

SECTION 10 28 53 - RESTROOM TRAFFIC MANAGEMENT SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide the work of this Section in accordance with requirements of the Contract Documents.
- B. Section Includes:
 - 1. Restroom traffic management systems.
 - 2. Occupancy Indicator Lights **TA-20**.
- C. Related Work:
 - 1. Division 10, Section 10 21 14 "Phenolic Toilet Compartments".
 - 2. "Division 27, Section 27 05 00 "Common Work Results for Communications"
 - 3. Division 27, Section 27 15 00 "Communications Horizontal Cabling".

1.2 COORDINATION

- A. Coordinate delivery of Latch Hardware Kits preparation of doors and panels for field installation at toilet compartments
- B. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- C. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.
- D. Coordinate power and data connection.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. Include construction details, material descriptions, dimensions of individual
 - 2. components and profiles, and finishes.
 - 3. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 4. Include electrical characteristics.
- B. Sustainable Design Submittals:
 - 1. Building Product Disclosure and Optimization - Sourcing of Raw Materials:
 - a. Recycled Content: For products having recycled content, indicate percentages by weight of post-consumer and pre-consumer recycled content.
 - 1) Include statement indicating costs for each product having recycled content.
- C. Shop Drawings:

1. Submit plans, elevations, sections, details, and attachment details.
2. Show locations and required cutouts for compartment-mounted Latch Hardware.
3. Show locations of centerlines of toilet fixtures.
4. Show locations of Toosh Indicator Lights, to ensure effective range of transmitter/receiver. Samples for Initial Selection: For each type of unit indicated. Include Samples of hardware and accessories involving material and color selection.
5. Show locations of Information Displays.
6. Show locations of both Occupancy Sensors and Throughput Sensors.
7. Show location of the Smart Restroom Network Hub/NUC.
 - a. Provide a one-line drawing of the cabling topology and components connected to it.

D. Samples for Verification:

1. For each exposed product and for each finish specified, full size. Each type of hardware and accessory.
2. Approved full-size Samples will be returned and may be used in the Work.

E. Product Schedule:

1. Indicating types, quantities, sizes, and installation locations by room of each accessory required.
2. Identify locations using room designations indicated.

1.4 INFORMATION SUBMITTALS

- A. Sample Warranty: For manufacturer's special warranties.

1.5 CLOSEOUT SUBMITTALS

- A. As-built Data: For restroom traffic management system to include the following information.
1. Test reports on all copper and optical fiber cables (electronic file format and hard copy).
 2. As-built cable schedules with recorded cable routing and lengths of each designated run.
 3. As built documentation of all cabling systems.
 4. As built documentation of MDF/CR/IDF modifications and associated cabinet elevations.
- B. Maintenance Data: For restroom traffic management system to include in maintenance manuals.

1.6 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Latch and Keeper: One latch and keeper with associated fasteners.
 2. Light fixture.

1.7 QUALITY ASSURANCE

- A. Source Limitations: For products listed together in the same Part 2 articles, obtain products from single source from single manufacturer.

- B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
1. Build room corner mockups of the public toilet room to be constructed in the field include the following:
 - a. Wall tile.
 - b. Floor tile / wall base,
 - c. Corner guards.
 - d. Acoustical panel ceiling system.
 - e. Lighting in accordance with Division 26.
 - f. Linear floor drain in accordance with Division 23.
 - g. Toilet partitions.
 - h. Water closets in accordance with Division 22.
 - i. Washroom accessories.
 - j. Typical countertop with plumbing fixtures in accordance with Division 22.
 - k. Restroom traffic management system.
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 WARRANTY

- A. Manufacturer's Special Warranty for Toilet-Compartment Occupancy-Indicator Systems: Manufacturer agrees to repair or replace toilet-compartment occupancy-indicator systems that fail in materials or workmanship within specified warranty period.
1. Warranty Period: Five (5) years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for LED Components: Manufacturer agrees to repair or replace product that fails in material or workmanship within specified warranty period.
1. Warranty Period: Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 MATERIALS

- A. Stainless-Steel Sheet: ASTM A666, Type 304, stretcher-leveled standard of flatness.
- B. Stainless-Steel Castings: ASTM A743/A743M.
- C. Chrome Plating: ASTM B456, Service Condition Number SC 2 (moderate service).

