CRAIG GAULDEN DAVIS PBK

02/06/2026

ADDENDUM NO. 3:

TO: **All prospective bidders**

RE: Town of Canton - Armory Community Center Renovation
71 Penland Street, Canton, NC 28716
CGD|PBK Project No. 23029

The following attachments, changes or clarifications shall become part of the contract documents for the above referenced project.

GENERAL:

A3-G1 **RFI:**
Question: We noticed in spec section 21 10 00 it calls for a Highland Tank 35k fire protection tank. There is a 'sample' HTM tank drawing at the end of the specs. However, I don't see any other plans for this tank. Do you happen to know if there are any OR should we just quote per the spec/sample drawing?
Answer: *We have confirmed the site has good pressure and flow. A fire protection tank is not needed for this project. Please disregard.*

A3-G2 **RFI:**
Question: Room 104 – Slab Condition. The plans show work occurring in Room 104, but it is unclear whether the existing basement slab is intended to be repaired, or if this area is to be fully backfilled and a new slab poured at the finished floor elevation. Can you confirm the design intent for this space?
Answer: *The existing concrete pit slab does not have to be removed. The void should be backfilled with gravel and a slab on grade installed. The demo noted is for the floor joist.*

A3-G3 **RFI:**
Question: We could not locate dimensions for the existing building, height of the existing trusses, truss reinforcement details, or beam lengths. Are these measurements available, or should we scale / field-verify for pricing? On the Truss Reinforcement, will that just be the two end trusses or all trusses?
Answer: *The drawings can be scaled for pricing related to the trusses. However, our field measurements have the height of the truss that needs to be reinforced as 11'-0" at the ends and 12'-2" at mid span. The contractor should verify field conditions prior to purchase and fabrication. Only the truss closest to the main entrance that also supports the 2nd floor framing is to be reinforced. See the roof framing plan where the reinforcing detail is tagged.*

A3-G4 **RFI:**
Question: Does the allowance include all masonry required on the project or just pointing and patching? For instance, the "Existing Brick Infill" on the West Elevation, is this part of the allowance or should it be additional to the allowance?
Answer: *The allowance includes just repointing, brick repair, and patching. Required masonry infill at existing openings should be part of the base bid. Masonry Polymer Sealer should also be part of the base bid.*

A3-G5 **RFI:**

Question: The Invitation to Bid states that *"bidders must comply with the Davis-Bacon Act."* Please clarify the intended scope of compliance for this project: Does this requirement mean that all contractors and subcontractors performing work on the project must complete and submit the Davis-Bacon documentation (e.g., certified payrolls, wage classifications, etc.)? Is the requirement intended to mean that the General Contractor must be capable of managing Davis-Bacon compliance, but that certified payroll reporting is not required for every tier unless specifically directed? Please confirm the level of compliance and documentation expected so that bidders can accurately account for administrative and labor-related requirements in their proposals.

Answer: *The requirement intended to mean that the General Contractor must be capable of managing Davis-Bacon compliance, but that certified payroll reporting is not required for every tier unless specifically directed.*

A3-G6 **AISC Certified Fabricator Erector requirement:**

CLARIFICATION: The Division 05 specs require AISC Certified Fabricator and Erector. This requirement may be waived if the following are submitted:

- Mill Certificates of material
- Welding Certifications (for inspector's review)

A3-G7 **Water Piping - Copper Press Fittings**

CLARIFICATION: Viega ProPress Copper Fitting system is an approved equivalent system for water piping. Equivalent systems may be approved upon pre-submittal review. Certified / Approved installers trained in installations must be used.

SPECIFICATIONS:

A3-S1 **Section 00 01 00 – Cover Page**

REVISE: Revised to add addendum changes.

A3-S2 **Section 00 10 00 – Table of Contents**

REVISE: Revised to add addendum changes.

A3-S3 **Section 07 54 23 – Thermoplastic Membrane Roofing**

CLARIFICATION: 07 54 23.2.7.B.1 Fiberglass-Mat Faced Cover Board, Thickness shall be ½" inch.

CLARIFICATION: 07 54 23.3.3 Rigid Insulation Installation. See spec for clarification on installation method.

CLARIFICATION: 07 54 23.3.4.E Cover Board Installation. See spec for clarification on installation method.

A3-S4 **Section 08 41 13 – Alum Framed Entrances & Storefronts**

ADD: 08 41 13.2.7 Add manufacturer's standard aluminum perimeter gasketing with neoprene insert.

A3-S5 **Section 08 71 00 – Door Hardware**

REVISE: Door Hardware Sets have been revised.

DRAWINGS:

A3-D1 **Drawing C400, SITE UTILITY PLAN:**

ADD: Backwater Valves – install on existing sewer service. This should be priced as **Alternate 3**. This will be added to the 01 23 00 Alternate section and the 00 42 13 Proposal Form in the next Addendum.

A3-D2 **Drawing C641, CIVIL DETAILS – UTILITY:**
ADD: Backwater Valves – install on existing sewer service. This should be priced as **Alternate 3**. This will be added to the 01 23 00 Alternate section and the 00 42 13 Proposal Form in the next Addendum.

A3-D3 **Drawing A101, MAIN LEVEL FLOOR PLAN**
CLARIFICATION: All penetrations to the exterior wall should be sealed. See 2/A101 for detail.

Drawing A601, ROOF PLAN
CLARIFICATION: See drawings for various roofing clarifications.

Drawing A610, ROOF DETAILS
CLARIFICATION: Clarification on detail 8/A610.

APPROVED EQUALS

The following manufacturers have been given prior approval for bidding, subject to plans and specifications. Manufacturer's grades, weights, finishes or qualities shall equal or exceed those specified items.

Product	Specification Section	Manufacturer/Product
Sikaplan Universal-60 EnergySmart	07 54 23 Thermoplastic Polyolefin (TOP) Roofing	Sika

END OF ADDENDUM NO. 2

CRAIG GAULDEN DAVIS | PBK

Adam Berry, AIA
Associate Principal, Project Manager
aberry@cgdarch.com

Enclosures as noted:

RE-BID
TOWN OF CANTON
ARMORY COMMUNITY CENTER RENOVATION

CONSTRUCTION DOCUMENTS
SPECIFICATIONS

January 14, 2026

Re-Bid Addendum 3 – February 6, 2026

PROJECT OWNER:
TOWN OF CANTON
85 Summer Street
Canton, NC 28716

PROJECT CONSULTANTS:

STRUCTURAL ENGINEER
FULLER GROUP, LLC
1350 Cleveland St.
Greenville, SC 29607

KITCHEN CONSULTANT
FOODESIGN ASSOCIATES
8303 University Executive Park Drive. St. 410
Charlotte, NC 28262

MEP/FP/SYSTEMS ENGINEERING
REECE NOLAND, & MCELRATH, INC.
390 Main Street
Canton, NC 28716

OWNER CONSULTANT
MCGILL ASSOCIATES, PA.
5400 Trinity Road, Suite 107
Raleigh, NC 27607

CRAIG GAULDEN DAVIS PBK

DESIGN OFFICE: 18 Washington Park, Greenville, SC 29601
Date of Issue: January 14, 2026; **February 6, 2026**
CGD | PBK Project Number: 23029.00

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SECTION 01 01 00 - Table of Contents

DIVISION 08 – OPENINGS

DIVISION 09 – FINISHES

DIVISION 10 – SPECIALTIES

DIVISION 11 – EQUIPMENT

DIVISION 12 – FURNISHINGS

DIVISION 21 – FIRE PROTECTION

DIVISION 22 – PLUMBING

DIVISION 23 – HVAC

SECTION 07 54 23 - THERMOPLSTIC POLYOLEFIN (TOP) ROOFING (RE-BID ADD 1)

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SECTION INLCUDES

A. Provide labor, material, services, and equipment necessary to furnish and install work as indicated and as specified herein, which includes, but is not limited to:
   1. Adhered thermoplastic polyolefin (TPO) roofing system.
   2. Rigid insulation system.

1.3 REFERENCE STANDARDS

A. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

B. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2023.

C. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2023a.

D. ASTM C1371 - Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers; 2015 (Reapproved 2022).

E. ASTM C1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer; 2016 (Reapproved 2022).

F. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension; 2016 (Reapproved 2021).

G. ASTM D471 - Standard Test Method for Rubber Property--Effect of Liquids; 2016a (Reapproved 2021).

H. ASTM D751 - Standard Test Methods for Coated Fabrics; 2019.

I. ASTM D1079 - Standard Terminology Relating to Roofing and Waterproofing; 2024.

J. ASTM D1149 - Standard Test Methods for Rubber Deterioration-Cracking in an Ozone Controlled Environment; 2018 (Reapproved 2025).

K. ASTM D1475 - Standard Test Method for Density of Liquid Coatings, Inks, and Related Products; 2025.

L. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings; 2020a.

M. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.

N. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces; 2011 (Reapproved 2019).

O. ASTM G154 - Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials; 2023.

P. ASTM G155 - Standard Practice for Operating Xenon Arc Lamp Apparatus for Exposure of Materials; 2025.

Q. CRRC-1 - CRRC-1 Roof Product Rating Program Manual; 2025.

R. ASTM D1204 – Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature.

S. ASTM D-2137 – Standard Test Methods for Rubber Property—Brittleness Point of Flexible Polymers and Coated

T. SPRI – Single-Ply Roofing Institute

U. ANSI-SPRI ES-1 – Standard Field Test Procedure for Determining Withdrawing Resistance of Roofing Fasteners.

V. TM E-96 – Standard Test Methods for Water Vapor Transmission of Materials.

W. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - Architectural Sheet Metal Manual.

X. National Roofing Contractors Association (NRCA).

Y. American Society of Civil Engineers (ASCE).

Z. Factory Mutual (FM Global) – Approval Guide.

AA. Underwriters Laboratories (UL) – Roofing Systems and Materials Guide (TGFU R1306).

BB. ENERGY STAR.

CC. Cool Roof Rating Council (CRRC).

1.4 REFERENCES:

A. Refer to specification Section 01 41 00 - Regulatory Requirements for code requirements and code standards applicable to all materials and work necessary to complete the scope of work.

1.5 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.

1.6 ACTION SUBMITTALS

A. See Section 013000 – Administrative Requirements and Section 016000 – Product Requirements for submittal procedures.

B. Product Data: For each type of product.

C. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work, including:
   1. Base flashings and membrane terminations.
   2. Tapered insulation, including slopes.
   3. Roof plan showing orientation of roofing, fastening spacings, and patterns for mechanically fastened roofing.
   4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.

D. Samples: Sheet roofing and walkway pads, of color required.

E. Warranty: Submit sample warranty

F. Safety Provisions:
   1. Submit a complete detailed schedule of special safety provisions implemented to insure the health and safety of the people.
   2. Work shall not start without the Owner’s agreement of the following provisions:
      a. A plan for a dust free operation;
      b. A plan for the sequencing of work and the removal of debris from the site during and after construction.
      c. A fall protection plan indicating the contractor plans for complying with OSHA’s requirements.

G. Approvals: Manufacturer shall submit documentation that product complies with and has been tested and approved in compliance with Florida Product Approval or Miami Dade NOA and applicable requirements.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and manufacturer.

B. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
   1. Submit evidence of compliance with performance requirements.

C. Product Test Reports: For components of roofing system, tests performed by manufacturer and witnessed by a qualified testing agency.

D. Provide sample warranties for review.

1.8 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

1.9 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.
   1. Five (5) years minimum experience installing roofs for commercial/industrial/educational or similar buildings of same size and scope using products specified.
   2. Established office with experienced mechanics located within 100 miles (160.93 kilometers) radius of the project (does not apply to metal installers).
   3. Certified Florida roofing contractor.
   4. Must be certified as an applicator of the membrane or metal panel by the manufacturer prior to bidding. Sub-installers must also have the same certification.
   5. Must have installed products of specified manufacturers on at least five (5) previous jobs of similar size and scope.
   6. Must have a full-time roofing foreman of superintendent with a minimum of five (5) years documented experience installing products specified.

B. Manufacturer Qualifications: A qualified manufacturer that has UL listing and FMG approval for roofing system identical to that used for this Project.
   1. Manufacturer shall have been in business as a membrane or a metal roof panel manufacturer for a minimum of ten (10) years making the generic product specified.
   2. Manufacturer shall have supplied same or equal products on at least five (5) projects of similar size and scope prior to bidding.
   3. Manufacturer shall furnish to the design professional prior to the prebid conference, written documentation to the above requirements.

C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.
   1. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by membrane roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.
   2. Source Limitations: Obtain components including roof insulation, fasteners, for membrane roofing system from same manufacturer as membrane roofing or approved by membrane roofing manufacturer.

D. Inspections
   1. The roof shall be inspected by the manufacturer’s representative within one year of acceptance by the Owner in accordance with section 453.12.4, FBC, Building (SREF)

2. Provide at a minimum one in progress inspection with the Manufacturer's Representative and the Owner's Representative. The Manufacturer's Representative shall submit a written report of the inspection results within ten (10) days after the inspection to the Architect.
3. Inspections: Provide on-site weekly inspections by Owner's representative during and after installation of roofing system.

1.10 PREINSTALLATION MEETINGS

A. The Contractor shall conduct a pre-installation meeting at the project site a minimum of 30 days prior to any work being installed as indicated in this section and other related sections that require coordination with this section.

B. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.

C. Review methods and procedures related to roofing installation, including manufacturer's written instructions.

D. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

E. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.

F. Review structural loading limitations of roof deck during and after roofing.

G. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.

H. Review governing regulations and requirements for insurance and certificates if applicable.

I. Review temporary protection requirements for roofing system during and after installation.

J. Review roof observation and repair procedures after roofing installation.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

C. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

D. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

E. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.12 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.13 WARRANTY

A. Provide Manufacturers standard Guarantee with single source coverage and no monetary limitation where the manufacturer agrees to repair or replace components in the roofing system, which cause a leak due to a failure in materials or workmanship.
   1. Duration: Twenty (20) years from the date of completion.

B. Reflectivity Limited Warranty: Manufacture warrants to the original building owner, that the roof membrane will meet or exceed the initial and “aged” ENERGY STAR® reflectivity requirements for low slope roofing membranes (65% initial, 50% aged) when installed and maintained in accordance with manufacturers requirements. The aged reflectivity shall meet or exceed these requirements when measured after cleaning the membrane in accordance with manufacturer’s recommendations.

C. Installer Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as roofing, base flashing, roof insulation, fasteners, cover boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:
   1. Warranty Period: Two (2) years from date of Substantial Completion.

1.14 PERFORMANCE REQUIREMENTS

A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight.
   1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G154, or ASTM G155.

B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.

C. Provide an installed roofing membrane and base flashing system that does not permit the passage of water and will withstand the design pressures calculated in accordance with the most current revision of ASCE 7.

D. Manufacturer shall provide all primary roofing materials that are physically and chemically compatible when installed in accordance with manufacturers’ current application requirements.

E. Roofing System Design: Tested by a qualified testing agency to resist the following uplift pressures:
   1. Uplift Pressures: As indicated on structural plans.

F. Energy Star Listing: Roofing system shall be listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.

G. Insulation, moisture protection, roofing, thermal requirements, fireproofing and firestopping shall be design and constructed in compliance with the Florida Building Code and Florida Fire prevention Code as adopted by the State Fire marshal.

H. Exterior Fire-Test Exposure: Roof shall comply with FBC 453.12 per ASTM E108, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
   1. All roofing materials shall be labeled Class A per ASTM E108 and shall be certified by a nationally recognized independent testing laboratory. All roofing systems shall be installed within the limitations of the test procedure for surfacing, deck cross slope, and combustibility.

I. Exterior Fire-Test Exposure: ASTM E108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

J. Fire-Resistance Ratings: Provide fire-resistance-rated roof assemblies identical to those of assemblies tested for fire resistance per ASTM E119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

K. FM Approvals Listing: Provide membrane roofing, base flashings, and component materials that comply with requirements in FM Approvals 4450 and FM Approvals 4470 as part of a membrane roofing system, and that are listed in FM Approvals' "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals markings.
1. Fire/Windstorm Classification: Class 1A-90.

L. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

M. Per FBC 453.12.3 phased installation is prohibited. All new installed materials shall be sealed from moisture penetration at the end of each day. The contractor shall provide the Architect/Engineer (A/E) of record a “final statement of compliance” for the board.

N. Approvals: Manufacturer shall certify that product complies with and has been tested and approved in compliance with Florida Product Approval or Miami Dade NOA and applicable requirements.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. The manufacturer and basis of design shall be the following however products of other manufacturers will be considered for acceptance provided they equal or exceed the material requirements and functional qualities of the specified product:
1. Holcim Solutions and Products US, LLC

B. The following manufacturers are acceptable provided they equal or exceed the material requirements and functional qualities described in the specification.
1. GAF Materials Corporation
2. Carlisle SynTec Incorporated
3. Johns Manville
4. Versico Roofing Systems

C. Other manufacturers must have a minimum of five (5) years’ experience manufacturing products meeting or exceeding the specifications and comply with Section 01 60 00 requirements regarding substitutions to be considered including acceptance is provided by the Architect in writing prior to bidding.

