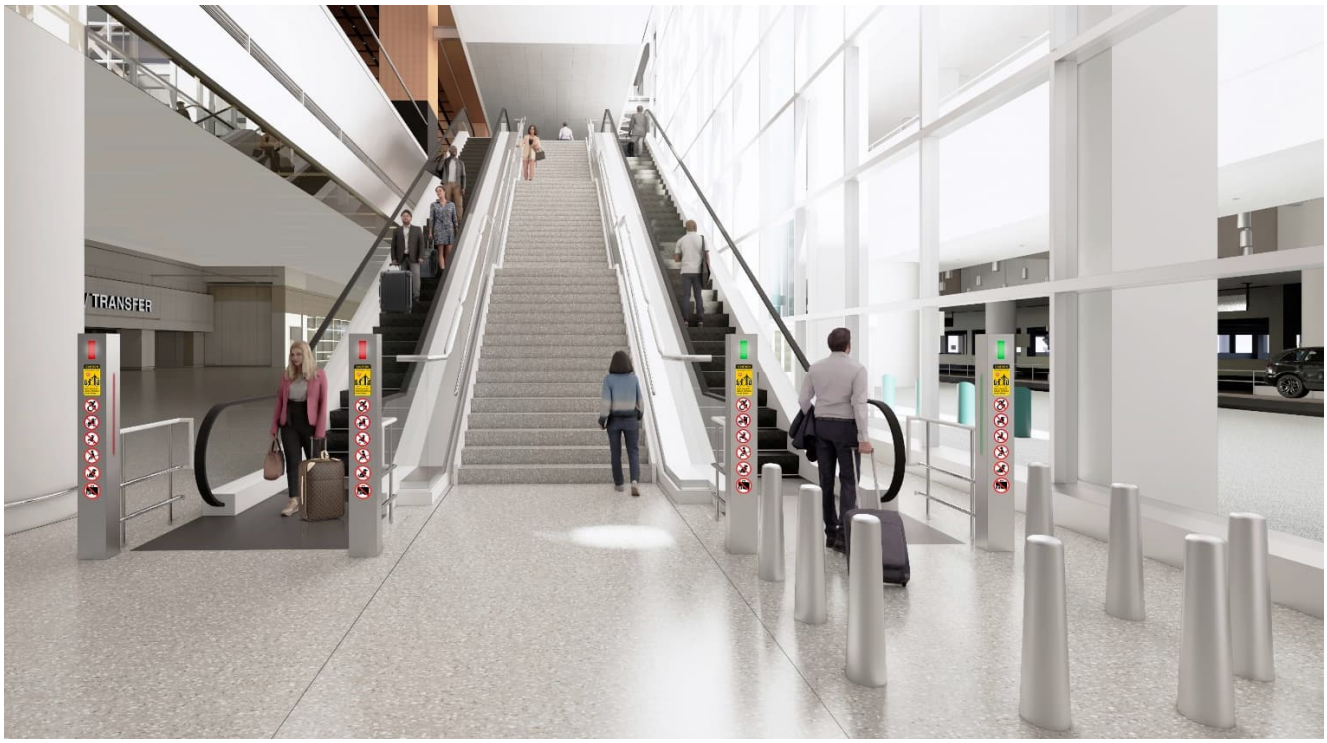
MASSACHUSETTS PORT AUTHORITY

ESCALATOR SAFETY DESIGN GUIDELINES



January 2026

massport

AECOM

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1. INTRODUCTION

1.1 Scope and Intent

Massachusetts Port Authority (Massport) facilities and properties, including Logan International Airport, Worcester Regional Airport, Conley Terminal, Fish Pier, Flynn Marine Park and Cruiseport, Laurence G. Hanscom Field and other Massport-owned properties in East Boston, South Boston and Charlestown, are always trying to improve the safety of their customers, at all their facilities. Massport is incorporating this Escalator Safety Design Guidelines into its capital planning and real estate development process to make its infrastructure and facilities, as it relates to existing and new escalators, safer for all.

1.2 Escalator Safety Objectives

Incorporation of this Escalator Design Guideline is intended to help Massport achieve the following safety objectives:

- Protect the safety of passengers, occupants, workers and first responders.
- Minimize and prevent the number of accidents at Massport facilities which affect the safety and welfare of the public.
- Provide for operational continuity to the greatest extent possible.

1.3 Applicability

This Design Guideline shall be used by Massport staff, tenants, third party developers, design professionals and contractors during planning, design and construction of projects at Logan International Airport, Worcester Regional Airport, Conley Terminal, Fish Pier, Flynn Marine Park and Cruiseport, Laurence G. Hanscom Field and other Massport-owned properties in East Boston, South Boston and Charlestown:

(a) New structures and additions, including subsequent work to such structures.
(b) Work classified as substantial repair or substantial improvement[1] of an existing structure.
(c) Retrofit of an existing structure or facility with the explicit objective to make the escalators safe.

The provisions of this Design Guideline do not apply to routine maintenance and repair projects, unless otherwise directed by Massport Capital Programs.

The provisions of this Design Guideline may only be waived by written authorization from Massport Capital Programs.

[1] Substantial repair and substantial improvement are defined as any repair, reconstruction, rehabilitation, addition or other improvement to a structure, the cost of which equals or exceeds 50% of its pre-improvement market value that equals or exceeds a smaller percentage established by the Massport Capital Program Department.

2. CODE REQUIREMENTS

2.1 Code Required Clearances

Required clearances (safety zone) at the entry and exit point of an escalator per The American Society of Mechanical Engineers (ASME), Safety Code for Elevators and Escalators ASME A17.1-2019/CSA B44:19. Rule 6.1.3.6.4 defines the “Safety Zone” for escalators and moving walkways as a designated clear area around the moving steps/belts to prevent obstructions and ensure safe boarding/exiting, prohibiting signs, graphics, or anything else that blocks views or access to handrails within that zone, ensuring passenger visibility and safe use.

Rule 6.1.3.6.4 Safety Zone:

1. Centerline of handrail (CLHr) to centerline of handrail - varies with step width.
2. Minimum safety zone at each landing:
   a. Width = CLHr to CLHr dimension + 8” in width.
   b. Length = 2 times the CLHr to CLHr dimension, measured from the end of the newel.
3. Typical clearances around handrail (4” min.)

