

Division 5 – Metals

- 05.1. Design shall be complete for all required metal fabrications. Contractor engineered metal fabrications are prohibited except for interior egress stairs and associated handrails, manufactured ornamental stairs and handrails, ladders, fall protection and roof screens. If the A/E desires to add additional items to the engineering by contractor category, these shall be requested using **APPENDIX B – DESIGN STANDARDS VARIANCE REQUEST FORM**. The A/E shall also include in the specifications a separate section defining engineering by contractor requirements for the project.
- a. Engineering provided by the contractor shall include the Professional Engineers seal and calculations submitted as noted in Division 1.
- 05.2. The A/E shall detail and locate lintels in all walls as part of the contract drawings. The Contractor shall coordinate opening locations with all other trades.
- 05.3. All exterior or wet location structural ferrous metals, including but not limited to, all exterior lintels and gratings shall be hot-dip galvanized after fabrication. Repair all damage to galvanized coatings. Finished painting, if needed, shall be indicated on the contract documents by the A/E.
- 05.4. At exterior locations, fasteners shall be galvanized or stainless steel. Where welded connections are made after galvanizing, apply coating to resist rust.
- 05.5. Interior metal stairs for public access shall not be exposed concrete. At a minimum, cover all concrete treads and risers with rubber stair tread materials.
- 05.6. Exterior metal stairs are not allowed. Galvanized handrails are acceptable only at service locations and when approved by the University Architect. Fully weld all rails, handrails, attachments and supports and repair welds with galvanizing repair paint. Stair treads and landings shall be perforated or grating type material to allow drainage.
- 05.7. Alternating tread stairs are preferred over vertical ladders for roof access. If Vertical ladders are included in a project (outside of elevator shafts) locations shall be reviewed by facilities management prior to incorporating into the design.
- 05.8. A/E shall consider the how mechanical equipment shall be brought up to the roof or removed from the roof. The A/E shall consider including a including a hoist mechanism based on roof equipment maintenance.
- 05.9. If fixed ladders, when accepted by facilities management, are used to access roofs through a roof hatch, install safety post on the ladder. The post shall be designed with a telescoping tubular section that locks automatically when fully extended. Upward and downward movement shall be controlled by a stainless steel spring balancing mechanism.
- 05.10. All Exterior Gratings exposed to public pedestrian traffic shall be ADA compliant and safe for walking with shoes with narrow heels (1/4" maximum gap). Grating shall also be structurally rated for vehicular traffic when position at grade. Gratings in public locations shall be stainless steel. Back of house gratings shall be hot dipped galvanized. Provide galvanized hardware under all areaway gratings.
- 05.11. Exterior Handrails/Guardrails
- a. All campus handrails/Guardrails shall be anodized aluminum.
 - b. All handrails/Guardrails shall be ground smooth and free of any burrs or other defects.
- 05.12. Steel Roof Deck and Moisture-Prone Floor Slabs
- a. Corrosion protection is critical to maintain the structural integrity of the roof deck from moisture leaks through the roofing membrane. NRCA Bulletin 15-91 provides guidance on protection.

- b. The steel roof deck is required to be Factory Galvanized, G-60 or G-90 (ASTM A924-94) or Factory coating with aluminum zinc alloy (ASTM A792).
 - c. 'Primer paint' coated deck is not allowed.
 - d. Aluminum desking is allowed where appropriate.
 - e. Examples of moisture prone decks include full kitchens, bathrooms, and mechanical rooms.
 - f. The A/E shall indicate the location of all galvanized decking in the contract documents.
- 05.13. All ornamental stair or other railing systems shall be specified using standard, easy to replace, parts. Fabrications that can be easily replicated locally or by on-site trade personnel are preferred.