2.2 TPO ROOFING

A. Basis of Design: “Elevate UltraPly TPO Roof Systems”
1. Florida Product Approval: #FL-10264.1 - R19

B. System: Polyester scrim reinforced thermoplastic polyolefin membrane for use as a single ply roof membrane complying with ASTM D6878.

C. TPO Sheet:
1. Thickness: 60 mils (1.524 mm), nominal.
2. Exposed Face Color: White.

D. Solar Reflectance Index: Not less than an initial index of not less than 95 and an aged index of not less than 85 when calculated according to ASTM E1980, based on testing identical products by a qualified testing agency.

E. Energy Performance: Roofing system shall have an initial solar reflectance of not less than 0.77 and an emissivity of not less than 0.87 when tested according to CRRC-1.

2.3 AUXILIARY ROOFING MATERIALS

A. The following items shall be the standards of membrane roofing manufacturer.

B. Solvent-based Bonding Adhesive: Solvent based rubberized adhesive for use with TPO membranes.

C. Edge Sealer: Solvent based liquid, required to protect filed cut edges of TPO membranes.

D. Primer: Solvent based primer for preparing surfaces to receive butyl based adhesive tapes.

E. Cleaner: Solvent based seam cleaner used to clean exposed or contaminated seam prior to heat welding.

F. Sealant: Solvent based, trowel grade synthetic elastomeric sealant. Durable and UV resistant suitable for use where caulk is typically used.

G. Termination Bar Sealant: Commercial grade roofing sealant suitable for sealing the upper lip of exposed termination bars and penetrations and around clamping rings. Meets the performance criteria of ASTM D412, ASTM D2196, ASTM D2196, ASTM D1475 and ASTM D1644.

H. Adhesive Tape Primer: Low VOC solvent-based primer for preparing surfaces to receive butyl based adhesive tapes.

I. Heat Welding Cleaner: Low VOC TPO cleaner designed to clean exposed or contaminated seams prior to heat welding to remove any residual soap or revitalize aged membranes.

J. Flashing Sealer: One-part butyl based high viscosity sealant suitable for sealing between flashing membrane and substrate surface behind exposed termination bars and for sealing between roofing membrane and drain flange.

K. Filler: 100% solids epoxy based two-part sealant suitable for filling sealant pans at irregularly-shaped penetrations. Epoxy is part A Polyamide is part B.

L. Self-Leveling Sealant: One-part, moisture-cure, self-leveling sealant designed for use in pitch pans on single ply roof systems.

2.4 FASTENERS

A. The following items shall be the standards of membrane roofing manufacturer.

B. Standard Screws: Standard duty alloy steel insulation fastener with CR-10 coating with a .215" diameter thread. Factory Mutual Standard 4470 Approved, #3 Phillips head for use on steel and wood decks.

C. Insulation Plates: Manufacturer’s standard plate galvalume, suitable for use with Standard and HD screws, and Spikes.

2.5 FLASHING ACCESSORIES

A. Penetration Flashing: Unreinforced thermoplastic polyolefin based smooth membrane for use as an alternative flashing/reinforcing material for penetrations and corners. Required whenever preformed vent boots cannot be used, white in color.

B. Cover Strip: 8 inch (203.2 mm) wide smooth type, polyester scrim reinforced thermoplastic polyolefin membrane strip for use as a cover strip over coated metal and stripping-in coated metal flanges and general repairs: 0.045 inches (1.14 mm) nominal thickness with 100 foot (3048 cm) length.

C. Termination Bar: Extruded aluminum termination bar with angled lip caulk receiver and lower leg bulb stiffener. Pre-punched slotted holes at 6" on center or 8" on center. 3/4" x 10' with 0.090" cross section.

D. Base Adhesive: 045" reinforced TPO membrane with pressure sensitive adhesive, to be installed on horizontal surfaces using plates and fasteners as a base attachment in fully adhered systems. Size 6" x 100′.

E. Miscellaneous Metal: 24-gauge steel with 0.025" thick TPO based film as required for fabrication into metal gravel stop and drip edge profiles, metal base and curb flashings, sealant pans, and scupper sleeves. Standard sheet size 4′ x 10′.

F. Metal Roof Edging and Fascia: Continuous metal edge member serving as termination of roof membrane. Watertight with no exposed fasteners; mounted to roof edge nailer.
   1. Wind Performance:
      a. Membrane Pull-Off Resistance: 100 lbs./ft. minimum, when tested in accordance with ANSI/SPRI ES-1 Test Method RE-1.
      b. Fascia Pull-Off Resistance: At least the minimum required when tested in accordance with ANSI/SPRI ES-1 Test Method RE-2.

2.6 RIGID INSULATION BOARD

A. Manufacturer: Elevate. Product: ISOGARD GL polyiso board insulation.

B. General: Preformed flat and tapered roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.

C. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, Grade 2, glass-fiber mat facer on both major surfaces.

D. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch (6.35 mm) per 12 inches (304.8 mm) unless otherwise indicated.

E. Cover Board Joint Tape: 6- or 8-inch wide, coated, glass-fiber joint tape

F. R-Value: 5.7 per inch

G. Roof R-Value: R-value shall be a minimum 30 and as indicated on the drawings.

2.7 COVER BOARD

A. Manufactures: The basis of design products "Securerock" are manufactured by USG. Equal or better performing products of other manufacturers will be considered for acceptance by the Architect

B. Fiberglass-Mat Faced Cover Board: Comply with ASTM C1177/1177M, Type X. Class A.
   1. Thickness: ~~5/8 inch (15.88 mm)~~**1/2 inch (12.7 mm).**
   2. Width: 4 feet (121.92 cm).
   3. Length: 8 feet (243.84 cm).
   4. Edges: Square.
   5. Surfacing: Fiberglass mat on face, back and long edges.

2.8 PENETRATION ACCESSORIES

A. Pipe and Conduit Flashing: 0.075" thick molded membrane sized to accommodate most pipe and conduits, (1" to 6" diameter pipes), including square tube. Hot-air welded directly to TPO membrane, supplied with stainless steel clamping rings.

B. Split Pipe and Conduit Flashing: 0.045" thick molded TPO membrane performed boots are split to accommodate common pipes and conduits and available in three sizes.

2.9 FIELD OF ROOF ACCESSORIES

A. Expansion Joint Covers: Pre-manufactured expansion joint covers used to bridge expansion joint openings. Fabricated to accommodate all roof to wall and roof to roof applications.

B. Walkway Roll: Roofing manufacturer's standard TPO walkway, 125 mil (3.17501 mm) extruded and embossed TPO in a gray color.

C. Splash Pads: Provide and install precast concrete type, of sizes and profiles indicated; minimum 3000 psi (20684.28 kPa) at 28 days, with minimum 5% air entrainment.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that the surfaces and site conditions are ready to receive work.

B. Verify that the deck is supported and secured.

C. Verify that the deck is clean and smooth, free of depressions, waves, or projections, and properly sloped to drains, valleys, eaves, scuppers, or gutters.

D. Verify that the deck surfaces are dry.

E. Verify that all roof openings or penetrations through the roof are solidly set, and that all flashings are tapered.

F. Substrate Acceptance: With the general contractor present, examine surfaces to receive the roof insulation system and determine that the surfaces are acceptable prior to placement of the insulating system.

3.2 PREPARATION

A. General: Remove water or any other substance that would interfere with roof system installation.

3.3 RIGID INSULATION NSTALLATION

~~Do not apply roof insulation or roofing until all other work trades have completed jobs that require them to traverse the deck on foot or with equipment. A vapor retarder coated lightly with asphalt may be applied to protect the inside of the structure prior to the insulation and final roofing installation. Before the application of the insulation, any damage or deterioration to the vapor retarder must be repaired.~~

~~Do not install wet, damaged, or warped insulation boards.~~

~~Install insulation boards with staggered board joints in one direction (unless taping joint).~~

~~Install insulation boards snug. Gaps between board joints must not exceed 1/4". All gaps in excess of 1/4" must be filled with like insulation material.~~

~~Wood nailers must be 3-1/2" minimum width or 1" wider than metal flange. They shall be of equal thickness as the insulation and be treated for rot resistance. All nailers must be securely fastened to the deck.~~

~~Do not kick insulation boards into place.~~

~~Miter and fill the edges of the insulation boards at ridges, valleys, and other changes in plane to prevent open joints or irregular surfaces. Avoid breaking or crushing of the insulation at the corners.~~

~~Roof tape, if required over insulation joints, must be laid evenly, smoothly, and embedded in a uniform coating of hot steep asphalt with 4" end laps. Care must be taken to assure smooth application of tape, and full embedment of the tape in the asphalt.~~

~~Do not install any more insulation than will be completely waterproofed each day.~~

~~The insulation must be securely attached to the roof deck using fastener.~~

~~Use only fasteners as indicated in the Performance Requirements.~~

A. **Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.**

B. **Comply with roofing system and roof insulation manufacturer's written instructions for installing roof insulation.**

C. **Installation Over Wood Decking:**
   1. **Install base layer of insulation with joints staggered not less than 24 inches (610 mm) in adjacent rows.**
      a. **Locate end joints over crests of decking.**
      b. **Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.**
      c. **Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.**
      d. **Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.**
      e. **.At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches (610 mm).**
         1) **Trim insulation so that water flow is unrestricted.**
      f. **Fill gaps exceeding 1/4 inch (6 mm) with insulation.**
      g. **Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.**
      h. **Loosely lay base layer of insulation units over substrate.**
      i. **Mechanically attach base layer of insulation using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to metal decks.**
         1) **Fasten insulation according to requirements in approved submittals.**
         2) **Fasten insulation to resist specified uplift pressure at corners, perimeter, and field of roof.**
   2. **Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches (305 mm) from previous layer of insulation.**
      a. **Staggered end joints within each layer not less than 24 inches (610 mm) in adjacent rows.**
      b. **Install with long joints continuous and with end joints staggered not less than 12 inches (305 mm) in adjacent rows.**
      c. **Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.**
      d. **Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.**
      e. **At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches (610 mm).**
         1) **Trim insulation so that water flow is unrestricted.**
      f. **Fill gaps exceeding 1/4 inch (6 mm) with insulation.**
      g. **Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.**
      h. **Adhere each layer of insulation to substrate using adhesive according to wind uplift resistance design:**
         1) **Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.**

3.4 COVER BOARD INSTALLATION

A. Coordinate installing membrane roofing system components so cover board is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system manufacturer's written instructions for installing roof cover board.

C. Install cover board with long joints of cover board in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6.35 mm) with cover board.
   1. Cut and fit cover board within 1/4 inch (6.35 mm) of nailers, projections, and penetrations.

D. Trim surface of cover board where necessary at roof drains so completed surface is flush and does not restrict flow of water.
   1. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

E. Install cover board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.
   1. ~~Fasten cover board to top flanges of steel deck according to recommendations in FM Global's "RoofNav" and FM Global Loss Prevention Data Sheet 1-29 for specified Windstorm Resistance Classification.~~ **Loosely lay cover board over substrate.**
   2. ~~Fasten cover board to top flanges of steel deck to resist uplift pressure at corners, perimeter, and field of roof according to roofing system manufacturers' written instruction.~~ **Adhere cover board to insulation using adhesive according to wind uplift design.**

3.5 INSTALLATION – GENERAL

A. Install TPO roofing system according to all current application requirements in addition to those listed in this section.

B. Start the application of membrane plies at the low point of the roof or at the drains, so that the flow of water is over or parallel to, but never against the laps.

3.6 MEMBRANE APPLICATION

A. Fully Adhered:
   1. Place membrane so that wrinkles and buckles are not formed. Any wrinkles or buckles must be removed from the sheet prior to permanent attachment. Roof membrane shall be fully adhered immediately after it is rolled out, followed by welding to adjacent sheets.
   2. Overlap roof membrane a minimum of 3" for side laps and 3" for end laps.
   3. Install membrane so that the side laps run across the roof slope lapped towards drainage points.
   4. All exposed sheet corners shall be rounded a minimum of 1".
   5. Use full width rolls in the field and perimeter region of roof.
   6. Use appropriate bonding adhesive for substrate surface, applied with a solvent-resistant roller, brush, or squeegee.
   7. Apply bonding adhesive at 1.2 to 1.67 gal/sq/surface. A greater quantity of bonding adhesive may be required based upon the substrate surface condition.
   8. Prevent seam contamination by keeping the adhesive application a few inches back from the seam area.
   9. Adhere approximately one half of the membrane sheet at a time. One half of the sheet's length shall be folded back in turn to allow for adhesive application. Lay membrane into adhesive once the bonding adhesive is tacky to the touch.
   10. Roll membrane with a weighted roller to ensure complete bonding between adhesive and membrane.

11. Membrane laps shall be heat-welded together. All welds shall be continuous, without voids or partial welds. Welds shall be free of burns and scorch marks.
12. Weld shall be a minimum of 1-1/2" in width for automatic machine welding and a minimum 2" in width for hand welding.
13. All cut edges of reinforced membrane must be sealed with TPO Cut Edge Sealant.
14. Supplemental membrane attachment is required at the base of all walls and curbs, and where the angle of the substrate changes by more than five (5) degrees (1" in 12"). Roofing membrane shall be secured to the structural deck with appropriate Drill-TecTM screws and plates spaced every 12" o.c. The screws and plates must be installed no less than 1/2" from the membrane edge. Alternatively, the roofing membrane may be turned up the vertical plane a minimum of 3" and secured with screws and termination bar. Fastener spacing is the same as is used for in-lap attachment. The termination bar must be installed within 1-1/2" to 2" of the plane of the roof membrane, with a minimum of 1" of membrane extending above the termination bar.
15. Supplemental membrane attachment to the structural deck is required at all penetrations unless the insulation substrate is fully adhered to the deck. Roofing membrane shall be secured to the deck with appropriate screws and plates.
16. Fasteners must be installed to achieve the proper embedment depth. Install fasteners without lean or tilt.
17. Install fasteners so that the plate or termination bar is drawn down tightly to the membrane surface. Properly installed fasteners will not allow the plate or termination bar to move (underdriving), but will not cause wrinkling of the membrane (overdriving).

B. FLASHINGS

C. General
1. All penetrations must be at least 24" from curbs, walls, and edges to provide adequate space for proper flashing.
2. Flash all perimeter, curb, and penetration conditions with coated metal, membrane flashing, and flashing accessories as appropriate to the site condition.
3. All coated metal and membrane flashing corners shall be reinforced with preformed corners or non-reinforced membrane.
4. Hot-air weld all flashing membranes, accessories, and coated metal. A minimum 2” wide hand weld or minimum 1-1/2" automatic machine weld is required
5. All cut edges of reinforced membrane must be sealed with TPO Cut Edge Sealant.

D. Reinforced Membrane Flashings
1. The thickness of the flashing membrane shall be the same as the thickness of the roofing membrane.
2. Membrane flashing may either be installed loose or fully adhered to the substrate surface in accordance with “Construction Detail Requirements”.
3. Where flashings are to be fully adhered, apply bonding adhesive at a rate resulting in 60 sq feet (0.06459 sq cm)/gallon of finished roofing material for solvent-based bonding adhesives, and at a rate of 125 sq feet (0.13455 sq cm)/gallon of finished roofing material for water-borne bonding adhesive. Apply bonding adhesive to both the underside of the membrane and the substrate surface at 120 sq feet (0.12917 sq cm) per gallon (Solvent Based) and 250 sq feet (0.26911 sq cm) per gallon (Water Based). A greater quantity of bonding adhesive may be required based upon the substrate surface condition. The bonding adhesive must be allowed to dry until tacky to the touch before flashing membrane application.
4. Apply the adhesive only when outside temperature is above 40°F. Recommended minimum application temperature is 50°F to allow for easier adhesive application.

5. The membrane flashing shall be carefully positioned prior to application to avoid wrinkles and buckles.

E. Un-Reinforced Membrane Flashings
1. Un-reinforced membrane is used to field-fabricate penetration or reinforcement flashings in locations where preformed corners and pipe boots cannot be properly installed.
2. Penetration flashings constructed of un-reinforced membrane are typically installed in two sections, a horizontal piece that extends onto the roofing membrane and a vertical piece that extends up the penetration. The two pieces are overlapped and hot-air welded together.
3. The un-reinforced membrane flashing shall be adhered to the penetration surface. Apply bonding adhesive at a rate resulting in 60 sq feet (0.06459 sq cm)/gallon of finished roofing material for solvent-based bonding adhesives, and at a rate of 125 sq feet (0.13455 sq cm) /gallon of finished roofing material for water-borne bonding adhesive. Apply bonding adhesive to both the underside of the membrane and the substrate surface at 120 sq feet (0.12917 sq cm) per gallon (Solvent Based) and 250 sq feet (0.26911 sq cm) per gallon (Water Based). A greater quantity of bonding adhesive may be required based upon the substrate surface condition. The bonding adhesive must be allowed to dry until tacky to the touch before flashing membrane application.

