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DESIGN DIRECTIVE

To: Distribution

From: Erik J. Stoothoff, P.E. *EJS*
Chief Engineer

Date: 5/19/2021

RE: Bathroom Design Criteria

This design directive is intended to provide guidance on the MBTA's approach, preferences, and requirements for the design and implementation of bathroom fixtures and finishes.

In the event that conditions warrant deviation from this directive, a design waiver signed by the Chief Engineer and department owning the scope of work will be required of the Project.

Design consultants shall design to standards as prescribed by code. MBTA Standards shall apply only where code does not address a topic or the MBTA requires a standard above and beyond code. The more stringent shall always apply.

This design directive will provide guidance solely on bathroom materials and attributes. All other aspects of bathroom design must follow MA building code and ADA Guidelines.

OBJECTIVE

Design for Bathrooms for all new construction, repair, or replacement projects shall follow standards that are consistent with MBTA's priorities to safety and accessibility for our passengers and staff, and for resiliency, durability and maintainability. Bathrooms are a critical factor in customer experience and convenience. As such, design shall prioritize safety, functionality and ease of maintenance over time.

CODES, STANDARDS, AND POLICIES

- 780 CMR – Massachusetts State Building Code
- OPERATIONS SPECIAL ORDER #16-148 (included in reference)
- 521 CMR – Massachusetts Architectural Access Board
- US DOT ADA Regulations & Standards
- ANSI Chapter six (all),
- UFAS (Uniform Federal Accessibility *Standards*)
- ASME A112.19.3
- CSA B45.4 (Stainless Steel Plumbing Fixtures)
- NSF61, section 9 and is IAPMO R&T

DESIGN PRINCIPLES

General Notes

1. All Staffed locations shall have a restroom available for MBTA Staff.
2. For Commuter Rail Stations, the preferred location for toilet rooms in station buildings is adjacent to the main waiting area, with access doors directly observable from the agent's office.
3. For Heavy and Light Rail Stations, the preferred location is within the paid area, with access doors directly observable from the agent's office.
4. Public restrooms shall be located such that restroom doors are not accessible to the public during non-revenue hours. If the station is inaccessible during non-revenue hours, public restrooms shall be located within the Fare Paid Zone. If the station is accessible during non-revenue hours, restrooms may be located within the station area, visible from pedestrian traffic flows, and shall have restroom doors secured behind a dedicated gate or coiling grille during non-revenue service.
5. Restrooms shall be designed to provide visually open and adequate circulation space.
6. Single Service restrooms shall be unisex and equipped where possible with a urinal.
7. Provide a visual "Occupied" lock separate from the keyed lock.
8. All restrooms shall comply with ADA Standards and local accessibility requirements.
9. All restrooms shall have electric hand dryers. No paper towel dispensers shall be used.
10. Lavatory faucets, urinals, toilets, hand dryers, etc. shall have "hands-free" operation.
11. Security camera coverage shall be provided at restroom entry area.
12. All light fixtures, sensors and power elements are to be IP66K rated.
13. Provide a 6" minimum floor drain with locking lid at low point in floor. Lid is to prevent any material, water or otherwise, from entering the drain until unlocked (in order to prevent the disposal of needles and associated hazards).
14. Diaper changing stations are not required but are recommended.
15. Syringe disposal chutes are not required but are recommended.

Accessibility

1. Unit must comply with the accessibility requirements of ANSI, UFAS, and ADA regarding toilet and lavatory fixtures. Compliance is subject to the interpretation and requirements of the local code authority.

Materials and Finishes

For toilet facilities that may be used by the public under special order #16-148 The following materials and appliances are to be used in single service toilet rooms:

1. **Combination Lavatory Toilet** single piece is arranged to be installed on finished wall and serviced through removable access panels. Panels are secured with vandal resistant fasteners and are located on the face of the cabinet, on the open side of the cabinet and below the lavatory section.

