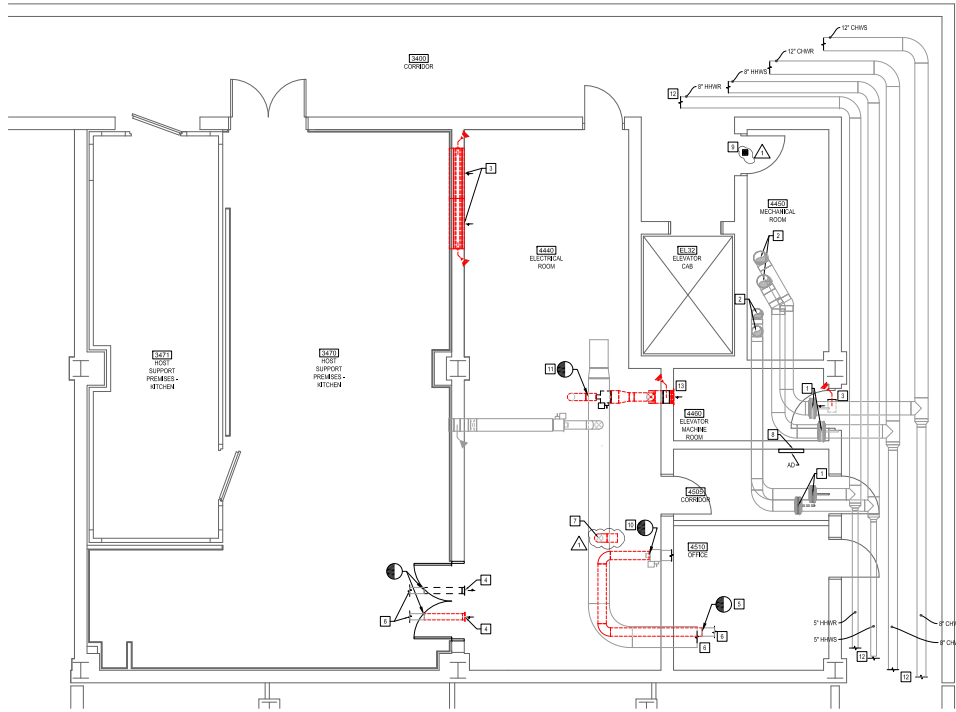






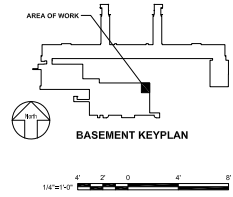




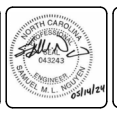
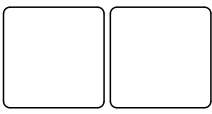


- GENERAL NOTE**
- MECHANICAL CONTRACTOR SHALL FIELD VERIFY ACTUAL LOCATIONS AND SIZES OF ALL EXISTING EQUIPMENT, DUCTWORK, PIPING, CONTROLS, CONDUNIT, ETC AND COORDINATE WITH OTHER TRADES PRIOR TO PROVIDING PRICING.
  - MECHANICAL CONTRACTOR SHALL FIELD VERIFY ISOLATION VALVES FOR PIPING DEMOLITION AND NEW WORK SHOWN HEREIN.
  - MECHANICAL CONTRACTOR SHALL COORDINATE ALL NEW CONTROLS WITH JIC FOR INTEGRATION INTO EXISTING BAS.
- DEMOLITION SEVERE NOTES**
- EXISTING ISOLATION VALVE TO REMAIN.
  - EXISTING PIPING CONTINUES UP TO DAMP LEVEL, SEE N011 FOR CONTINUATION.
  - EXISTING FIRE DAMPER AND GRILLE TO BE DEMOLISHED COMPLETE. COORDINATE WALL PATCHING WITH ARCHITECTURAL PLANS AND ARCHITECT'S LATEST LIFE SAFETY PLAN TO MAINTAIN WALL RATINGS. CONTRACTOR TO NOTE ANY EXISTING ASSET TAG AND PROVIDE TO FACILITY MANAGER/ENGINEER FOR REMOVAL FROM DAMPER TEST LIST.
  - EXISTING AIR DISTRIBUTION DEVICE AND ASSOCIATED DUCTWORK TO BE DEMOLISHED BACK INTO ROOM MOUNT INCLUDING AIR DUCT ACCESSORIES AND DAMPERS. CAP DUCTWORK ABOVE CEILING IN ROOM MOUNT. COORDINATE WALL PATCHING WITH ARCHITECTURAL PLANS AND ARCHITECT'S LATEST LIFE SAFETY PLAN TO MAINTAIN WALL RATINGS. CONTRACTOR TO NOTE ANY EXISTING ASSET TAG AND PROVIDE TO FACILITY MANAGER/ENGINEER FOR REMOVAL FROM DAMPER TEST LIST.
  - EXISTING DUCTWORK TO BE DEMOLISHED BACK BEYOND WALL, CAPPED AND INSULATED. COORDINATE WALL PATCHING WITH ARCHITECTURAL PLANS AND ARCHITECT'S LATEST LIFE SAFETY PLAN TO MAINTAIN WALL RATINGS. CONTRACTOR TO NOTE ANY EXISTING ASSET TAG AND PROVIDE TO FACILITY MANAGER/ENGINEER FOR REMOVAL FROM DAMPER TEST LIST.
  - EXISTING DUCTWORK CONTINUES OUT OF SCOPE OF PROJECT.
  - EXISTING SUPPLY DUCTWORK TO BE DEMOLISHED BACK TO MAIN UTILITY FOR FUTURE CONNECTION TO EXISTING VAV BOX. SEE M1011 FOR FUTURE CONNECTION.
  - EXISTING RATED ACCESS DOOR TO REMAIN.
  - PLUMBING CONTRACTOR TO DEMOLISH EXISTING FLOOR DRAIN AND EXTEND PIPING TO NEW FLOOR DRAIN LOCATION. SEE M1011 FOR NEW FLOOR DRAIN LOCATION, PATCH AND REPAIR FLOOR AS REQUIRED.
  - DEMOLISH EXISTING SUPPLY DUCTWORK SERVING EXISTING VAV BOX. SEE M1011 FOR FUTURE CONNECTION IN NEW WORK PHASE OF PROJECT.
  - EXISTING VAV BOX, FIRE DAMPER AND ASSOCIATED DUCTWORK TO BE DEMOLISHED COMPLETE. CAP AND INSULATE SUPPLY MAIN. COORDINATE WALL PATCHING WITH ARCHITECTURAL PLANS AND ARCHITECT'S LATEST LIFE SAFETY PLAN. CONTRACTOR TO NOTE ANY EXISTING ASSET TAG AND PROVIDE TO FACILITY MANAGER/ENGINEER FOR REMOVAL FROM ASSET TEST LIST.
  - EXISTING PIPING CONTINUES OUT OF SCOPE OF PROJECT.
  - EXISTING FIRE DAMPER AND ASSOCIATED DUCTWORK TO BE DEMOLISHED COMPLETE. EXISTING WALL PENETRATOR TO REMAIN FOR REUSE IN NEW WORK PHASE OF PROJECT.

