

Division 05 | Metals

Section includes various general guidelines regarding metal, structural steel, decking, decorative hand railings, and bollards.

This design guideline is written to the designer of record (DOR). This guideline is written to document UA standards of work, assist the designers in ensuring UA standards are incorporated into the contract documents and provide a resource to facilitate the design process. It is the designer of record's responsibility to coordinate the criteria set forth in these design guidelines and in conjunction with the manufacturer requirements and use the most stringent standard.

Structural Steel Framing

1. All structural steel fabrication where exposed shall be AESS (Architectural Exposed Structural Steel).
2. Where "flash marks" appear on structural steel, turn the "flash marks" to the least visible side where steel is exposed.
3. Where stringers meet the stair landing, the joint ("cripple") needs to be seamless where exposed.
4. All structural steel, when specified to be painted, shall be primed at the factory and painted in the field. Do not specify "pre-finished" structural steel items.
5. Wherever dissimilar metals may come in contact with each other in exterior conditions, they must be separated with an approved layer of bituminous coating, neoprene pads or other rubber based product. In areas exposed to exterior conditions, galvanized metal or zinc plated fasteners shall not be used to anchor aluminum or copper; use stainless steel, aluminum or copper fasteners.
6. The use of galvanized metal that must be painted on exterior of building must be properly primed to receive paint.
7. Where metals are exposed, the finish shall match the finish of the exterior windows, unless determined otherwise.
8. All steel loose lintels and shelf angles are to be hot dipped galvanized.
9. For items indicated for galvanizing, apply zinc coating by hot dip process according to ASTM A 123/A123M or ASTM A 153/A153M.
10. Galvanizing repair paints shall be zinc dust content paint with dry film containing not less than 94% zinc dust by weight, and complying with DOD-P-21035A or SSPC-Paint 20.
11. Sprayed On Fireproofing Applications
 - a. In order to achieve the Fire Rating as required by the Building Code, structural steel and steel decking may be protected with gypsum board sheathing, as well as by sprayed fireproofing systems. In cases where gypsum board sheathing in not practical, use sprayed fireproofing systems. Where this material is exposed to the interior, a sealer overcoat of acrylic polymer is recommended.
 - b. Where conditions require, sprayed thermal insulation can be used in conjunction with sprayed fireproofing that has a sealer overcoat. **(See Division 07 00 00)**

Downspout Boots & Metal Cast

1. Downspout boots to be Neenah Foundry R-4926-29 series ([Web Link](#)) or equal.
2. Downspout boots are to be cast iron and a minimum length of 36 inches.
3. Downspout boots connecting to underground drainage are to have a 4 inch brass cleanout plug.
4. Downspout boots discharging to grade should maintain their shape at discharge, i.e. if the gutter is rectangular the spout should be rectangular.
5. Downspout boots are to be furnished with factory primer. Boots are to be site painted to match the downspout color unless an alternate color is suggested by Design Team or UA Staff. Boots are to be finish painted prior to mounting of the building to ensure 2 coats of finish paint on all surfaces, concealed and below grade. Only touch-up will be permitted on boots once installed on buildings. Final color to be verified per submittal process in conjunction with submittal of downspout color chart.
6. Cut anchor bolts flush to nut after installation and coat with rust resistant paint.
7. Acorn cap nuts are preferred.
8. Standard Detail ([Web Link](#))
9. Installation Photograph ([Web Link](#))

Exterior Handrails

The design of exterior handrails shall comply with The University of Alabama design standards and must comply with the ADA Accessibility Guidelines and all governing codes. Set only in epoxy grout where vertical supports extend into concrete surfaces. There should be no opportunity for water to puddle around the support. After painting is completed, reinstall a silicone sealant cone around the base and 1/2" up onto the post.

Metal Type

Paint & Primer

Bronze Cap Rail and Handrail

Brazing

Patina

Methyl Ethyl Ketone

Quality & Workmanship – All exposed metals are to be dressed with ground smooth welded joints. There should be no voids or pinholes in welds. All welds are to be continuous and smooth. All metal surfaces are to be deburred and properly prepped for continuous smooth finish prior to priming. Panel sizes and lengths of rail should be coordinated for the minimum amount of field welding and to minimize field welding at highly visible areas. UA will reject rails or require rework to achieve a smooth and blemish free surface.

- a. Decorative Exterior Handrail Detail ([Web Link](#))
- b. Handrail Anchor in Cored Hole Detail ([Web Link](#))

Execution

Properly protect handrails, stairs and other items incorporated into the work in the early stages of construction from weather, falling mortar, concrete, debris, water, and other abuses. When damaged, make proper repairs, or where damage is extensive, replace the items.

Bollards

Standard bollards shall be used throughout the campus. Design of bollards shall adhere to the following requirements:

- 1) 3" newel post cap, 5 ½" high, 2" diameter ball, Model 120-Lawler Foundry, Birmingham, Alabama
- 2) Sand, prime and paint with high performance paint – See Painting & Coatings.
- 3) Bolt cap to 3" x 3" x 3/16" steel square tube pipe with 3/16" 1024 stainless steel bolts, drilled and tapped on 2 sides.

Note: Prior to installing cap, spray underside of cap with "Cold Galv" paint.

- End -