

# CITY OF KALAMAZOO

## KALAMAZOO PUBLIC SAFETY, POLICE STATION & COURT ENTRY RENOVATION

150 EAST CROSS TOWN PKWY, KALAMAZOO, MI 49001



**WIGHTMAN**

2303 PIPESTONE RD.  
BENTON HARBOR, MI. 49022  
269.927.0100

www.gowightman.com

PROJECT NAME:  
**KALAMAZOO  
PUBLIC SAFETY,  
POLICE STATION  
& COURT ENTRY  
RENOVATION**  
150 EAST CROSS TOWN  
PKWY, KALAMAZOO, MI 49001

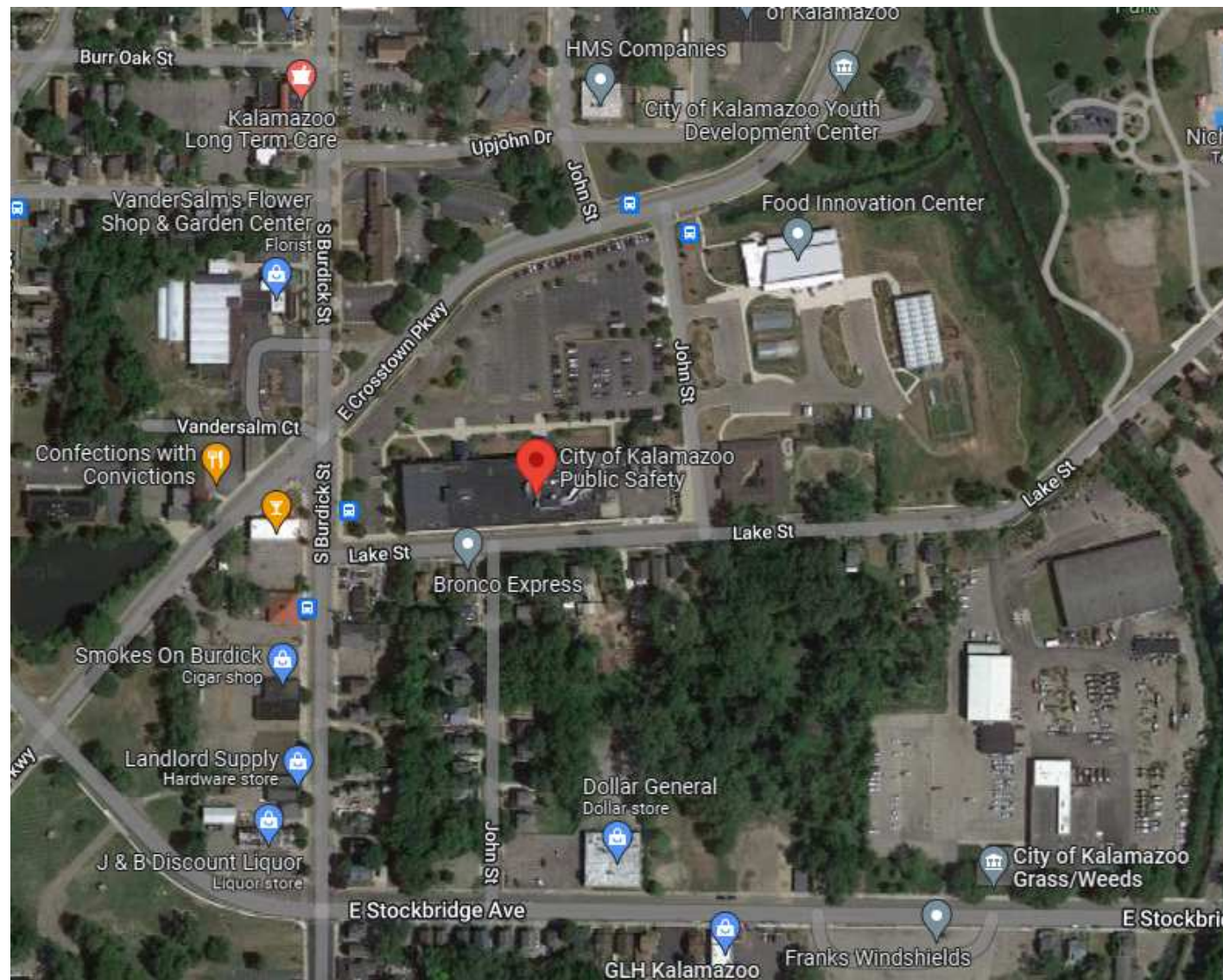
**CITY OF  
KALAMAZOO**  
241 W. SOUTH STREET,  
KALAMAZOO MI, 49007

**ABBEVIATIONS**

A.B.	ANCHOR BOLTS
A.C.T.	ACOUSTICAL COMPOSITE TILE
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
ALT.	ALTERNATE
ALUM.	ALUMINUM
AUX.	AUXILIARY
B.F.C.	BELOW FINISHED CEILING
B.O.	BOTTOM OF
BD.	BOARD
BLDG	BUILDING
BL'G.	BLOCKING
BM.	BEAM
BTM.	BOTTOM
C.	CONCUIT
C.W.	COLD WATER
CL	CENTER LINE
CLG.	CEILING
COL.	COLUMN
CONC.	CONCRETE
CONN.	CONNECTION
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
CPT.	CARPET
CTR.	CENTER
DBL.	DOUBLE
DIA.	DIAMETER
DN	DOWN
DWG.	DRAWING
E.F.	EXHAUST FAN
E.W.	EACH WAY
EL.	ELEVATION
ELEV.	ELEVATION
EQ.	EQUAL
EQUIP.	EQUIPMENT
EX.	EXHAUST
EXIST.	EXISTING
EXT.	EXTERIOR
F.D.	FLOOR DRAIN
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUD
F.P.H.B.	FREEZE POINT OF HOSE BIBB
FIN. FL.	FINISHED FLOOR
FND.	FOUNDATION
FRP	FIBERGLASS REINFORCED PANEL
FT.	FOOT
FTG.	FOOTING
G.C.	GENERAL CONTRACTOR
GA.	GAUGE
GAL.	GALLON
GALV.	GALVANIZED
GPM	GALLONS PER MINUTE
GRD.	GROUND
GYP.	GYPSON BOARD
BD.	
H.M.	HOLLOW METAL
H.P.	HORSE POWER, HIGH POINT
H.W.	HOT WATER
HORIZ.	HORIZONTAL
HT.	HEIGHT
INUSL.	INSULATION
J.C.	JANITORS CLOSET
L.P.	LOW POINT
LAM.	LAMINATE
LAV.	LAVATORY
L.G.	LONG
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL

**ABBEVIATIONS**

LOC.	LOCATE
MAS.	MASONRY
MAX.	MAXIMUM
MDP.	MODIFIED PROCTOR
MECH.	MECHANICAL
MFGR.	MANUFACTURERS
MFR.	MANUFACTURERS
MIN.	MINIMUM
MTD.	MOUNTED
MTL.	METAL
N.I.C	NOT IN CONTRACT
NA	NOT APPLICABLE
O.C.	ON CENTER
O.D.	OUTSIDE DIMENSION
O.H.	OVERHANG
O/O	OUT TO OUT
OSB	ORIENTED STRAND BOARD
P.R.	PROXIMITY READER
P.T.	PRESSURE TREATED
PL.	PLATE
PLYWD.	PLYWOOD
PLWD.	PLYWOOD
PRE-FA	PREFABRICATED
B.	
PRE-FIN	PREFINISHED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PTN.	PARTITION
PVC	POLYVINYL CHLORIDE
R.D.	ROOF DRAIN
R.O.	ROUGH OPENING
RECEPT	RECEPTACLE
REINF.	REINFORCING
RM.	ROOM
S.S.	STAINLESS STEEL
S.V.	SHEET VINYL
SQ.	SQUARE
STL.	STEEL
STRUC.	STRUCTURAL
SURF.	SURFACE MOUNTED
MTD.	
T&G	TONGUE AND GROOVE
T.C.	TOP OF CURVE
T.O.F.	TOP OF FOOTING
T.O.S.	TOP OF SLAB
T.O.W.	TOP OF WALKWAY
TYP.	TYPICAL
U.D.	UNIT DIMENSION
U.N.O.	UNLESS NOTED OTHERWISE
V.B.	VAPOR BARRIER
V.T.R.	VENT THRU ROOF
VCT	VINYL COMPOSITE TILE
VEN.	VENEER
VERT.	VERTICAL
VEST.	VESTIBULE
W.	WIDE, WASTE
W.C.	WATER CLOSET
W.C.O.	WALL CLEAN OUT
W.H.	WATER HEATER
W.P.	WATER PROOF
W.W.F.	WELDED WIRE FABRIC
W.W.M.	WELDED WIRE MESH
w	WITH
WD.	WOOD