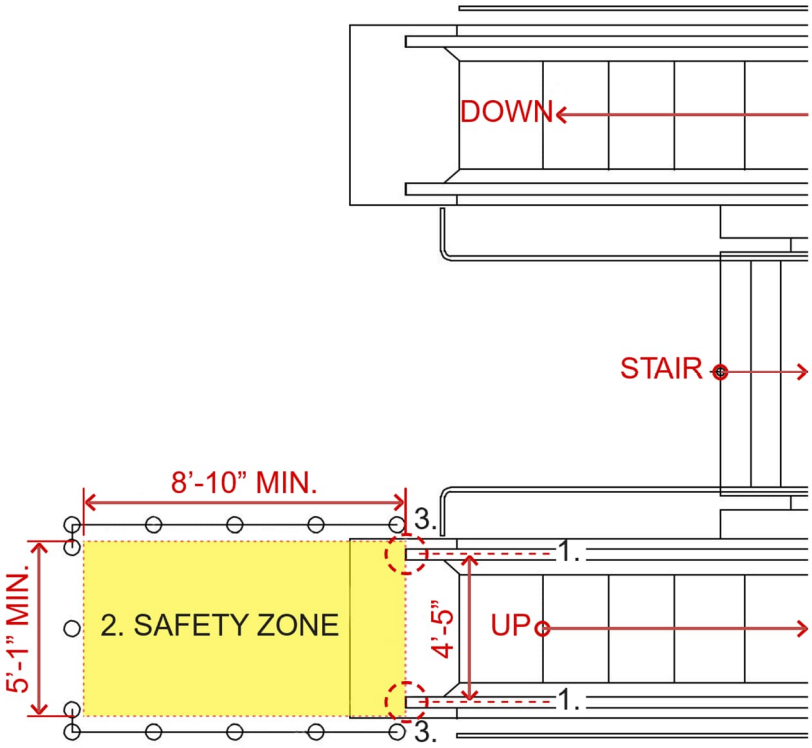

Figure 1: Example of partial plan at bottom of escalators and stair with the code required safety zone per the escalator size.
(all dimensions indicated here will vary per escalator size/location)

2.2 Code Required Signage

Required signage at the entry point of an escalator per The American Society of Mechanical Engineers (ASME), Safety Code for Elevators and Escalators ASME A17.1-2019/CSA B44:19. Rule 6.1.6.9.1 mandates that specific standard-design caution signs must be present at the top and bottom landings of every escalator.

Rule 6.1.6.9.1 Caution Signs:

1. Caution Sign shall be located at the top and bottom landing of each escalator, visible to boarding passengers.
2. Caution Sign shall be standard for all escalators and shall be identical in format, size, color, wording and pictorials as shown in **Figure 2** below.

Figure 2: Required Caution Sign (6.1.6.9.1) (sign size, minimum 4”W x 7.75””H)

Rule 6.1.6.9.2 Signs or Graphics:

1. **Relating to Safety:** Signs or Graphics shall not obstruct views of required signs or obstruct passenger flow or access to the handrails. They shall be legible and not distracting or impair function of safety devices.

3. ESCALATOR SAFETY PROJECT EXAMPLES

3.1 Terminal E Project Example

Figure 3: Terminal E, view of existing escalators from arrivals level 1 looking up to ticketing level 3.

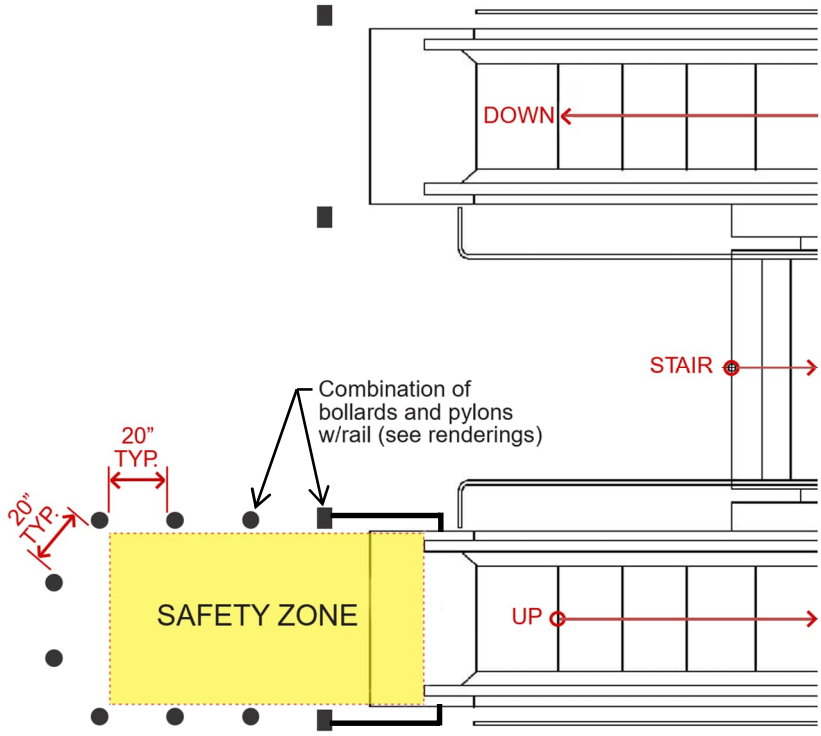

Figure 4: Terminal E, partial plan at arrivals level 1, escalators and stairs.

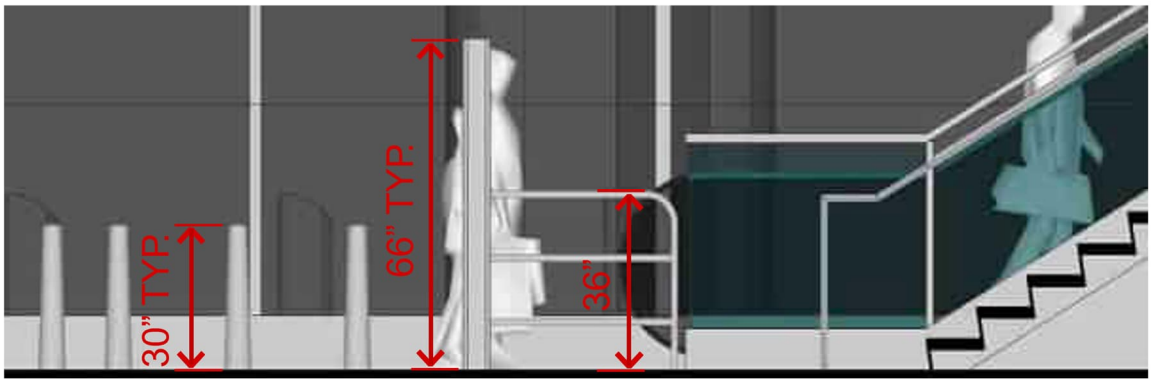

Figure 5: Terminal E, partial elevation at arrivals level 1, showing bollards and pylons with protection rails, adjacent to the entry point of the escalator.

Figure 6: Terminal E, view of new escalators at balcony from ticketing level 3 looking up to level 4 and tops of escalators from arrivals level 1.

3.2 Additional Project Examples / Precedents

Figure 7: Examples of bollards and pylons, Schiphol, Amsterdam Airport and Airport Train Station.

