

SECTION 13555

ATMS CABINET

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Furnish and install or modify concrete foundations of the size and type as specified in the plans.
- B. Install state furnished ATMS Cabinet. Includes all materials, labor, workmanship, equipment, documentation, and incidental items required to provide a complete and operational ATMS Cabinet as shown on plans and details.

1.2 RELATED SECTIONS

- A. Section 02892: Traffic Signal
- B. Section 03055: Portland Cement Concrete
- C. Section 03152: Concrete Joint Control
- D. Section 03211: Reinforcing Steel and Welded Wire.
- E. Section 13551: General ATMS Requirements
- F. Section 13553: ATMS Conduit
- G. Section 13554: Polymer Concrete Junction Box
- H. Section 13561: ATMS Power Service

1.3 REFERENCES

- A. ASTM A 123: Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- B. ASTM A 307: Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength

- C. ASTM B 766: Standard Specification for Electro-deposited Coatings of Cadmium
- D. National Electrical Manufacturers Association (NEMA) Standards

1.4 SUBMITTALS

- A. Submit samples of materials for approval when requested.
- B. Provide the following submittals as described in Section 13551:
 - 1. Contractor Furnished Material and Equipment Lists
 - 2. Manufacturer's Equipment Documentation

PART 2 PRODUCTS

2.1 CABINET FOUNDATION

- A. Concrete: A(AE) required. Refer to Section 03055.

2.2 BOLTS, NUTS, AND HARDWARE

- A. For cabinet mounts, provide wedge expansion type, or poured in place anchor bolts.
 - 1. 3/4 inch x 8-inch expansion anchor bolts.
 - 2. 9000 lbs pullout strength.
- B. Provide commercially available framing strut to attach transformers, breaker enclosures, disconnects, or other electrical equipment to cabinet foundation.
 - 1. 12-gauge, U-shaped stainless steel product with 5/8-inch diameter pre-drilled holes.
 - 2. Cross-section dimensions: 1 5/8 inch x 1 5/8 inch minimum.
- C. For framing struts, provide wedge expansion anchor bolts to secure framing strut to foundation.
 - 1. 1/2 inch x 8-inch embedded a minimum of 6 inches in foundation.
 - 2. Shear capacity of 2500 lbs and pullout tension capacity of 2600 lbs.

- D. Provide stainless steel, galvanized, or zinc plated bolts, nuts, washers, struts, and hardware, as specified.
 - 1. Steel as specified (ASTM A 307).
 - 2. Galvanized as specified (ASTM A 123).
 - 3. Zinc plated as specified (ASTM B 766).
- E. Provide nuts that are free running, by hand, for total thread length.
- F. Provide all bolted connections with lock washers, locking nuts, or other approved means to prevent the connection nuts from backing off.
- G. Provide nipples, elbows, and grommets necessary for wiring.

2.3 CONDUIT

- A. Refer to Section 13553.
- B. Refer to Section 02892.

2.4 JUNCTION BOX AND GROUND ROD

- A. Refer to Section 13554.

2.5 POWER SOURCE

- A. Refer to Section 13561.

2.6 TRANSFORMER AND DISCONNECT

- A. Submit specifications for approval.

2.7 BITUMINOUS JOINT FILLER

- A. Preformed material. Refer to Section 03152.

PART 3 EXECUTION

3.1 PREPARATION

- A. Use maintenance platforms when surrounding area is not paved. Platforms provide access to the cabinets for maintenance activities. Locate cabinet in an area where full access is allowed.
- B. Repair any damage to existing utilities.
- C. Restore area to the condition prior to beginning work.
- D. Field locate cabinet location with the Engineer. Avoid areas with poor drainage. Satisfy clear zone requirements.

