

## PREFABRICATED LOADING DOCK STEP SPECIFICATIONS

### PART 1 – GENERAL

#### 1.1 References

- 1.1.1 ADA Accessibility Guidelines (ADAAG) (1991, as amended through 2010)
- 1.1.2 International Building Code 2018
- 1.1.3 ICC / ANSI A117.1 2017
- 1.1.4 OSHA Safety and Health Regulations for Fixed Industrial Stairs 29 CFR Part 1910.25
- 1.1.5 OSHA Safety and Health Regulations for Construction – Stairways 29 CFR Part 1926.1052

#### 1.2 Submittals

- 1.2.1 Shop Drawings: detailed shop drawings to be submitted upon receipt of purchase order including:
  - 1.2.1.1 Overall layout dimensions
  - 1.2.1.2 Footer layout drawings when requested
- 1.2.2 Warranty Statement must be submitted with bid.
- 1.2.3 Product specifications must be submitted with bid.
- 1.2.4 Engineering: Professional Engineering sealed drawings to be submitted when requested.

#### 1.3 Quality Assurance

- 1.3.1 Acceptable manufacturer: Upside Innovations, LLC, 5470 Spellmire Dr., West Chester, OH 45246. Phone: (513) 889-2492; Fax: (513) 672-2124 or a contract manufacturer as approved by the Upside Innovations, LLC, Supplier Quality Review process.
- 1.3.2 All components must be designed such that an access system can be repurposed in new configurations and functions. This includes being able to connect all platforms together if a new configuration requires.
- 1.3.3 Aluminum welding will be in accordance with ANSI / AWS D1.2/D1.2M: 2008. Welding must be performed solely with Pulsed Gas Metal Arc Welding (Pulse-MIG) processes or Gas Tungsten Arc Welding (TIG) processes by experienced operators.
- 1.3.4 All exposed surfaces must be free of sharp or jagged surfaces.
- 1.3.5 Warranty: Upside Innovations, LLC warrants its products to be free from defects in material and workmanship for a period of one year beginning at the date of delivery of product. This warranty excludes any defects resulting from abnormal use in installation, service, accidental or intentional damage or any occurrences beyond the manufacturer's control.

#### 1.4 Materials

- 1.4.1 Platforms, Steps, Legs, and Guardrails are constructed of mill finish aluminum extrusions and mill finish aluminum sheet. Extrusions are either 6061-T6, 6063-T52, or 6005-T5 aluminum alloy and all aluminum sheet is 5052-H32. Powder coating in custom colors is available upon request.
- 1.4.2 All mechanical fasteners are 18-8 stainless steel. All anchors and lag bolts are galvanized steel.
- 1.4.3 Walking surface material options:
  - 1. Aluminum Extruded
  - 2. Aluminum Grip Strut
  - 3. Aluminum Bar Grating
  - 4. Fiber-Reinforced Plastic (Fibergate)

#### 1.5 Engineering

- 1.5.1 The stairs are designed to be a rigid, free-standing structure. All footplates should be fastened securely to a concrete surface or 12" minimum diameter footings in order to achieve full structural integrity. Footing depth will depend on local building code. Fastening all platforms to the building with lag screws or concrete wedge anchors is highly recommended.

## PART 2 – PRODUCT COMPONENTS

### 2.1 Platforms

- 2.1.1 Walking surfaces are designed to carry a uniform live load of 100 pounds per square foot and a concentrated vertical load of 300 pounds in an area of one square foot.
- 2.1.2 Walking surfaces are designed to have a coefficient of friction no less than 0.50 in all directions of travel.
- 2.1.3 Walking surfaces are designed and constructed to be continuous, without gaps and must be made using one of the following decking materials:
  - 1. Extruded
  - 2. Grip Strut
  - 3. Bar Grating
  - 4. Fibergrate
- 2.1.4 All platforms are designed to be wider than the step leading up to them or at least 60" long in the direction of travel.
- 2.1.5 The outside legs of each piece of extrusion must be touching the adjacent piece in order to create a hard stop for structural support.
- 2.1.6 Platforms are fabricated in typical 5'-7" x 5'-7" sections.