Figure 8: Example of bollards and pylons, Helsinki Vantaa Airport

Figure 9: Example of bollards and signage, New York LaGuardia Airport

4. ESCALATOR SAFETY DESIGN STANDARDS

4.1 Design Standards – Bollards

Standard bollard design: Tapered stainless steel (304 finish) with twist-lock connection to slab, 30” tall from finished floor to rounded top, 7” diameter at bottom and 5” diameter at top, shown in **Figure 10** and **Figure 11** below.

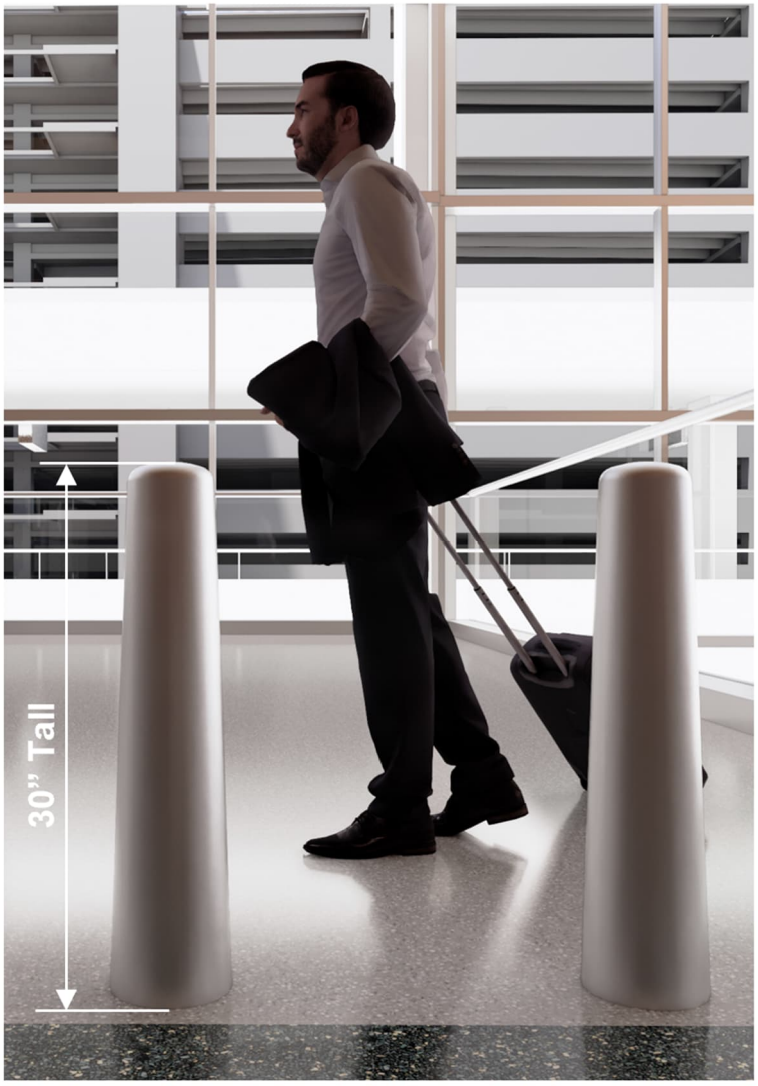

Figure 10: View of typical tapered stainless steel bollard.

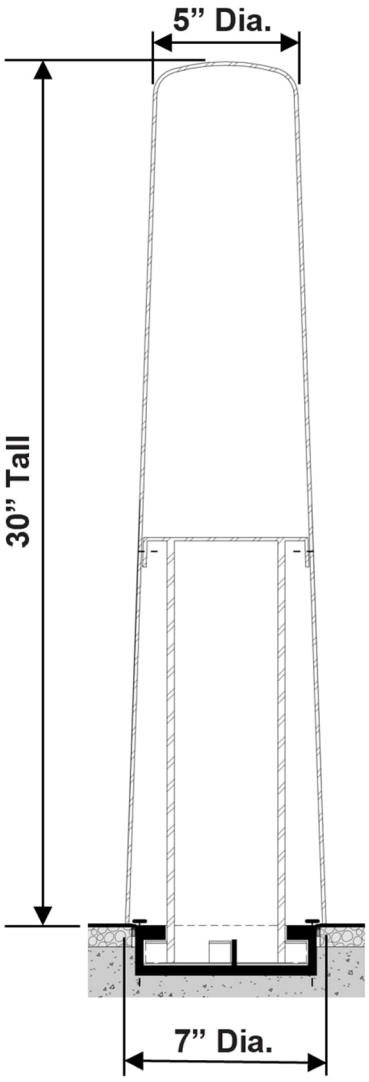

Figure 11: Typical bollard cross section w/twist-lock.

4.2 Design Standards – Pylons

Standard Pylon design: Stainless steel (304 finish) with bolted sleeve connection to slab, 66" tall from finished floor to top, 8" wide by 6" deep located on either side of the entry or exit to the escalator. Pylons to be connected to the escalator's control module for connectivity of the "red" and "green" indicator lights at the top and sides of the pylon, shown in **Figure 12** below. Pairs of pylons are also to be provided with a retractable safety belt, recessed mounted into the pylon, shown in **Figure 12** below.

Figure 12: View of a typical pair of escalator pylons with indicator lights and safety belt.

4.3 Design Standards – Pylon Signage

Standard Pylon signage: All signage or graphics to be 3M (opaque) applied "stickers" mounted to the face of the stainless steel pylon(s). The code required Caution Sign (6.1.6.9.1) at the top of the pylon, shown in **Figure 13** below and safety signage/ graphics mounted below caution sign, also shown in **Figure 13** below. Enlarged versions of the caution sign and safety signs, shown in **Figure 14** through **Figure 20** below.

Figure 13: View of a typical pair of escalator pylons showing the caution and safety signage.

Standard Pylon signage: Caution Sign and Safety signage/graphics to be 3M (opaque) applied “stickers” mounted to the face of the stainless steel, see technical information in next section for sizes and locations.

Figure 14: Caution Sign

Figure 15: No Wheelchairs

Figure 16: No Luggage Carts

Figure 17: No Strollers

Figure 18: No Sitting on Steps

Figure 19: No Pets

Figure 20: No Oversized Bags

5. ESCALATOR SAFETY TECHNICAL DRAWINGS

5.1 Design Standards – Technical Drawings

Technical Drawings: The below plans, elevations and details indicate the escalator safety intent by creating a boundary around the escalator Safety Zone to deter passengers to enter the escalator with items that could cause injury to themselves or others, who are using the escalator.

a. **Partial Floor Plans:** The partial plans indicate the design standard for a single pair of escalators with the entry point boundary, shown in **Figure 21** and a group of escalators at a balcony with the boundary located at the entry point to the balcony to protect all the Safety Zones, shown in **Figure 22** below.

b. **Bollard – Plan Detail, Elevation and Details:** The plan detail, elevation and details indicate the individual bollard design standard to be used to create the boundary around the escalator Safety Zone, shown in **Figure 23** and **Figure 24** below.

c. **Pylon – Plan Details, Elevations, Details and Signage:** The plan details, elevations, details and signage indicate the varying pylon design standard to be used at the entry to any escalator, shown in **Figure 25** through **Figure 33**.

