

## **PREFABRICATED MODULAR ALUMINUM RAMP AND STEP SYSTEM 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

#### **1.2 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 Detailed shop weldment drawings
  - 1.2.1.3 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 (Ramp sections, Platforms and Steps) must be designed such that an access system can be repurposed in new configurations and functions. This includes being able to connect all platforms (originally meant for ramps or steps), 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 two years 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 All Ramp Sections, 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.

#### **1.5 Engineering**

- 1.5.1 The Ramp, Step, and Platform system is 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 or modular building with lag screws is highly recommended.

### **PART 2 – PRODUCT COMPONENTS**

#### **2.1 Ramp Sections**

- 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 Ramp sections are fabricated in typical 8' and 10' lengths. Custom lengths can be fabricated as requested.

- 2.1.3 Walking surfaces are designed to have a coefficient of friction no less than 0.50 in the normal direction of travel.
- 2.1.4 All ramp sections are designed to allow a maximum slope of 1:12 or 1" of rise for every 12" of run. The ramp section can be adjusted to accommodate a lesser slope of 1:20 if desired.
- 2.1.5 Walking surfaces are designed and constructed to be continuous, without gaps and must be made using 1-1/2" x 8" extruded decking. 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 Ramp sections are designed to incorporate a 3-1/4" high curb adjacent to the walking surfaces on both sides.
- 2.1.7 Ramp sections are designed to allow a clearance of 48" between handrails.

## **2.2 Ramp Handrails & Guardrails**

- 2.2.1 All ramp handrails and ramp guardrails are designed to withstand a concentrated load of 200 pounds applied in any direction on the top of the rail.
- 2.2.2 Ramp guardrails are designed to be 42" high measured vertically from the walking surface to the top of the rail.
- 2.2.3 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.
- 2.2.4 All guardrails will not allow a 4" diameter sphere to pass through in any area.
- 2.2.5 Guardrails and handrails are provided on both sides of all ramp sections.
- 2.2.6 All Ramp handrails are designed to be continuous along ramp runs and in between the inside corner of 90 degree and 180 degree turns in ramp direction. Handrails are not interrupted by posts or other obstructions.
- 2.2.7 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".
- 2.2.8 All ramp handrails are designed to be 36" high measured vertically from the walking surface to the top of the rail. Ramp handrails extend 12" past the end of the slope 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 ramp.
- 2.2.9 All guardrail frames are to be constructed at minimum with 2" x 2" aluminum square tube.
- 2.2.10 All balusters are to be constructed at minimum with 3/4" x 3/4" aluminum square tube.

## **2.3 Platforms & Landings**

- 2.3.1 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.
- 2.3.2 Walking surfaces are designed to have a coefficient of friction no less than 0.50 in all directions of travel.
- 2.3.3 Walking surfaces are designed and constructed to be continuous, without gaps and must be made using 1-1/2" x 8" extruded decking. The outside legs of each piece of extrusion must be touching the adjacent piece in order to create a hard stop for structural support.
- 2.3.4 All platforms are designed to be wider than the ramp section or step leading up to them and at least 60" long in the direction of travel.
- 2.3.5 All platforms are designed to allow at least a 60" diameter area of clearance free of obstructions.
- 2.3.6 Platforms are fabricated in typical 5'-4" x 5'-4" sections. Larger sizes will be fabricated as required by layout.
- 2.3.7 Platforms must be designed as a universal design, so that a common platform can be configured as a resting platform, switchback platform, turning platform, walkway platform, or threshold landing platform.

## **2.4 Platform Guardrails**

- 2.4.1 All platform guardrails are designed to withstand a concentrated load of 200 pounds applied in any direction on the top of the rail.
- 2.4.2 Platform guardrails are designed to be 42" high measured vertically from the walking surface to the top of the rail.

- 2.4.3 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.
- 2.4.4 All guardrails will not allow a 4" diameter sphere to pass through in any area.
- 2.4.5 Guardrails are provided on all open sides of each platform.
- 2.4.6 All guardrail frames are to be constructed at minimum with 2" x 2" aluminum square tube.
- 2.4.7 All balusters are to be constructed at minimum with 3/4" x 3/4" aluminum square tube.

## 2.5 Ramp Legs & Platform Legs

- 2.5.1 All legs are designed to support the ramp sections and platforms / landings. (See sections 2.1.1 & 2.3.1)
- 2.5.2 Ramp legs are designed to include 28" of adjustability in order have enough adjustment so that a compliant installation can be made with the minimum number of parts.
- 2.5.3 Ramp legs include a 6" x 10" x 0.250" welded foot pad.
- 2.5.4 Platform 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.

## 2.6 Steps

- 2.6.1 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.
- 2.6.2 Walking surfaces are designed to have a coefficient of friction no less than 0.50 in the normal direction of travel.
- 2.6.3 Steps are designed to allow a minimum clearance of 48" between handrails.
- 2.6.4 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.
- 2.6.5 All step nosings have a uniform radius of 1/4" and an underside angle of 60 degrees from the horizontal.
- 2.6.6 Step treads are designed to have a uniform height of either 6", 6-1/2", or 7" depending on the overall height of the step assembly. All step risers are closed between treads.
- 2.6.7 Step tread widths are designed to allow a clearance of 48" between handrails.

## 2.7 Step Rails

- 2.7.1 All step rails are designed to withstand a concentrated load of 200 pounds applied in any direction on the top of the rail.
- 2.7.2 **Steps over 30"**: Step rails for steps with a vertical rise over 30" must have a 42" guardrail in addition to the 36" handrail.
- 2.7.3 **Steps 30" or under**: Step rails for steps at 30" or under do not require a 42" guardrail.
- 2.7.4 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.
- 2.7.5 All step rails will not allow a 4" diameter sphere to pass through in any area.
- 2.7.6 Step rails are provided on both sides of the step treads.
- 2.7.7 All step handrails are designed to be continuous along step runs and in between the inside corner of 90 degree and 180 degree turns in step direction. Handrails are not interrupted by posts or other obstructions.
- 2.7.8 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".
- 2.7.9 Step handrails are designed to be 36" high measured vertically from the top of the step nosing to the top of the rail.
- 2.7.10 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.
- 2.7.11 All step rail frames are to be constructed at minimum with 1-3/4" x 1-3/4" aluminum square tube.
- 2.7.12 All baluster panels are to be constructed at minimum with 3/4" x 3/4" aluminum square tube.