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DESIGN DIRECTIVE

To: Distribution

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

Date: 5/6/2020

RE: Benches

This design directive is intended to consolidate, reiterate, supplement, and clarify the MBTA 's bench design approach, preferences, and requirements.

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.

OBJECTIVE

Design for Benches for all new construction, repair or replacement projects shall follow standards that are consistent with MBTA's priorities to the safety and accessibility of our passengers. As such, design shall prioritize safety, functionality and ease of maintenance over time.

CODES, STANDARDS AND POLICIES

- 780 CMR – Massachusetts State Building Code
- 521 CMR – Massachusetts Architectural Access Board
- USDOT ADA Regulations and Standards

DESIGN PRINCIPLES

Where freestanding benches are determined to be the best solution, MBTA Standard Bench shall be a solid steel slat bench and meet the following requirements for selection and installation:

- General dimensions and sizes, +/- 1/4".
 - Seat and back – horizontal steel slats made from 1/4" x 1-1/2" solid steel bars.
 - 1-5/16" tubular steel welded cross-members.
 - 1/4" x 2" solid steel support braces for additional support.
 - 1/2" x 2" solid steel finished end units.

- Standard bench lengths are 4'-0", 6'-0" and 8'-0".
- Bolt-on solid steel intermediate armrests – armrest spacing to be coordinated by MBTA Project Manager with the guidance of SWA.
- Standard color is Federal Standard Black, FS27038 [RGB Hex Code – 05111], unless otherwise specified by MBTA.
- All fabricated metal components shall be shot-blasted, etched, phosphatized, preheated and electrostatically powder-coated with TGIC polyester powder coatings, 8-10 mils (200-250 microns) finish thickness and hot dip galvanized before powder coating.
- Benches shall be fully welded, hot dip galvanized and assembled at factory.
- Recycled material content to be 50% or greater, unless otherwise approved by MBTA.
- Benches shall be surface mounted on 4" deep concrete slab or approved equal surface and installed using galvanized bolts, washers and/or lock bolts and shall be isolated from the concrete structure and flooring materials with HDPE or Mylar shims to prevent degradation due to de-icers.
- Stand-alone benches cannot be placed in front of system maps or way-finding guides.
- Benches installed on center platforms may be placed back-to-back, or have a shared backrest. Backless benches shall be avoided.
- Placement and quantity of benches shall be coordinated with System Wide Accessibility and Operations. Along platforms, benches shall be placed a minimum of every 100 feet (30.5 m), but not to exceed every 200 feet. In large multi-level, multi-modal stations, benches should be spaced to ensure that each mode has benches near vehicle openings.

Where freestanding benches are determined to be infeasible due to space restrictions, benches shall be built into or attached to walls and windscreens.

Selection, installation, and replacement of built-in benches shall consider the installation of prefabricated arms if none currently exist. Spacing, dimensions and heights of arms shall generally adhere to the MBTA's bench specification.

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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.