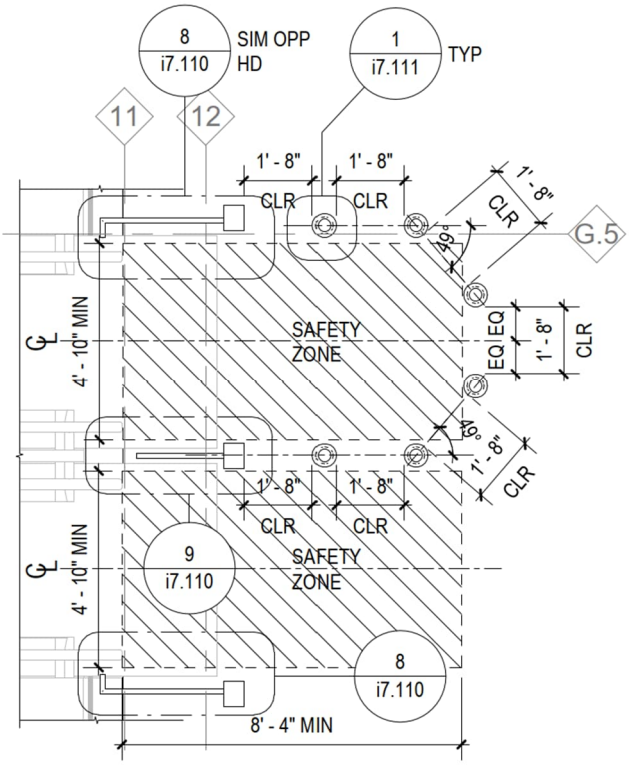

Figure 21: Patial Plan at Bottom or Top of Escalator (Up or Down Entry Only)[2]

[2] This information is stored in Autodesk Construction Cloud (ACC). Please request access to these details through the Project Manager for your project.

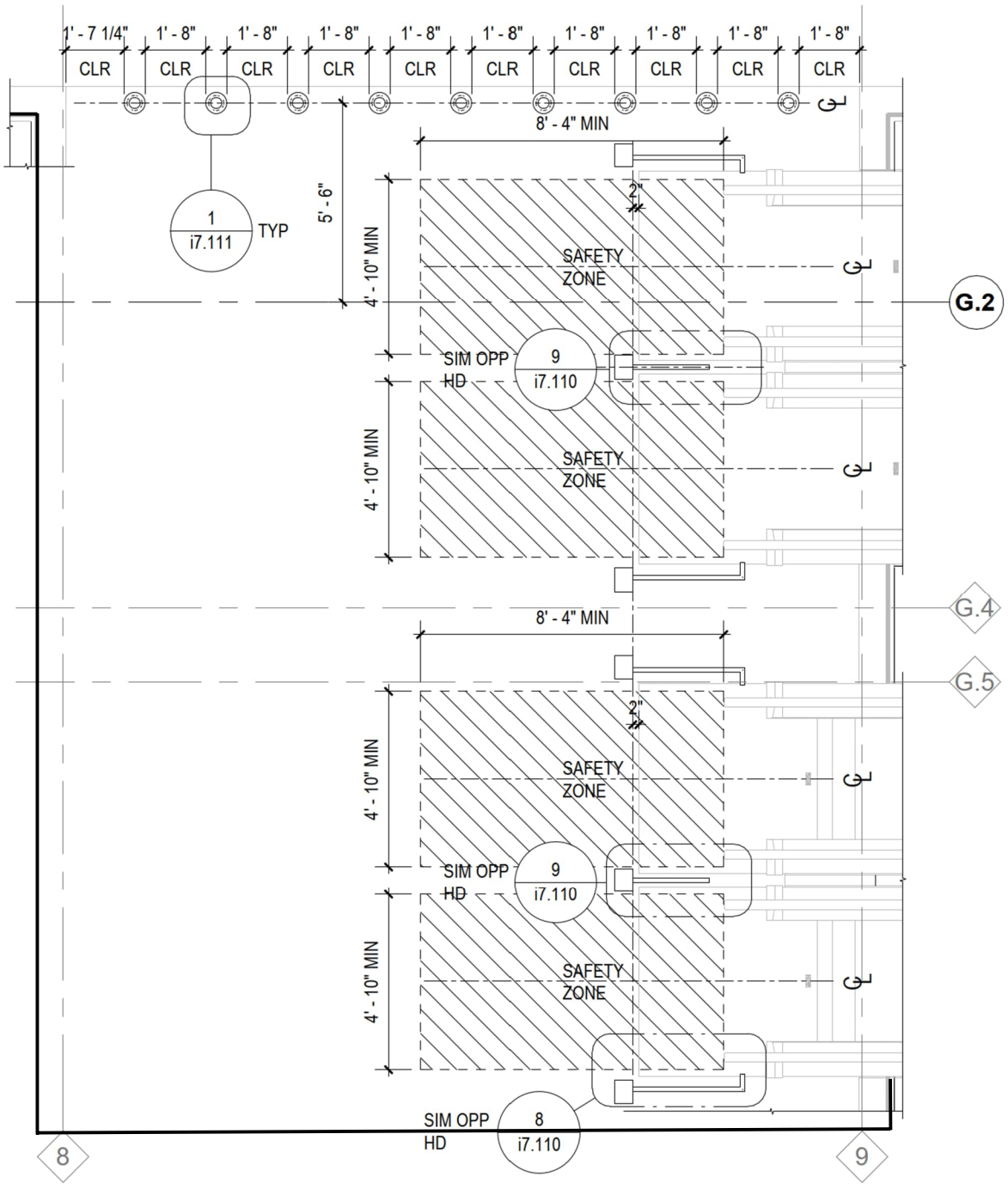

Figure 22: Partial Plan at Balcony at Bottom and Top of Escalators (Up and Down)[2]

[2] This information is stored in Autodesk Construction Cloud (ACC). Please request access to these details through the Project Manager for your project.