SHEET INDEX	
SHEET NO.	SHEET TITLE
G100	TITLE SHEET
G101	ARCHITECTURAL SPECIFICATIONS
G102	ARCHITECTURAL SPECIFICATIONS
A103	DEMOLITION PLANS, PROPOSED PLANS AND ELEVATIONS

**CONTACT INFORMATION:**

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**PROJECT DESCRIPTION:**  
THIS PROJECT INCLUDES THE REMOVAL OF A PORTION OF THE EXISTING CANOPY FRAMING AT THE COURTS AND THE PUBLIC SAFETY ENTRYWAYS; THIS FRAMING SHALL BE MODIFIED TO ACCEPT NEW FABRIC CANOPY MATERIAL. THIS PROJECT ALSO INCLUDES THE REMOVAL OF A PORTION OF THE EXISTING (4) COLUMNS AND EIFS SURROUND AT BOTH LOCATIONS. THE PORTION OF THE EXISTING COLUMNS THAT ARE TO REMAIN SHALL RECEIVE A NEW PRECAST CONCRETE CAP. ALL OF THE EIFS AT THE ENTRY AND THE EXISTING COLUMN SURROUNDS WILL RECEIVE A FRESH COAT OF PAINT. THE NEW CANOPY FACES WILL HAVE THE COUNTY LOGO AND TEXT AS SIGNAGE.

2 OWNER REVIEW 03/09/2023  
1 OWNER REVIEW 12/09/2022  
PRELIMINARY - NOT FOR CONSTRUCTION  
**REVISIONS**  
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DATE: 03/09/2023  
SCALE: 1/4" = 1'-0"

TITLE SHEET

JOB No. 224192  
**G100**

CLEAN AND PAINT EXISTING EIFS TO MATCH COLOR OF EXISTING EIFS/STONE. COLOR SHALL BE APPROVED BY ARCHITECT AND OWNER (TYP. ALL EIFS AT ENTRY)



IMAGE 1  
COURT ENTRY

PORTION OF STEEL COLUMN AND EIFS SURROUND SHALL REMAIN; ADD PRECAST STONE CAP; VERIFY EXACT SIZE IN FIELD (TYPICAL ALL COLUMNS AT COURT AND PUBLIC SAFETY ENTRY)

CLEAN AND PAINT EXISTING EIFS; PAINT TO MATCH COLOR OF EXISTING EIFS/STONE; COLOR SHALL BE APPROVED BY ARCHITECT AND OWNER (TYP. ALL EIFS AT ENTRY)

EXISTING STRUCTURE TO REMAIN; NEW CANOPY FABRIC OVER NEW FRAMING AT FRONT; FRAMING DESIGN BY AWNING PROVIDERS

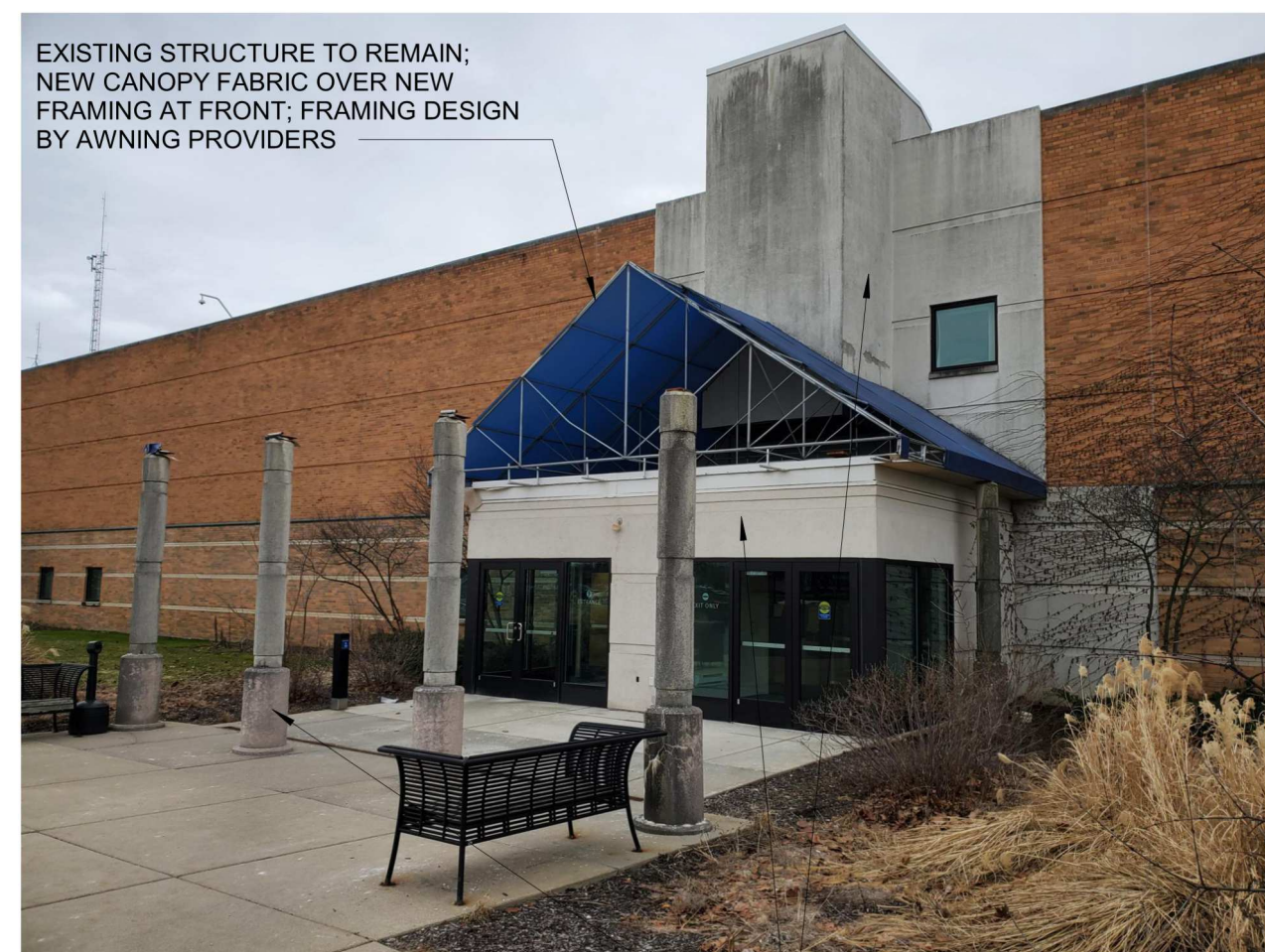


IMAGE 2  
COURT ENTRY

CLEAN AND PAINT EXISTING EIFS; PAINT TO MATCH COLOR OF EXISTING EIFS/STONE; COLOR SHALL BE APPROVED BY ARCHITECT AND OWNER (TYP. ALL EIFS AT ENTRY)