**BASEMENT LEVEL DEMOLITION PLAN**  
 Scale: 1/4" = 1'-0"



DATE	DESCRIPTION	BY	CHKD
03/28/24	CONSTRUCTION DOCUMENTS	JACOB	JACOB



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**CLT - MS SWITCHGEAR REPLACEMENT**  
 MECHANICAL & PLUMBING  
**BASEMENT LEVEL DEMOLITION PLAN**

BASE DATE	2023.11.13	SCALE	M/P 100
BASE PROJECT	MS23-040	DATE	03/28/24
DESIGNED	JUNY	APPROVED	JACOB
CHECKED	BLS	VERIFIED	AS INDICATED
PROJ. MGR.	SUN	DATE	03/28/24
STATUS: CONSTRUCTION DOCUMENTS			











1.1 DESIGN PROFESSIONAL OF RECORD

A. ARCHITECT

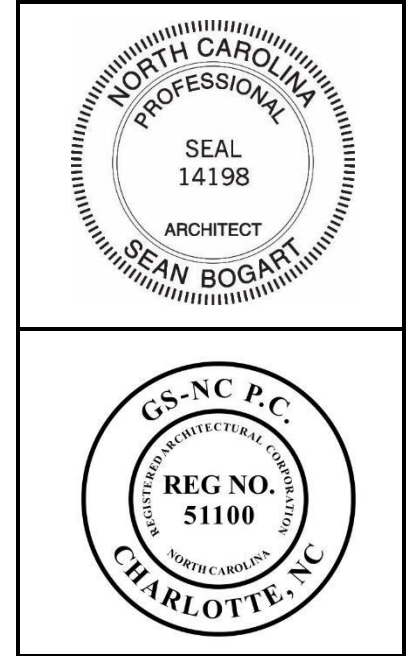
Sean M. Bogart  
NC License No. 14198

Responsible for Divisions as noted on specification index.

Gresham Smith  
620 S Tryon Street Suite 500  
Charlotte, North Carolina, 28202

B. PROFESSIONAL CORPORATION

Gresham Smith  
620 S Tryon Street Suite 500  
Charlotte, North Carolina, 28202



END OF DOCUMENT 00 0107

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ISSUED	DATE
ISSUED FO CONSTRUCTION	09/05/2023

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**SECTION 02 4119**  
**SELECTIVE DEMOLITION**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Demolition and removal of selected portions of building or structure.
- B. Related Requirements:
  - 1. Section 01 1000: Restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
  - 2. Section 01 7300: Cutting and patching procedures.
  - 3. Section 01 3516: General protection and work procedures for alteration projects.
  - 4. Division 26: Disconnection of existing power and communication wiring, temporary provisions for areas to remain occupied. Cutting non-structural concrete floors and masonry walls for underground piping and ducts, and for above-grade piping, ducts, and conduit is included with work of respective mechanical and electrical Divisions 23 and 26 Specifications sections.
  - 5. Section 31 1000: Site clearing and removal of above- and below-grade improvements not part of selective demolition.

**1.2 DEFINITIONS**

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

**1.3 MATERIALS OWNERSHIP**

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

**1.4 PREINSTALLATION MEETINGS**

- A. Predemolition Conference: Conduct conference at Project site per requirements of Section 01 3100.
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review areas where existing construction is to remain and requires protection.

**1.5 INFORMATIONAL SUBMITTALS**

- A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and. Indicate proposed locations and construction of barriers.
- B. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's [building manager's] [and] [other tenants'] on-site operations are uninterrupted.
  - 2. Use of elevator and stairs.
  - 3. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

## **1.6 FIELD CONDITIONS**

- A. Disclaimer: Drawings are based on information supplied by the Owner that has not been verified by the Architect or its consultants. The Architect therefore disclaims any warranty of correctness or completeness and Contractor is cautioned to carefully examine existing conditions before starting demolition operations.
  - 1. Locations and sizes of existing construction elements may vary from those depicted on the Drawings.
- B. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- C. Occupancy: See Section 01 1000. Owner reserves right to require work that affects Owner's normal use to be performed outside normal hours of occupancy or to be rescheduled without changes to Contract Sum or Time. Provide barricades and guards as needed for safety of occupants or as required by governing authorities.
- D. Exits: Maintain existing required means of egress for occupied spaces in lawful condition at all times.
- E. Existing Elevators: Use of existing elevators is subject to authorization by the Owner and provision of suitable protections for elevator finishes.
- F. Contractor is responsible for cleaning and repair of soiling and damage resulting from demolition operations inside or outside the building, and on other properties.
- G. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- H. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- I. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - 1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- J. Storage or sale of removed items or materials on-site is not permitted.
- K. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.
- L. Keep site and other areas clean and free from accumulation of debris and waste from demolition operations.
- M. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to minimize dust and dirt rising and scattering in air. Comply with governing regulations pertaining to environmental protection.
  - 1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, excessive runoff, or pollution.

## **1.7 PART 2 PRODUCTS**

- A. PERFORMANCE REQUIREMENTS
  - 1. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
  - 2. Standards: Comply with ASSE A10.6 and NFPA 241.

## **1.8 PART 3 EXECUTION**

### **A. EXAMINATION**

1. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs .
  - a. Comply with requirements specified in Section 01 3233.
  - b. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
  - c. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

### **B. UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS**

1. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

### **C. PROTECTION**

1. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - a. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - b. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - c. Cover and protect furniture, supplies, and equipment that have not been removed.
  - d. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01 5000 "Temporary Facilities and Controls."
2. Remove temporary barricades and protections where hazards no longer exist.

### **D. SELECTIVE DEMOLITION, GENERAL**

1. Demolish and remove existing construction only to the extent required by new construction and as indicated.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Transport demolished materials through building to exterior in containers with solid sides and bottoms. Transport dusty, liquid, and hazardous demolished materials in fully enclosed containers.
4. Remove existing sealants and caulking as needed for installation of new work, and where they would be exposed to view in the finished work.

### **E. SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS**

1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.

### **F. DISPOSAL OF DEMOLISHED MATERIALS**

1. Remove demolition waste materials from Project site and recycle or dispose of them per Section 01 7419 "Construction Waste Management and Disposal".
  - a. Do not allow demolished materials to accumulate on-site.
  - b. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
2. Do not burn demolished materials on site.

### **G. REPAIRS**

1. Repair demolition performed in excess of that required. Return structures and surfaces to remain to not less than original condition. Repair existing construction or surfaces soiled or damaged by selective demolition operations.
2. Promptly repair damages caused by demolition operations to existing construction indicated to remain, including areas of facility outside Project limits.

**Project Name: Switchgear Replacement**  
**Project Location: Charlotte-Douglas International Airport**  
**Charlotte, North Carolina**  
**GS-NC P.C. Project No.: 47129.00**

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3. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.

H. CLEANING

1. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.
2. Change filters on air handling equipment on completion of selective demolition operations.
3. Remove protections, and temporary partitions and closures when no longer needed or when directed by Architect.