### 2.2 Platform Guardrails

- 2.2.1 All platform rails are designed to withstand a concentrated load of 200 pounds applied in any direction of the top of the rail.
- 2.2.2 Platform rails are provided on the open sides of the platform.
- 2.2.3 Platform rails are designed to be 42" high measured vertically from the platform surface to the top of the rail.
- 2.2.4 All platform rails are to be constructed at minimum with 2" x 2" x .060" aluminum square tube.

#### PLATFORM GUARDRAILS WITH BALUSTERS:

- 2.2.5 All balusters are to be constructed at minimum  $\frac{3}{4}$ " x  $\frac{3}{4}$ " aluminum square tube.
- 2.2.6 All balusters and other custom rail panels are designed to withstand a load of 50 pounds in the horizontal direction applied in an area of one square foot.
- 2.2.7 All balustered guardrails will not allow a 4" diameter sphere to pass through any area.

### 2.3 Platform Legs

- 2.3.1 All legs are designed to support the platforms. (See sections 2.1.1 & 2.3.1)
- 2.3.2 Legs must be designed using a minimum of 3" x 3" x 0.125" aluminum square tube that connects to the platform and a telescoping 2.7" x 2.7" x 0.125" aluminum square tube with a 6" x 6" x 0.250" welded foot pad. The legs must be bolted wall to wall with two 18-8 stainless steel bolts. The telescoping feature allows leg adjustment in order to meet elevation changes.

### 2.4 Steps

- 2.4.1 Step treads and stringers are designed to carry a uniform live load of 100 pounds per square foot and a concentrated vertical load of 300 pounds in an area of one square foot.
- 2.4.2 Walking surfaces are designed to have a coefficient of friction no less than 0.50 in the normal direction of travel.
- 2.4.3 Step treads are designed to have a uniform height of either 6", 6- $\frac{1}{2}$ ", or 7" depending on the overall height of the step assembly.
- 2.4.4 Steps are designed to allow a minimum clearance of 48" between handrails.

#### EXTRUDED TREAD DECKING:

- 2.4.5 All step treads are designed to have a uniform depth of 12" with a 1" nosing for an effective run of 11" minimum per step, INCLUDING THE TOP STEP ONTO THE PLATFORM / LANDING.
- 2.4.6 All step nosings have a uniform radius of  $\frac{1}{4}$ " and an underside angle of 60 degrees from the horizontal.

2.4.7 Step risers may be either closed or open between treads.

GRIP STRUT, or FIBERGRATE TREAD DECKING:

2.4.8 All step treads are designed to have a uniform depth of 11" minimum per step.

2.4.9 All step risers are open between treads.

BARGRATING:

2.4.10 All step treads are designed to have a uniform depth of 11" minimum per step.

2.4.11 Step risers may be either closed or open between treads.

## 2.5 Step Rails

2.5.1 All step rails are designed to withstand a concentrated load of 200 pounds applied in any direction on the top of the rail.

2.5.2 Step handrails are designed to be 36" high measured vertically from the top of the step nosing to the top of the rail.

2.5.3 Step rails are provided on both sides of the step treads.

TWO-LINE RAILS:

2.5.4 All step rail frames are to be constructed at minimum with 1-3/4" x 1-3/4" x .093" aluminum square tube.

BALUSTER GUARDRAILS:

2.5.5 Step rails have a 42" guardrail in addition to the 36" handrail.

2.5.6 All baluster panels and other custom rail panels are designed to withstand a load of 50 pounds in the horizontal direction applied in an area of one square foot.

2.5.7 All balustered step rails will not allow a 4" diameter sphere to pass through in any area.

2.5.8 All step handrails are designed to be continuous along step runs. Handrails are not interrupted by posts or other obstructions.

2.5.9 All handrails must have a clearance of 2-1/4" between the handrail and the guardrail. Handrails are to be constructed of 1-1/4" SCH 40 pipe with an outside diameter of 1.66".

2.5.10 Step handrails extend 12" past the top step nosing parallel to the ground surface and return to the closest rail post or wall if needed due to door swing interference at the top of the step. Step handrails also extend one tread width past the bottom step tread (11") and return to the closest rail post.

2.5.11 All step rail frames are to be constructed at minimum with 1-3/4" x 1-3/4" x .093" aluminum square tube.

2.5.12 All balusters are to be constructed at minimum with 3/4" x 3/4" aluminum square tube.