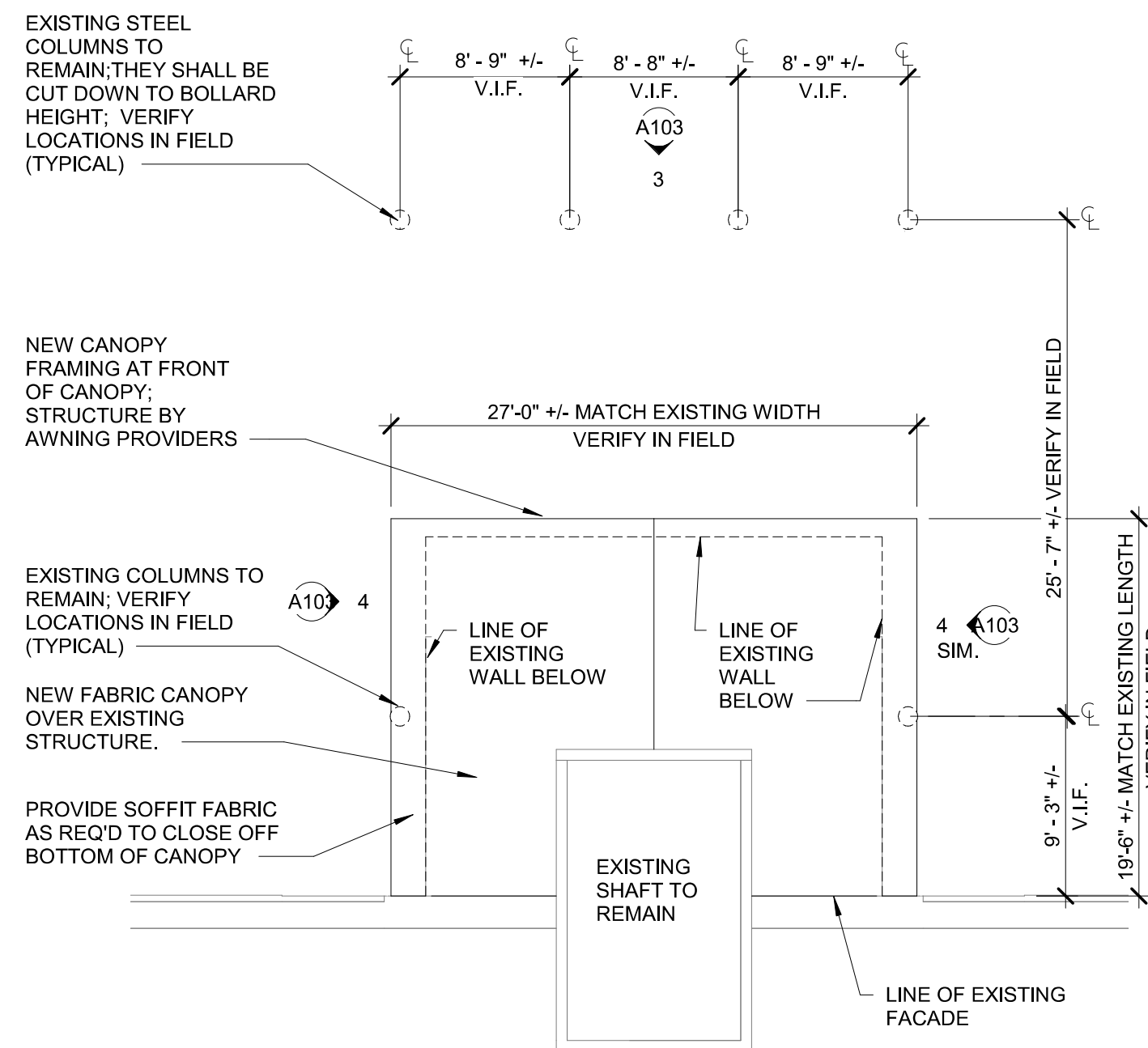
IMAGE 3  
PUBLIC SAFETY ENTRY

EXISTING STRUCTURE TO REMAIN; NEW PVC CANOPY FABRIC OVER NEW FRAMING AT FRONT; FRAMING DESIGN BY AWNING PROVIDERS

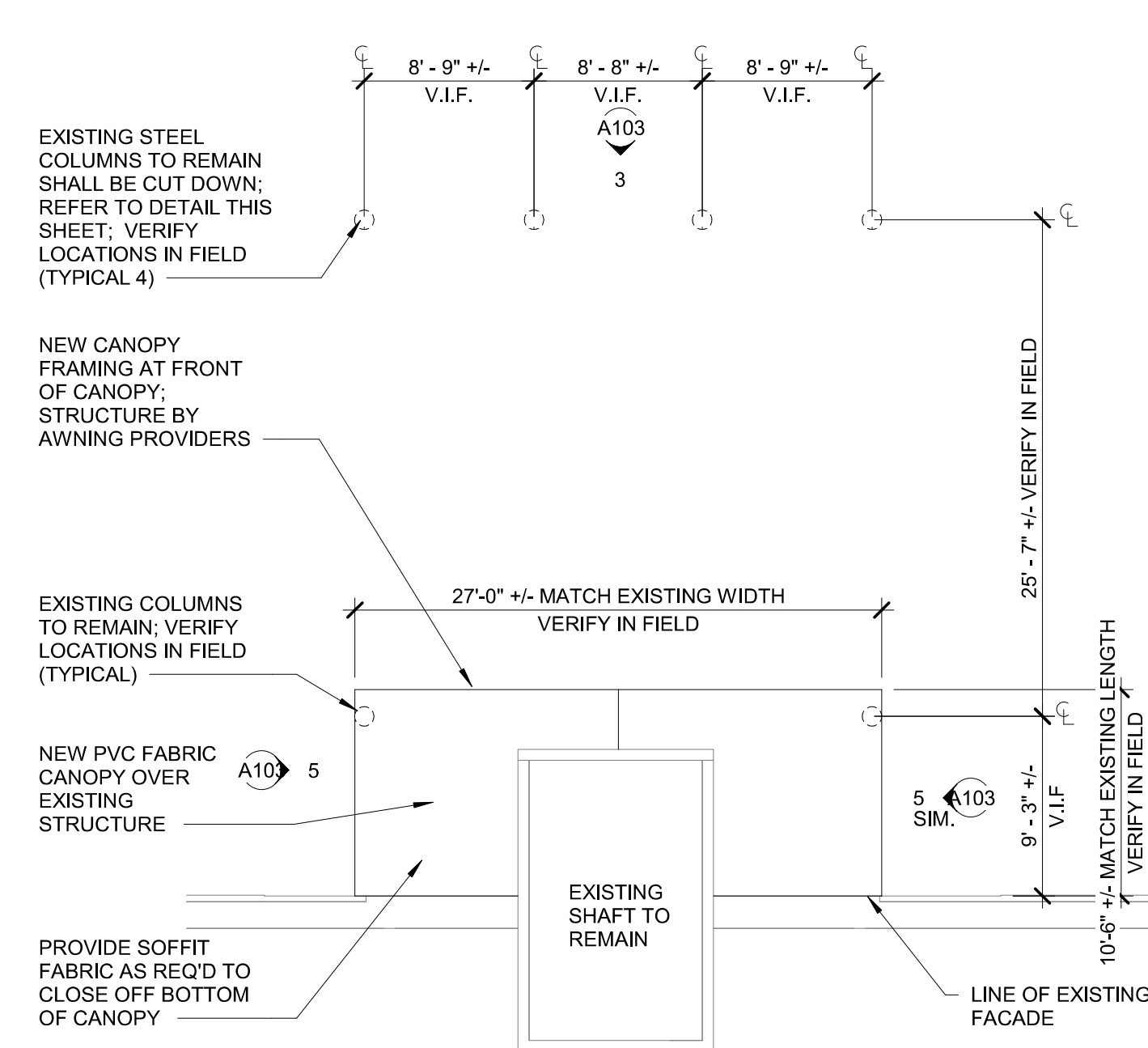
CLEAN AND PAINT EXISTING EIFS; PAINT TO MATCH COLOR OF EXISTING EIFS/STONE; COLOR SHALL BE APPROVED BY ARCHITECT AND OWNER (TYP. ALL EIFS AT ENTRY)