<b>ISSUED</b>	<b>DATE</b>
<b>ISSUED FOR CONSTRUCTION</b>	<b>09/05/2023</b>

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**END OF SECTION**

**SECTION 04 2200**  
**CONCRETE UNIT MASONRY**

**PART 1 -GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Interior CMU partitions.
- B. Related Sections:
  - 1. Section 03 3000: Installation of dovetail slots for masonry anchors.

**1.2 ACTION SUBMITTALS**

- A. Prepare submittals per requirements of Section 01 3300 – Submittal Procedures.
- B. Product Data:
  - 1. Each type of CMU.
  - 2. Ready-mix mortar.
  - 3. Ties and horizontal joint reinforcing.
  - 4. Admixtures.
- C. Shop Drawings:
  - 1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
  - 2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." [<>]

**1.3 INFORMATIONAL SUBMITTALS**

- A. Material Certificates: For each type and size of the following:
  - 1. Masonry units.
    - a. Include material test reports substantiating compliance with requirements.
  - 2. Factory-blended, dry mortar mixes. Include description of type and proportions of ingredients.
  - 3. Grout mixes. Include description of type and proportions of ingredients.
  - 4. Anchors, ties, and metal accessories.
- B. Mix Designs: For each type of mortar and. Include description of type and proportions of ingredients.
  - 1. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.
- C. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

**1.4 QUALITY ASSURANCE**

- A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in dry locations. Do not use cementitious materials that have become damp.

- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

## **1.6 PROJECT CONDITIONS**

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
- B. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

## **PART 2 -PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

### **2.2 PERFORMANCE REQUIREMENTS**

- A. Provide unit masonry that develops indicated net-area compressive strengths at 28 days.
  - 1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

### **2.3 MASONRY UNITS, GENERAL**

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.

### **2.4 CONCRETE MASONRY UNITS**

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
  - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
- B. CMU: ASTM C 129.
  - 1. Unit Compressive Strength: Minimum average net-area compressive strength of 2150 psi.
  - 2. Unit Compressive Strength: Specified on Structural Drawings.
  - 3. Density Classification: Normal weight.
  - 4. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.

### **2.5 MORTAR AND GROUT MATERIALS**

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
  - 1. Alkali content shall not be more than 0.1 percent when tested according to ASTM C 114.



- B. Mortar Cement: ASTM C 1329; Factory-blended mix of Portland cement, hydrated lime, and sand.
  - 1. Subject to compliance with requirements, supply one of the following:
    - a. Lafarge North America Inc
    - b. SPEC MIX; Preblended Mortar Mixes.
- C. Aggregate for Mortar: ASTM C 144.
  - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
  - 2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
- D. Aggregate for Grout: ASTM C 404.
- E. Epoxy Pointing Mortar: ASTM C 395, epoxy-resin-based material formulated for use as pointing mortar for glazed or pre-faced masonry units; in color indicated or, if not otherwise indicated, as selected by Architect from manufacturer's colors.
- F. Water: Potable.

## **2.6 REINFORCEMENT**

- A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.
- B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
- C. Masonry Joint Reinforcement, General: ASTM A 951/A 951M.
  - 1. Interior Walls: Mill- galvanized, carbon steel.
  - 2. Wire Size for Side Rods: 0.148-inch diameter.
  - 3. Wire Size for Cross Rods: 0.148-inch diameter.
  - 4. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
- D. Masonry Joint Reinforcement for Single-Wythe Masonry: truss type with single pair of side rods.

## **2.7 TIES AND ANCHORS**

- A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.
  - 1. Mill-Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M; with ASTM A 641/A 641M, Class 1 coating.
- B. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
  - 1. Connector Section: Screw-attached anchor section 1-1/4 inches wide by 6 inches long with screw holes top and bottom and with raised rib-stiffened strap stamped into center to provide slot between strap and base for inserting wire tie. Supply with concrete screws or expansion anchors.

## **2.8 MISCELLANEOUS MASONRY ACCESSORIES**

- A. Compressible Filler: Factory-molded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from TBD.
- B. Manufactured Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

## **2.9 MORTAR AND GROUT MIXES**

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
  - 1. Interior CMU: mortar cement mortar.
  - 2. Do not use calcium chloride in mortar or grout.
- B. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.
  - 1. For interior non-load-bearing partitions, Type O may be used instead of Type N.
- C. Grout for Unit Masonry: Comply with ASTM C 476.
  - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
  - 2. Proportion grout in accordance with ASTM C 476, TBD.
  - 3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

## **PART 3 -EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that reinforcing dowels are properly placed.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

### **3.2 INSTALLATION, GENERAL**

- A. Use full-size units without cutting where possible. If cutting is required to provide continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

### **3.3 TOLERANCES**

- A. Dimensions and Locations of Elements:
  - 1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch or minus 1/4 inch.
  - 2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch.
  - 3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.
- B. Lines and Levels:
  - 1. For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
- C. Joints:
  - 1. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
  - 2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.

### **3.4 LAYING MASONRY WALLS**

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar before laying fresh masonry.
- D. Install compressible filler in joints between masonry and structural steel or concrete.

### **3.5 MORTAR BEDDING AND JOINTING**

- A. Lay hollow CMU as follows:
  - 1. Bed face shells in mortar and make head joints of depth equal to bed joints.
- B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- C. Cut joints flush for masonry walls that receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

### **3.6 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE**

- A. Anchor masonry to structural steel and concrete where masonry abuts or faces structural steel or concrete to comply with the following:
  - 1. Provide an open space not less than 1/2 inch wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials. Fill space with compressible filler or fiberglass board insulation.
  - 2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
  - 3. Space anchors as indicated, but maximum 24 inches o/c vertically and 36 inches o/c horizontally.

### **3.7 FIELD QUALITY CONTROL**

- A. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.
- B. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.
- C. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test mortar for TBD.
- D. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

### **3.8 REPAIRING, POINTING, AND CLEANING**

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
  - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.

2. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
3. Saturate wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
4. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

**3.9 MASONRY WASTE DISPOSAL**

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

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**END OF SECTION**

**SECTION 07 8400**  
**FIRESTOPPING**

**PART 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 01 7000 - Execution and Closeout Requirements: Cutting and patching.
- C. Section 10 1473 - Painted Signage : Fire and Smoke Assembly Identification

**1.2 REFERENCE STANDARDS**

- A. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials 2022.
- B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems 2023a.
- C. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems 2015 (Reapproved 2019).
- D. ASTM E2174 - Standard Practice for On-Site Inspection of Installed Firestop Systems 2020a.
- E. ASTM E2393 - Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers 2020a.
- F. ASTM E2837 - Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies 2013 (Reapproved 2017).
- G. SCAQMD 1168 - Adhesive and Sealant Applications 1989, with Amendment (2022).
- H. UL 1479 - Standard for Fire Tests of Penetration Firestops Current Edition, Including All Revisions.
- I. UL 2079 - Standard for Tests for Fire Resistance of Building Joint Systems Current Edition, Including All Revisions.
- J. UL (FRD) - Fire Resistance Directory Current Edition.