- a. **Fixture cabinet and toilet** are fabricated from 14-gauge type 316L stainless steel and polished to a satin finish. The inside of the toilet bowl also includes a satin finish. Construction shall be seamless welded and exposed surfaces shall have a satin finish.
 - b. **Cabinet** interior is sound deadened with fire-resistant material. Optional Wall Sleeve or Metal Template is recommended for all installations to provide required wall openings. Fixture shall withstand loadings of 5,000 pounds without permanent damage.
 - c. **All Fixtures** shall be furnished with necessary fasteners for proper installation.
 - d. **Lavatory 'D' Bowl** is 15-1/4" x 12-1/2" x 4" deep. Standard P-trap waste outlet is 1-1/2" O.D. plain end.
 - e. **Toilet** shall be concealed blowout jet type with an elongated bowl, a self-draining flushing rim, and an integral contoured seat.
 - i. Fixture shall be UPC/cUPC certified and toilet shall meet ASME A112.19.3 and CSA B45.4 requirements and will flush with a minimum of 25 PSI flow pressure when used in conjunction with a minimum of 1.6 GPF. Toilet trap shall have a minimum 3-1/2" seal that shall pass a 2- 1/8" diameter ball and be fully enclosed.
2. **Valves** shall be an Air-Control pneumatically operated, no touch actuated valve with 1.4 GPM flow control for the DMS spout. Toilet shall be no touch self-actuating flush .
 - a. Valve is metering, non-hold open type. Timing is from 5 to 60 seconds. Valve can be remotely located up to 10 feet from the operating pushbutton. Valve and conform to the requirements of for NSF61, section 9 and is IAPMO R&T certified to meet the lead free requirements of Section 1417 of the Federal Safe Drinking Water Act.
 3. **Grab Bar** shall be heavy gauge type 316L stainless steel construction, 1-1/2" diameter, extends the width of the fixture and measures 47-3/8" long from center to center. Grab bar positioned behind toilet is integral to the cabinet. Grab bars positioned to side of toilet are not integral with cabinet.
 4. **Urinal** automated operation via motion sensor system.
 - a. Urinals mounted at 17 inches rim height comply with ANSI, ADA, UFAS accessibility requirements. Compliance is subject to the interpretation and requirements of the local code authority.
 - b. Bowl is fabricated of 16-gauge type 316L stainless steel and the housing fabricated of 18-gauge type 316 stainless steel with exterior surfaces polished to a satin finish.
 - c. Is a high efficiency type requiring a 1/2 GPF (1.8 Liters per Flush) flush valve and supplied with 3/4" NPT flushing inlet connection and 1-1/2" O.D. plain end P-Trap.
 5. **Flooring** shall be slip resistant, epoxy resin with integral epoxy cove base, rising no less than 6 inches A.F.F.
 6. **Floor drain** at least 6 inches in diameter with flush security bolt lid, sufficient to prevent intrusion by patrons but allow maintenance personal to open for service.
 7. **Walls** shall be epoxy resin, beginning at top of integral cove base to height of no less than 48 inches A.F.F. and no greater than 60 inches A.F.F.
 8. **Doors and Hardware** – Refer to MBTA Design Directive for Doors, Frames and Hardware.

9. **Occupied lock with visual indicator.** Door shall be self-closing. Provide door with privacy lock indicating “Vacant/Occupied” at exterior that can be overridden with a physical key.
10. **Security Lock** (Second dead bolt) keyed to open both locksets.
11. **Framed Security Mirror**, Shatterproof safety glass Mirror. ADA compliant
 - a. Mirror to be chase mounted. Mirror to be a seamless 14-gauge, type 316L stainless steel frame.
 - b. Frame is polished to a satin finish.
 - c. Back of frame is provided with L-welded anchor nuts and is furnished with eight (8) 1/4" studs, nuts, and washers for indicated wall thickness.
 - d. Mirror is 1/4" thick, reinforced with 1/4" thick fiberboard 12” wide and 22” high minimum with 9.5” minimum reflective area and 20” minimum reflective height with fiberboard backing.
 - e. Plexiglas frontage sufficient and rated for 500lb point impact.
12. **Toilet paper dispenser** shall be constructed from Seamless 316L steel and mounted to support a 750lb load.
13. **Soap Dispenser**, automatic Sensor Type 316L stainless steel, vandal resistant ware with automated operation via motion sensor, UL wet rated.
14. **Hand Dryer**, no touch automatic sensor hand dryer, wet rated sufficient to perform under a power wash stainless steel, vandal resistant with automated operation via motion sensor.
15. **Coat Hanger** – ADA compliant mounting fabricated of a minimum 14-gauge type 316L stainless steel with exposed surfaces polished to a satin finish. Auto release hooks are tested to hold a minimum of 20 lbs. and fail at 40 lbs. or greater.
16. **Lighting Controls** – Lights shall be controlled by an occupancy motion sensor switch, located centrally on the ceiling.

ADDITIONAL DESIGN GUIDANCE

Submittal of complete manufacturer's product data to MBTA for approval is required. This shall consist of complete product description and specifications, catalog cuts, and other descriptive data required for complete product use and information.

Provide samples of all materials to be exposed in the completed work.