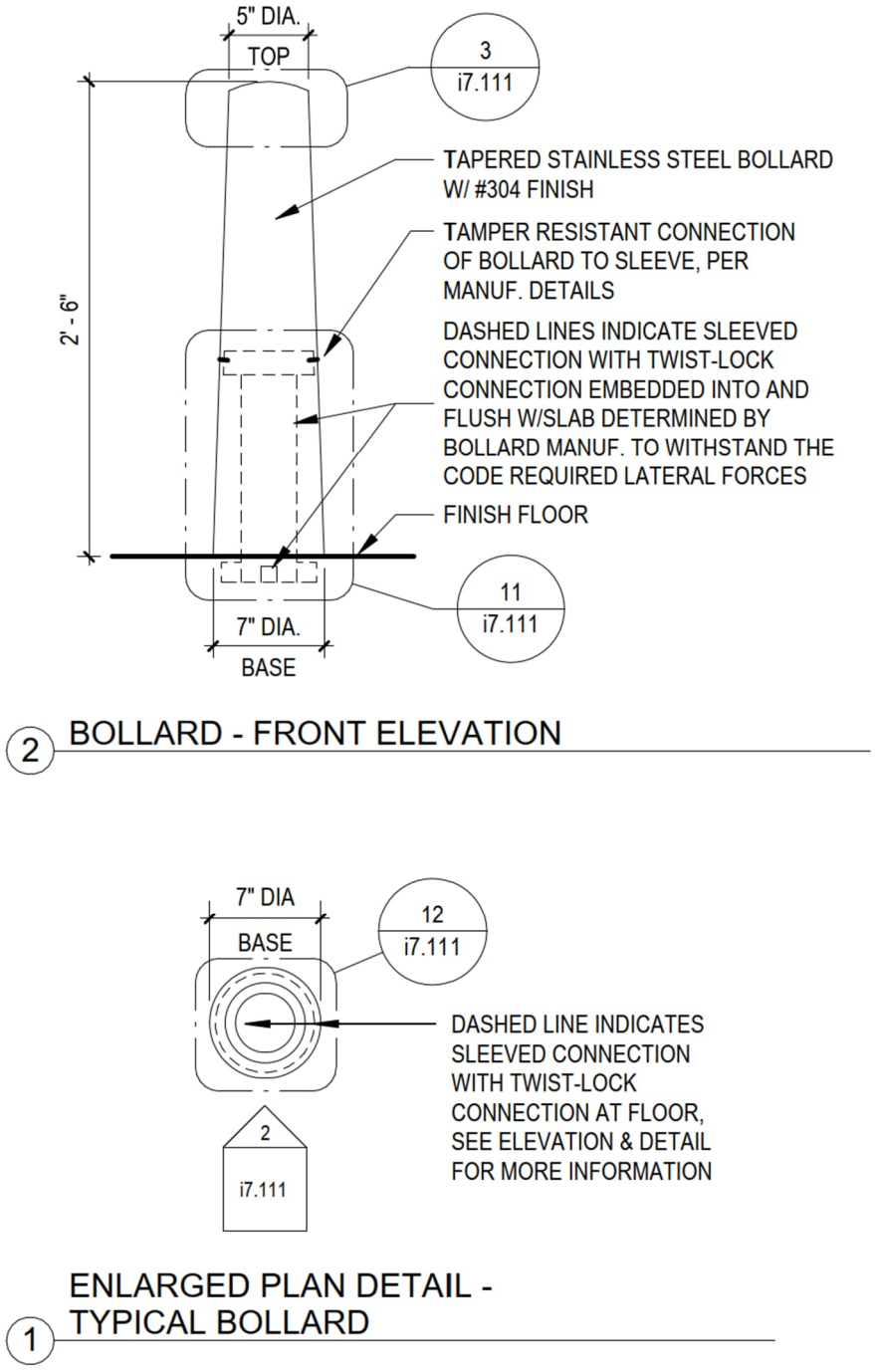

Figure 23: Plan Detail and Elevation of a typical tapered bollard[2]

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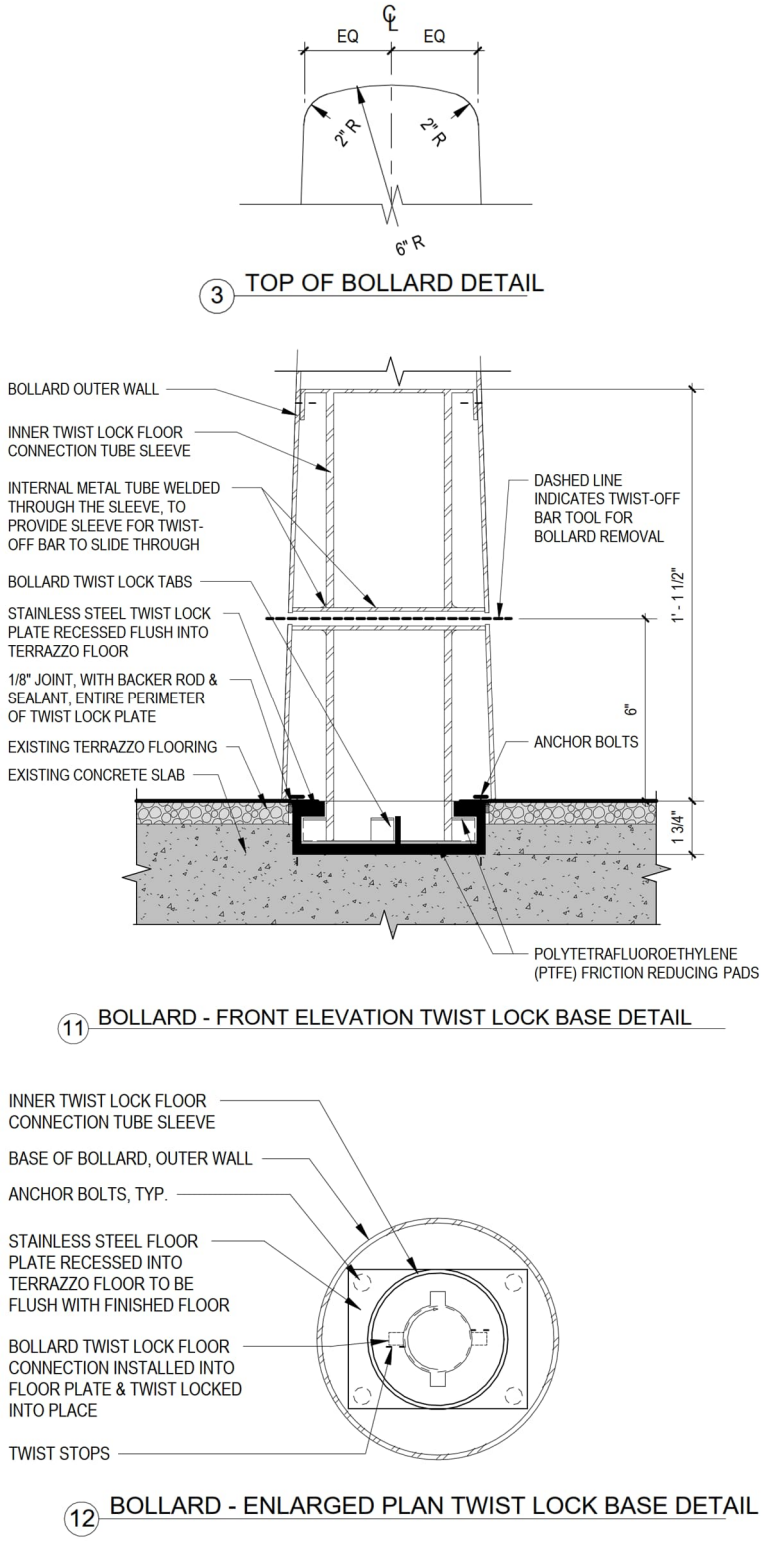