**1.3 SUBMITTALS**

- A. See Section 01 3300 for submittal procedures.
- B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
- C. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- D. Sustainable Design Submittal: Submit VOC content documentation for nonpreformed materials.
- E. Installer's qualification statement.

**1.4 QUALITY ASSURANCE**

- A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
- B. Installer Qualifications: Company specializing in performing the work of this section and:

1. Verification of minimum three years documented experience installing work of this type.

## **1.5 FIELD CONDITIONS**

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.

## **PART 2 PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Firestopping Manufacturers:
  1. 3M Fire Protection Products: [www.3m.com/firestop/#sle](http://www.3m.com/firestop/#sle).
  2. A/D Fire Protection Systems Inc: [www.adfire.com/#sle](http://www.adfire.com/#sle).
  3. Hilti, Inc: [www.hilti.com/#sle](http://www.hilti.com/#sle).
  4. Nelson FireStop Products: [www.nelsonfirestop.com/#sle](http://www.nelsonfirestop.com/#sle).
  5. RectorSeal, a CSW Industrials Company: [www.rectorseal.com/firestop-solutions/#sle](http://www.rectorseal.com/firestop-solutions/#sle).
  6. Tremco Commercial Sealants & Waterproofing: [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).
  7. Substitutions: See Section 01 6000 - Product Requirements.

### **2.2 MATERIALS**

- A. Volatile Organic Compound (VOC) Content: Provide products having VOC content lower than that required by SCAQMD 1168.
- B. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials as required for tested firestopping assembly.
- C. Fire Ratings: Refer to drawings for required systems and ratings.

### **2.3 FIRESTOPPING ASSEMBLY REQUIREMENTS**

- A. Through Penetration Firestopping: Use system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.
  1. F-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated.
  2. T-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.

### **2.4 FIRESTOPPING SYSTEMS**

- A. Firestopping: Any material meeting requirements.
  1. Fire Ratings: Use system that is listed by UL (FRD) and tested in accordance with ASTM E814 or UL 1479 with F Rating equal to fire rating of penetrated assembly and minimum T Rating Equal to F Rating and in compliance with other specified requirements.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify openings are ready to receive the work of this section.
- B. Verify that surfaces of openings are sound, clean, dry, and ready to receive application of sealants.

### **3.2 INSTALLATION**

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.
- B. Comply with manufacturer recommendations and with the following requirements:
  - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping materials.
  - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping materials. Remove loose particles remaining from cleaning operation.
  - 3. Remove laitance and form-release agents from concrete.
- C. Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- D. Fill voids and cavities formed by openings, forming materials, accessories and penetrating items to achieve required fire-resistance ratings.
- E. Apply materials so they contact and adhere to substrates formed by openings and penetrating item
- F. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
- G. Do not cover installed firestopping until inspected by authorities having jurisdiction.
- H. Install labeling required by code.

### **3.3 FIELD QUALITY CONTROL**

- A. Independent Testing Agency: Inspection agency employed and paid by Owner, will examine penetration firestopping in accordance with ASTM E2174 and ASTM E2393.
- B. Repair or replace penetration firestopping and joints at locations where inspection results indicate firestopping or joints do not meet specified requirements.

### **3.4 CLEANING**

- A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping system manufacturers and that do not damage materials in which openings occur.

### **3.5 PROTECTION**

- A. Protect adjacent surfaces from damage by material installation.

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**END OF SECTION**

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**SECTION 07 9200**  
**JOINT SEALANTS**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Nonsag gunnable joint sealants.
- B. Joint backings and accessories.

**1.2 RELATED REQUIREMENTS**

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions: Additional requirements for sealants and primers.

**1.3 REFERENCE STANDARDS**

- A. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants 2018 (Reapproved 2022).
- B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.
- C. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems 2023.
- D. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016 (Reapproved 2023).
- E. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants 2023.
- F. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints 2019 (Reapproved 2020).

**1.4 SUBMITTALS**

- A. See Section 01 3300 for submittal procedures.
- B. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
  - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
  - 2. List of backing materials approved for use with the specific product.
  - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
  - 4. Substrates the product should not be used on.
- C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- D. Field Quality Control Log: Submit filled-out log for each length or instance of sealant installed, within 10 days after completion of inspections/tests; include bagged test samples and photographic records, if any.
- E. Installer's qualification statement.
- F. Executed warranty.



## **1.5 QUALITY ASSURANCE**

- A. Maintain one copy of each referenced document covering installation requirements on site.
- B. Field Quality Control Plan:
  - 1. Visual inspection of entire length of sealant joints.
  - 2. Nondestructive field adhesion testing of sealant joints, except interior acrylic latex sealants.
    - a. For each different sealant and substrate combination, allow for one test every 12 inches in the first 10 linear feet of joint and one test every 24 inches thereafter.
    - b. If any failures occur in the first 10 linear feet, continue testing at 12 inches intervals at no extra cost to Owner.
  - 3. Field testing agency's qualifications.
  - 4. Field Quality Control Log Form: Show same data fields as on Preinstallation Field Adhesion Test Log, with known information filled out and lines for multiple tests per sealant/substrate combinations; include visual inspection and specified field testing; allow for possibility that more tests than minimum specified may be necessary.
- C. Field Adhesion Test Procedures:
  - 1. Allow sealants to fully cure as recommended by manufacturer before testing.
  - 2. Have a copy of the test method document available during tests.
  - 3. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
  - 4. When performing destructive tests, also inspect the opened joint for proper installation characteristics recommended by manufacturer, and report any deficiencies.
  - 5. Deliver the samples removed during destructive tests in separate sealed plastic bags, identified with project, location, test date, and test results, to Owner.
  - 6. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.
- D. Nondestructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Nondestructive Spot Method.
  - 1. Record results on Field Quality Control Log.
  - 2. Repair failed portions of joints.

## **1.6 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Manufacturer Warranty: Provide 2-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.

## **PART 2 PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Nonsag Sealants:
  - 1. Dow: [www.dow.com/#sle](http://www.dow.com/#sle).
  - 2. Hilti, Inc: [www.hilti.com/#sle](http://www.hilti.com/#sle).
  - 3. Tremco Commercial Sealants & Waterproofing: [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).
  - 4. Substitutions: See Section 01 6000 - Product Requirements.

### **2.2 JOINT SEALANT APPLICATIONS**

- A. Scope:
  - 1. Interior Joints:
    - a. Seal open joints except specific open joints indicated on drawings as not sealed.
  - 2. Do Not Seal:

- a. Intentional weep holes in masonry.
- b. Joints indicated to be covered with expansion joint cover assemblies.
- c. Joints where sealant is specified to be furnished and installed by manufacturer of product to be sealed.
- d. Joints where sealant installation is specified in other sections.