- D. Fasteners: Screws, bolts, and other devices of same material as accessory unit, unless otherwise recommended by manufacturer or specified in this Section, and tamper and theft resistant where exposed, and of stainless steel where concealed.
 - 1. Provide tamper resistant flat head machine screws for exposed fasteners unless otherwise indicated.

2.3 RESTROOM TRAFFIC MANAGEMENT SYSTEMS

- A. Occupancy Indicator Lights **TA-20**: Ceiling-mounted, pendant-mounted, or wall-mounted LED lights wirelessly connected to toilet partition latches; and integrated with DFW's Infax Smart Restroom System.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Zurn Connected Products; by Zurn Industries:
 - a. Alternate System: Tooshlights; a Division of Modus Systems (Sloan Valve Company).
 - 2. Power Supply: Manufacturer's standard assembly.
 - 3. Sensor/Light: Z-LIGHT-W1 (1 per stall).
 - 4. Ceiling Cover Plate: Z-PWRSUP-W1 9 (1 per stall).
 - 5. Internet Reporting Device with Gateway: Manufacturer's custom UI or open API for integration into building system(s).
 - 6. Product: ZGW-LORA-W1-LTE (1 per restroom set).

2.4 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys (if applicable): Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative

2.5 COPPER CABLE AND ACCESSORIES

- A. See Division 27, Section 27 05 00 "Common Work Results for Communications"
- B. See Division 27, Section 27 15 00 "Communications Horizontal Cabling".

2.6 SMART RESTROOM EQUIPMENT ENCLOSURE

- A. Provide a structured media enclosure for each Smart Restroom equipment installation indicated in the drawing set.
 - 1. Enclosure to be a minimum 28" H.
 - 2. Enclosure shall be equipped with a vented cover.
 - 3. Enclosure shall be RF transparent to support the wireless connections to the smart restroom devices.
 - 4. Product: Leviton 49605-28P

2.7 INFORMATION DISPLAY

- A. Provide flat panel LED LCD displays at each location shown in the drawing set.
 - 1. Displays shall be commercial-grade and use LED LCD technology.
 - 2. Product: LG 32M5KE
- B. Display Wall Mount
 - 1. Provide flat panel wall mounts for each wall mounted display.
 - 2. Product: Peerless-AV ST632P
- C. Media Players
 - 1. Provide content media players for each information display.
 - 2. Product: Now Micro DMPS-2200

2.8 SWITCHES, THROUGHPUT SENSORS, BLUETOOTH BEACONS, AND GATEWAY

- A. Provide POE switch at each location shown in the drawing set.
 - 1. Minimum of eight ports with four being POE up to one gigabit each.
 - 2. Product: Netgear GS108PEv3
- B. Provide throughput cameras and mounts at each location shown in the drawing set.
 - 1. Product: XOVIS PC2
 - 2. Product: PA-PC2-Surface Mount
- C. Provide custodial Bluetooth beacon at each location shown in the drawing set.
 - 1. Product: Kontakt
- D. Provide gateway at each location shown in the drawing set.
 - 1. Product: TORK Gateway

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
- B. Occupancy Indicator Lights and Smart Latches, displays and mounts, beacons and sensors, enclosures and accessories must be installed in accordance with manufacturer's written installation instructions.

3.2 ADJUSTING

- A. Adjust products for unencumbered, smooth operation. Replace damaged or defective items.

- B. Clean and polish exposed surfaces according to manufacturer's written instructions.

END OF SECTION