3.7 ROOF EDGES

A. Roof edge flashings are applicable for exterior edges of parapet walls.

B. Flash roof edges with coated metal flanged edging with a minimum 3" wide flange nailed 4" on center to wood nailers, and heat weld roof membrane to metal flanges.

C. When the fascia width exceeds 4", coated metal roof edging must be attached with a continuous cleat to secure the lower fascia edge. The cleat must be secured to the building no less than 12" o.c.

D. Flash roof edge scuppers with a coated metal insert that is mechanically attached to the roof edge and integrated as a part of the metal edging.

E. Alternatively, roof edges may be flashed with a 2-piece snap on fascia system, adhering the roof membrane to a metal cant and face nailing the membrane 8” on center prior to installing a snap-on fascia.

F. Parapet and Building Walls
1. Flash walls with TPO membrane adhered to the substrate with bonding adhesive, loose applied (Less than 24" in height) or with coated metal flashing nailed 4" on center to pressure-treated wood nailers.
2. Secure membrane flashing at the top edge with a termination bar. Water Block shall be applied between the wall surface and membrane flashing underneath all exposed termination bars. Exposed termination bars shall be mechanically fastened 8" on center; termination bars that are counter flashed shall be fastened 12" on center.
3. Roof membrane must be mechanically attached along the base of walls with screws and plates (deck securement) or screws and inverted termination bar (wall securement) at the following rate:
   a. Fully / Self Adhered System: 12" on center
4. All coated metal wall flashings and loose applied membrane flashings must be provided with separate metal counterflashings, or metal copings.
5. Metal counterflashings may be optional with fully adhered flashings depending on guarantee requirements. Exposed termination bars must be sealed with Flexseal® Roofing Cement or Flexseal® Caulk Grade.

6. Flash wall scuppers with a coated metal insert that is mechanically attached to the wall and integrated as part of the wall flashing.

G. Curbs and Ducts
1. Flash curbs and ducts with membrane adhered to the curb substrate with bonding adhesive, loose applied (Less than 18" in height) or with coated metal flashing nailed 4" on center to pressure-treated wood nailers.
2. Secure membrane flashing at the top edge with a termination bar. Water Block shall be applied between the curb/duct surface and membrane flashing underneath all termination bars. Exposed termination bars shall be mechanically fastened every 8" o.c.; termination bars that are counter flashed shall be fastened 12" on center.
3. Roof membrane must be mechanically attached along the base of walls with screws and plates (deck securement) or screws and inverted termination bar (wall securement) at the following rate:
   a. Fully / Self Adhered System: As indicated per the Performance Requirements

H. Roof Drains
1. Roof drains must be fitted with compression type clamping rings and strainer baskets. Original-type cast iron and aluminum drains, as well as retrofit-type cast iron, aluminum or molded plastic drains are acceptable.
2. Roof drains must be provided with a minimum 36" x 36" sump if applicable. Slope of tapered insulation within the sump shall not exceed 4” in 12".
3. Extend the roofing membrane over the drain opening. Locate the drain and cut a hole in the roofing membrane directly over the drain opening. Provide a 1/2" of membrane flap extending past the drain flange into the drain opening. Punch holes through the roofing membrane at drain bolt locations.
4. For cast iron and aluminum drains, the roofing membrane must be set in a full bed of water block on the drain flange prior to securement with the compression clamping ring. Typical water block application is one 10.5 ounce cartridge per drain.
5. Lap seams shall not be located within the sump area. Where lap seams will be located within the sump area, a separate roof membrane drain flashing a minimum of 12" larger than the sump area must be installed. The roof membrane shall be mechanically attached 12" on center around the drain with screws and plates. The separate roof drain flashing shall be heat welded to the roof membrane beyond the screws and plates, extended over the drain flange, and secured as above.
6. Tighten the drain compression ring in place.

3.8 TRAFFIC PROTECTION

A. Install walkway rolls at all roof access locations and other designated locations including roof-mounted equipment work locations and areas of repeated rooftop traffic.

B. Walkway pads must be provided between roof access and each piece of rooftop equipment. Provide a double roll to provide a 5′ - 0" wide walkway pad around and on all sides of rooftop equipment.

C. Heat-weld walkway rolls to the roof membrane surface continuously around the perimeter of the roll.

D. Walkway rolls may be installed with TPO primer and 3" seam tape.
1. Roll or brush the TPO primer on the back of the TPO pad along the edges and down the middle length of the pad.
2. Clean and prime the roof membrane where the pad will be installed.
3. Install tape to the back of the cleaned area of the pad and roll in with a silicone hand roller.
4. Remove release paper and install the tapes pads directly onto the roof membrane. Roll pads to secure in place.

3.9 SPLASH PAD INSTALLATION

A. Splash Pads Installation: Provide splash pads at locations where downspouts discharge onto the roofing membrane. Provide a 2'-0" wide by 10'-0" long splash apron under the splash pad. Splash apron shall be an addition piece of cap sheet adhered to the roofing surface.

3.10 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Provide periodic inspections of roof application by qualified technical representative of roofing manufacturer

3.11 ROOF TESTING

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections and to prepare test reports.

B. Test Cuts: Test specimens will be removed to evaluate problems observed during quality-assurance inspections of roofing membrane as follows:
   1. Approximate quantities of components within roofing membrane will be determined according to ASTM D 3617.
   2. Test specimens will be examined for interply voids according to ASTM D 3617 and to comply with criteria established in Appendix 3 inch (76.2 mm) ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."
   3. Repair areas where test cuts were made according to roofing system manufacturer's written instructions.

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

D. Roofing system will be considered defective if it does not pass tests and inspections.
   1. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.12 CLEANING

A. Clean up debris, excess materials, and equipment and remove from site.

B. Remove bitumen from surfaces other than those requiring bituminous roof coatings.

C. Remove bituminous markings from finished surfaces.

D. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.13 PROTECTION

A. Provide special protection or avoid heavy traffic on completed work when ambient temperature is above 80°F.

B. Restore to original condition or replace work or materials damaged during handling of bitumen and roofing materials.

C. Do not transverse any walkways where new work has been completed where traffic must continue over finished roof membrane, protect surfaces.

D. Do not throw or drop debris from roof, use chutes, or high lift trucks.

E. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

F. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

3.14 ROOFING INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
   1. Owner: .
   2. Address: .
   3. Building Name/Type: .
   4. Address: .
   5. Area of Work: .
   6. Acceptance Date: _____.
   7. Warranty Period: Two Years.
   8. Expiration Date: _____.

B. subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:
   1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
      a. lightning;
      b. Insert required wind speed in first subparagraph below.
      c. peak gust wind speed exceeding ;
      d. fire;
      e. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
      f. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
      g. vapor condensation on bottom of roofing; and
      h. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
   2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
   3. 3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
   4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said

alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.

5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.
    a. WITNESS THEREOF, this instrument has been duly executed this _____
    b. day of _____, _____.
    c. Authorized Signature:
    d. _____.
    e. Name: _____.
    f. Title: _____.

END OF SECTION

SECTION 08 41 13 - ALUMINUM FRAMED ENTRANCES AND STOREFRONTS (RE-BID ADD 3)

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SECTION INCLUDES:

A. Provide labor, material, services and equipment necessary to furnish and install work as indicated and as specified herein, which includes, but is not limited to:
   1. Exterior storefront systems.

1.3 REFERENCE STANDARDS

A. AA (Aluminum Association) – Designation System for Aluminum Finishes.

B. AAMA Series number 11 – Design Wind Loads for Buildings and Boundary Layer Wind Tunnel Testing.

C. AAMA 101 – Standard Specification for Window, Doors, and Skylights.

D. AAMA 200 – Standard Practice for the Installation of Windows with Frontal Flanges for Surface Barrier Masonry Construction.

E. ASCE 7 – Minimum Design Loads for Buildings and other Structures.

F. ASTM A123/A123M – Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and steel products.

G. ASTM B209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

H. ASTM B221 – Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

I. ASTM C509 – Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material.

J. ASTM D2000 – Standard Classification System for Rubber Products in Automotive Applications.

K. ASTM D2287 – Standard Specification for Non-Rigid Vinyl Chloride Polymer and Copolymer Molding and Extrusion Compounds.

L. ASTM E283 – Standard Test Method for Determining the Rate of Air Leakage.

M. Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.

N. ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

O. ASTM E331 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.

P. ASTM E1105 – Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference.

Q. ASTM F588 – Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact.

R. ADA/ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disability Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities."

1.4 REFERENCES

A. Refer to specification Section 01 41 00 - Regulatory Requirements for code requirements and code standards applicable to all materials and work necessary to complete the scope of work.

1.5 ACTION SUBMITTALS

A. See Section 01 30 00 – Administrative Requirements and Section 01 60 00 – Product Requirements for submittal procedures.

B. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
   1. Include details of provisions for system expansion and contraction and for drainage of moisture in the system to the exterior.
   2. For entrance doors, include hardware schedule and indicate operating hardware types, functions, quantities, and locations.

D. Samples: For units with factory-applied finishes.

E. Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed systems, made from 12-inch (300-mm) lengths of full-size components and showing details of the following:
   1. Joinery, including concealed welds.
   2. Anchorage.
   3. Expansion provisions.
   4. Glazing.
   5. Flashing and drainage.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer and testing agency.

B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for aluminum-framed systems, indicating compliance with performance requirements.

C. Warranties: Sample of special warranties.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: A manufacturer capable of fabricating glazed aluminum storefront and entrance systems that meet or exceed energy performance requirements indicated and of documenting this performance by certification, labeling, and inclusion in lists.

B. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

C. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.

D. Engineering Responsibility: Prepare data for aluminum-framed systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project.

E. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are

indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.

1. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.

F. Energy Performance Standards: Comply with NFRC for minimum standards of energy performance, materials, components, accessories, and fabrication. Comply with more stringent requirements if indicated.

G. Accessible Entrances: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.

H. Source Limitations for Aluminum-Framed Systems: Obtain from single source from single manufacturer.

1.8 PRE-INSTALLATION MEETING

A. The Contractor shall conduct a pre-installation meeting at the project site a minimum of 30 days prior to any work being installed as indicated in this section and other related sections that require coordination with this section.

B. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

C. Review and discuss the finishing that is required to be coordinated with the finishing of other aluminum work for color and finish matching.

D. Review, discuss, and coordinate the interrelationship with other exterior wall components. Include provisions for anchoring, flashing, weeping, sealing perimeters, and protecting finishes.

E. Review and discuss the sequence of work required to construct a watertight and weathertight exterior building envelope.

F. Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

1.9 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

1.10 WARRANTY

A. Warranty: Standard form in which manufacturer and installer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Structural failures including, but not limited to, excessive deflection.
   b. Noise or vibration caused by thermal movements.
   c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   d. Adhesive or cohesive sealant failures.
   e. Water leakage through fixed glazing and framing areas.
   f. Failure of operating components.
2. Warranty Period for installer: Two (2) years from date of Substantial Completion.
3. Warranty Period for manufacturer: Five (5) years from date of Substantial Completion.

B. Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty does not include normal weathering.

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: Five (5) years from date of Substantial Completion.

1.11 PERFORMANCE REQUIREMENTS

A. General Performance: Aluminum-framed systems shall withstand the effects of the following performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction.
1. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.
2. Dimensional tolerances of building frame and other adjacent construction.
3. Failure includes the following:
a. Deflection exceeding specified limits.
b. Thermal stresses transferring to building structure.
c. Framing members transferring stresses, including those caused by thermal and structural movements to glazing.
d. Glazing-to-glazing contact.
e. Noise or vibration created by wind and by thermal and structural movements.
f. Loosening or weakening of fasteners, attachments, and other components.
g. Sealant failure.
h. Failure of operating units.

B. Structural Loads:
1. Wind Loads: Basic wind speed, importance factor and exposure category shall be as indicated on Structural Drawings.

C. Deflection of Framing Members:
1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches and to 1/240 of clear span plus 1/4 inch for spans greater than 13 feet 6 inches and shall also comply with the impact certification requirements.
2. Deflection Parallel to Glazing Plane: Limited to L/360 of clear span or 1/8 inch, whichever is smaller and shall comply with the impact certification requirements.

D. Structural-Test Performance: Provide aluminum-framed systems tested according to ASTM E 330 as follows:
1. Wind Loads: Basic wind speed, importance factor and exposure category shall be as indicated on drawings.
2. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches or 3/4".

E. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas to comply with manufacturers testing of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 6.24 lbf/sq. ft. (300 Pa).

F. Water Penetration under Static Pressure: Provide aluminum-framed systems that do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure difference of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft.

G. Water Penetration under Dynamic Pressure: Provide aluminum-framed systems that do not evidence water leakage through fixed glazing and framing areas when tested according to AAMA 501.1 under dynamic pressure equal to 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft.

H. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
   1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
   2. Test Performance: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.
      a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of 180 deg F (82 deg C).
      b. Low Exterior Ambient-Air Temperature: 0 deg F (minus 18 deg C).
   3. Interior Ambient-Air Temperature

I. Condensation Resistance: Provide aluminum-framed systems with fixed glazing and framing areas having condensation-resistance factor (CRF) of not less than 45.

J. Thermal Conductance: Provide aluminum-framed systems with fixed glazing and framing areas having an average U-factor of not more than 0.57 Btu/sq. ft. x h x deg F.
   1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
   2. Test Interior Ambient-Air Temperature: 75 deg F (24 deg C).
   3. Test Performance: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.

K. Sound Transmission: Provide aluminum-framed systems with fixed glazing and framing areas having the following sound-transmission characteristics:
   1. Sound Transmission Class (STC): Minimum 32 STC when tested for laboratory sound transmission loss according to ASTM E 90 and determined by ASTM E 413 and ASTM E 1332.

L. Delegated Design: Design aluminum-framed systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated if design exceeds limitations of the impact certification and provide additional elements as required to meet design loads.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer and basis of design shall be the following however products of other manufacturers will be considered for acceptance provided they equal or exceed the material requirements and functional qualities of the specified product and acceptance is provided by the Architect in writing prior to bidding.
   1. Kawneer

B. The following manufacturers are acceptable provided they equal or exceed the material requirements and functional qualities of the basis of design product.
   1. EFCO
   2. YKK AP American, Inc.

2.2 FRAMING SYSTEMS

A. Trifab® VersaGlaze® 451T Framing System:
   1. 2" x 4-1/2" (50.8 mm x 114.3 mm) nominal dimension.
   2. Non-thermal.
   3. Front, center, back, multi-plane, structural silicone or weatherseal (type B) glazed.
   4. Screw spline, shear block, stick, or punched opening.

B. Brackets and Reinforcements:
   1. Manufacturer's standard high-strength aluminum with non-staining, non-ferrous shims for aligning system components.

C. Fasteners and Accessories:
   1. Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories must be compatible with adjacent materials.
   2. Where exposed, fasteners and accessories shall be stainless steel.

D. Perimeter Anchors:
   1. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

E. Packing, Shipping, Handling, and Unloading:
   1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

F. Storage and Protection:
   1. Store materials so that they are protected from exposure to harmful weather conditions.
   2. Handle material and components to avoid damage.
   3. Protect material against damage from elements, construction activities, and other hazards before, during, and after installation.

2.3 ENTRANCE DOOR SYSTEM

A. The door stile and rail face dimensions of the entrance door will be as follows:
   1. 190 Swing Door.
   2. Vertical face dimension: 2-1/8" (54.0 mm).
   3. Top Rail: 2-1/4" (57.2 mm).
   4. Bottom Rail: 3-7/8" (98.4 mm).
   5. Optional Bottom Rail: 10" (254.0 mm).

B. Major portions of the door members shall be 0.125" (3.2 mm) nominal thickness.

C. Glazing molding shall be 0.05" (1.3 mm) thick.

D. Glazing gaskets shall be either EPDM elastomeric extrusions or a thermoplastic elastomer.

E. Provide adjustable glass jacks to help center the glass in the door opening.

2.4 ENTRANCE DOOR HARDWARE

A. Door Hardware: Refer to section 08 71 00 - Door Hardware.

2.5 GLAZING SYSTEMS

A. Glazing to meet requirements in Division 08 Glazing Section.

B. Glazing Gaskets:
   1. Manufacturer's standard compression types.
   2. Replaceable, extruded EPDM rubber.

C. Spacers and Setting Blocks:
   1. Manufacturer's standard elastomeric type.

D. Bond-Breaker Tape:
   1. Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

E. Glazing Sealants for structural-sealant-glazed systems as recommended by manufacturer for joint type, and as follows:
   1. Structural Sealant:

a. ASTM C 1184.
b. Single-component neutral-curing silicone formulation that is compatible with the system components with which it comes in contact
c. Specifically formulated and tested for use as structural sealant and approved by a structural-sealant manufacturer for use in the aluminum-framed systems indicated.
d. Color: Black.

