

These guidelines are updated periodically. Users of the guidelines are encouraged to check this site as needed to be sure of having the most current edition. Comments and suggestions concerning improvements to this section of the guidelines may be submitted to: djfried2@uncg.edu.

05000. METALS

1. DESIGN

- 1.1. Structures shall be designed with due regard for vibration, deflection and avoidance of ponding. It is noted that this criteria may govern over strength.
- 1.2. Take expansion and contraction into account in the design and detailing. Handrails and long members are noted in particular, especially when they span over an expansion joint in other materials.
- 1.3. Try to design column base plates for ease of installation, i.e. use anchor rods with nuts above and below base plate with $1-1/2" \pm$ space to grout after leveling.
- 1.4. Clearly define limits and type of paint for metal elements including primers. Shop painting is preferred. Preparation methods prior to applications of primers and paints shall be described in the specifications.
- 1.5. All exterior ferrous metals shall be hot-dip galvanized after fabrication. Field welds shall be ground and have cold galvanizing applied. The Designer should try to limit field welding on hot-dip galvanized pieces.
- 1.6. Specify that work be temporarily braced during construction until the structural system is adequate to brace itself.
- 1.7. Handrail pockets, sleeves or anchor plates shall be designed to shed water and prevent corrosion. Provide drawing details for installation and/or describe fabrication methods if critical to the finished product.

2. TESTING

- 2.1. Structural tests on welds, bolts, shear studs, etc. shall be performed by a qualified independent laboratory (conforming to American Society for Testing and Materials standards) selected and paid for by the Owner in accordance with the North Carolina Construction Manual. The University solicits proposals for the testing laboratory shortly after the receipt of construction bids. The Designer should contact the University prior to this time and provide the scope of work for testing and any other unique requirements for the proposal request. The Designer should contact Facilities Design & Construction during the design phase of the project to discuss testing frequency to be included in the specifications.

- 2.2. The structural design engineer shall clearly define and approve testing methods for both shop and field work. A preconstruction conference with the structural designer, metal fabricator and testing laboratory shall be held to clarify any testing requirements prior to fabrication. The designer shall designate critical pieces that should be approved at the fabrication shop with appropriate testing methods.
- 2.3. The Owner desires steel fabrication by an American Institute of Steel Construction (AISC) certified shop. If for some reason the Designer desires to not use a certified fabricator, they must explain the rationale to the Facilities Design and Construction Project Manager to get approval prior to completing the specifications. The use of a certified shop usually eliminates the need to visit the fabrication shop by the Owner and testing company.
- 2.4. Stored materials shall be stored in such a way as to permit access for inspection and identification and to protect them from deterioration.

3. QUALITY ASSURANCE

- 3.1. Visits to the fabrication plant by the Designer and Owner may be applicable to inspect the process and quality of the work.
- 3.2. All welded connections shall be made by a certified welder. The use of "pre-qualified welds" is encouraged.
- 3.3. The Designer shall be careful to avoid galvanic corrosion due to contact between dissimilar metals.