**GENERAL NOTES:**

- ALL WORK SHALL CONFORM TO ALL LOCAL AND FEDERAL LAWS, RULES AND REGULATIONS IN FORCE AT THE TIME OF CONSTRUCTION.
- ARCHITECTURAL WORK SHALL BE IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE.
- ALL WORK SHALL CONFORM TO THE MICHIGAN HANDICAPPED ACCESSIBILITY CODE & THE AMERICANS W/ DISABILITIES ACT.
- IF ANY ERRORS, OMISSIONS, OR DISCREPANCIES BECOME APPARENT, THESE SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO CONSTRUCTION OF ANYTHING AFFECTED SO THAT CLARIFICATION OR REDESIGN MAY OCCUR.
- FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL CALL "MISS DIG" AT 811 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION, IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.
- ELECTRICAL WORK SHALL BE PERFORMED BY STATE OF MICHIGAN LICENSED ELECTRICIANS ACCORDING TO THE NATIONAL ELECTRICAL CODE AS MODIFIED BY THE STATE OF MICHIGAN. FURNISH AND INSTALL ALL MATERIALS AND LABOR TO PROVIDE A FULL WORKING ELECTRICAL SYSTEM.
- ALL PLUMBING WORK SHALL BE PERFORMED BY STATE OF MICHIGAN LICENSED PLUMBERS ACCORDING TO THE MICHIGAN PLUMBING CODE AS MODIFIED BY THE LOCAL HEALTH DEPARTMENT. FURNISH AND INSTALL ALL MATERIALS & LABOR TO PROVIDE A FULL WORKING PLUMBING SYSTEM.
- HEATING AND AIR CONDITIONING SHALL BE ACCORDING TO THE MICHIGAN MECHANICAL CODE AND THE MICHIGAN ENERGY CODE.
- SOIL BEARING CAPACITY IS ASSUMED TO BE 2000 PSI WHERE UNDISTURBED. NOTIFY THE ARCHITECT IF LESSER CONDITIONS ARE ENCOUNTERED.
- DIMENSIONS TAKE PRECEDENCE OVER SCALE. CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD
- FOOTING CONCRETE SHALL BE POURED TO THE DEPTH REQUIRED TO BEAR ON UNDISTURBED SOIL OR ON GRANULAR FILL COMPACTED TO 98% MODIFIED PROCTOR DENSITY.
- CONCRETE TESTING - CONTRACTOR SHALL EMPLOY AN INDEPENDENT TESTING ENGINEER TO VERIFY THE SLUMP, AIR ENTRAINMENT & PROVIDE (3) CYLINDER SAMPLES FOR EACH DAYS POUR, OR EACH 50 C.Y. OF CONCRETE WHICHEVER OCCURS MOST OFTEN.
- THE GENERAL CONTRACTOR AND SUB-CONTRACTORS SHALL NOT ORDER EQUIPMENT OR FABRICATE BUILDING COMPONENTS WITHOUT FIRST FIELD VERIFYING ALL DIMENSIONS.
- THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE EXISTING FIELD CONDITIONS AND NOTIFY THE ARCHITECT OF DISCREPANCIES BETWEEN THE EXISTING BUILT ENVIRONMENT AND THE PLANS.
- THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN A MANNER TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.
- NOTIFY "MISS DIG" (811) AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION FOR THE LOCATION OF ANY UNDERGROUND UTILITIES. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.
- REMOVE ALL UNSUITABLE MATERIAL WITHIN THE CONSTRUCTION AREA OF THE BUILDING FOUNDATION AND CONCRETE SLAB.
- ENGINEERED FILL IF REQUIRED TO CORRECT SUBGRADE DEFICIENCIES, SHALL CONSIST OF APPROVED FILL MATERIAL, SUCH AS CLEAN GRADED GRANULAR FILL PLACED IN 9 INCH MAXIMUM DEPTH LIFTS AND COMPACTED BY SUITABLE VIBRATORY EQUIPMENT. THE FILL IS TO BE COMPACTED SUCH THAT THE DRY DENSITY OF THE FILL IS EQUAL TO 98 PERCENT OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST (ASTM D-1557).
- LOGO ON CANOPY FABRIC SHALL BE A DIGITAL GRAPHIC APPLICATION.