2. Weatherseal sealant:
a. ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O.
b. Single-component neutral-curing formulation that is compatible with the structural sealant and other system components with which it comes in contact.
c. Recommended by structural-sealant, weatherseal-sealant, and aluminum-framed-system manufacturers for this use.
d. Color: Matching structural sealant.

2.6 MATERIALS

A. Aluminum Extrusions:
1. Alloy and temper recommended by aluminum storefront manufacturer for strength, corrosion resistance, and application of required finish.
2. Framing: Not less than 0.070" (1.8 mm) wall thickness at any location for the main frame.
3. Doors: Not less than 0.090" (2.3 mm) wall thickness at any location for the main frame and door leaf members.
4. Complying with ASTM B221: 6063-T6 alloy and temper.

B. Fasteners:
1. Nonmagnetic stainless steel or other materials must be non-corrosive and compatible with aluminum members, trim hardware, anchors, and other components.

C. Anchors, Clips, and Accessories:
1. Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.
2. Anchors, clips, and accessories shall provide sufficient strength to withstand the design pressure indicated.

D. Reinforcing Members:
1. Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.

E. Sealant:
1. For sealants required within fabricated storefront system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

F. Tolerances:
1. References to tolerances for wall thickness and other cross-sectional dimensions of storefront members are nominal and in compliance with AA Aluminum Standards and Data.

2.7 ACCESSORIES

A. **Perimeter Gasketing:**
1. **Manufacturer's standard aluminum perimeter gasketing with neoprene insert.**
a. **Finish: Match doors.**

B. Joint Sealants:
1. For installation at perimeter of aluminum-framed systems, as specified in Division 07 Joint Sealants Section.

C. Bituminous Paint:
   1. Cold-applied asphalt-mastic paint
   2. Complies with SSPC-Paint 12 requirements except containing no asbestos
   3. Formulated for 30-mil (0.762 mm) thickness per coat

2.8 FABRICATION

A. Form or extrude aluminum shapes before finishing.

B. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
   1. Profiles that are sharp, straight, and free of defects or deformations.
   2. Accurately fitted joints with ends coped or mitered.
   3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
   4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
   5. Provisions for field replacement of glazing from exterior.
   6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

C. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
   1. At exterior doors, provide compression weather stripping at fixed stops.

D. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
   1. At pairs of exterior doors, provide sliding-type weather stripping retained in adjustable strip and mortised into door edge.
   2. At exterior doors, provide weather sweeps applied to door bottoms.

E. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.

F. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.9 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Sections shall be free of scratches and other serious surface blemishes and chemically cleaned.

B. Aluminum Surfaces: Sections shall be free of scratches and other serious surface blemishes and chemically cleaned.

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.

D. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

E. Factory Finishing:
   1. Kawneer Permanodic® AA-M10C21A44, AAMA 611, Architectural Class I Color Anodic Coating.
      a. Color: Dark bronze.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

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

3.2 INSTALLATION

A. General:
   1. Comply with manufacturer's written instructions.
   2. Do not install damaged components.
   3. Fit joints to produce hairline joints free of burrs and distortion.
   4. Rigidly secure nonmovement joints.
   5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
   6. Seal joints watertight unless otherwise indicated.

B. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or applying sealant or tape, or by installing nonconductive spacers as recommended by manufacturer for this purpose.

C. Corrosion Protection: Coat concealed surfaces that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

D. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.

E. Set continuous sill members and flashing in full sealant bed as specified in Section 079200 "Joint Sealants" to produce weathertight installation.

F. Sill Pan Installation: Install sill pan in full bed of sealant on concrete slab prior to installing system.

G. Install components plumb and true in alignment with established lines and grades, and without warp or rack.

H. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping. Indicate entrance door hardware mounting heights on Drawings or insert in subparagraph below.
   1. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

I. Install perimeter joint sealants as specified in specification section "Joint Sealants" to produce weathertight installation.

J. Install glazing as specified in specification section "Glazing."

3.3 ERECTION TOLERANCES

A. Install aluminum-framed systems to comply with the following maximum erection tolerances:
   1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 10 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.
   2. Alignment:
      a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch (1.5 mm).
      b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch (0.8 mm).

B. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch (3 mm).

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified independent testing and inspecting agency to perform field tests and inspections.

B. Testing Services: Testing and inspecting of representative areas of glazed aluminum framed assemblies shall take place as installation proceeds to determine compliance of installed assemblies with specified requirements.

1. Air Infiltration: Areas shall be tested for air leakage based on performance requirements (2.25 L/s per sq. m) to comply with manufacturer's test results of wall area when tested according to ASTM E 783 at a minimum static-air-pressure differential of (75 Pa)6.24 lbf/sq. ft. (300 Pa).
   a. Test Area: One bay wide, but not less than 20 feet (9.1 m), by one story of glazed aluminum framed assemblies.
   b. Perform a minimum of two tests in areas as directed by Architect.
2. Water Penetration: Areas shall be tested according to ASTM E 1105 at a minimum uniform and cyclic static-air-pressure differential of not less than 6.24 lbf/sq. ft. (300 Pa), and shall not evidence water penetration.
   a. Test Area: One bay wide, but not less than 20 feet (9.1 m), by one story of glazed aluminum framed assemblies.
   b. Perform a minimum of two tests in areas as directed by Architect.
3. Water Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
   a. Test Area: A minimum area of 75 feet (23 m) by one story of glazed aluminum framed assemblies.

C. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

D. Aluminum framed assemblies will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports.

3.5 ADJUSTING

A. Adjust operating entrance door hardware to function smoothly as recommended by manufacturer.

B. For entrance doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches from the latch, measured to the leading door edge.

END OF SECTION

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical door hardware

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 "General Requirements" sections for Allowances, Alternates, Owner Furnished Contractor Installed, Project Management and Coordination.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
   a. "Metal Doors and Frames"
   b. "Flush Wood Doors"
   c. "Stile and Rail Wood Doors"
   d. "Interior Aluminum Doors and Frames"
   e. "Aluminum-Framed Entrances and Storefronts"
   f. "Stainless Steel Doors and Frames"
   g. "Special Function Doors"
   h. "Entrances"

1.02 REFERENCES

A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
2. NFPA 101 – Life Safety Code
3. NFPA 105 – Smoke and Draft Control Door Assemblies
4. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
   a. Review drawings and Sections from related trades to verify compatibility with specified hardware.
   b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit 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.
2. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
   a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

3. Door Hardware Schedule:

a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
c. Indicate complete designations of each item required for each opening, include:
    1) Door Index: door number, heading number, and Architect's hardware set number.
    2) Quantity, type, style, function, size, and finish of each hardware item.
    3) Name and manufacturer of each item.
    4) Fastenings and other pertinent information.
    5) Location of each hardware set cross-referenced to indications on Drawings.
    6) Explanation of all abbreviations, symbols, and codes contained in schedule.
    7) Mounting locations for hardware.
    8) Door and frame sizes and materials.
    9) Degree of door swing and handing.

4. Key Schedule:
    a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
    b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
    c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
    d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
    e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
    f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:
    a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
    b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:

a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
b. Catalog pages for each product.
c. Final approved hardware schedule edited to reflect conditions as installed.
d. Final keying schedule
e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

E. Inspection and Testing:

1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
   a. Fire door assemblies, in compliance with NFPA 80.
   b. Required egress door assemblies, in compliance with NFPA 101.

1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
   a. For door hardware: DHI certified AHC or DHC.
   b. Can provide installation and technical data to Architect and other related subcontractors.
   c. Can inspect and verify components are in working order upon completion of installation.

4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. Fire-Rated Door Openings:
   a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.

b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.

2. Smoke and Draft Control Door Assemblies:
   a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
   b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.

3. Accessibility Requirements:
   a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.

C. Pre-Installation Meetings

1. Keying Conference
   a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
      1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
      2) Preliminary key system schematic diagram.
      3) Address for delivery of keys.

2. Pre-installation Conference
   a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   b. Inspect and discuss preparatory work performed by other trades.
   c. Review required testing, inspecting, and certifying procedures.
   d. Review questions or concerns related to proper installation and adjustment of door hardware.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping

B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.

C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.

D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.

B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop 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. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.

1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.
    a. Mechanical Warranty
        1) Locks
            a) Schlage L Series: 10 years
            b) Schlage ND Series: 10 years
        2) Exit Devices
            a) Von Duprin: 10 years
        3) Closers
            a) LCN 4000 Series: 30 years
        4) Automatic Operators
            a) LCN: 2 years

1.08 MAINTENANCE

A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance with section 01 25 00.

B. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.

C. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fabrication

1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer’s recognized installation standards for application intended.
2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with “Metal Doors and Frames”, “Flush Wood Doors”, “Stile and Rail Wood Doors” to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.

B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Ives 5BB series

2. Acceptable Manufacturers and Products:
   a. McKinney TB series
   b. Best FBB series

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
   a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
   b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
   a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
6. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
7. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
   a. Steel Hinges: Steel pins
   b. Non-Ferrous Hinges: Stainless steel pins
   c. Out-Swinging Exterior Doors: Non-removable pins
   d. Out-Swinging Interior Lockable Doors: Non-removable pins
   e. Interior Non-lockable Doors: Non-rising pins

2.04 CONTINUOUS HINGES

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives
2. Acceptable Manufacturers:
   a. Select
   b. Best
   c. Roton
   d. ABH

B. Requirements:

1. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
2. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
3. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
4. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
5. On fire-rated doors, provide aluminum geared continuous hinges classified for use on rated doors by testing agency acceptable to authority having jurisdiction.

6. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

2.05 FLUSH BOLTS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. DCI
   c. Trimco
   d. Don-Jo

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.06 MORTISE LOCKS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Schlage L9000 series

2. Acceptable Manufacturers and Products:
   a. Accurate 9000/9100 series
   b. Best 45H series

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide indicator window measuring a minimum 2-inch x 1/2 inch with 180-degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to “KEYING” article, herein.

5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.

2.07 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Schlage ND series

2. Acceptable Manufacturers and Products:
   a. Sargent 11-Line
   b. Corbin-Russwin CL3100 series

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide escutcheon with lock status indicator window on top of lockset rose:
   a. Escutcheon height (including rose) 6.05 inches high by 3.68 inches wide.
   b. Indicator window measuring a minimum 3.52-inch by .60 inch with 1.92 square-inches of front facing viewing area and 180-degree visibility with a total of .236 square-inches of total viewable area.
   c. Provide snap-in serviceable window to prevent tampering. Lock must function if indicator is compromised.
   d. Provide messages color-coded with full text and symbol, as scheduled, for easy visibility.
   e. Unlocked and Unoccupied message will display on white background, and Locked and Occupied message will display on red background.
3. Cylinders: Refer to "KEYING" article, herein.
4. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
5. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
6. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
7. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
8. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.

2.08 DEADBOLTS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Schlage B500 Series

2. Acceptable Manufacturers and Products:
   a. Arrow E Series
   b. Dormakaba D800/DB600 Series
   c. Falcon D200 Series

B. Requirements:

1. Provide grade 2 deadbolt series conforming to ANSI/BHMA A156.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide deadbolts with standard 2-3/4 inches (70 mm) backset. Provide 2-3/8 inches (60 mm) where noted or if door or frame detail requires. Provide deadbolt with full 1-inch (25 mm) throw, constructed of steel alloy.
4. Provide manufacturer's standard strike.
5. Lock Status Indicator Trim: Where specified, provide escutcheon with lock status indicator widow.
   a. Escutcheon height 4.125 inches, width 2.54 inches. Projection 1.32 inches on thumbturn side and 1.28 inches on cylinder side.
   b. Unlocked and Unoccupied message will display on white background, and Locked and Occupied message will display on red background.
   c. Provide snap-in serviceable window to prevent tampering. Lock must function if indicator is compromised.
   d. Indicator window to provide 180-degree visibility.

2.09 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Von Duprin 98/35A series

2. Acceptable Manufacturers and Products:
   a. Detex Advantex series
   b. Precision APEX 2000 series

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide smooth touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.

5. Provide exit devices with weather resistant components that can withstand harsh conditions of various climates and corrosive cleaners used in outdoor pool environments.
6. Provide flush end caps for exit devices.
7. Provide exit devices with manufacturer's approved strikes.
8. 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.
9. 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.
10. Provide cylinder or hex-key dogging as specified at non fire-rated openings.
11. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
12. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
13. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
14. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.10 CYLINDERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Schlage Everest 29 S

2. Acceptable Manufacturers and Products:
   a. Best Preferred Patented
   b. Yale Keymark

B. Requirements:

1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset; manufacturer’s series as indicated. Refer to “KEYING” article, herein.
2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
   a. Patented Open: cylinder with interchangeable core with open keyway.

3. Patent Protection: Cylinders/cores requiring use of restricted, patented keys, patent protected.
4. Nickel silver bottom pins.

2.11 KEYING

A. Scheduled System:

1. New factory registered system:
   a. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

1. Construction Keying:
   a. Replaceable Construction Cores.
      1) Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
         a) 3 construction control keys
         b) 12 construction change (day) keys.
      2) Owner or Owner's Representative will replace temporary construction cores with permanent cores.

2. Permanent Keying:
   a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
      1) Master Keying system as directed by the Owner.
   b. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
   c. Provide keys with the following features:
      1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
      2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
   d. Identification:
      1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
      2) Identification stamping provisions must be approved by the Architect and Owner.
      3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
      4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
      5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
   e. Quantity: Furnish in the following quantities.
      1) Permanent Control Keys: 3.
      2) Master Keys: 6.
      3) Change (Day) Keys: 3 per cylinder/core that is keyed differently
      4) Key Blanks: Quantity as determined in the keying meeting.

2.12 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:

a. LCN 4010/4110/4020 series

2. Acceptable Manufacturers and Products:
   a. Corbin-Russwin DC8000 series
   b. Sargent 281 series

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. Certify surface mounted mechanical closers to meet fifteen million (15,000,000) full load cycles. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter with 11/16-inch (17 mm) diameter double heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers. When closers are parallel arm mounted, provide closers which mount within 6-inch (152 mm) top rail without use of mounting plate so that closer is not visible through vision panel from pull side.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI/BHMA Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.13 ELECTROMECHANICAL AUTOMATIC OPERATORS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. LCN Senior Swing

2. Acceptable Manufacturers and Products:
   a. Besam Swingmaster MP
   b. Horton 4000LE series
   c. Stanley Access Technologies M-Force

B. Requirements:

1. Provide low energy automatic operator units that are electromechanical design complying with ANSI/BHMA A156.19.
   a. Opening: Powered by DC motor working through reduction gears.
   b. Closing: Spring force.
   c. Manual, hydraulic, or chain drive closers: Not permitted.
   d. Operation: Motor is off when door is in closing mode. Door can be manually operated with power on or off without damage to operator. Provide variable adjustments, including opening and closing speed adjustment.
   e. Cover: Aluminum.

2. Provide units with manual off/auto/hold-open switch, push and go function to activate power operator, vestibule interface delay, electric lock delay, hold-open delay adjustable from 1 to 32 seconds, and logic terminal to interface with accessories, mats, and sensors.
3. Provide drop plates, brackets, and adapters for arms as required to suit details.
4. Provide motion sensors and/or actuator switches, and receivers for operation as specified. Provide weather-resistant actuators at exterior applications.
5. Provide key switches, with LED's, recommended and approved by manufacturer of automatic operator as required for function as described in operation description of hardware sets. Cylinders: Refer to "KEYING" article, herein.
6. Provide complete assemblies of controls, switches, power supplies, relays, and parts/material recommended and approved by manufacturer of automatic operator for each individual leaf. Actuators control both doors simultaneously at pairs. Sequence operation of exterior and vestibule doors with automatic operators to allow ingress or egress through both sets of openings as directed by Architect. Locate actuators, key switches, and other controls as directed by Architect.

2.14 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Elmes
   b. Burns
   c. Trimco

B. Requirements:

1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.15 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. Trimco

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.16 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:
   a. Glynn-Johnson

2. Acceptable Manufacturers:
   a. Rixson
   b. Sargent
   c. ABH

B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.

2.17 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. Trimco
   c. Rockwood

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.18 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Zero International

2. Acceptable Manufacturers:
   a. National Guard
   b. Reese
   c. DHSI
   d. Legacy
   e. Pemko

B. Requirements:

1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
4. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.