Figure 24: Typical Tapered Bollards Details[2]

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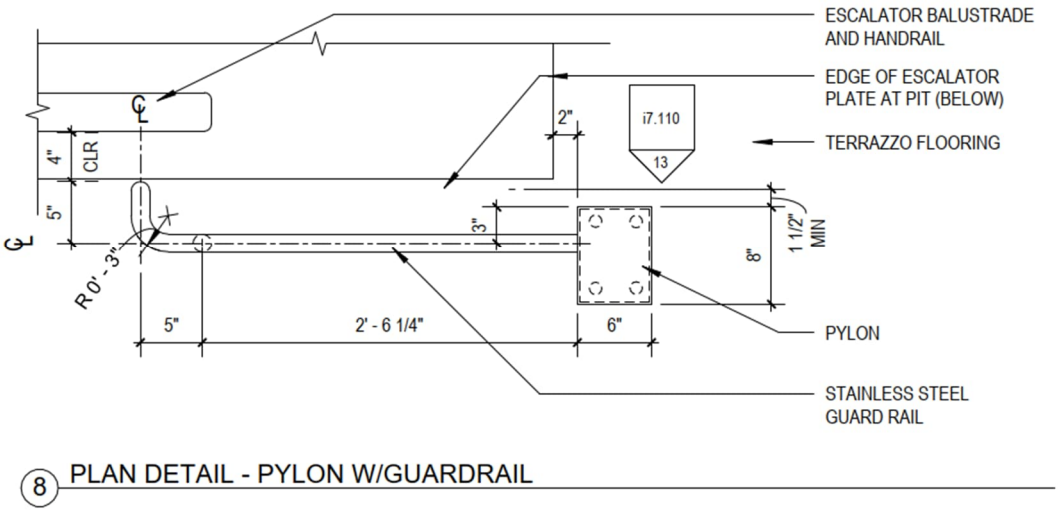

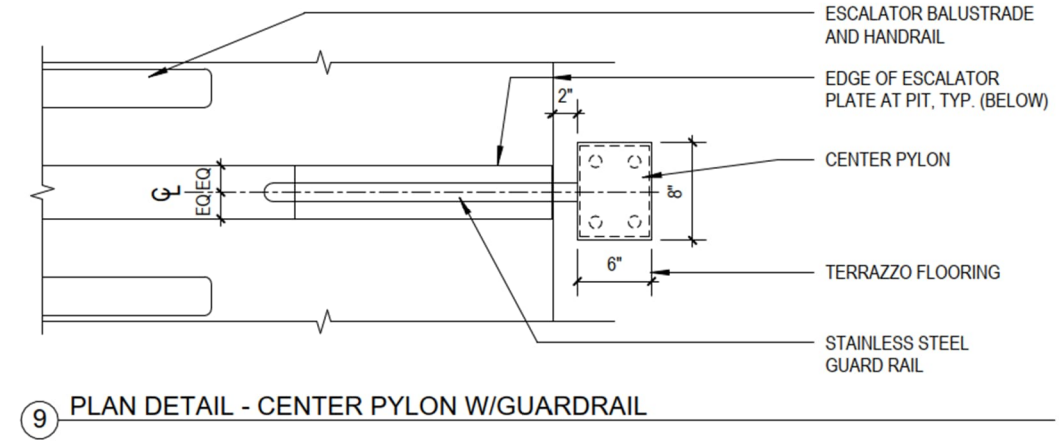

Figure 25: Typical Pylon Plan Details[2]

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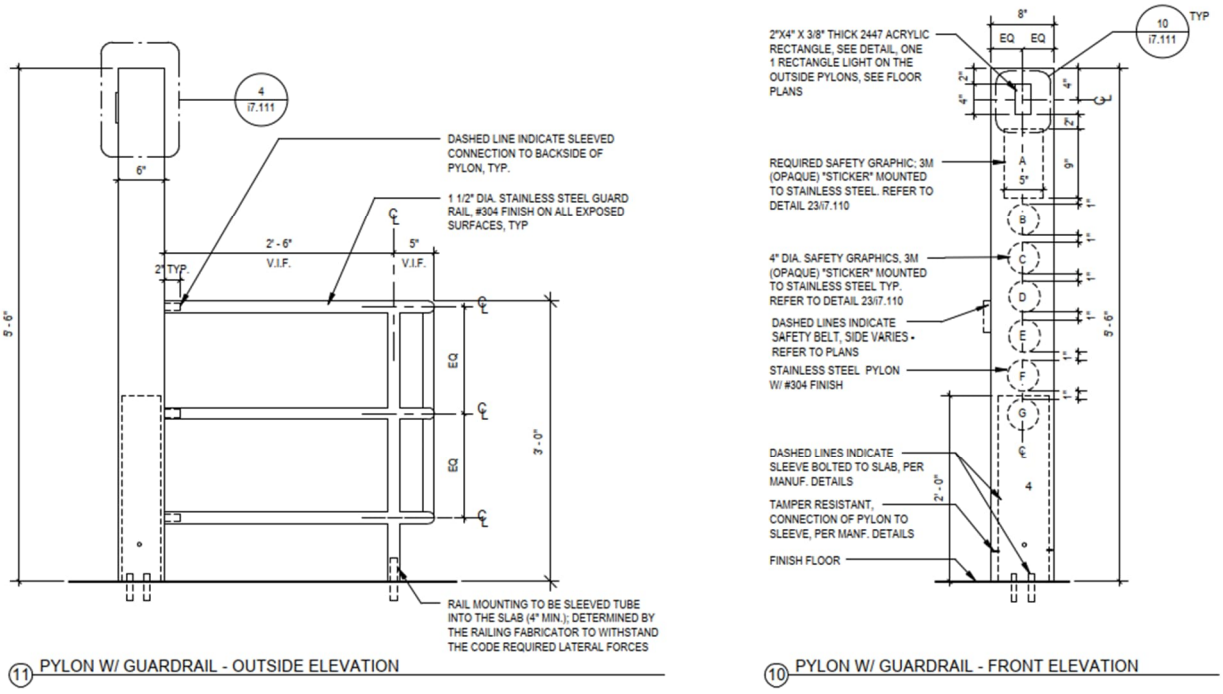

Figure 26: Typical Pylon Elevations[2]