### **2.3 JOINT SEALANTS - GENERAL**

- A. Sealants and Primers: Provide products with acceptable levels of volatile organic compound (VOC) content; see Section 01 6116.
- B. Colors: Grey

### **2.4 NONSAG JOINT SEALANTS**

- A. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; multi-component; not expected to withstand continuous water immersion or traffic.
  1. Movement Capability: Plus and minus 50 percent, minimum.
  2. Color: Match adjacent finished surfaces.
  3. Service Temperature Range: Minus 40 to 180 degrees F.
  4. Products:
    - a. Master Builders Solutions: [www.master-builders-solutions.com/en-us/#sle](http://www.master-builders-solutions.com/en-us/#sle).
    - b. Pecora Corporation: [www.pecora.com/#sle](http://www.pecora.com/#sle).
    - c. Sika Corporation: [www.usa.sika.com/#sle](http://www.usa.sika.com/#sle).
    - d. Tremco Commercial Sealants & Waterproofing: [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).
    - e. Substitutions: See Section 01 6000 - Product Requirements.
- B. Acrylic-Urethane Sealant: ASTM C920, Grade NS, Uses M and A; single component; paintable; not expected to withstand continuous water immersion or traffic.
  1. Movement Capability: Plus and minus 12-1/2 percent, minimum.

### **2.5 ACCESSORIES**

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
  1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type C - Closed Cell Polyethylene.
  2. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Joint Cleaner: Noncorrosive and nonstaining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- E. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.

- C. Verify that backer rods are of the correct size.

**3.2 PREPARATION**

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

**3.3 INSTALLATION**

- A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Provide joint sealant installations complying with ASTM C1193.
- C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- D. Install bond breaker backing tape where backer rod cannot be used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

**3.4 FIELD QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements for additional requirements.
- B. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.
- C. Non-Destructive Adhesion Testing: If there are any failures in first 100 linear feet, notify Architect immediately.
- D. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.
- E. Repair destructive test location damage immediately after evaluation and recording of results.

<b>ISSUED:</b>	<b>DATE:</b>
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**Project Name: Switchgear Replacement**  
**Project Location : Charlotte-Douglas International Airport**  
**Charlotte, North Carolina**  
**GS-NC P.C Project No.: 47129.00**

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**END OF SECTION**

**SECTION 08 3100**  
**ACCESS DOORS AND PANELS**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Wall- and ceiling-mounted access units.

**1.2 RELATED REQUIREMENTS**

- A. Section 23 3300 - Air Duct Accessories: Access doors in ductwork.

**1.3 REFERENCE STANDARDS**

- A. UL (FRD) - Fire Resistance Directory Current Edition.

**1.4 SUBMITTALS**

- A. See Section 01 3300 - Submittal Procedures, for submittal procedures.
- B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.
- C. Shop Drawings: Indicate exact position of each access door and/or panel unit.
- D. Manufacturer's Installation Instructions: Indicate installation requirements.

**1.5 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience.

**PART 2 PRODUCTS**

**2.1 ACCESS DOORS AND PANELS ASSEMBLIES**

- A. Fire-Rated Wall-Mounted Units:
  - 1. Location: As indicated on drawings.
  - 2. Wall Fire-Rating: 1 hour.
  - 3. Panel Material: Steel.
  - 4. Size: Field Verified Size.
  - 5. Door/Panel: Insulated double-surface panel, with tool-operated spring or cam lock and no handle.
- B. Fire-Rated Ceiling-Mounted Units:
  - 1. Location: As indicated on drawings.
  - 2. Ceiling Fire-Rating: 1 hour.
  - 3. Panel Material: Steel.
  - 4. Size: Field Verified Size.
  - 5. Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.

**2.2 WALL- AND CEILING-MOUNTED ACCESS UNITS**

- A. Manufacturers:
  - 1. ACUDOR Products Inc: [www.acudor.com/#sle](http://www.acudor.com/#sle).
  - 2. Babcock-Davis: [www.babcockdavis.com/#sle](http://www.babcockdavis.com/#sle).
  - 3. Cendrex, Inc: [www.cendrex.com/#sle](http://www.cendrex.com/#sle).
  - 4. Elmdor: [www.elmdor.com/#sle](http://www.elmdor.com/#sle).

- 5. Nystrom, Inc; www.nystrom.com/#sle.
  - 6. Substitutions: See Section 01 6000 - Product Requirements.
- B. Wall- and Ceiling-Mounted Units: Factory-fabricated door and frame, fully assembled units with corner joints welded, filled and ground flush; square and without rack or warp; coordinate requirements with type of installation assembly being used for each unit.
- 1. Material: Steel.
  - 2. Style: Exposed frame with door surface flush with frame surface.
  - 3. Door Style: Single thickness with rolled or turned in edges.
  - 4. Insulation: Non-combustible mineral wool or glass fiber.
  - 5. Units in Fire-Rated Assemblies: Fire rating as required by applicable code for fire-rated assembly that access doors are being installed.
    - a. Provide products listed by UL (FRD) as suitable for purpose indicated.
    - b. Provide certificate of compliance from authorities having jurisdiction indicating approval of fire rated doors.
  - 6. Steel Finish: Primed.
  - 7. Primed and Factory Finish: Polyester powder coat; color GREY
  - 8. Hardware:
    - a. Hardware for Fire-Rated Units: As required for listing.
    - b. Hinges for Non-Fire-Rated Units: Concealed, constant force closure spring type.
    - c. Latch/Lock: Prepared for mortise cylinder

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A. Verify that rough openings are correctly sized and located.
- B. Begin installation only after substrates have been properly prepared, and if the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

**3.2 PREPARATION**

- A. Clean surfaces thoroughly prior to proceeding with this work.
- B. Prepare surfaces using methods recommended by manufacturer for applicable substrates in accordance with project conditions.

**3.3 INSTALLATION**

- A. Install units in accordance with manufacturer's instructions.
- B. Install frames plumb and level in openings, and secure units rigidly in place.
- C. Position units to provide convenient access to concealed equipment when necessary.

<b>ISSUED:</b>	<b>DATE:</b>
<b>ISSUED FOR CONSTRUCTION</b>	<b>09/05/2023</b>

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**END OF SECTION**

**SECTION 09 0561**  
**COMMON WORK RESULTS FOR FLOORING PREPARATION**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. This section applies to floors identified in Contract Documents that are receiving the following types of floor coverings:
  - 1. Fluid Applied Flooring.
- B. Removal of existing floor coverings.
- C. Preparation of existing concrete floor slabs for installation of floor coverings.
- D. Testing of concrete floor slabs for moisture and alkalinity (pH).
- E. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
  - 1. Contractor shall perform all specified remediation of concrete floor slabs. If such remediation is indicated by testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination prior to entering into the contract, a contract modification will be issued.
- F. Patching compound.
- G. Remedial floor coatings/vapor sealers.

**1.2 RELATED REQUIREMENTS**

- A. Division 09 flooring sections for acceptable moisture and alkalinity levels for each flooring type.

**1.3 REFERENCE STANDARDS**

- A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50 mm] Cube Specimens) 2021.
- B. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters, and Gypsum Concrete 2020.
- C. ASTM D4259 - Standard Practice for Preparation of Concrete by Abrasion Prior to Coating Application 2018.
- D. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring 2022.
- E. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride 2022.

**1.4 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

**1.5 SUBMITTALS**

- A. See Section 01 3300 - Submittal Procedures for submittal procedures.
- B. Visual Observation Report: For existing floor coverings to be removed.