2.19 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. Rockwood
   c. Trimco

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.20 FINISHES

A. FINISH: BHMA 626/652 (US26D); EXCEPT:

1. Hinges at Exterior Doors: BHMA 630 (US32D)
2. Aluminum Geared Continuous Hinges: BHMA 628 (US28)
3. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
4. Protection Plates: BHMA 630 (US32D)
5. Overhead Stops and Holders: BHMA 630 (US32D)
6. Door Closers: Powder Coat to Match
7. Wall Stops: BHMA 630 (US32D)
8. Latch Protectors: BHMA 630 (US32D)
9. Weatherstripping: Clear Anodized Aluminum
10. Thresholds: Mill Finish Aluminum

B. FINISH: BHMA 643E/716 (US11); EXCEPT:

1. Door Closers: Powder Coat to Match.
2. Weatherstripping: Dark Bronze Anodized Aluminum.
3. Thresholds: Extruded Architectural Bronze, Oil-Rubbed

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. Verify doors, frames, and walls have been properly reinforced for hardware installation.

B. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.

3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
4. Installation Guide for Doors and Hardware: DHI TDH-007-20

B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.

C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.

D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.

E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.

H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.

I. Lock Cylinders:

1. Install construction cores to secure building and areas during construction period.
2. Replace construction cores with permanent cores as indicated in keying section.

J. Continuous Hinges: Re-locate the door and frame fire rating labels where they will remain visible so that the hinge does not cover the label once installed.

K. Door Closers & Auto Operators: Mount closers/operators on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers/operators so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.

L. Overhead Stops/Holders: Mount overhead stops/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.

M. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."

N. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.

O. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

P. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

Q. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.03 ADJUSTING

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

1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.04 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items per manufacturer's instructions to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.05 DOOR HARDWARE SCHEDULE

A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.

C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.

D. Hardware Sets:

137180 OPT0460066 Version 4

Hardware Group No. HW-01

For use on Door #(s):
100

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	CONT. HINGE	112XY		710	IVE
1	EA	PANIC HARDWARE	CD-9849-EO		643E	VON
1	EA	PANIC HARDWARE	CD-9849-NL-OP-110MD		643E	VON
1	EA	RIM CYLINDER	20-057 ICX		643e	SCH
2	EA	MORTISE CYLINDER	20-061 X XQ11-948 36-083		643e	SCH
1	EA	FSIC CORE	23-030 EV29 S		613	SCH
2	EA	LONG DOOR PULL	9264F 24" STD		613	IVE
1	EA	SURFACE CLOSER	4111 SCUSH		695	LCN
1	EA	SURF. AUTO OPERATOR	9542IQ REG			LCN
2	EA	ACTUATOR, TOUCH	8310-853T		630	LCN
1		WEATHERSTRIPPING	BY DOOR MANUFACTURER			
2	EA	DOOR SWEEP	39D		D	ZER
1	EA	THRESHOLD	566D-223		D	ZER

Hardware Group No. HW-02

For use on Door #(s):
100A 100B 107 125C 206 210

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ND80TD LAT		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64/65 AS REQ		GRY	IVE

Hardware Group No. HW-03

For use on Door #(s):
101

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	CONT. HINGE	112XY		710	IVE
2	EA	DUMMY PUSH BAR	350		643E	VON
2	EA	LONG DOOR PULL	9264F 24" STD		613	IVE
1	EA	SURFACE CLOSER	4111 SCUSH		695	LCN
1	EA	SURF. AUTO OPERATOR	9542 AS REQ (120/240 VAC)		ANDK B	LCN
2	EA	ACTUATOR, TOUCH	8310-853T		630	LCN

Hardware Group No. HW-04

For use on Door #(s):
104A

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		630	IVE
1	EA	STOREROOM LOCK	L9080T LATA		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
1	EA	SURFACE CLOSER	4111 SCUSH		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	65A-223		A	ZER

Hardware Group No. HW-05

For use on Door #(s):
105A 105B

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		630	IVE
1	EA	REMOVABLE MULLION	KR4954		689	VON
1	EA	PANIC HARDWARE	CD-98-NL		626	VON
1	EA	PANIC HARDWARE	LD-98-EO		626	VON
1	EA	RIM CYLINDER	20-057 ICX		626	SCH
1	EA	MORTISE CYLINDER	20-061 X XQ11-948 36-083		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
2	EA	SURFACE CLOSER	4111 SCUSH		695	LCN
1	EA	GASKETING	188SBK PSA		BK	ZER
2	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	65A-223		A	ZER

Hardware Group No. HW-06

For use on Door #(s):
108 109 110

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S LAT OS-LOC		626	SCH
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64/65 AS REQ		GRY	IVE

Hardware Group No. HW-07

For use on Door #(s):
111 112B 115A

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	DBL CYL DEADBOLT	B562R		626	SCH
1	EA	PUSH PLATE	8300 10" 4" X 16"		630	IVE
1	EA	PULL PLATE	8302 10" 4" X 16"		630	IVE
1	EA	SURFACE CLOSER	4111 SCUSH		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER
1	EA	DOOR BOTTOM	360AA		AA	ZER
1	EA	THRESHOLD	655A-223		A	ZER

Hardware Group No. HW-08

For use on Door #(s):
112A 113A 123

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112XY		710	IVE
1	EA	PANIC HARDWARE	CD-98-NL		643E	VON
1	EA	RIM CYLINDER	20-057 ICX		643e	SCH
1	EA	MORTISE CYLINDER	20-061 X XQ11-948 36-083		643e	SCH
1	EA	FSIC CORE	23-030 EV29 S		613	SCH
1	EA	LONG DOOR PULL	9264F 24" STD		613	IVE
1	EA	SURFACE CLOSER	4111 SCUSH		695	LCN
1		WEATHERSTRIPPING	BY DOOR MANUFACTURER			
1	EA	DOOR SWEEP	39D		D	ZER
1	EA	THRESHOLD	566D-223		D	ZER

Hardware Group No. HW-09

For use on Door #(s):
112C

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112XY		710	IVE
1	EA	PANIC HARDWARE	CD-98-NL		643E	VON
1	EA	RIM CYLINDER	20-057 ICX		643e	SCH
1	EA	MORTISE CYLINDER	20-061 X XQ11-948 36-083		643e	SCH
1	EA	FSIC CORE	23-030 EV29 S		613	SCH
1	EA	SURFACE CLOSER	4111 EDA		695	LCN
1	EA	WALL STOP	WS406/407CCV		643E/716	IVE

Hardware Group No. HW-10

For use on Door #(s):
112D 125B 125A

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	HARDWARE	BY DOOR MANUFACTURER		

Hardware Group No. HW-11

For use on Door #(s):
113

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ND80TD LAT		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
1		OH STOP	450S		652	GLY
3	EA	SILENCER	SR64/65 AS REQ		GRY	IVE

Hardware Group No. HW-12

For use on Door #(s):
114

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	MANUAL FLUSH BOLT	FB358/FB458 AS REQ		626	IVE
1	EA	CLASSROOM LOCK	ND70TD LAT		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
2	EA	WALL STOP	WS406/407CCV		630	IVE
2	EA	SILENCER	SR64/65 AS REQ		GRY	IVE

Hardware Group No. HW-13

For use on Door #(s):
115

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	CLASSROOM LOCK	ND70TD LAT		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64/65 AS REQ		GRY	IVE

Hardware Group No. HW-14

For use on Door #(s):
115B

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		630	IVE
1	EA	PANIC HARDWARE	CD-98-NL		626	VON
1	EA	RIM CYLINDER	20-057 ICX		626	SCH
1	EA	MORTISE CYLINDER	20-061 X XQ11-948 36-083		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
1	EA	SURFACE CLOSER	4111 SCUSH		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	65A-223		A	ZER

Hardware Group No. HW-15

For use on Door #(s):
116

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	CLASSROOM LOCK	ND70TD LAT		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
1		OH STOP	450S		652	GLY
3	EA	SILENCER	SR64/65 AS REQ		GRY	IVE

Hardware Group No. HW-16

For use on Door #(s):
119 120

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	MANUAL FLUSH BOLT	FB358/FB458 AS REQ		626	IVE
1	EA	ENTRANCE/OFFICE LOCK W/ OUTSIDE INDICATOR	ND50TD LAT OS-LOC		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
2	EA	WALL STOP	WS406/407CCV		630	IVE
2	EA	SILENCER	SR64/65 AS REQ		GRY	IVE

Hardware Group No. HW-17

For use on Door #(s):
121 122

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	PUSH PLATE	8300 10" 4" X 16"		630	IVE
1	EA	PULL PLATE	8302 10" 4" X 16"		630	IVE
1	EA	SURFACE CLOSER	4111 EDA		689	LCN
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64/65 AS REQ		GRY	IVE

Hardware Group No. HW-18

For use on Door #(s):
124

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
8	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	MANUAL FLUSH BOLT	FB358/FB458 AS REQ		626	IVE
1	EA	STOREROOM LOCK	ND80TD LAT		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
2	EA	WALL STOP	WS406/407CCV		630	IVE
2	EA	SILENCER	SR64/65 AS REQ		GRY	IVE

Hardware Group No. HW-19

For use on Door #(s):
204D

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PANIC HARDWARE	LD-98-NL		626	VON
1	EA	RIM CYLINDER	20-057 ICX		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
1	EA	SURFACE CLOSER	4111 EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64/65 AS REQ		GRY	IVE

Hardware Group No. HW-20

For use on Door #(s):
S1A

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PANIC HARDWARE	LD-98-L-LAT		626	VON
1	EA	RIM CYLINDER	20-057 ICX		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
1	EA	SURFACE CLOSER	4111 SCUSH		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
3	EA	SILENCER	SR64/65 AS REQ		GRY	IVE

Hardware Group No. HW-21

For use on Door #(s):
S1B

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PANIC HARDWARE	LD-98-L-BE-LAT		626	VON
1	EA	RIM CYLINDER	20-057 ICX		626	SCH
1	EA	FSIC CORE	23-030 EV29 S		626	SCH
1	EA	SURFACE CLOSER	4111 EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64/65 AS REQ		GRY	IVE

END OF SECTION

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UTILITY NOTES:

1. SEE SHEET C001 FOR CIVIL NOTES AND ABBREVIATIONS.
2. GENERAL CONTRACTOR SHALL COORDINATE ALL SITE UTILITIES AND STORM DRAINAGE INSTALLATION SCHEDULES TO AVOID POTENTIAL UTILITY CONFLICTS. GRAVITY DEPENDENT UTILITIES SHALL BE INSTALLED PRIOR TO NON-GRAVITY DEPENDENT UTILITIES.
3. FIRE SERVICE LINE AND ALL ASSOCIATED FIRE SERVICE ITEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH NFPA 24 REQUIREMENTS.
4. BACKFLOW PREVENTERS SHALL BE LOCATED INSIDE THE BUILDING. SEE FIRE PROTECTION DRAWINGS FOR ADDITIONAL INFORMATION.
5. UTILITY CONTRACTOR SHALL PROVIDE WATER RECORD DRAWINGS AND EASEMENT PLATS IN ACCORDANCE WITH UTILITY PROVIDER'S REQUIREMENTS.
6. ALL WATER CONSTRUCTION SHALL BE IAW TOWN OF CANTON REQUIREMENTS.

KEYNOTES:

1. INSTALL FIRE SPRINKLER SERVICE LINE IAW DETAIL F/C640. STUB-UP INSIDE BUILDING 12" ABOVE FFE WITH BLIND FLANGE. COORDINATE LOCATION AND ELEVATION WITH ARCHITECTURAL DRAWINGS AND FIRE PROTECTION DRAWINGS. FLUSH FIRE LINE IAW FIRE PROTECTION SPECIFICATIONS AND COORDINATE FLUSHING WITH FIRE PROTECTION ENGINEER AND GENERAL CONTRACTOR. PROVIDE ALL MATERIALS, INSTALLATION, TESTING, AND CERTIFICATIONS IAW NFPA REQUIREMENTS.
2. CONNECT TO EXISTING WATER LINE WITH NEW TAPPING SLEEVE AND VALVE IAW DETAIL G/C640. COORDINATE ALL WORK WITH THE TOWN OF CANTON.
3. REMOVE AND REPAIR EXISTING ASPHALT PAVEMENT, CONCRETE SIDEWALK AND CURBING IAW DETAILS A/C641, B/C641 AND C/C641 AS NECESSARY TO INSTALL NEW UTILITY IMPROVEMENTS.
4. INSTALL NEW 6"X6" TEE.

CIVIL LEGEND - WATER

- FH — FIRE HYDRANT ASSEMBLY - INSTALL IAW DETAIL A/C640.
- WV — GATE VALVE (MATCH LINE SIZE) - INSTALL IAW DETAIL B/C640.
- PIV — POST INDICATOR VALVE (MATCH LINE SIZE) - INSTALL IAW DETAIL H/C640.
- FDC — WALL MOUNTED FIRE DEPARTMENT CONNECTION - SEE FIRE PROTECTION DRAWINGS.
- FW — 6" DIP FIRE SERVICE - INSTALL IAW DETAILS C/C640, D/C640 AND E/C640.
- TS — 1" PVC SCH40 GRAY CONDUIT FOR FIRE PROTECTION TAMPER SWITCH - INSTALL CONDUIT FROM BACKFLOW PREVENTER TO BUILDING.

ALTERNATE 3

1 — SV — BACKWATER VALVE - INSTALL ON EXISTING SEWER SERVICE IAW DETAIL D/C641. VERIFY SIZE AND LOCATION OF EXISTING SEWER SERVICE PRIOR TO CONSTRUCTION. INSTALL FITTINGS AS NECESSARY TO CONNECT BACKWATER VALVE TO EXISTING SEWER SERVICE. REPAIR EXISTING PAVEMENT IAW DETAIL C/C641.

CIVIL LEGEND - EXISTING CONDITIONS

- W — WATER LINE W/ VALVE
- WS — WATER SERVICE
- S — SANITARY SEWER PIPE
- FM — SANITARY SEWER - FORCE MAIN
- SS — SANITARY SEWER SERVICE
- STORM DRAIN
- UD — UNDERDRAIN PIPE
- RD — ROOF DRAIN PIPE
- X — FENCE
- P — POWER LINE (OVERHEAD)
- UP — POWER LINE (UNDERGROUND)
- T — TELEPHONE LINE (OVERHEAD)
- UT — TELEPHONE LINE (UNDERGROUND)
- G — GAS LINE
- FO — FIBER OPTIC LINE
- SSMH — SANITARY SEWER MANHOLE
- CO — SANITARY SEWER CLEANOUT
- CB — CATCH BASIN
- DI — DROP INLET
- HCI — HOODED CURB INLET
- CI — CURB INLET
- W — WATER METER
- FH — FIRE HYDRANT
- E — ELECTRICAL TRANSFORMER
- PP — POWER POLE
- LP — LIGHT POLE
- 24 — CONTOUR
- SIZE/TYPE — EXISTING TREE
- PROPERTY LINE
- LIMITS OF DISBURBANCE

HORIZONTAL SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

CRAIG GAULDEN DAVIS PBK
19 Washington Park
Greenville, SC 29601
Phone 864.242.0761
Fax 864.501.9945
E-mail cgd@cgdarch.com

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 027779 JACKIE K. BARNHILL, JR. 01/14/2026

CONSULTANT

ADC ENGINEERING
25 WOODS LAKE ROAD, SUITE 210
GREENVILLE, SC 29607
864-751-9121
NC COA #C-1572
ADCENGINEERING.COM

TOWN OF CANTON

ARMORY COMMUNITY CENTER RENOVATION

71 PENLAND ST. CANTON, NC 28716

DATE	MARK	DESCRIPTION
02/06/2026	1	ADDENDUM 3

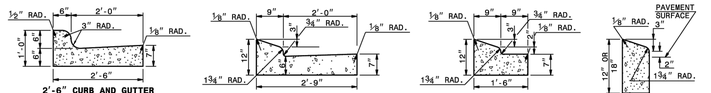
ISSUE:	CONSTRUCTION DOCUMENTS
DATE:	01/14/2026
PROJECT NO:	25374
DRAWN BY:	HP
CHECKED BY:	LKB

SITE UTILITY PLAN

C400

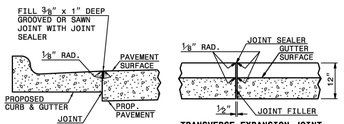
7 6 5 4 3 2 1

F E D C B A



SECTION VIEW OF CURBS OR CURBS AND GUTTERS

GENERAL NOTES:
- PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
- JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
- CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
- FILL ALL CONSTRUCTION JOINTS, EXCEPT IN 8"x6" MEDIAN CURB, WITH JOINT FILLER AND SEALER.
- SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



SECTION VIEW OF JOINTS

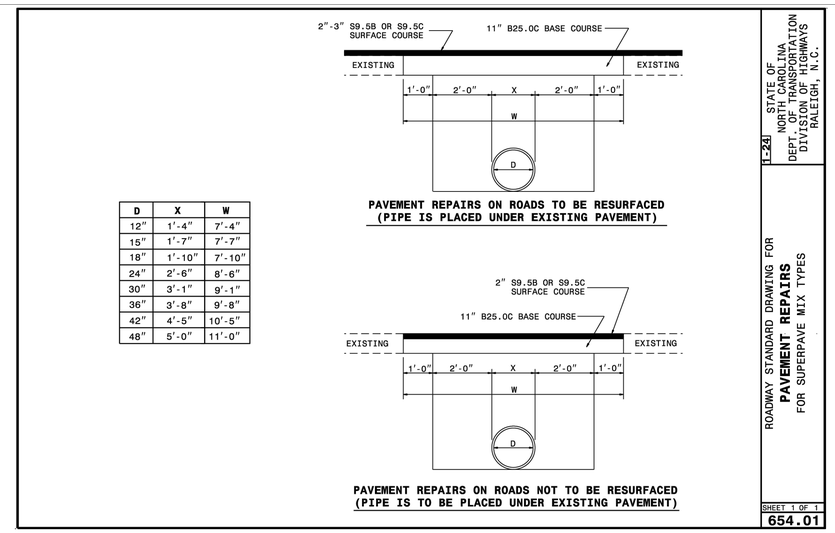
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-23

ROADWAY STANDARD DRAWING FOR
CONCRETE CURB, GUTTER AND CURB & GUTTER

SHEET 1 OF 3
846.01

A CURB AND GUTTER DETAIL



D	X	W
12"	1'-4"	7'-4"
15"	1'-7"	7'-7"
18"	1'-10"	7'-10"
24"	2'-6"	8'-6"
30"	3'-1"	9'-1"
36"	3'-8"	9'-8"
42"	4'-5"	10'-5"
48"	5'-0"	11'-0"

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-23

ROADWAY STANDARD DRAWING FOR
PAVEMENT REPAIRS
FOR SUPERPAVE MIX TYPES

SHEET 1 OF 1
654.01

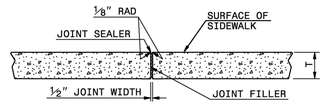
C OPEN CUT PAVEMENT REPAIR DETAIL
N.T.S.