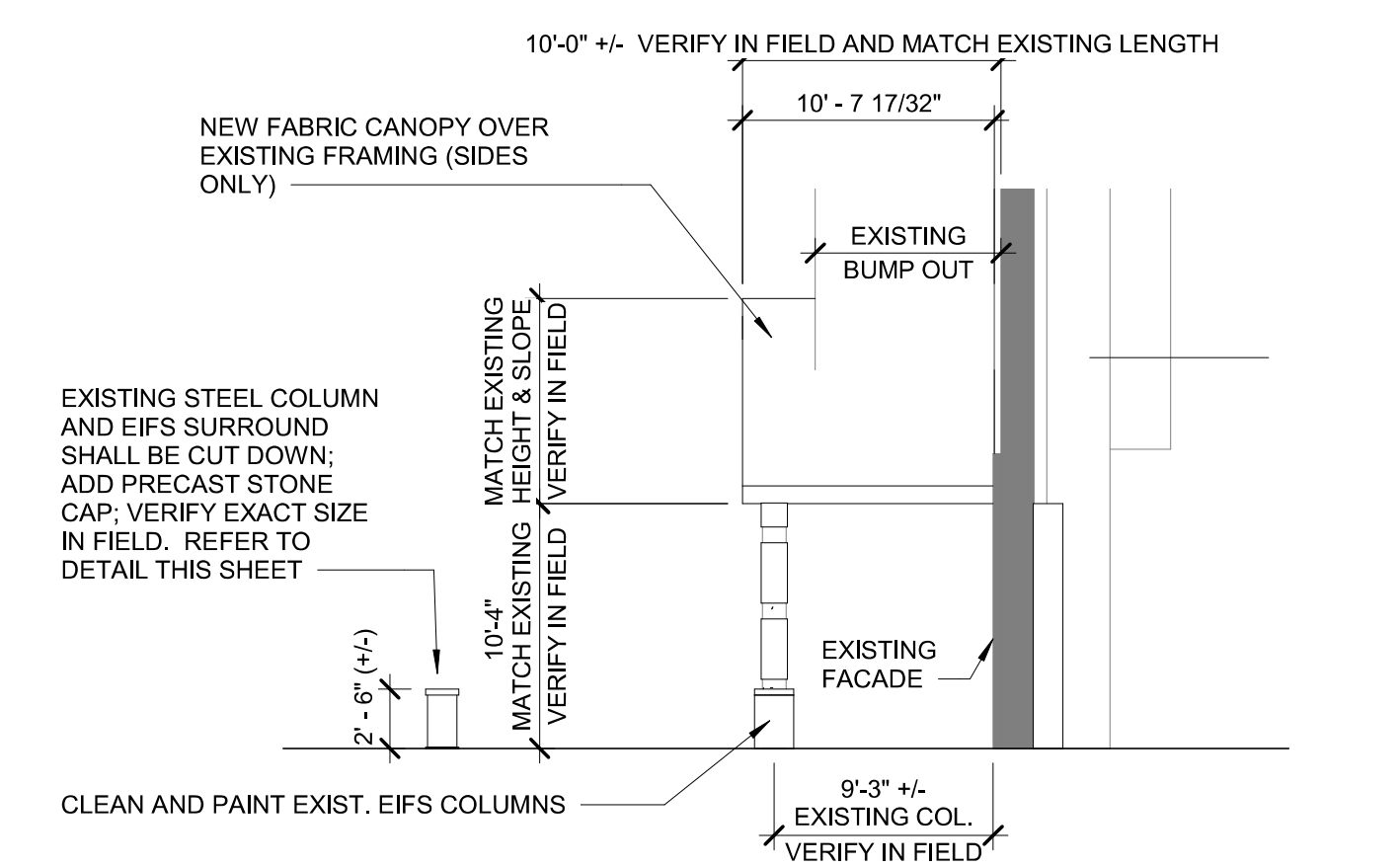


COURT ENTRY

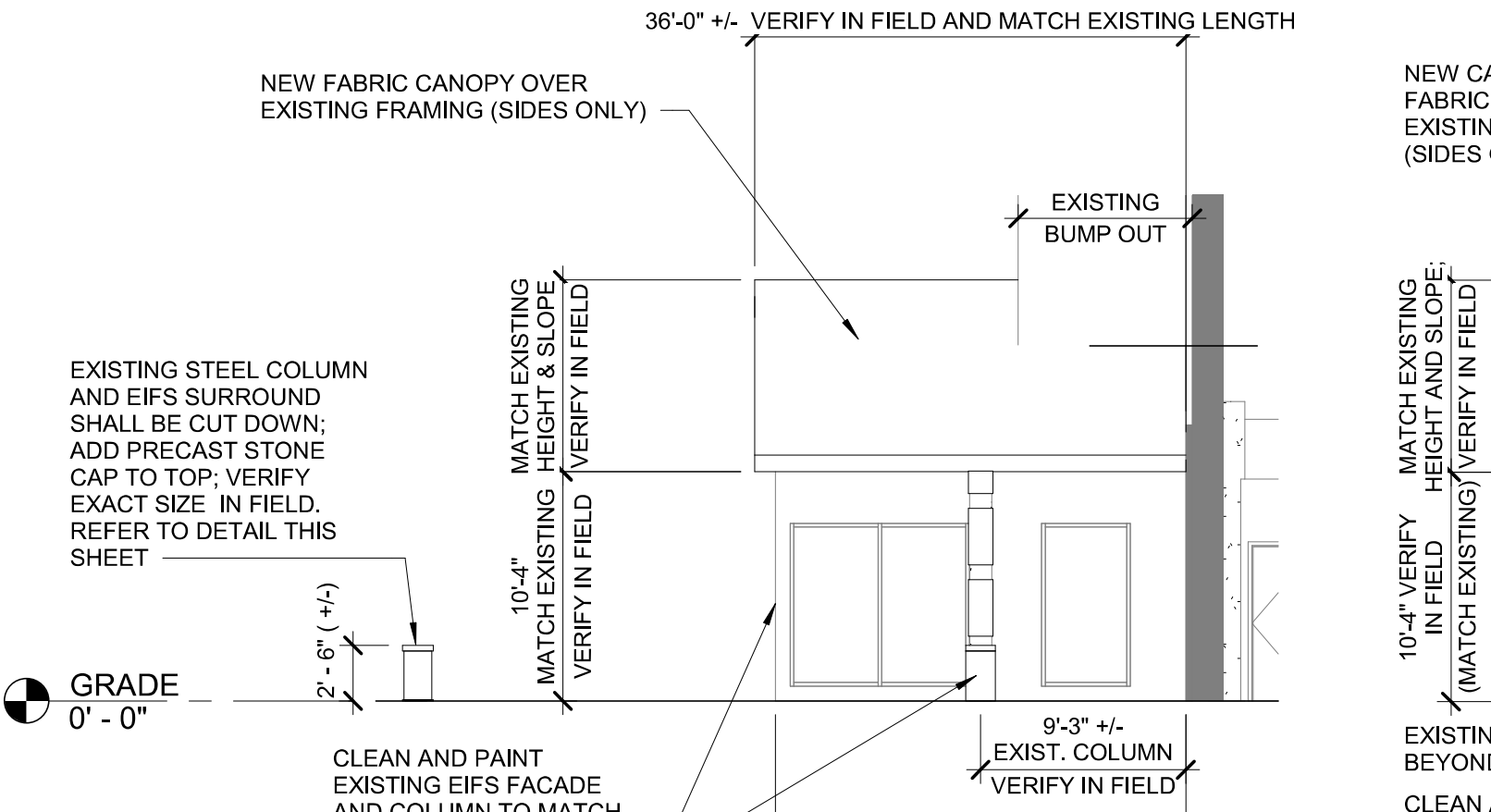


PUBLIC SAFETY ENTRY

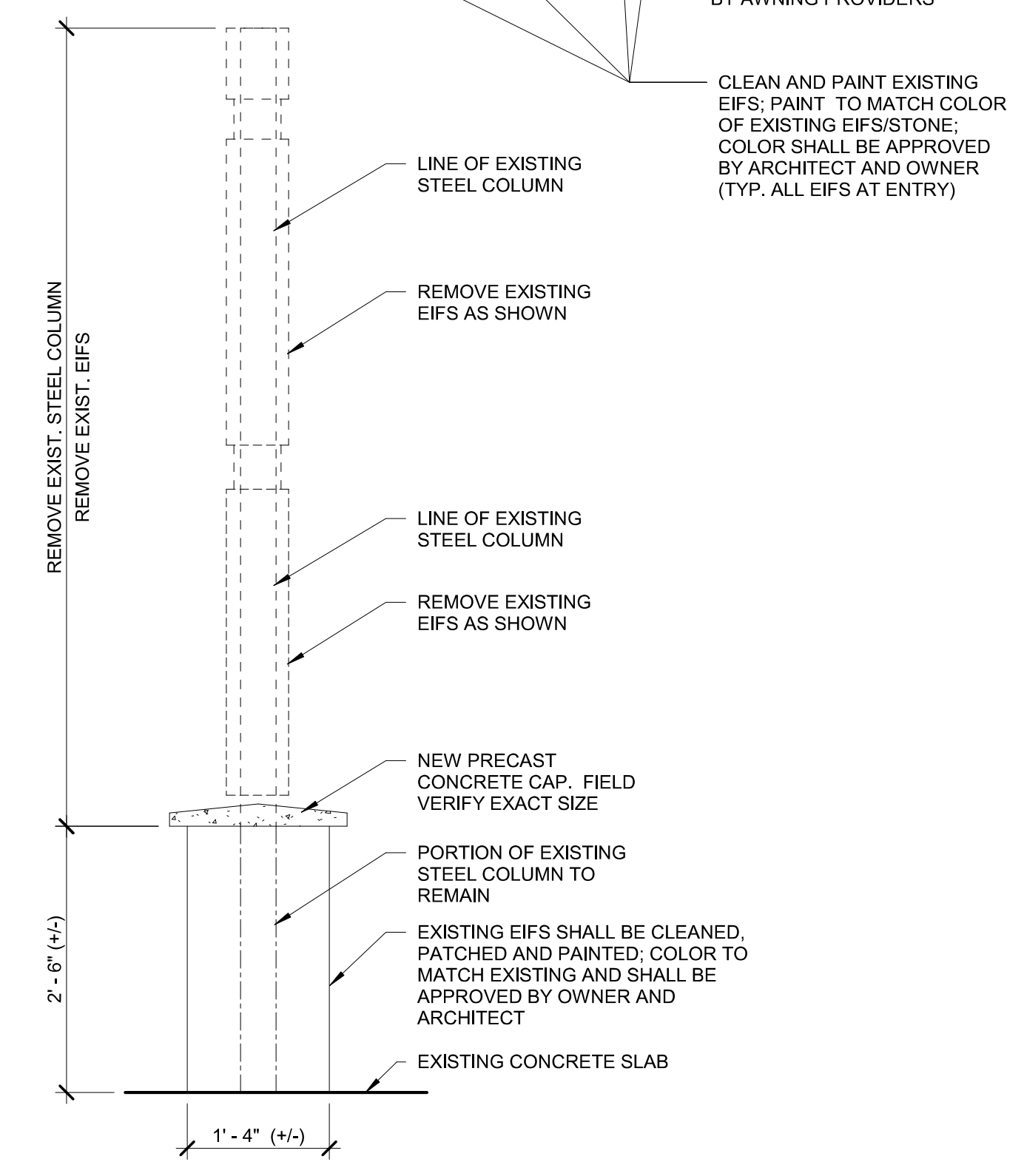
**POLICE AND PUBLIC SAFETY CANOPY ROOF PLANS**  
SCALE: 1/8" = 1'-0"



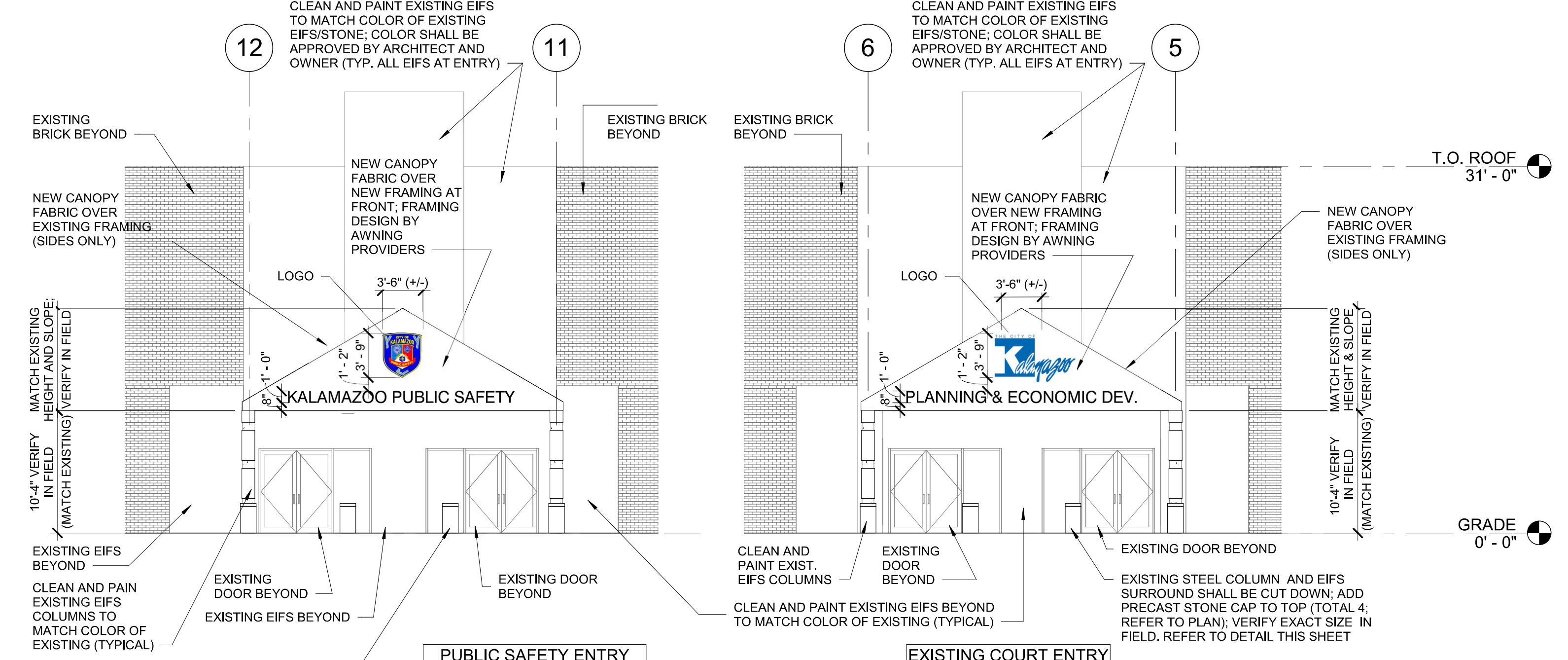
5 PUBLIC SAFETY CANOPY WEST ELEVATION  
A103 SCALE: 1/8" = 1'-0"



