

SECTION 16940

CONTROL PANEL INSTALLATION

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Connection of Control Panel.
- B. Drain Office Computer Installation.
- C. Installation of Remote I-496 Station Permanent Utilities.

1.2 RELATED SECTIONS

- A. Section 16930 – Instruments and Accessories.

1.3 REFERENCES

- A. NEMA ICS 1 - General Standards for Industrial Control and Systems.
- B. NEMA ICS 2 - Standards for Industrial Control Devices, Controllers and Assemblies.
- C. NEMA ICS 3 - Industrial Systems.
- D. NEMA ICS 6 - Enclosures for Industrial Controls and Systems.

1.4 SUBMITTALS

- A. Submit shop drawings under provisions of Section 01300 - Submittals.
- B. Submit shop drawings indicating layout of completed assemblies, interconnecting cabling, dimensions, weights, and external power requirements.
- C. Submit product data under provisions of Section 01300 – Submittals.
- D. Submit product data for each component specified.
- E. Submit manufacturer's certificate under provisions of Section 01400 – Quality Control that products meet or exceed specified requirements.
- F. Submit manufacturer's installation instructions under provisions of Section 01300 - Submittals.

1.5 PROJECT RECORD DOCUMENTS

- A. Submit record documents under provisions of Section 01700 - Contract Closeout.
- B. Accurately record actual locations of controller cabinets and input and output devices connected to system. Include interconnection wiring and cabling information, and terminal block layouts in controller cabinets.

1.6 OPERATION AND MAINTENANCE DATA

- A. Submit operation data under provisions of Section 01700 – Contract Closeout.
- B. Include bound copies of operating and programming instructions.
- C. Submit maintenance data under provisions of Section 01700 – Contract Closeout.
- D. Include adjustments and preventative maintenance procedures and materials.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years experience.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 01600 – Material and Equipment.
- B. Store and protect products under provisions of Section 01600 – Material and Equipment.
- C. Accept products on site in factory containers and verify damage.
- D. Store products in clean, dry area; maintain temperature to NEMA ICS 1.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Maintain temperature above 32°F and below 104°F during and after installation of products.
- B. Maintain area free of dirt and dust during and after installation of products.

2. PART 2 PRODUCTS:

- 2.1 Control panels, see Section 16902 – Electronic Controls and Relays and Section 16903 – Programmable Controllers.

3. PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces are ready to receive Work.
- B. Verify field measurements are as shown on the plans or instructed by manufacturer.
- C. Verify that required utilities are available, in proper location, and ready for use.
- D. Beginning of installation means Contractor accepts conditions.

3.2 INSTALLATION

- A. Install panel and connections in accordance with manufacturer's instructions and plans.
- B. Do not install products until major construction is complete and building interior is enclosed and heated.

- C. Make all incoming/outgoing connections to control panels via new schedule 80 PVC.
- D. Connect control panel UPS to circuit breaker in accordance with NEC and plans.
- E. Connect input and output devices as shown on plans using techniques described in previous sections.
 - 1. Sensors.
 - 2. Cameras.
 - 3. Lighting.
 - 4. Door sensor.
 - 5. Power supply.
 - 6. Fiber optic connections.
 - 7. Telephone.
 - 8. Cable modem.
 - 9. Auto dialer.
 - 10. All others on drawings or listed in other sections.
- F. Install PC at the Drain Commissioner's Office as directed by Owner. Coordinate with Owner on time and location. Verify Internet connection.
- G. Connect power from Detention Area B Structure to LPI-496 panel in accordance with plans and this specification. Install fiber optic cable to Station I-496 from Detention Area B Structure. Connect fiber optic cable to PLC via necessary Ethernet to fiber converters (in the same manner that Detention Area E Inlet Control Structure is connected to Detention Area E Outlet Control Structure) to permit it to communicate with Detention Area B Structure switch. Install all cables in accordance with this specification and the NEC. Contractor shall coordinate this installation with contractors working on construction of Detention Area B Structure to avoid damaging finished areas around and inside of Detention Area B Structure. Contractor shall, at his own expense, repair any damages caused by this installation to any finished areas. Contractor shall be responsible for any and all permits required in this installation.

3.3 TESTING/VERIFICATION

- A. Verify continuity for all connections.
- B. Confirm all communication connections.

END OF SECTION