NOTES:

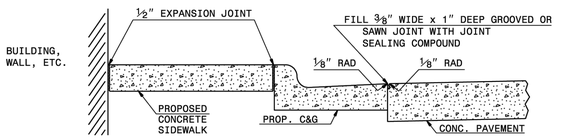
CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.

PLACE A GROOVE JOINT 1" DEEP WITH ⅛" RADII IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE ½" EXPANSION JOINT WILL BE REQUIRED AT 50' INTERVALS. A ½" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.

SEE STD. DWG. 848.05 FOR CURB RAMP LOCATION REQUIREMENTS AND CONSTRUCTION GUIDELINES.



TRANSVERSE EXPANSION JOINT IN SIDEWALK



DETAILS SHOWING JOINTS IN CONCRETE SIDEWALK

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

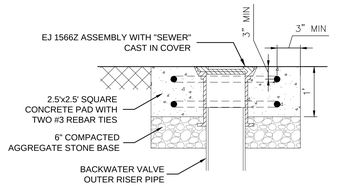
1-23

ROADWAY STANDARD DRAWING FOR
CONCRETE SIDEWALK

SHEET 1 OF 1
848.01

B CONCRETE SIDEWALK DETAIL

ALTERNATE 3



BACKWATER VALVE RING AND COVER DETAIL

INSTALLATION INSTRUCTIONS

RectorSeal brand solvent cements are approved to meet manufacturer's recommendations.

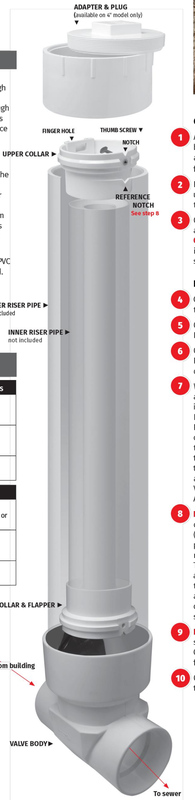
RECTORSEAL
A CSW Industrials Company

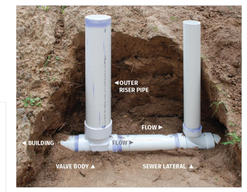
CLEAN CHECK®

Extendable Backwater Valve

Pre-Installation

- Slide Upper Collar through Outer Riser Pipe. If collar does not slide freely through pipe, check to see if pipe is "out-of-round". If so, replace Outer Riser Pipe.
- Backwater valves require adequate drop between the flood rim of the lowest fixture and burial depth of the valve in order to function properly. We recommend a minimum slope of 1/4" per foot or as recommended by the UPC and IPC codes.
- 6" Clean Check includes PVC bushings for use if needed. Discard if not used.





Outer Riser Installation

1. At proper depth, install the Clean Check Valve Body between the building and the sewer lateral, with the "FLOW" arrow of the Valve Body pointing downstream away from the building.
2. Rotate the Valve Body until the opening is facing directly upward. A level may be used across the top of the Valve Body to verify horizontal positioning.
3. Cut the Outer Riser Pipe to the required length. Cement and insert while keeping the inside of the body clean of debris. **CAUTION:** Be certain that excess solvent cement has not impeded proper seating of the Flapper Assembly or the proper seating of the flapper sealing surface of the Valve Body.

Inner Riser Installation

4. Cut the Inner Riser Pipe to a length 3½" shorter than the Outer Riser Pipe.
5. Cement the Lower Collar with Flapper to one end of the Inner Riser Pipe.
6. Cement the Upper Collar to the other end of the Inner Riser Pipe, while aligning the center of the Finger Hole with the center of the Flapper on the opposite end.
7. When cement is dry, loosen the thumb screw in the Upper Collar and slide the Inner Riser Assembly – Flapper Assembly first – into the Outer Riser Assembly with the flat sealing side of the Flapper facing the inlet side of the Valve Body. Lower the Inner Riser Assembly into the seating area of the Valve Body, making certain that the Thumb Screw is inside the inside wall of the Outer Riser Pipe and NOT on the resting on the top edge. Seat the Flapper Assembly by rotating as necessary until it locks in place. Visually inspect that the Flapper Assembly is installed correctly.
8. **IMPORTANT:** Prior to installation of the Threaded Adapter & Plug (with the Inner Riser Assembly properly installed) cut a reference notch into the Outer Riser Pipe. This saw cut notch should be aligned with the molded Notch in the Upper Collar. For future removal, alignment of the notches will quickly indicate that the flapper is seated correctly.
9. **IMPORTANT:** Tighten the stainless steel Thumb Screw in the Upper Collar until it is firmly secured to the Outer Riser Pipe, fixing the Inner Riser Assembly in place.
10. Cement the Threaded Adapter to the Outer Riser and install the clean-out plug to complete installation.

Compatible Parts
(not included)

3" and 4" Clean-Check Valves
Outer Riser Pipe Standard 6" SCH40 ABS or PVC of required length
Inner Riser Pipe Standard 2" or 4" ABS or PVC of required length
Adapter & Threaded Plug Standard 6" ABS or PVC

6" Clean-Check Valves
Outer Riser Pipe Standard 8" SCH40 or SDR35 ABS or PVC of required length
Inner Riser Pipe Standard 4" ABS or PVC of required length
Adapter & Threaded Plug Standard 8" ABS or PVC

RectorSeal® 2601 Spenwick Drive - Houston, TX 77055 800-231-3345 **rectorseal.com**

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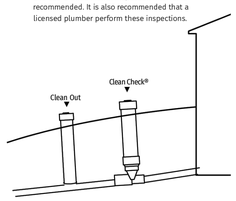
Your property is now protected from sewage backups by a Clean Check® extendable backwater valve.

With appropriate maintenance, this valve will protect your property from sewer backups due to system overloads, block-ages and flooding. It is your responsibility to have this valve checked periodically to insure that it is operating properly. Under normal installation and use, a three month inspection interval is recommended. It is also recommended that a licensed plumber perform these inspections.



Rapper removal: With a flathead screwdriver, push down through the lower collar mount to the bottom clip edge of the flapper insert. Pull old flapper straight back and out.

Rapper replacement: Snap in the replacement flapper by pushing it straight into the lower collar mount.

Replacement flapper: Two sizes of replacement flappers are available from your local plumbing contractor or wholesale supplier. Check for the correct size for your Clean Check.

For Clean Check fitted with 6" adaptor/plug, replace with flapper **Part No. 96980**

For Clean Check fitted with 8" adaptor/plug, replace with flapper **Part No. 96983**

RectorSeal® 2601 Spenwick Drive, Houston, TX 77055
800-231-3345 rectorseal.com

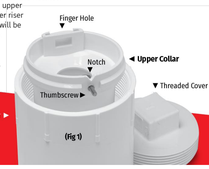
CLEAN CHECK®
Extendable Backwater Valve
Maintenance Guide

Maintenance Procedure

NOTE: Harmful bacteria are present in sewer lines. We recommend that you contact your local health district for proper sanitary precautions.

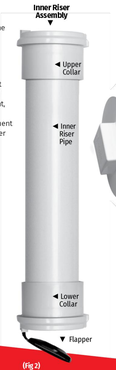
The following steps will guide your plumber through a proper inspection of your Clean Check® Extendable Backwater Valve.

1. Locate the Clean Check® cover. It has been placed outside your building, between the sewer lateral cleanout and the building.
2. Remove the threaded cover plug by unscrewing it to expose the upper collar of the inner riser assembly.
3. Loosen, but do not remove, the stainless steel thumbscrew located inside the upper collar.
4. Note the locations of the thumbscrew and opposing notch. There are two notches: one in the one in the upper collar and one in outer riser pipe (See Fig 3). This will be necessary for correct repositioning of the inner riser pipe during re-installation.



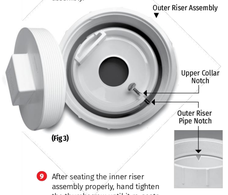
5. Using the finger hole provided above the thumbscrew of the upper collar, extract the inner riser assembly from the outer riser pipe and place it on the ground.
6. Clean debris from the flapper, inner riser assembly, as well as the in ground valve body.
7. Inspect the flapper for deterioration or damage caused by the harsh environment in which it operates. If deterioration is present, replace the flapper. (See back for replacement instructions and flapper part number)

For additional availability, contact: RectorSeal® Customer Service at 800-231-3345 for a local source.



6. The Clean Check® Extendable Backwater Valve is designed for easy re-installation. To properly re-seat the valve, slowly lower the inner assembly back into the outer riser pipe and rotate it until you feel the unit drop into place. The notch in the upper collar should now be lined up with the notch in the outer riser pipe.

Important: Correct alignment of the notch in the upper collar and the notch in the outer riser pipe is necessary for correct repositioning of the inner assembly.



9. After seating the inner riser assembly properly, hand tighten the thumbscrew until it re-seats against the inside wall of the outer riser pipe. Be certain the thumbscrew is NOT resting on the top of the larger outer riser pipe. The flat side of the flapper should be resting, in the closed position, on the building side of the valve body.
10. Replace the threaded cover plug.

D SEWER BACKWATER VALVE DETAIL

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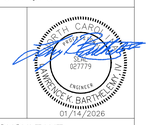

CONSULTANT

ADC ENGINEERING
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864-751-9121
NC COA #C-1572
ADCENGINEERING.COM

TOWN OF CANTON

ARMORY COMMUNITY CENTER RENOVATION

71 PENLAND ST. CANTON, NC 28716

DATE	MARK	DESCRIPTION
02/06/2026	1	ADDENDUM 3

ISSUE:	CONSTRUCTION DOCUMENTS
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CHECKED BY:	LKB

CIVIL DETAILS - UTILITY

C641

KEY NOTE LEGEND

01 WALL PADS AT STAGE EDGE & AROUND COLUMNS. SEE FINISH SHEETS FOR ADDITIONAL INFO.

02 INFILL WALL OPENING. TOOTH IN BRICK TO MATCH EXISTING COURSING, BRICK BANDING, AND COLOR.

03 POUR CONCRETE ON TOP OF EXISTING SLAB TO 0'-0" A.F.F.

04 STRIPING ON GYMNASIUM FLOOR FOR BASKETBALL, FOUR SQUARE, PICKLEBALL, VOLLEYBALL & METAL SLEEVES FOR NET POSTS

05 HATCH DENOTES NEW FLOOR JOIST AND SUBFLOOR. SEE STRUCTURAL DRAWINGS.

06 KITCHEN EQUIPMENT AND PLUMBING FIXTURES ARE ALL NEW. SEE "FS","E","P" SHEETS FOR ADDITIONAL INFO

07 CEILING MOUNTED MOTORIZED GOALS ATTACHED TO STRUCTURE ABOVE. SEE "S" & "E" DWGS FOR ADDITIONAL INFO.

08 CLEAN & PAINT RAILING

12 FILL GAP AGAINST WALL WITH CONCRETE. PREPARE FOR FINISH FLOOR.

13 ALTERNATE NO. 2 : REMOVABLE FLOOD BARRIER PER SECTION 012300. 1. 5. B. AT THIS OPENING

FLOOR PLAN LEGEND

- COLUMN GRID
- NORTH ARROW
- FEMA NOTE
- ROOM TAG
- SECTION / ELEVATION CALLOUT
- ELEVATION TARGET
- WINDOW TAG. SEE WINDOW SCHEDULE FOR ADDITIONAL INFO.
- CENTER LINE
- NEW DOOR WITH DOOR TAG
- EXISTING DOOR
- FIRE EXTINGUISHER CABINET TYPE: FEC(R) RECESSED; FEC(S) SEMI RECESSED; FEC(F) FLUSH MOUNTED; FEB BRACKET MOUNTED
- FLOOR DRAIN
- HIGH & LOW ELECTRIC WATER COOLER W/ BOTTLE FILLER

WALL LEGEND

- EXISTING WALL
- CONCRETE
- CONCRETE MASONRY
- METAL STUD WALL WITH GYPSUM WALL BOARD
- 1 HOUR RATED
- 2 HOUR RATED
- 3 HOUR RATED

WALL LEGEND NOTES:

1. INTERIOR WALLS SHALL BE TYPE M6F UNLESS NOTED OTHERWISE.
2. PROVIDE J-MOLD WITH CAULK AND BACKER ROD JOINT WHERE GWB ABUTS DISSIMILAR MATERIALS SUCH AS CMU AND GWB.
3. OUTSIDE CORNER OF CMU WALLS SHALL BE BULLNOSED UNLESS NOTED OTHERWISE.