4 COURT CANOPY WEST ELEVATION  
A103 SCALE: 1/8" = 1'-0"



2 COLUMN DETAIL  
A103 SCALE: 3/4" = 1'-0"



3 POLICE AND PUBLIC SAFETY ENTRY CANOPY NORTH ELEVATION  
A103 SCALE: 1/8" = 1'-0"

2 OWNER REVIEW 03/09/2023  
1 OWNER REVIEW 12/09/2022  
PRELIMINARY - NOT FOR CONSTRUCTION  
**REVISIONS**  
DATE: 03/09/2023  
SCALE: As indicated

DEMOLITION PLANS,  
PROPOSED PLANS  
AND ELEVATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
- Section includes an entrance canopy system as shown on Drawings and specified in this Section.
  - Architect's drawings indicate design intent with respect to sizes, shapes, and configurations of the entrance canopy. Provide all components and accessories required for complete tensioned fabric canopy system, whether or not specifically shown or specified.
  - The entrance canopy structure will assume bolted/pinned connections for field assembly. No field welding will be permitted.
- B. The entrance canopy structure Contractor shall be responsible for the structural design, detailing, fabrication, supply, and installation of the Work specified herein. The intent of this specification is to establish in the first instance an undivided, single-source responsibility of the Subcontractor for all of the foregoing functions.
- C. All element sizes, material strengths, forces and quantities shown on the contract documents are to be taken as a developed concept. Final structural analysis and design are the responsibility of the subcontractor. The subcontractor is responsible at the time of bid to determine any additional costs related to their design and member sizing for the fabric roof.
- D. Contractor's Work shall include the structural design, supply, fabrication, shipment, and erection of the following items:
- The architectural membrane as indicated on the drawings and in these specifications.
  - Cables and fittings.
  - Perimeter, catenary, and sectionalized aluminum clamping system.
  - Structural steel, including masts, trusses, struts, and beams as indicated on the drawings.
  - Fasteners and gasketing.
- E. Related Requirements:
- Related Documents: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 REFERENCES

- A. Definitions:
- Entrance Canopy Structure: Frame supported membrane-covered fabric structure; incorporating a fabric with low elongation characteristics under tension and capable of an anticlastic configuration. Fabric structures in which fabric is applied as flat or mono-axially curved configurations are not acceptable.
- B. Reference Standards: Except as otherwise shown or noted, all work shall comply with the requirements of the following codes and standards:
- American Institute of Steel Construction (AISC).
    - Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings.
    - Code of Standard Practice for Steel Buildings and Bridges.
    - Specification for Structural Steel Buildings – Allowable Stress Design and Plastic Design.
    - Specification for Allowable Stress Design of Single-angle Members.
    - Seismic Provisions for Structural Steel Buildings.
  - American Society of Testing and Materials (ASTM).
    - ASTM D4851-88: Standard Test Methods for Coated and Laminated Fabrics for Architectural Use.
    - ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials.
    - ASTM E108: Standard Test Methods for Fire Test and Roof Coverings.
    - ASTM E136: Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.
    - ASTM C423: Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
    - ASTM E424: Standard Test Method for Solar Energy Transmittance and Reflectance of Sheet Materials.
  - American Welding Society (AWS).
    - AWS D1.1: Structural Welding Code.
    - AWS 2.4: Symbols for Welding and Nondestructive Testing.
  - Aluminum Association
    - Specifications for Aluminum Structures.
  - National Fire Protection Association (NFPA).
    - NFPA 701: Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.
  - Steel Structures Painting Council (SSPC).
    - Steel Structures Painting Manual, Volumes 1 and 2.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- Include styles, material descriptions, construction details, fabrication details, dimensions of individual components and profiles, hardware, fittings, mounting accessories, features, and finishes for tensioned fabric structures.
  - Include rated capacities, light transmissions, and operating characteristics of furnished specialties and accessories.
- B. Design Drawings:
- Include plans, elevations, sections, mounting heights, and frame assembly details.
  - Preliminary member sizes with wall thickness TBD.
  - Show intended fabric attachment hardware and details.
  - Identify direction, details and locations of fabric seams.
  - Show details of fabric membrane dimensions including length of spans, sag in curvature and actual shaded area.
- C. Engineered Drawings (submit after Design Drawings have been approved):
- Calculations with Wet Stamp seal of a Professional Engineer with a license in the same state as the project location.
  - Engineering Drawings with Wet Stamp seal of a Professional Engineer with a license in the same state as the project location.
  - Include plans, elevations, sections, mounting heights, and frame assembly details.
  - Provide frame member sizes and required wall thicknesses.
  - Identify all welding requirements.
  - Detail all bolted and/or pin connections for frame assembly.
  - Identify required sizes of bolts, pins, plates and tubing.
  - Verify the fabric meets minimum engineering requirements.
  - Detail fabric attachment methods and identify thickness of all membrane plates, clamps and other attachment components.
  - Submit anchor-bolt plans before foundation work begins. Include location, diameter, and projection of anchor bolts required to attach the tensioned fabric structures to foundation. Indicate column reactions at each location.
- D. Samples for Initial Selection: Electronic file of available frame finish colors.
- E. Samples for Verification: For the following:
- Fabric: Qty (3) 8 1/2" x 11" samples of fabric as selected by the architect.
  - Frame Finish: Qty (3) Sample chips, not less than 2" x 3" in size.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, Subcontractor, and professional engineer.
- B. Welding certificates.
- C. Sample Warranty: For fabric warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For tensioned fabric structures to include in operation and maintenance manuals.
- Include the following:
    - Methods for maintaining tensioned fabric structure fabrics and finishes.
    - Precautions about cleaning materials and methods that could be detrimental to fabrics, finishes, and performance.

1.6 QUALITY ASSURANCE

- A. Contractor Qualifications: Shop that employs skilled workers who custom-fabricate tensioned fabric structures similar to those required for this Project and whose products have a record of successful in-service performance.
- Contractor must be an active member of Industrial Fabric Association International (IFA) and Fabric Structures Association (FSA).
  - Contractor's responsibilities include fabricating and installing entrance canopy structures and providing professional engineering services needed to assume engineering responsibility.
  - Contractor's engineering services must utilize Finite Element Analysis software that performs fabric form finding and takes into account fabric material properties and prestress characteristics.
  - Contractor must have proven record of at least (10) successful projects of similar size and similar specified fabric material.
  - Contractor must have been in continuous operation as a professional tensioned fabric structure manufacturer for minimum of (15) years prior to contract.
  - Contractor must be an American owned company.
  - Contractor must have an in-house Made-in-America manufacturing facility for both frame and fabric membrane components.
  - Contractor must be a Michigan approved certified welder.
  - Contractor must have in-house installers with 10-hour OSHA training certificates.
- B. Installer Qualifications: Fabricator of products.
- C. Welding Qualifications: Qualify procedures and personnel according to the following:
- AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.7 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit installation of tensioned fabric structure in exterior locations to be performed according to Subcontractors' written instructions and warranty requirements.
- B. Field Measurements: Where entrance canopy structure installation is indicated to fit to other work, verify dimensions of other work by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for fenestration operation throughout the entire operating range. Notify Architect of discrepancies. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- 1.8 WARRANTY
- A. Special Warranty: Manufacturer and Subcontractor agree to repair or replace components of tensioned fabric structures that fail in materials or workmanship within specified warranty period of one year from the date of Substantial Completion.
- Failures include, but are not limited to, the following:
    - Structural failures including framework.
    - Deterioration of fabric including seam failure.
    - Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - Warranty Period, Fabric: Reference the manufacturer's limited warranty for the specified fabric manufacturer and product.
  - Warranty Period, Cables, Securement Devices and Accessories: One year from date of Substantial Completion