- C. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
  - 1. Moisture and alkalinity (pH) limits and test methods.
  - 2. Manufacturer's required bond/compatibility test procedure.
- D. Remedial Materials Product Data: Manufacturer's published data on each product to be used for remediation.
  - 1. Certificate: Manufacturer's certification of compatibility with types of flooring applied over remedial product.
- E. Installer's Qualification Statement.
- F. Testing Agency's Report:
  - 1. Description of areas tested; include floor plans and photographs if helpful.
  - 2. Summary of conditions encountered.
  - 3. Moisture and alkalinity (pH) test reports.
  - 4. Copies of specified test methods.
  - 5. Recommendations for remediation of unsatisfactory surfaces.
  - 6. Submit report directly to Owner.
  - 7. Submit report not more than two business days after conclusion of testing.
- G. Adhesive Bond and Compatibility Test Report.
- H. Floor Moisture Testing Technician Certificate: International Concrete Repair Institute (ICRI) Concrete Slab Moisture Testing Technician- Grade I certificate.

#### **1.6 QUALITY ASSURANCE**

- A. Moisture and alkalinity (pH) testing shall be performed by an independent testing agency employed and paid by Contractor.
- B. Testing Agency Qualifications: Independent testing agency experienced in the types of testing specified.
- C. Contractor's Responsibility Relating to Independent Agency Testing:
  - 1. Provide access for and cooperate with testing agency.
  - 2. Achieve and maintain specified ambient conditions.
  - 3. Notify Owner when specified ambient conditions have been achieved and when testing will start.
- D. Floor Moisture Testing Technician Qualifications: International Concrete Repair Institute (ICRI) Concrete Slab Moisture Testing Technician Certification- Grade I.
- E. Remedial Coating Installer Qualifications: Company specializing in performing work of the type specified in this section, trained by or employed by coating manufacturer, and able to provide at least 3 project references showing at least 3 years' experience installing moisture emission coatings.

#### **1.7 WARRANTY**

- A. Manufacturer Warranty: Warrant vapor sealer treatment performance for period of 15 years. Warranty shall include:
  - 1. Cost of replacing floor covering products and their installation damaged by moisture vapor emission through treated concrete slabs.

#### **1.8 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, handle, and protect products in accordance with manufacturer's instructions and recommendations.
- B. Deliver materials in manufacturer's packaging; include installation instructions.



- C. Keep materials from freezing.

## **1.9 FIELD CONDITIONS**

- A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F or more than 85 degrees F.
- B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- A. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions, and compatible with adhesive and floor covering. In the absence of any recommendation from flooring manufacturer, provide a product with the following characteristics:
  - 1. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
  - 2. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.
  - 3. Products:
    - a. ARDEX Engineered Cements; ARDEX Feather Finish: [www.ardexamericas.com/#sle](http://www.ardexamericas.com/#sle).
    - b. H.B. Fuller Construction Products, Inc; TEC Feather Edge Skim Coat: [www.tecspecialty.com/#sle](http://www.tecspecialty.com/#sle).
    - c. USG Corporation; Durock Brand Advanced Skim Coat Floor Patch: [www.usg.com/#sle](http://www.usg.com/#sle).
- B. Vapor Emission Coating/Sealer for Existing Concrete: Single- or multi-layer coating or coating/overlay combination intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of alkalinity (pH) found, and suitable for adhesion of flooring without further treatment.
  - 1. Thickness: As required for application and in accordance with manufacturer's installation instructions.
  - 2. Products:
    - a. ARDEX Engineered Cements; ARDEX MC RAPID: [www.ardexamericas.com/#sle](http://www.ardexamericas.com/#sle).
    - b. Creteseal; MAX System: [www.creteseal.com/#sle](http://www.creteseal.com/#sle).
    - c. LATICRETE International, Inc; LATICRETE NXT Vapor Reduction Coating : [www.laticrete.com/#sle](http://www.laticrete.com/#sle).
- C. Primer for Underlayment: As recommended by sealer manufacturer.

## **PART 3 EXECUTION**

### **3.1 CONCRETE SLAB PREPARATION**

- A. Perform following operations in the order indicated:
  - 1. Existing concrete slabs with coatings or penetrating sealers/hardeners/dustproofers:
    - a. Remove existing coatings and curing agents from surface according to recommendations of remedial coating manufacturer.
    - b. Prepare surface according to recommendations of remedial coating manufacturer and according to ASTM D4259.
  - 2. Preliminary cleaning.
  - 3. Moisture vapor emission tests; in each of the spaces designated on the drawings to receive new flooring; or as indicated or required by flooring manufacturer.
  - 4. Internal relative humidity tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
  - 5. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
  - 6. Specified remediation, if required.

7. Patching, smoothing, and leveling, as required.
8. Other preparation specified.
9. Adhesive bond and compatibility test.
10. Protection.

**B. Remediations:**

1. Active Water Leaks or Continuing Moisture Migration to Surface of Slab: Correct this condition before doing any other remediation; re-test after correction.
2. Excessive Moisture Emission or Relative Humidity: If an adhesive that is resistant to the level of moisture present is available and acceptable to flooring manufacturer, use that adhesive for installation of the flooring; if not, apply remedial floor coating or remedial sheet membrane over entire suspect floor area.
3. Excessive Alkalinity (pH): If remedial floor coating is necessary to address excessive moisture, no additional remediation is required; if not, if an adhesive that is resistant to the level present is available and acceptable to the flooring manufacturer, use that adhesive for installation of the flooring; otherwise, apply a skim coat of specified patching compound over entire suspect floor area.

### **3.2 REMOVAL OF EXISTING FLOOR COVERINGS**

- A. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

### **3.3 PRELIMINARY CLEANING**

- A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.
- B. Do not use solvents or other chemicals for cleaning.

### **3.4 MOISTURE VAPOR EMISSION TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
- C. Test in accordance with ASTM F1869 and as follows.
- D. Plastic sheet test and mat bond test may not be substituted for the specified ASTM test method, as those methods do not quantify the moisture content sufficiently.
- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if test values exceed 3 pounds per 1000 square feet per 24 hours.
- F. Report: Report the information required by the test method.

### **3.5 ALKALINITY TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. The following procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience.
1. Use a wide range alkalinity (pH) test paper, its associated chart, and distilled or deionized water.
  2. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch in diameter. Allow the puddle to set for approximately 60 seconds, then dip the alkalinity (pH) test

paper into the water, remove it, and compare immediately to chart to determine alkalinity (pH) reading.

3. Use of a digital pH meter with probe is acceptable; follow meter manufacturer's instructions.
- C. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 10.

### **3.6 PREPARATION**

- A. See individual floor covering section(s) for additional requirements.
- B. Comply with requirements and recommendations of floor covering manufacturer.
- C. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.
- D. Do not fill expansion joints, isolation joints, or other moving joints.

### **3.7 ADHESIVE BOND AND COMPATIBILITY TESTING**

- A. Comply with requirements and recommendations of floor covering manufacturer.

### **3.8 APPLICATION OF REMEDIAL FLOOR COATING**

- A. Comply with requirements and recommendations of coating manufacturer.