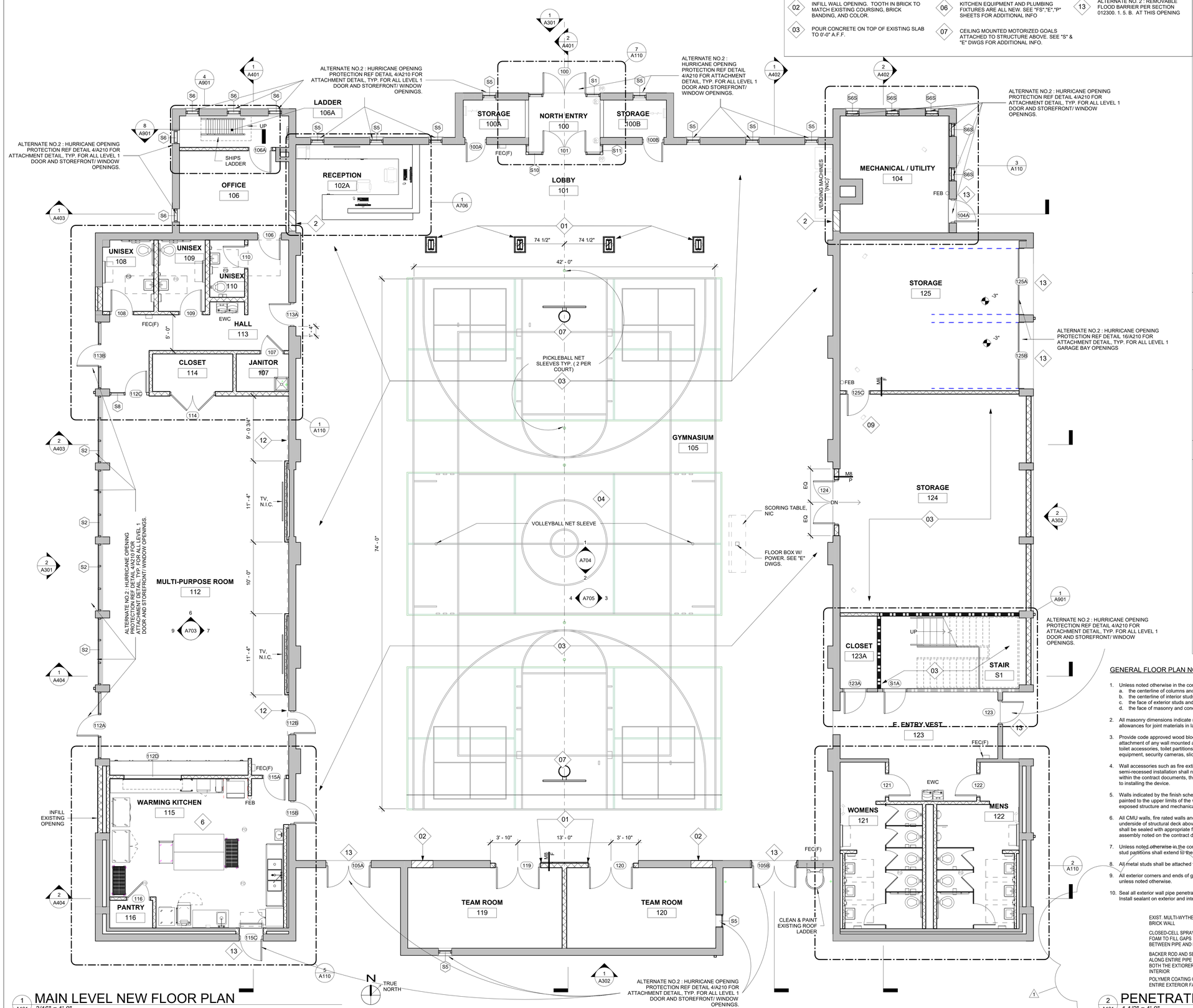
WALL TYPES LEGEND

FACING
WALL STRUCTURE
WALL STRUCTURE WIDTH
FACING
XXXX
MODIFIER
MODIFIER

FACING:
F Furring - 7/8" METAL HAT CHANNEL W/ 5/8" GWB
G Gypsum - 5/8" GWB

STRUCTURE:
C Concrete
M Masonry
S Metal Stud
SW Shaft Wall
TP Toilet Partition
W Wood Stud

WALL MODIFIER:
A Abuse resistant
F Full height - extend to structure above
P Partial height - extend six inches above ceiling
S Sound - attenuation batt insulation

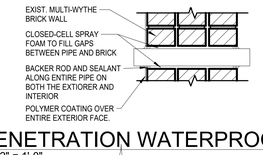


1 A101 MAIN LEVEL NEW FLOOR PLAN
3/16" = 1'-0"

2 A101 PENETRATION WATERPROOFING
1 1/2" = 1'-0"

GENERAL FLOOR PLAN NOTES

1. Unless noted otherwise in the contract documents, dimensions identify:
   a. the centerline of columns and structural steel components,
   b. the centerline of interior studs,
   c. the face of exterior studs and/or
   d. the face of masonry and concrete walls.
2. All masonry dimensions indicate nominal dimensions. The contractor shall make proper allowances for joint materials in laying out the work.
3. Provide code approved wood blocking or sheet metal plates in hollow wall systems for attachment of any wall mounted accessories including, but not limited to, shelving, casework, toilet accessories, toilet partitions, light fixtures, benches, coat rods, televisions, audio-visual equipment, security cameras, sliding door tracks, marker boards, and mirrors.
4. Wall accessories such as fire extinguisher cabinets and paper towel dispensers that require a semi-recessed installation shall not reduce the fire rating of the wall. If a detail is not provided within the contract documents, the contractor shall consult the architect for proper details prior to installing the device.
5. Walls indicated by the finish schedule to be painted where no ceiling is indicated shall be painted to the upper limits of the wall construction. Refer to the finish schedule for painting of exposed structure and mechanical/electrical components.
6. All CMU walls, fire rated walls and sound rated partitions shall extend from finish floor to the underside of structural deck above. The top, bottom, sides and all piping and duct penetrations shall be sealed with appropriate fire resistive materials according to the applicable U.L. design assembly noted on the contract documents.
7. Unless noted otherwise in the contract documents by a wall type or specific note, all non-rated stud partitions shall extend to the deck above.
8. All metal studs shall be attached with 2 screws at 16" o.c. in the bottom and top tracks.
9. All exterior corners and ends of gypsum wall board partitions shall have metal corner beads unless noted otherwise.
10. Seal all exterior wall pipe penetrations using spray foam at gaps between brick wythe and pipe. Install sealant on exterior and interior face of penetration at brick face. See detail 2/A101



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NORTH CAROLINA LICENSED 11358 January 14, 2026 ARCHITECT JOHN DALE HANSEN
NORTH CAROLINA REGISTERED PROFESSIONAL CORPORATION 54439 NORTH CAROLINA PBK Design, Inc.

CONSULTANT

TOWN OF CANTON

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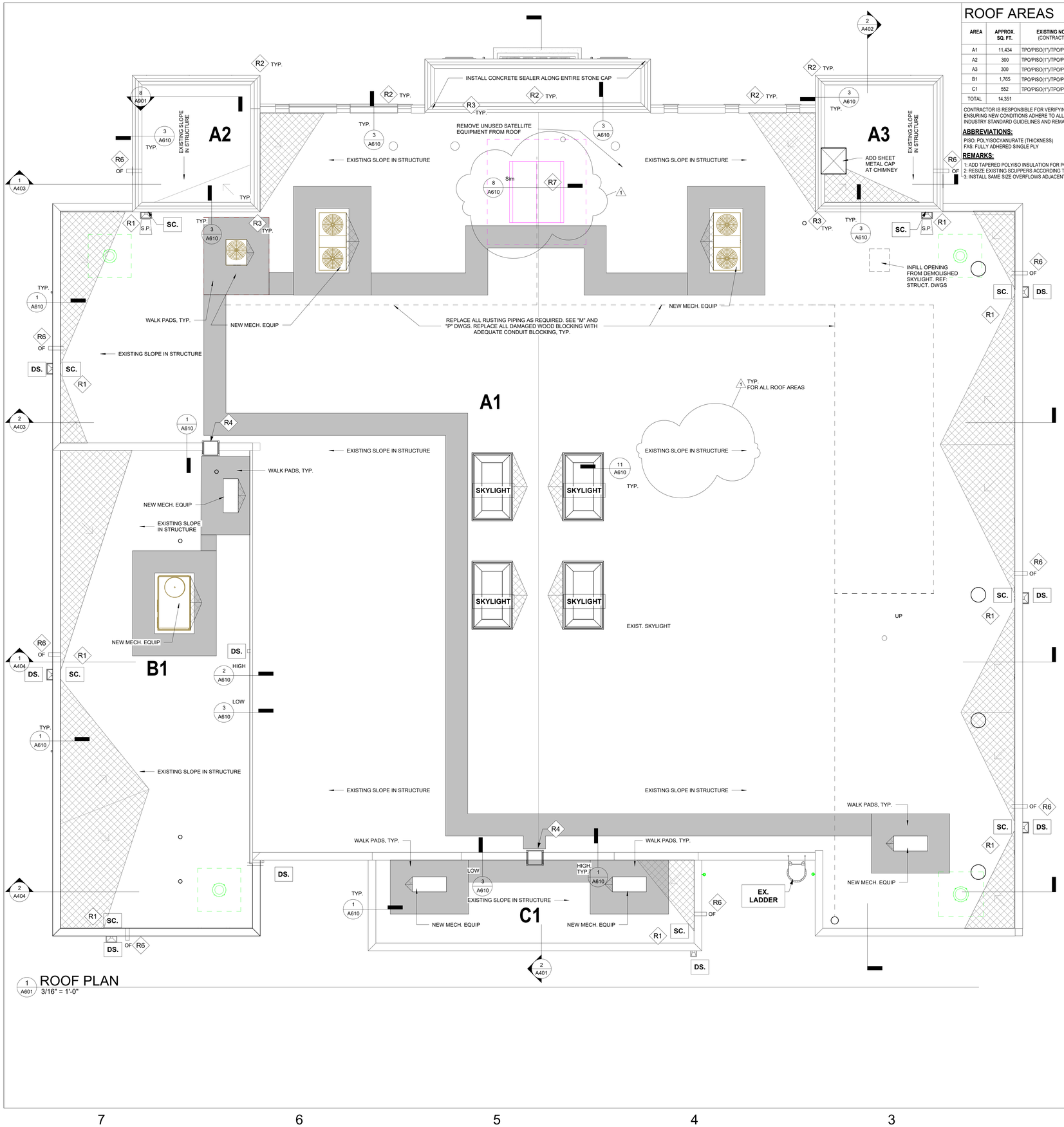
CHECKED BY:	JDH

MAIN LEVEL NEW FLOOR PLAN

A101



1 A601 **ROOF PLAN**
3/16" = 1'-0"

ROOF AREAS

AREA	APPROX. SQ. FT.	EXISTING NOMENCLATURE (CONTRACTOR TO VERIFY)	PROPOSED ASSEMBLY
A1	11,434	TPO/PISO(1")/TPO/PISO(3")/1x WOOD DECK	A
A2	300	TPO/PISO(1")/TPO/PISO(3")/1x WOOD DECK	A
A3	300	TPO/PISO(1")/TPO/PISO(3")/1x WOOD DECK	A
B1	1,765	TPO/PISO(1")/TPO/PISO(3")/1x WOOD DECK	A
C1	552	TPO/PISO(1")/TPO/PISO(3")/1x WOOD DECK	A
TOTAL	14,351		

CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING CONDITIONS AND FOR ENSURING NEW CONDITIONS ADHERE TO ALL LOCAL AND FEDERAL CODES ALONG WITH INDUSTRY STANDARD GUIDELINES AND REMAIN IN A WATERTIGHT CONDITION

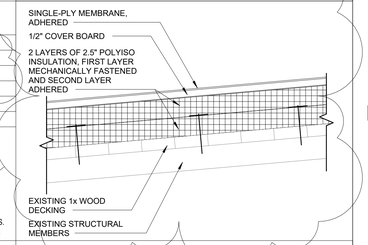
ABBREVIATIONS:

PISO: POLYISOCYANURATE (THICKNESS)
FAS: FULLY ADHERED SINGLE PLY

REMARKS:

1: ADD TAPERED POLYISO INSULATION FOR POSITIVE DRAINAGE TO EXISTING SCUPPERS.
2: RESIZE EXISTING SCUPPERS ACCORDING TO SHEET A602 - DRAINAGE CALCULATIONS.
3: INSTALL SAME SIZE OVERFLOWS ADJACENT TO ALL EXISTING SCUPPERS.

ROOF ASSEMBLY - A



ROOF PLAN LEGEND

DS.	DOWNSPOUT. REF: 10 & 14/A610
SC.	SCUPPER. REF: 4/A610
SKYLIGHT	SKYLIGHT ON EXISTING CURB. REF: 11/A610
OF	OVERFLOW SCUPPER. REF: 5/A610
SLOPE	EXISTING ROOF SLOPE
	TAPERED INSULATION
	WALK PADS. REF: 15/A610
S.P.	SPLASH PAN. REF: 18/A610

ROOF KEYNOTES

R1 REMOVE EXISTING SCUPPER IN ITS ENTIRETY INCLUDING OUTLET WITH PICTURE FRAME AND SQUARE PIPE CONNECTING SCUPPER TO OUTLET. PREP TO RECEIVE NEW SCUPPER (REF 3/A610). VERIFY ON SHEET A602 REQ'D SCUPPER SIZE. RESIZE SCUPPER AS NEEDED.

R2 PATCH AND REPAIR CONCRETE COPING CRACKS. PREP TO RECEIVE POLYMER SEALANT ON ALL CONCRETE SURFACES.

R3 REPAINT ALL BRICK MORTAR JOINTS. PREP TO RECEIVE POLYMER SEALANT. REPLACE SPALDING BRICK. REF: 18/A310

R4 PAINTED GALVANIZED STEEL LADDER SEE DETAIL 4/A501. DESIGN AND ENGINEERING BY CONTRACTOR SHALL MEET ALL REGULATORY STANDARDS.