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design: Subject to compliance with requirements, provide the tensioned fabric structures designed, engineered, fabricated and installed by the following:
- Acceptable Manufacturer: Eide Industries, Inc. located at: 16215 Pluma Avenue, Cerritos, CA 90703; Toll Free Tel: 800-422-6827; Tel: 562-402-8335; Fax: 562-924-2233; Email: HYPERLINK "mailto:ajuares@eideindustries.com"ajuares@eideindustries.com; Web: HYPERLINK "http://www.eideindustries.com/www.eideindustries.com" or HYPERLINK "http://www.tensionstructures.com/www.tensionstructures.com".
  - Or approved equal. Contractor must meet all minimum requirements as outlined in item 1.6 QUALITY ASSURANCE of this section and show written proof for each item listed to become an approved equal.
  - Applicant for approve equal must submit engineering analysis along with pricing. Analysis must include:
    - Finite Element Analysis under various load cases
    - Fabric form finding of membrane
    - Adequate membrane gradient under load displacement to allow water runoff
    - Frame member sizing
    - Footing reaction loads
- B. Source Limitations: Obtain tensioned fabric structures from single source from single Contractor.

2.2 DESCRIPTION

- A. General: Provide an entrance canopy structure system that complies with requirements specified herein by testing the Contractor's corresponding membrane system in accordance with the indicated test methods.
- B. Regulatory Requirements: Provide entrance canopy system complying with requirements and limitations of authorities having jurisdiction that are within Contractor's control.
- Building Code Criteria: The entrance canopy structure shall comply with the International Building Code, latest edition.
  - Comply with local building codes and respective loading criteria for Snow Loads, Live Loads, Dead Loads, Wind Speed, and Seismic Loads.
  - Life Safety: Entrance Canopy structure shall be detailed so that no life safety issue is created in the event of a loss of a part of the membrane. The tensioned fabric structure shall not rely on the membrane for structural stability.

2.3 PERFORMANCE / DESIGN CRITERIA

- A. Delegated Design: Engage a qualified professional engineer to design tensioned fabric canopy system. Delegated design engineering requirements include, but are not limited to, the following:
- Prepare structural design drawings defining the precise interface geometry determination, reaction loads imposed on structural steel framing, anchoring loads, connection details, interfaces, and seam layouts.
  - Structural calculations for the tensioned fabric canopy system shall include:
    - Large deflection numerical shape generation that will insure a stable, uniformly stressed, three dimensionally curved shape that is in static equilibrium with the internal prestress forces and is suitable to resist all applied loads.
    - Large deflection finite element method structural analysis of the membrane system under all applicable wind and seismic loads.
    - Connection design including bolt, weld and ancillary member sizing
    - Biaxial fabric test specification, interpretation and fabric compensation determination.
    - Accurate generation of the two-dimensional compensated fabric templates required to generate the three-dimensional equilibrium shape.
- B. In engineering entrance canopy system fittings and accessories to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:
- Steel: 72 percent of minimum yield strength.
  - Stainless Steel: 60 percent of minimum yield strength.
  - Aluminum: The lesser of minimum yield strength divided by 1.65 or minimum ultimate tensile strength divided by 1.95.
- C. Structural Performance: Tensioned fabric canopy system shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to ASCE/SEI 7:
- Wind Loads: To be determined by Contractor's Engineer of Record.
  - Live Loads: To be determined by Contractor's Engineer of Record.
  - Snow Loads: To be determined by Contractor's Engineer of Record.
  - Seismic Loads: To be determined by Contractor's Engineer of Record.
- D. General: In engineering railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:
- Aluminum: The lesser of minimum yield strength divided by 1.65 or minimum ultimate tensile strength divided by 1.95.
  - Copper Alloys: 60 percent of minimum yield strength.
  - Stainless Steel: 60 percent of minimum yield strength.
  - Steel: 72 percent of minimum yield strength.

- E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
- Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- F. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

2.4 CANOPY FABRIC MATERIALS

- A. Product: Subject to compliance with requirements, provide fabric as called out and specified by the Architect in the bid drawings.
- B. Fire-Test-Response Characteristics: Provide canopy fabric with the fire-test-response characteristics indicated, as determined by testing identical products according to test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
- Flame-Resistance Ratings: Passes NFPA 701.
  - Noncombustible: Passes ASTM E-136 and E-108
  - Flame Spread: ASTM E-84 Class A
- C. PTFE Fabric manufacturer: The following is a list of approved PTFE fabric manufacturers for Entrance Canopy structures. Reference architectural drawings for fabric call out.
- Saint Gobain (Sheerfill product line)
  - Verseldag (Duraskin product line)
  - Chukoh (Skytop product line)
  - Taconic (Solus product line)
- E. Fabric properties:
- Fabric thickness and tensile strength: Must meet engineering requirements with a safety factor of five.
  - Color: Blue (Manufacturer Standard) Approved by Architect.
  - Porosity: Waterproof

2.5 CANOPY FRAME, CABLES, FITTINGS AND ACCESSORIES

- A. General: Provide accessories as standard with Entrance canopy system Subcontractor and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by Subcontractor's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.
- B. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- C. Frame material shall be constructed of cold rolled carbon steel unless otherwise specified by the architect in the bid drawings.
- D. Steel and Iron:
- Tubing: ASTM A 500 (cold formed) or ASTM A 513.
  - Bars: Hot-rolled, carbon steel complying with ASTM A 29/A 29M, Grade 1010.
  - Plates, Shapes, and Bars: ASTM A 36 or ASTM A 572 per engineering requirements.
- G. Cables and Fittings shall be constructed of galvanized steel unless otherwise specified by the architect in the bid drawings:
- All cables in contact with PTFE fabric shall be PVC coated.
  - Any cable in contact with HDPE fabric shall never have PVC coating.
  - Manufacturers: Subject to compliance with requirements, provide products by one of the following manufacturers:
    - John A. Batchelor Co Inc.
    - Jack Rueben and Sons
    - McMaster-Carr
    - Frontier Technologies
    - The Crosby Group
    - Ronstan International Inc.
- H. Accessories:
- Base Plates and Anchor Bolts.
    - Base plates supported on concrete shall be furnished and set on shims, leveling plates or leveling nuts. Grouting shall be by the General Contractor.
    - Anchor bolt locations shall be furnished by the Subcontractor and used by the General Contractor to set the bolts. The General Contractor is to carefully check the setting of the bolts to their proper position prior to placing of concrete. Anchor bolts, provided by the General Contractor, shall have two (2) nuts and washers. Damaged threads shall be repaired or be cut to permit full tightening of nuts.
    - Anchor bolts will have adequate thread length above concrete for the leveling nut, the base plate, the top nut, the washers and at least two full threads exposed on top. Any concrete that impedes the required thread length will be chipped away by the General Contractor prior to the installation of the frame.
  - Metal Battens for Securing Canopy Fabric to Structural Steel Frame: Extruded aluminum.

2.6 CANOPY FRAME FINISH

- A. Frame Finish shall match existing.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine structural steel framing and other substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ERECTION

- A. Proceed with installation of tensioned fabric structure only when existing and forecasted weather conditions will permit work to be performed in accordance with Contractor's recommendations.
- B. Erect frame and fabric in accordance with the procedures of the approved Subcontractor.
- C. Adequate prestress shall be applied to eliminate fabric wrinkles and excess cable sag. Membranes with extreme twist and/or shallow catenary curves may be more prone to wrinkles. The wrinkles should be minimized with adjustments and should not be a distraction when looking at the project as a whole.

3.3 FIELD QUALITY CONTROL

- A. Contractor's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- B. Prepare test and inspection reports.

3.4 ADJUSTING

- A. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to one visit to Project during other-than-normal occupancy hours for this purpose.