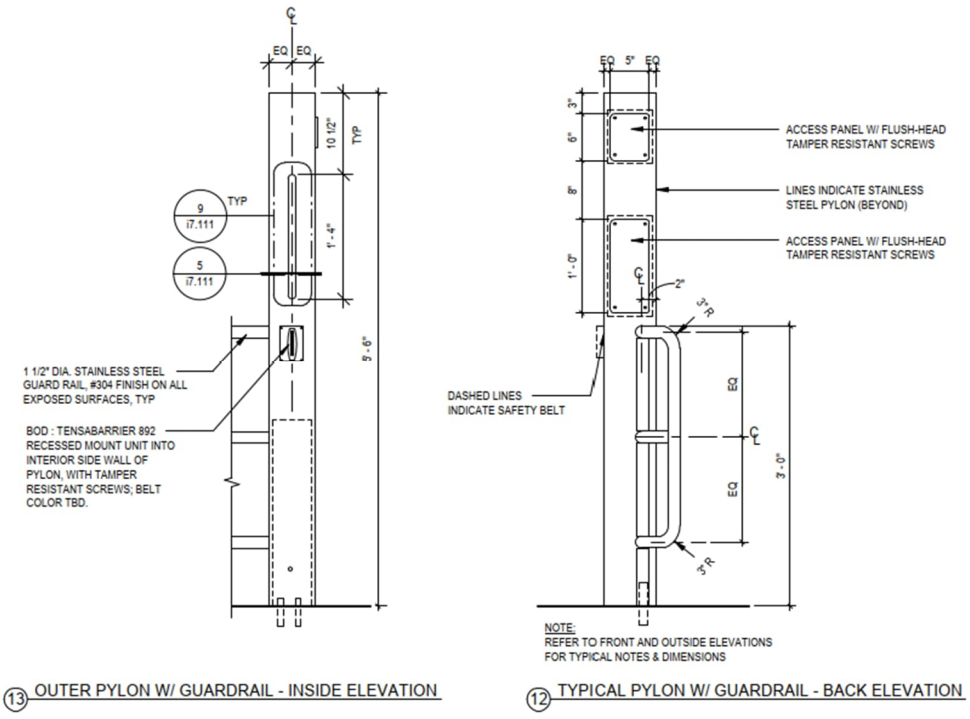

Figure 27: Typical Pylon Elevations[2]

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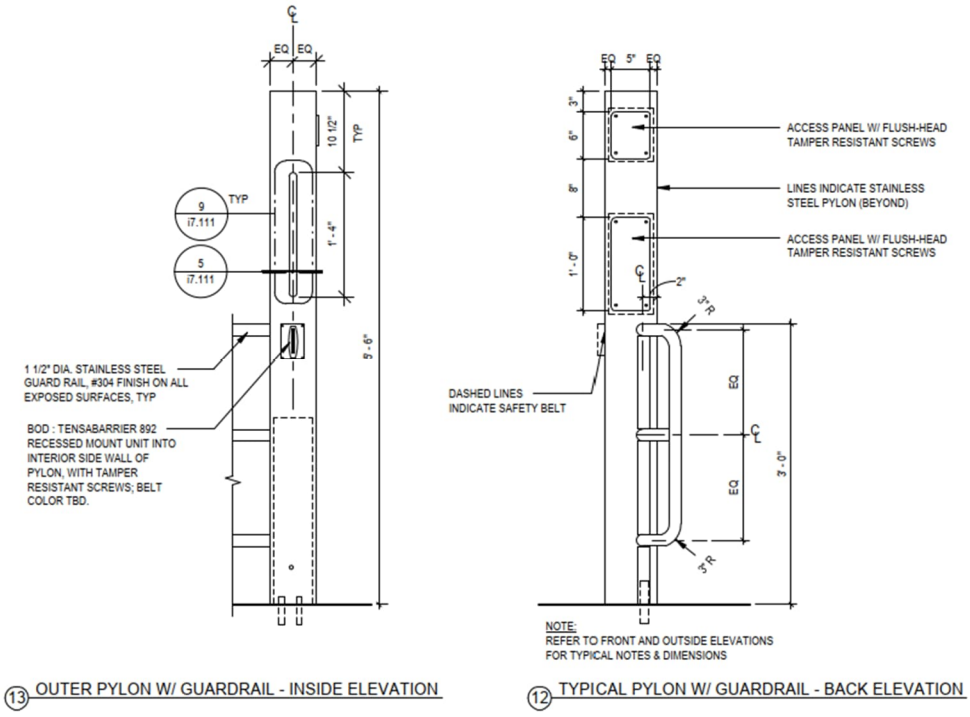

Figure 28: Typical Pylon Elevations[2]

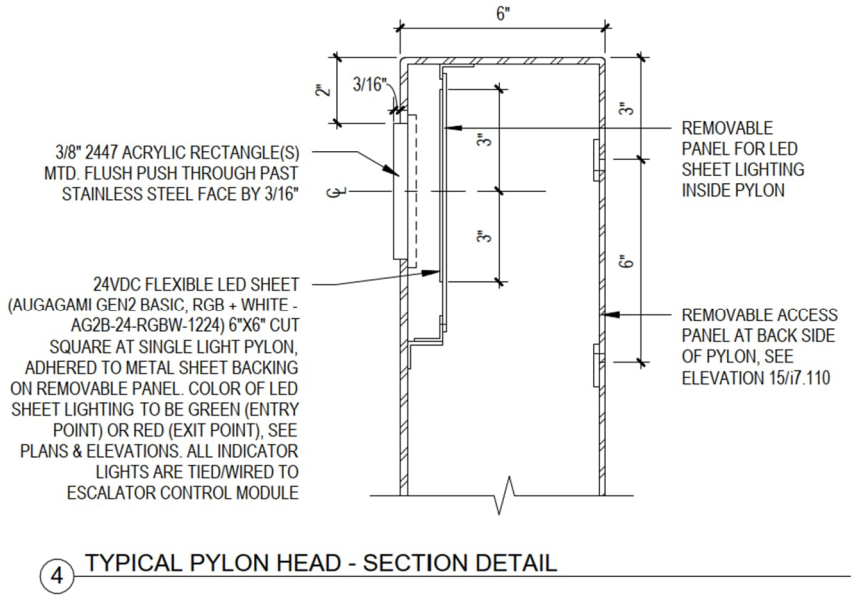

Figure 29: Typical Pylon Detail[2]