R6 INSTALL NEW OVERFLOW OUTLET. REF DETAIL 5/A610

R7 MECH. ROOF HOOD, REF. MECH DRAWINGS FOR LOCATION AND SIZE

GENERAL ROOF NOTES

1. CONTRACTOR SHALL VISIT SITE TO ASCERTAIN EXACT EXISTING CONDITIONS AND COMPONENTS RELATED TO THE WORK DESCRIBED BY THESE DOCUMENTS. AFTER AWARD OF THE CONTRACT, CHANGE ORDER REQUEST FOR ADDITIONAL MONEY SHALL NOT BE APPROVED IF THE WORK COULD HAVE BEEN ANTICIPATED DURING THE SITE VISIT BY THE CONTRACTOR, ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ACCEPTED MANUFACTURER'S PRINTED INSTRUCTIONS AND WARRANTY REQUIREMENTS.
2. DIMENSIONS, DETAILS, EQUIPMENT SIZE AND LOCATION SHOWN IN THESE CONSTRUCTION DOCUMENTS ARE FOR CONVEYANCE OF DESIGN INTENT ONLY. EXACT SIZE, LOCATION, TYPE OF MATERIAL AND TYPE OF CONSTRUCTION OF EXISTING CONDITIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR TO ASCERTAIN AND CONFIRM.
3. INDICATED ROOF HEIGHTS ARE GENERAL IN NATURE
4. REFER TO NOMENCLATURE FOR TYPE OF ROOF SYSTEM. AREAS ARE MARKED WITH DESIGNATED LETTER ON ROOF PLAN.
5. NOTE THAT THE DETAILS DRAWN ARE GENERIC IN NATURE AND ARE NOT NECESSARILY LOCATED AND KEYED TO THE ROOF PLANS.
6. REMOVE ALL ABANDONED EQUIPMENT IDENTIFIED ON SITE AND AS SHOWN OTHERWISE ON THESE DOCUMENTS.
7. ALL NEW CRICKETS AND TAPERED INSULATION SHALL BE INSTALLED WITH A FINISHED 1/4" PER FOOT MIN. SLOPE. CRICKET THE UP SLOPE SIDE OF ALL SQUARE CURBS AND PROJECTIONS OVER 20' IN WIDTH.
8. REPLACE ROTTED AND / OR OTHERWISE DETERIORATED ROOF DECK MATERIALS (AS APPLICABLE) WITH LIKE MATERIAL AND THICKNESS.
9. REPLACE ROTTEN AND / OR OTHERWISE DETERIORATED WOOD NAILER MATERIAL WITH NEW LIKE MATERIAL AND THICKNESS.
10. PATCH EXISTING METAL ROOF DECK (AS APPLICABLE) FOR HOLES LESS THAN 10" WIDE BY ANCHORING 22 GA. STAINLESS STEEL SHEET METAL TO BOTTOM OF EXISTING METAL ROOF DECK AND ADDING NEW INSULATION TO MATCH THICKNESS. PATCH EXISTING METAL ROOF DECK FOR HOLES GREATER THAN 10" WIDE BY ANCHORING 22 GA. STAINLESS STEEL SHEET METAL TO BOTTOM OF EXISTING METAL ROOF DECK SPANNING FROM JOIST TO JOIST.
11. AS APPLICABLE, ALL HVAC AND / OR DX UNITS, ELECTRICAL TRANSFORMERS, ROOF TOP EQUIPMENT, ETC. THAT ARE ON SLEEPERS SHALL BE DISCONNECTED / REMOVED, RAISED, AND PLACED ON NEW CURBED PLATFORMS AS DETAILED AND REINSTALLED / RECONNECTED. ALL CURB MOUNTED HVAC UNITS, EQUIPMENT, ETC. SHALL HAVE A MINIMUM 10" CURB HEIGHT AND ARE TO BE RAISED AS REQUIRED.
12. WORK TO ANY UTILITY CONDUIT OR PIPE SHALL BE PERFORMED BY SPECIFIC LICENSED SUBCONTRACTORS SPECIALIZING IN HVAC, PLUMBING AND ELECTRICAL WORK. PERMITS AND INSPECTIONS ARE REQUIRED. REROUTE AND / OR MODIFY UTILITY CONDUIT OR PIPE AS REQUIRED TO BE INSTALLED AS DETAILED.
13. PROVIDE A "MERCURY" GAS LINE TEST (COORDINATE WITH OWNER AND ARCHITECT FOR WITNESS OF TEST). REPAIR ANY FOUND LEAKS AND RETEST AS REQUIRED.
14. UNLESS INDICATED OTHERWISE ON THE CONSTRUCTION DOCUMENTS, REPLACE AND RAISE ALL EXISTING EXPANSION JOINTS / AREA DIVIDERS / CURB MOUNTED EQUIPMENT / SKYLIGHTS (AS APPLICABLE) A MIN. 10" ABOVE ROOF DECK.
15. ALL SOIL STACK FLASHING SHALL BE A MIN. 10" ABOVE FINISHED ROOF SURFACE. COUPLE PVC PIPE ABOVE DECK AND COUPLE CAST IRON PIPE BELOW DECK.
16. ALL PIPING/ CONDUITS/ ETC. SHALL BE A MIN. 10" ABOVE ROOF SURFACE. NEW AND EXISTING. PROVIDE PORTABLE PIPE HANGERS WITH PROTECTION PADS AS SPECIFIED. RAISE EXISTING PIPING/ CONDUIT/ ETC. AS REQUIRED. MEP CONTRACTORS SHALL PROVIDE SUPPORTS FOR UTILITY LINES.
17. PROVIDE SHEET METAL HOODED (WITH METAL FACE CLOSURE) CAPS, WOOD CURB, BOX COVER AT ALL GAS AND WATER PIPE ROOF PENETRATIONS AS DETAILED. PROVIDE POSITIVE SLOPE AWAY FROM FACE COVER.
18. PROVIDE WALKWAY PROTECTION PADS AS SPECIFIED AROUND ALL ROOF HATCHES, HVAC ROOFTOP UNITS, DOORS THAT OPEN ONTO ROOF AND AT TOP AND BOTTOM OF ALL ROOF TOP ACCESS LOCATIONS.
19. INSTALL NEW SPLASH PAN AT ALL LOCATIONS WHERE ROOF DRAINAGE DISCHARGES ONTO ROOF AREA. INSTALL NEW SPLASH BLOCKS WHERE ROOF DRAINAGE DISCHARGES ON GROUND.
20. ISOLATE ALL HEAT PIPES / FLUES AS DETAILED AND RECOMMENDED AND OUTLINED IN THE NRCA MANUAL FOR HOT STACK FLASHING AND AS DETAILED.
21. ALL OUTSIDE AIR INTAKES SHALL BE COVERED TO ELIMINATE ODORS AND FUMES FROM ENTERING INTO THE BUILDING DURING CONSTRUCTION WORK.
22. AFTER SUBSTANTIAL COMPLETION, THE GENERAL CONTRACTOR SHALL EXAMINE AND CLEAN NEW DRAIN LINES AND NEW AND EXISTING (AS APPLICABLE) GUTTERS OF DEBRIS AND BLOCKAGE, FLUSH WITH WATER TO ENSURE THAT DRAINS AND GUTTERS FLOW FREELY.
23. OWNER WILL VERIFY PROPER OPERATION OF ALL ROOF TOP EQUIPMENT BEFORE AND AFTER THE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING ALL INOPERABLE EQUIPMENT PRIOR TO RELEASE OF RETAINAGE.
24. PRIOR TO COMMENCEMENT OF WORK, COORDINATE WALK OF ENTIRE ROOF WITH ROOFING MANUFACTURER'S TECHNICAL REPRESENTATIVE TO IDENTIFY AND LOCATE ALL AREAS OF HIGH SLOPE OR OTHER CONDITIONS WHICH MIGHT REQUIRE SPECIAL PROCEDURES FOR SYSTEM ATTACHMENT.
25. REFER TO MEP DRAWINGS FOR SIZE AND LOCATION OF DECK PENETRATIONS AND ROOF TOP EQUIPMENT.
26. REFER TO GENERAL DETAILS FOR TYPICAL SPLASH PAN, ROOF DRAIN AND OVERFLOW DRAIN DETAILS.
27. REPLACE ALL RUSTED AND / OR DETERIORATED EXISTING METAL VENT FLASHING AND FLUES.
28. GENERAL CONTRACTOR TO ENSURE ALL ROOFTOP PENETRATIONS (SOIL STACKS, VENTS, ETC.) ARE INSTALLED MIN. 4'-0" FROM OTHER DECK PENETRATIONS, RISE WALLS, AND ROOF EDGE. MECHANICAL EQUIPMENT TO BE LOCATED MIN. 10'-0" FROM PERIMETER EDGE AND NO CLOSER THAN 4'-0" FROM RISE WALLS, OR ANY OTHER ROOF PENETRATION.
29. LOCATE PERIMETER DRAINS MAX. 6'-0" FROM EDGE TYPICAL UNLESS SHOWN OTHERWISE. (GENERAL CONTRACTOR TO COORDINATE WITH ROOFING AND PLUMBING CONTRACTOR.)
30. THROUGH WALL BASE FLASHING MIN. HEIGHT 10" AND MAX. HEIGHT 20" FROM FINISH DECK. DO NOT STEP THROUGH WALL FLASHING CLOSER THAN 6'-0" FROM CORNERS.
31. GENERAL CONTRACTOR SHALL COORDINATE LOCATION AND ORIENTATION OF ROOF HATCH AND ACCESS LADDER.
32. GENERAL CONTRACTOR SHALL COORDINATE ALL TOP OF STEEL TO TOP OF BLOCKING AND SUBSTRATE BOARD DIMENSIONS IN FIELD PRIOR TO ORDERING MATERIALS. NO ADDITIONAL COMPENSATION WILL BE GRANTED FOR FAILURE TO COORDINATE THESE DIMENSIONS.
33. GENERAL CONTRACTOR SHALL VERIFY ROOF SLOPES WILL PROPERLY DRAIN AS SHOWN. TAPERED INSULATION HATCHING SHOWN IS NOT INTENDED TO ILLUSTRATE THE ENTIRE LIMITS OF TAPERED INSULATION. ROOF AREAS NOT SLOPED BY STRUCTURE SHALL BE SLOPED WITH TAPERED INSULATION TO ACHIEVE PROPER DRAINAGE.
34. PROVIDE ONE WAY MOISTURE VENTS AT ALL LIGHTWEIGHT CONCRETE OR GYPSUM OVER POUR AREAS AS RECOMMENDED BY THE ROOFING SYSTEM MANUFACTURER.
35. PAINT ALL EXISTING GAS PIPE TO REMAIN.
36. PROVIDE RETROFIT DRAIN KIT FOR EACH EXISTING ROOF DRAIN. RE: SPECS.
37. ALL ROOFING WORK SHALL OCCUR IN SUCH A MANNER AS NOT TO VOID ANY EXISTING ROOF WARRANTIES. CONTRACTOR TO CONTACT ROOFING MANUFACTURER PRIOR TO COMMENCING THE WORK. NO EXCEPTIONS.

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E-mail cgd@cgdarch.com

NORTH CAROLINA LICENSED 11358 January 14, 2026 ARCHITECT JOHN DALE HANSEN

NORTH CAROLINA REGISTERED PROFESSIONAL CORPORATION 54439 NORTH CAROLINA PBK Design, Inc.

CONSULTANT

TOWN OF CANTON

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ROOF PLAN

A601

Autodesk Docs://Canton Armory/Canton Armory Architectural.rvt
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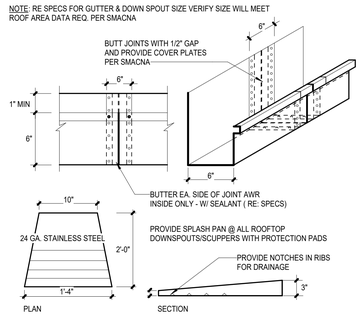
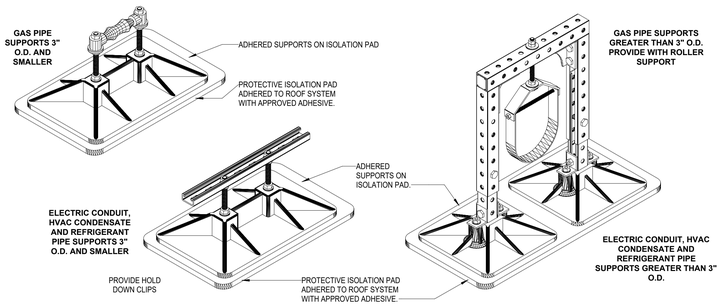
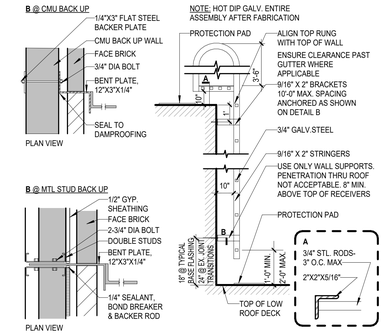


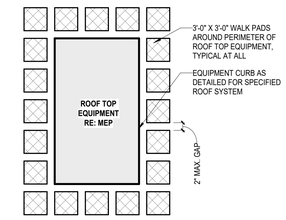
18 A610 GUTTER JOINT AND SPLASH PANS
1 1/2" = 1'-0"



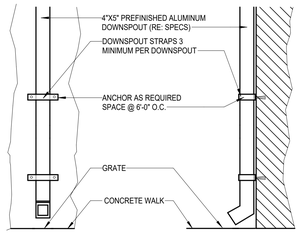
17 A610 ROOFING - PIPE SUPPORTS
1 1/2" = 1'-0"



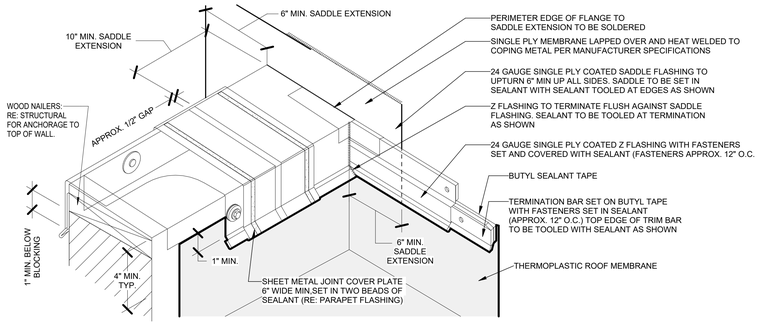
16 A610 ROOFING - ROOF LADDER
1 1/2" = 1'-0"



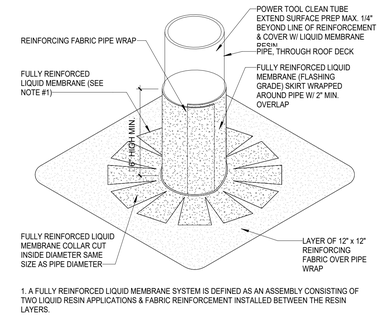
15 A610 ROOFING - WALK PADS
1 1/2" = 1'-0"



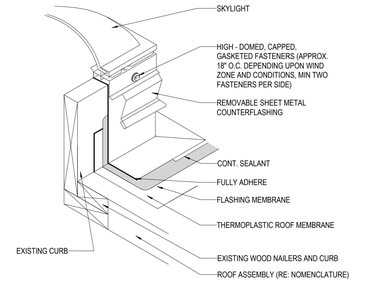
14 A610 ROOFING - DOWNSPOUT
1 1/2" = 1'-0"



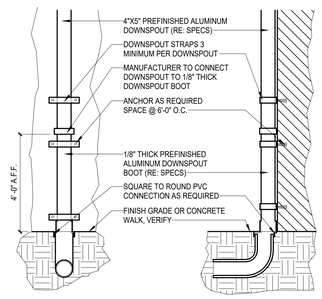
13 A610 ROOFING (TP) -SADDLE FLASHING
1 1/2" = 1'-0"



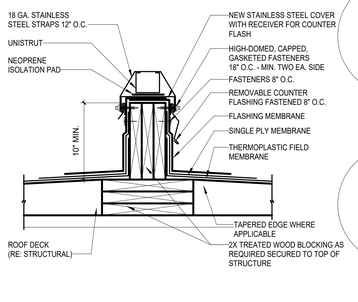
12 A610 ROOFING (TP) - PIPE PENETRATION
1 1/2" = 1'-0"



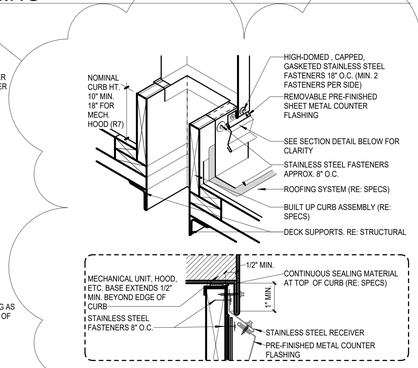
11 A610 SKYLIGHT CURB
12" = 1'-0"



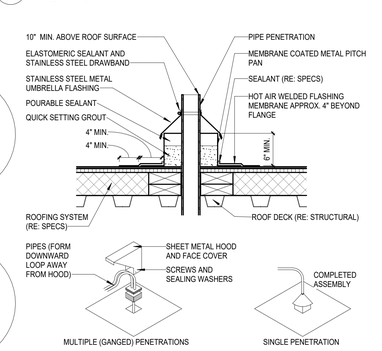
10 A610 ROOFING - DOWNSPOUT TO BOOT
1 1/2" = 1'-0"



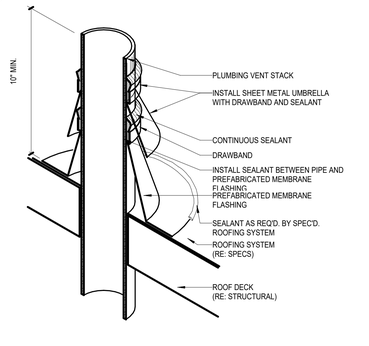
9 A610 ROOFING (TP) - EQUIP. SUPPORT
1 1/2" = 1'-0"



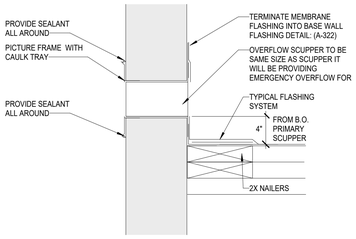
8 A610 ROOFING (TP) - EQUIP. CURB
1 1/2" = 1'-0"



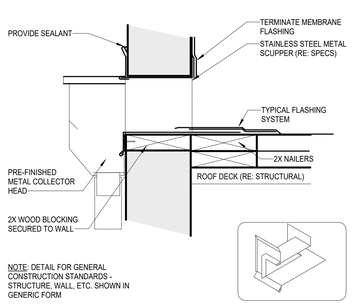
7 A610 ROOFING (TP) - PITCH PAN
1 1/2" = 1'-0"



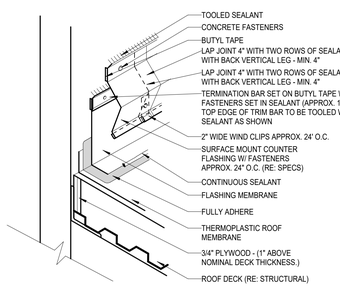
6 A610 ROOFING (TP) - PLUMBING VENT
1 1/2" = 1'-0"



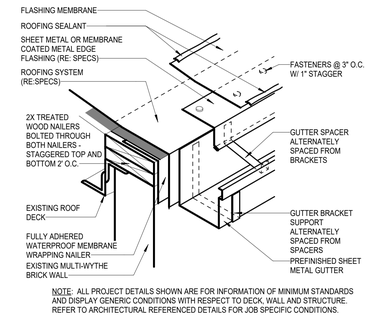
5 A610 OVERFLOW SCUPPER
12" = 1'-0"



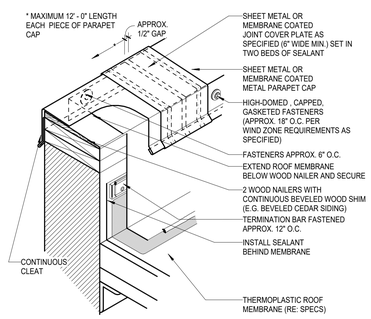
4 A610 ROOFING - THRU-WALL SCUPPER
1 1/2" = 1'-0"



3 A610 ROOFING (TP) - SURFACE MOUNT
1 1/2" = 1'-0"



2 A610 ROOFING (TP) - ROOF EDGE GUTTER
1 1/2" = 1'-0"



1 A610 ROOFING (TP) -PARAPET
1 1/2" = 1'-0"

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NORTH CAROLINA LICENSED 11358 January 14, 2026 ARCHITECT JOHN DALE HANSEN

NORTH CAROLINA REGISTERED PROFESSIONAL CORPORATION 54439 PBK Design, Inc.

CONSULTANT

TOWN OF CANTON

ARMORY COMMUNITY CENTER RENOVATION

71 PENLAND ST. CANTON, NC 28716

DATE	MARK	DESCRIPTION
02/06/26	1	Addendum 3

ISSUE:	CONSTRUCTION DOCUMENTS
DATE:	1/14/2026
PROJECT NO:	23029
DRAWN BY:	JH
CHECKED BY:	JDH

ROOF DETAILS

A610

F E D C B A

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