### **3.9 PROTECTION**

- A. Cover prepared floors with building paper or other durable covering.

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**END OF SECTION**

**SECTION 09 6700**  
**FLUID-APPLIED FLOORING**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Fluid-applied flooring and base.

**1.2 RELATED REQUIREMENTS**

- A. Section 07 9200 - Joint Sealants: Sealing joints between fluid-applied flooring and adjacent construction and fixtures.
- B. Section 09 0561 - Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.

**1.3 REFERENCE STANDARDS**

- A. ANSI/ESD STM7.1 - The Protection of Electrostatic Discharge Susceptible Items Flooring Systems Resistive Characterization 2021.

**1.4 SUBMITTALS**

- A. See Section 001 3300 - Submittal Procedures for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns and colors available.
- C. Samples: Submit two samples, 12" square in size illustrating color and pattern for each floor material for each color specified, applied to rigid backing by Installer for this Project
- D. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention, and application rate for each coat.
- E. Manufacturer's Qualification Statement.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Top Coat Materials: 2 gallons.

**1.5 SUSTAINABLE DESIGN SUBMITTALS**

- A. Laboratory Test Reports: For flooring products, indicating compliance with requirements for low-emitting materials.

**1.6 QUALITY ASSURANCE**

- A. Applicator Qualifications: Company specializing in performing the work of this section.
  - 1. Minimum 3 years of documented experience.

**1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Store resin materials in a dry, secure area.
- B. Store materials for three days prior to installation in area of installation to achieve temperature stability.

## **1.8 FIELD CONDITIONS**

- A. Maintain minimum temperature in storage area of 55 degrees F.
- B. Store materials in area of installation for minimum period of 24 hours prior to installation.
- C. Maintain ambient temperature required by manufacturer 72 hours prior to, during, and 24 hours after installation of materials.

## **PART 2 PRODUCTS**

### **2.1 FLUID-APPLIED FLOORING SYSTEMS**

- A. Fluid-Applied Flooring: Epoxy, with aggregate.
  - 1. Aggregate: Aluminum Oxide Broadcast.
  - 2. System Thickness: 40 mils, nominal, dry film thickness (DFT).
  - 3. Texture: Slip resistant.
  - 4. Sheen: Gloss.
  - 5. COLOR : Floor & Cove Base - Slate Gray
  - 6. COLOR: Equipment Pads - Safety Yellow
  - 7. Basis of Design Product: Dur-A-Flex;[Dur-A-Gard MR]: [www.dur-a-flex.com](http://www.dur-a-flex.com)
  - 8. Products:
    - a. Elite Crete Systems; E100-NV4 Novolac Protective Coating: [www.elitecrete.com/#sle](http://www.elitecrete.com/#sle).
    - b. PPG Flooring; Concrete Epoxy Primer Clear FLR900-0, Low Gloss, with Self-Leveling Epoxy FLR600 Series, High Gloss, and Epoxy Siloxane FLR450-0 Series, Satin: [www.ppgpaints.com](http://www.ppgpaints.com)
    - c. Stonhard; Stonclad: [www.stonhard.com/#sle](http://www.stonhard.com/#sle).
    - d. Substitutions: See Section 01 6000 - Product Requirements.

### **2.2 ACCESSORIES**

- A. Floor Leveling Underlayment: See Section 03 5400 - Cast Underlayment.
- B. Base Caps: Zinc with projecting base of 1/8 inch; color as selected.
- C. Cant Strips: Molded of flooring resin material.
- D. Subfloor Filler: Type recommended by fluid-applied flooring manufacturer.
- E. Primer: Type recommended by fluid-applied flooring manufacturer.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive flooring.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive flooring.
- C. Verify that subfloor surfaces are dust-free and free of substances that could impair bonding of materials to subfloor surfaces.
- D. Cementitious Subfloor Surfaces: Verify that substrates are ready for fluid-applied flooring installation by testing for moisture and alkalinity (pH).
  - 1. Test in accordance with Section 09 0561.
  - 2. Obtain instructions if test results are not within limits recommended by fluid-applied flooring manufacturer.

- 3. Follow moisture and alkalinity remediation procedures in Section 09 0561.

**3.2 PREPARATION**

- A. Remove subfloor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with subfloor filler.
- B. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Grind irregularities above the surface level. Prohibit traffic until filler is cured.
- C. Vacuum clean substrate.
- D. Apply primer to surfaces required by flooring manufacturer.

**3.3 INSTALLATION - ACCESSORIES**

- A. Install cant strips at base of walls where flooring is to be extended up wall as base.
- B. Install terminating cap strip at top of base; attach securely to wall substrate.

**3.4 INSTALLATION - FLOORING**

- A. Apply in accordance with manufacturer's instructions.
- B. Apply each coat to minimum thickness required by manufacturer.
- C. Finish to smooth level surface.
- D. Cove at vertical surfaces.

**3.5 FIELD QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements, for additional requirements.
- B. Test installed floor surface in accordance with ANSI/ESD STM7.1 .

**3.6 PROTECTION**

- A. Prohibit traffic on floor finish for 48 hours after installation.
- B. Barricade area to protect flooring until fully cured.

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**END OF SECTION**

**SECTION 10 1473**  
**PAINTED SIGNAGE**

**PART 1 -GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Wall-identification signs for fire and smoke assemblies.

**1.2 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Shop Drawings: For painted signs.
  - 1. Show message list, typestyles, graphic elements, and layout for each sign at least half size.

**1.3 FIELD CONDITIONS**

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

**PART 2 -PRODUCTS**

**2.1 PAINTED SIGNS**

- A. Wall-Identification Sign: Sign applied directly on indicated substrate to identify fire and smoke assemblies, including preparatory treatment as required.

**2.2 PAINT MATERIALS**

- A. Sign Paints and Coatings: Inks, dyes, and paints that are recommended in writing by manufacturer for optimum adherence to substrate and are UV and water resistant for colors and exposure indicated.
  - 1. Compatibility: Provide paint materials that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- B. VOC Content
  - 1. Flat Paints and Coatings: 50 g/L.
- C. Low-Emitting Materials: For field applications that are inside the weatherproofing system, 90 percent of paints and coatings shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

**PART 3 -EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for conditions affecting performance. Comply with paint manufacturer's written instructions for inspection.
- B. Proceed with installation only after unsatisfactory conditions have been corrected and surface is dry.
  - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

**3.2 INSTALLATION**

- A. Appearance Standard: Completed sign work shall have a sharp and uniformly delineated appearance as viewed by Architect from building interior at 5 feet .
- B. Comply with manufacturers` written instructions for surface preparation and paint-application for each substrate condition.
- C. Install signs level, plumb, true to line, with uniform delineation and borders, and at locations and heights indicated.
  - 1. Prespaced characters with template, cutout stencil, or ruler and straightedge.

**3.3 MARKING FIRE AND SMOKE ASSEMBLIES**

- A. Wall-Identification Signs: Permanently identify both sides of each fire and smoke assembly indicated on Drawings. Place signs in accessible, concealed floor, floor-ceiling, or attic space at maximum 15 feet from end of wall and at maximum intervals of 30 feet , measured horizontally along the assembly. Locate signs for greatest visibility in the space.