3.2 CONSTRUCT CABINET FOUNDATION

- A. Reinforcing Steel and Welded Wire. Refer to Section 03211.
- B. Verify bolt pattern, conduit runs, and foundation dimensions prior to foundation construction.
 - 1. Install anchor bolts to accommodate conduit runs.
 - 2. Embed strut anchor bolts a minimum of 6 inches into foundation.
 - 3. Embed cabinet anchor bolts a minimum of 6 inches into foundation.
- C. Concrete: A(AE) required. Refer to Section 03055.
- D. Do not weld reinforcing steel, conduit, or anchor bolts.
 - 1. Use tie wire to secure conduits.
 - 2. Use template to align and secure anchor bolts.
 - 3. Locate steel, conduit, or anchor bolts a minimum of 3 inches from concrete edge.
- E. Place the concrete directly into the excavation. Use minimum forming above ground.
- F. Provide 36 inches minimum clearance between foundation and all walls, guardrails, poles, and other aboveground features.
- G. Do not extend conduit stubs in cabinet more than 3 inches above floor of foundation.

- H. Conduit
1. Install all conduit in base of cabinet in a 12-inch x 18-inch rectangle centered in the cabinet base.
 2. Refer to the Project Plans for the number, size, and orientation of all conduits entering the junction boxes.
 3. Conduit (typical) for power from cabinet with disconnect to Type I junction box:
 - a. One-1 1/2 inch from cabinet to disconnect.
 - b. One-1 1/2 inch from disconnect to Type I junction box.
 4. Conduit (typical) for power from cabinet with disconnect/step-down transformer to Type I junction box:
 - a. One-2 inch from disconnect to Type I junction box
 - b. One-1 1/2 inch from disconnect to transformer
 - c. One-1 1/2 inch from transformer to cabinet
 5. Conduit (typical) for communication from cabinet to Type II junction box:
 - a. Two-3 inch
 - b. Four-2 inch
 6. Conduit (typical) for communication stubbed out of Type II junction box:
 - a. Two-3 inch
 - b. Four-2 inch
 - c. One-3 inch (used as a spare conduit)
 7. Above ground, use galvanized rigid steel; underground, use PVC.
 8. Install bushings on the ends of metallic conduit. Install end bells on non-metallic conduit.
 9. Provide 1 inch minimum spacing between conduit in cabinet base. Cap conduit at both ends until used. Stub conduit a maximum of 3 inches above the concrete base.
- I. Place the cabinet foundation to allow maintenance personnel facing the front door of the cabinet to also face the device (such as VMS, CCTV, RMS, TMS).
- J. Trowel finish the foundation surface and level prior to cabinet installation. After the concrete base has cured, leveling can only be accomplished by grinding the top surface.
- K. Bituminous filler at concrete joints. Refer to Section 03152.

3.3 INSTALL ATMS CABINET

- A. Install the cabinet so the door that accesses the front face of the control equipment is adjacent to the Type II-PC junction box. Securely fasten the cabinet onto the concrete foundation. After the cabinet has been installed on the foundation, the cabinet door must be able to fully open and close.

- B. Provide a rain-tight seal that does not degrade the NEMA 3R (See NEMA Standards Publication 250-1997) rating of the enclosure for all conduit fittings and chases to adjoining enclosures.
- C. Isolate dissimilar materials from one another by stainless steel fittings.
- D. Make all power connections as shown in plans.
 - 1. Isolate the neutral bus from the cabinet and equipment ground.
 - 2. Terminate the neutral bus at the neutral lug attached to the meter pedestal.
- E. Install caulk between base of cabinet and top of foundation.

3.4 INSTALL DISCONNECT AND/OR TRANSFORMER

- A. Install 12 gauge framing strut to the foundation with three expansion anchors per super strut.
- B. Install disconnect and transformer on the side of the foundation that faces away from the nearest traffic. If wall blocks access to the disconnect, then install the disconnect and transformer on the opposite side of cabinet.
- C. Ground disconnect on ground rod located in Type I junction box.
- D. Ground the transformer to the control cabinet ground terminal.
- E. Install disconnect and/or transformer per manufacturer's instructions.
- F. Install 5/8-inch spacers on each expansion anchor between foundation and disconnect.

3.5 INSTALL WIRING

- A. Refer to Section 13551.
- B. Clamp the ground wire from the cabinet ground to the ground rod in the Type II junction box.
- C. Terminate all terminal connections by a mechanical (spade) connector.
- D. Identify and label all field terminals and cables.

3.6 INSTALL POWER SOURCE

- A. Verify the exact location, voltage, procedure, and materials required by the power company.
- B. Follow SL series Standard Drawings.

END OF SECTION