3.5 CLOSEOUT ACTIVITIES

- A. Demonstration: Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust cable and fabric tension and to clean and maintain canopy fabric.



PROJECT NAME:  
**KALAMAZOO PUBLIC SAFETY, POLICE STATION & COURT ENTRY RENOVATION**  
150 EAST CROSS TOWN PKWY, KALAMAZOO, MI 49001

**CITY OF KALAMAZOO**  
241 W. SOUTH STREET, KALAMAZOO MI, 49007

2 OWNER REVIEW 03/09/2023  
1 OWNER REVIEW 12/09/2022  
PRELIMINARY - NOT FOR CONSTRUCTION  
**REVISIONS**  
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DATE: 03/09/2023  
SCALE:

**ARCHITECTURAL SPECIFICATIONS**

SECTION 09 90 00  
INTERIOR, EXTERIOR AND HIGH PERFORMANCE PAINTS AND COATINGS

PART 1 GENERAL  
1.1 SECTION INCLUDES  
A. Exterior paint and coating systems including surface preparation.

1.2 RELATED SECTIONS

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 04 20 00 - Unit Masonry: Concrete Masonry Units (CMU) and brick.
- D. Section 05 50 00 - Metal Fabrications.

1.3 REFERENCES

- A. Steel Structures Painting Council (SSPC):
  - 1. SSPC-SP 1 - Solvent Cleaning.
  - 2. SSPC-SP 2 - Hand Tool Cleaning.
  - 3. SSPC-SP 3 - Power Tool Cleaning.
  - 4. SSPC-SP5/NACE No. 1, White Metal Blast Cleaning.
  - 5. SSPC-SP6/NACE No. 3, Commercial Blast Cleaning.
  - 6. SSPC-SP7/NACE No. 4, Brush-Off Blast Cleaning.
  - 7. SSPC-SP10/NACE No. 2, Near-White Blast Cleaning.
  - 8. SSPC-SP11, Power Tool Cleaning to Bare Metal.
  - 9. SSPC-SP12/NACE No. 5, Surface Preparation and Cleaning of Metals by Waterjetting Prior to Recoating.
  - 10. SSPC-SP 13 / NACE No. 6 Surface Preparation for Concrete.
- B. Material Safety Data Sheets / Environmental Data Sheets: Per manufacturer's MSDS/EDS for specific VOCs (calculated per 40 CFR 59.406). VOCs may vary by base and sheen.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: For each paint system indicated, including:
  - 1. Product characteristics.
  - 2. Surface preparation instructions and recommendations.
  - 3. Primer requirements and finish specification.
  - 4. Storage and handling requirements and recommendations.
  - 5. Application methods.
  - 6. Cautions for storage, handling and installation.
- C. Selection Samples: Submit a complete set of color chips that represent the full range of manufacturer's products, colors and sheens available.
- D. Verification Samples: For each finish product specified, submit samples that represent actual product, color, and sheen.
- E. Coating Maintenance Manual: Upon conclusion of project, the Contractor or paint manufacturer/supplier shall furnish a coating maintenance manual, such as Sherwin-Williams, "Custodian Project Color and Product Information" report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used. "

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Paint exposed surfaces. If a color of finish, or a surface is not specifically mentioned, Architect will select from standard products, colors and sheens available.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels unless indicated.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver manufacturer's unopened containers to the work site. Packaging shall bear the manufacturer's name, label, and the following list of information:
  - 1. Product name, and type (description).
  - 2. Application and use instructions.
  - 3. Surface preparation.
  - 4. VOC content.
  - 5. Environmental handling.
  - 6. Batch date.
  - 7. Color number.
- B. Storage: Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
- C. Store materials in an area that is within the acceptable temperature range, per manufacturer's instructions. Protect from freezing.
- D. Handling: Maintain a clean, dry storage area, to prevent contamination or damage to the coatings.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.
- B. Furnish Owner with an additional one percent of each material and color, but not less than 1 gal (3.8 l) or 1 case, as appropriate.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Sherwin-Williams, which is located at: 101 Prospect Ave., Cleveland, OH 44115; ASD Toll Free Tel: 800-524-5979; Tel: 216-566-2000; Fax: 440-526-1989; Email: request\_infospecifications@sherwin.com; Web: www.swspecs.com.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements. Contractor shall provide manufacturer documentation proving equal product.

2.2 APPLICATIONS/SCOPE

- A. Exterior Paint and Coating Systems:
  - 1. EFIS

2.3 PAINT MATERIALS - GENERAL

- A. Paints and Coatings:
  - 1. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
  - 2. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color. Or follow manufactures product instructions for optimal color conformance.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Coating Application Accessories: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required, per manufacturer's specifications.
- D. Color: Match existing stone and EIFS of existing building, contractor shall provide samples for approval.

2.4 EXTERIOR PAINT AND COATING SYSTEMS

- A. EFIS
  - 1. Latex Systems:
    - a. Flat Finish:
      - 1) 1st Coat: S-W Loxon Concrete and Masonry Primer Sealer, LX02W50 (5.3-8.0 mils wet, 2.1-3.2 mils dry).
      - 2) 2nd Coat: S-W A-100 Exterior Latex Flat, A6 Series.
      - 3) 3rd Coat: S-W A-100 Exterior Latex Flat, A6 Series (4.0 mils wet, 1.2 mils dry per coat).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared; notify Architect of unsatisfactory conditions before proceeding. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- B. Proceed with work only after conditions have been corrected and approved by all parties, otherwise application of coatings will be considered as an acceptance of surface conditions.
- C. Previously Painted Surfaces: Verify that existing painted surfaces do not contain lead based paints, notify Architect immediately if lead based paints are encountered.

3.2 SURFACE PREPARATION

- A. General: Surfaces shall be dry and in sound condition. Remove oil, dust, dirt, loose rust, peeling paint or other contamination to ensure good adhesion.
  - 1. Prior to attempting to remove mildew, it is recommended to test any cleaner on a small, inconspicuous area prior to use. Bleach and bleaching type cleaners may damage or discolor existing paint films. Bleach alternative cleaning solutions are advised.
  - 2. Remove mildew before painting by washing with a solution of 1 part liquid household bleach and 3 parts of warm water. Apply solution and scrub the mildewed area. Allow solution to remain on the surface for 10 minutes. Rinse thoroughly with clean water and allow surface to dry before painting. Wear protective glasses or goggles, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach/water solution.
  - 3. Remove items including but not limited to thermostats, electrical outlets, switch covers and similar items prior to painting. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
  - 4. No exterior painting should be done immediately after a rain, during foggy weather, when rain is predicted, or when the temperature is below 50 degrees F (10 degrees C), unless products are designed specifically for these conditions. On large expanses of metal siding, the air, surface and material temperatures must be 50 degrees F (10 degrees F) or higher to use low temperature products.
- B. Stucco: Must be clean and free of any loose stucco. If recommended procedures for applying stucco are followed, and normal drying conditions prevail, the surface may be painted in 30 days. The pH of the surface should be between 6 and 9 unless the products are designed to be used in high pH environments such as Loxon.

3.3 INSTALLATION

- A. Apply all coatings and materials with the manufacturer's specifications in mind. Mix and thin coatings according to manufacturer's recommendations.
- B. Do not apply to wet or damp surfaces. Wait at least 30 days before applying to new concrete or masonry. Or follow manufacturer's procedures to apply appropriate coatings prior to 30 days. Test new concrete for moisture content. Wait until wood is fully dry after rain or morning fog or dew.
- C. Apply coatings using methods recommended by manufacturer.
- D. Uniformly apply coatings without runs, drips, or sags, without brush marks, and with consistent sheen.
- E. Apply coatings at spreading rate required to achieve the manufacturers recommended dry film thickness.
- F. Regardless of number of coats specified, apply as many coats as necessary for complete hide, and uniform appearance.
- G. Inspection: The coated surface must be inspected and approved by the Architect just prior to the application of each coat.

3.4 PROTECTION

- A. Protect finished coatings from damage until completion of project.
- B. Touch-up damaged coatings after substantial completion, following manufacturer's recommendation for touch up or repair of damaged coatings. Repair any defects that will hinder the performance of the coatings.

END OF SECTION



**WIGHTMAN**

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PROJECT NAME:

**KALAMAZOO  
PUBLIC SAFETY,  
POLICE STATION  
& COURT ENTRY  
RENOVATION**  
150 EAST CROSS TOWN  
PKWY, KALAMAZOO, MI 49001

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