**3.4 ADJUSTING AND CLEANING**

- A. Remove and reapply damaged or deformed signs and signs that do not comply with specified requirements. Reapply signs with damaged or deteriorated finishes that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- C. Remove temporary protective coverings and strippable films as signs are installed.

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**END OF SECTION**



Subject	Question	Response
Mechanical Questions	<ul style="list-style-type: none"> <li>- Who is validating floor drain working / in RM M0-4550</li> <li>- Drilling/anchoring time restrictions from noise</li> <li>- Hot tap work permit requirements</li> <li>- Need chem treatment allowance?</li> <li>- How much chiller piping needs drained for taps</li> <li>- Who is to bleed air from piping HW/CW</li> <li>- ASBESTOS... who is verifying is not present and/or abatement</li> <li>- Badging procedure</li> <li>- Any core drilling procedure requirements</li> <li>- any future expansions valves needed for FCU piping</li> <li>- Is ProPress acceptable?</li> <li>- JCI is controls - do we carry them?</li> </ul>	<p>-Successful bidder to confirm floor drain working before demolition and relocation. The successful bidder shall confirm sanitary drain pipe usage using sewer camera.</p> <p>-Noise producing work times are location dependent. For this scope, Noise producing work will generally be allowed during normal working hours unless specific complaints from tenants are observed. In these cases, work will be scheduled for the least disruptions.</p> <p>-Hot taps will follow Successful Bidders means, methods, and safety procedures. These activities have the potential to impact operations, therefore approval of times and locations will be handled through the e-Builder Construction Logistics Impact notice process.</p> <p>-Chemical treatment allowance to be calculated by each bidder based on volume of pipe and noted isolation points. The approximate length of piping as shown in the bid documents is 500ft of 10" heating hot water piping and 500ft of 12" chilled water piping. The successful bidder shall be responsible for draining this piping on a seasonal basis and shall be responsible for purging air during piping system refill. All Bidders shall carry an allowance of \$500 in their base bid to cover the cost of replenishing chemicals for this project.</p> <p>-See Chemical treatment response.</p> <p>-Successful bidder to bleed air from system with coordination from CLT.</p> <p>-Asbestos: It is the Airport's understanding that all existing piping insulation does not contain asbestos. It is the responsibility of the successful bidder to test all existing material in question of containing asbestos. Notify the Airport immediately of any materials testing positive.</p> <p>-The Successful bidder will need to designate two Authorized Signers. These individuals will then be granted permission to submit badge applications for their employees. Generally, this requires application submissions with two forms of ID, finger printing, background checks, and then passing a Badging Test for the applicant. Once the Test is passed, a badge will be issued. Access can then be requested for the work areas from Security.</p> <p>-Core drilling will follow Successful Bidders means and methods. Any damage resulting from inadequate investigation will be the the responsibility of the Successful Bidder to remedy at their cost.</p> <p>- Valves shall only be installed as shown on the plans for branch line and individual fan coil unit isolation.</p> <p>- Mechanically pressed fittings are acceptable for all copper piping 2" and smaller in easily accessible areas. Copper piping behind walls and in concealed areas shall be soldered. Piping larger than 2" shall be welded black steel. The valves being installed at the baggage handling room shall be flanged.</p> <p>- The successful bidder shall extend the existing Johnson Controls Metasys building automation system as needed to integrate the new mechanical equipment. A price to carry a specific controls vendor will not be included in this contract, but the bidder shall identify assumptions, controls equipment manufacturers, and proposed methods to extend the existing controls system.E2</p>
Bid extension	<p>Can we get a 1 week bid extension to finish up questions? Please refer to sheet E002 (Electrical Specifications). Section 26 24 16; 2.1.A and 2.1.C.</p>	No.
Electrical Panelboard/Switchboard Manufacturer	<p>Many of the replaced panelboards/switchboards being replaced are GE (General Electric). Please advise if General Electric is acceptable manufacturer for Panelboards and Switchboards, in lieu of Square D and Eaton, so long as all requirements of Drawings/Specs are met.</p>	No. Contractor must meet all requirements of specifications including specified manufacturers.
Panel Schedule	I don't see the panel board schedules in the bid packages. Am I missing them?	Panel schedules will be included in addendum drawings which will clarify information on electrical sheets including but not limited to: riser diagrams, floor plans, and panel schedules.
Bid Bond Listing on Bid Form	<p>Please advise why Bid Bond cost/amount is being listed on Bid Form. This is the first time I have ever seen the itemized cost required for the bid form. Please advise.</p>	This is standard on our ITB construction template. It's not the "cost" to secure a 5% base bid bond. You're going to insert 5% of your base bid.

**A. ITEMIZED BID**

**Project Name:**

Charlotte Douglas International Airport

Project No.:

The undersigned Bidder, having carefully examined the Bidding and Contract Documents, and having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment, permits and services, including all scheduled Allowances, necessary to complete the Work for the above-named project, in accordance with the requirements of the Bidding Documents, for the sum of:

**BASE BID**

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**TEN PERCENT (10%) OWNER'S CONTINGENCY (Not included in Base Bid)**

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**BID GUARANTEE**

The undersigned Bidder agrees to execute the Agreement for the above amount and to furnish surety as specified within 10 days after notice of award, if offered within 120 calendar days after receipt of bids, and upon failure to do so agrees to forfeit the attached cash, cashier's check, certified check, U. S. money order, or bid bond, as liquidated damages for such failure, in the amount of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

the stated amount constituting five percent (5%) of the Base Bid amount above.

**ADD ALTERNATE 01: Electrical Panel and Feeder Cable Replacement (not included in base bid)**

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

If the Project costs are greater than \$300,000, NCGS 143-128(d) requires all single prime bidders to identify their subcontractors for the below subdivisions of work. A contractor whose bid is accepted shall not substitute any person as subcontractor in the place of the subcontractor listed in the original bid, except (i) if the listed subcontractor's bid is later determined by the contractor to be non-responsive or the listed subcontractor refuses to enter into a contract for complete performance of the bid work, or (ii) with the approval of the awarding authority for good cause shown by the contractor.

**List the following subcontractors you are using on this project**

Electrical	_____	License # _____
Mechanical, if applicable	_____	License # _____
Plumbing, if applicable	_____	License # _____
Fire Protection, if applicable	_____	License # _____

**BID SUPPLEMENTS**

Attached to this Bid Form and incorporated herein are the following documents, completed in full by the undersigned:

- Certificate of Non-Discrimination
- CBI Form # 3
- Bid Bond

PLEASE NOTE: FAILURE TO SUBMIT THE REQUIRED BID SUPPLEMENTS MAY RESULT IN REJECTION OF BID.

**CONTRACTOR'S LICENSE**

The undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of North Carolina, and that all fees, permits, etc., pursuant to the submission of this proposal have been paid in full. LICENSE # \_\_\_\_\_.

**CONFIDENTIALITY REQUIREMENTS**

By signing this bid form, I acknowledge that I have read and understood the confidentiality agreement as stated in the Instruction to Bidders, Section 13.