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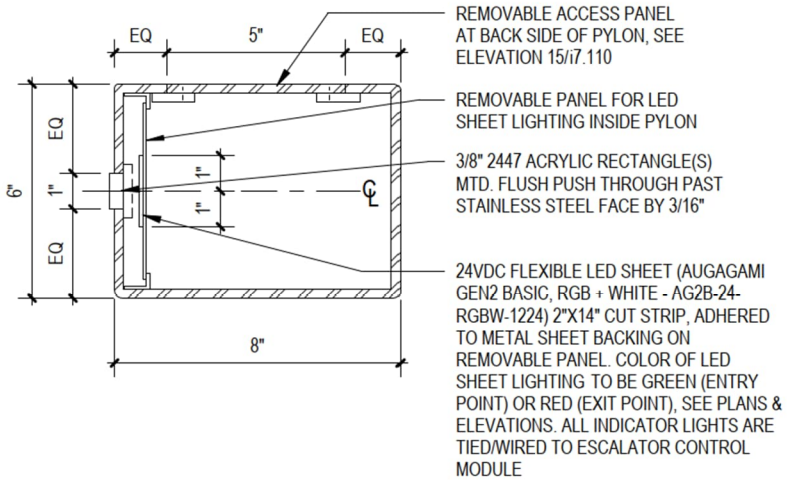
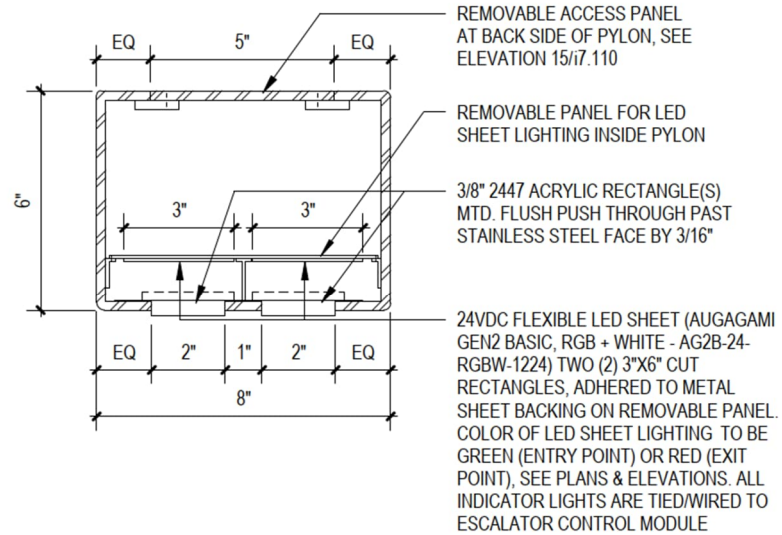


5 OUTER PYLON HEAD DETAIL @ INSIDE INDICATOR LIGHT



6 CENTER PYLON HEAD - PLAN DETAIL

Figure 30: Typical Pylon Details[2]

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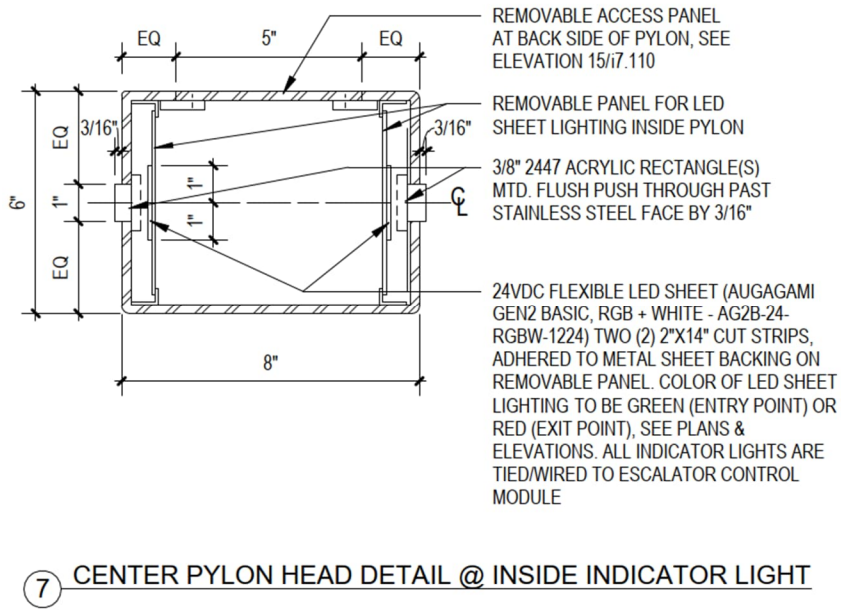

Figure 31: Typical Pylon Detail[2]

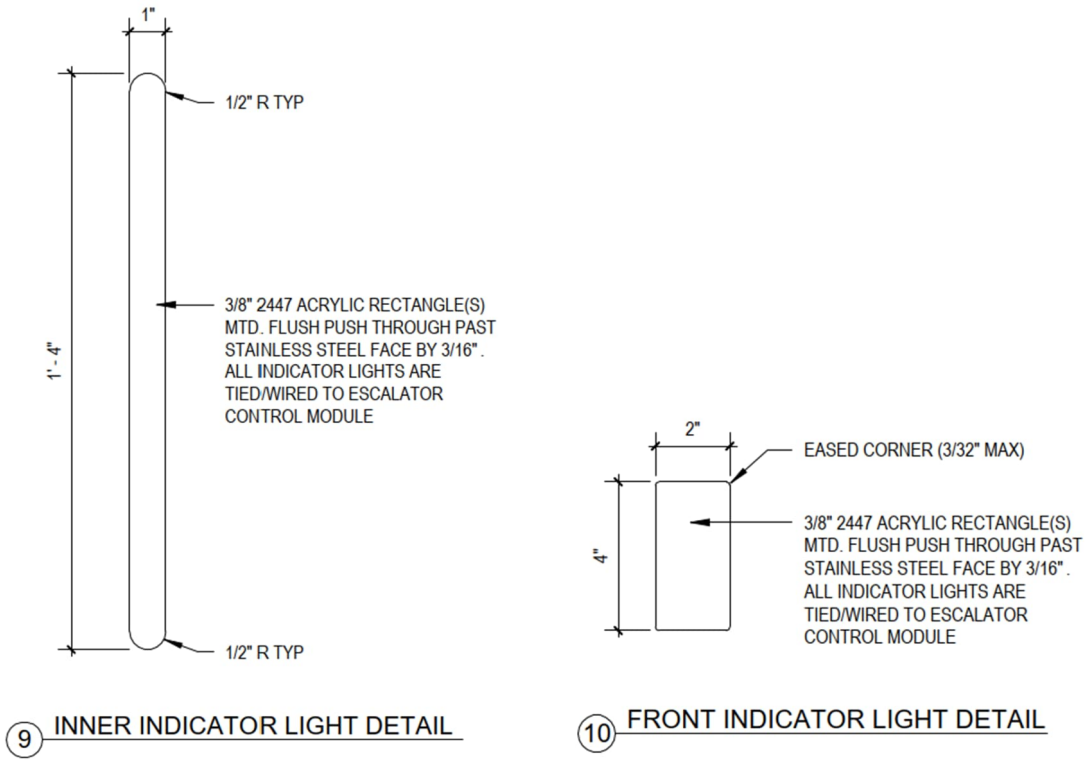

Figure 32: Typical Pylon Indicator Light Details[2]

[2] This information is stored in Autodesk Construction Cloud (ACC). Please request access to these details through the Project Manager for your project.

Figure 33: Typical Caution and Safety Signage/Graphics[2]

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