Metals

I. Structural Steel Framing

A. Materials

1. Rolled wide flange sections shall conform to ASTM A992 Grade 50.
2. All other rolled sections shall conform to a minimum of ASTM A36.
3. Rectangular hollow sections shall conform to ASTM A500 Grade B Fy -46 ksi.
4. Hollow pipe sections shall conform to ASTM A53 Type E.
5. Welding rods shall be E70XX.
6. Steel joists shall be designed in accordance with the Steel Joist Institute for K-Series, LH-Series, DLH-Series, CJ-Series, and Joist Girders.

B. Accessories

1. Bolts shall be minimum ¾" diameter ASTM A325 unless smaller diameters are required for fit with existing conditions or other field constraints. All bolted connections shall be full depth of the web section.

C. Finishes

1. All steel that will be exposed to the environmental elements shall be hot-dipped galvanized with a minimum of 4 mil thickness in accordance with ASTM A123 prior to painting.
2. All interior steel shall have a shop coat of rust inhibitive paint.
3. Where Structural Steel Fireproofing coatings are to be applied to steel, the proper selection of structural steel primers based on their compatibility with the applications of fireproofing coatings should be made based on manufacturers recommended use of primer. Some fireproofing materials and systems are not compatible with primed steel or require additional steps be taken to ensure adhesion of the fireproofing material.

II. Steel Decking

A. Materials

1. Roof deck shall be minimum 1 ½" deep, 18 gage (.0474 inches), metal deck that complies with the design properties of Type B metal deck as manufactured by United Steel Deck.
2. Steel composite floor deck shall be a minimum 18 gage (.0474 inches), composite metal deck that complies with the design properties of Lok-Floor deck as manufactured by United Steel Deck.

B. Finishes

1. Steel roof deck shall be hot dipped galvanized with a G90 coating in accordance with ASTM A653.
2. Steel composite floor deck and cold formed steel trusses shall be hot dipped galvanized with a G60 coating in accordance with ASTM A653.

III. Cold Formed Metal Framing

A. General

1. Cold-formed metal framing includes non-load-bearing interior and exterior metal wall studs, curtain wall or veneer support, and roof trusses.
2. Consult with the Design Manager for approval prior to pursuing a primary gravity or lateral load-bearing system cold formed design.

B. Materials

1. C- Stud section only conforming to AISI standards with a minimum 1 5/8" flange and 4" web and minimum 16 gage (.0625 inches) steel thickness.

C. Structural Design

1. Design of cold-formed metal framing must take into account all axial and lateral loading imposed on the system, and details must accommodate movement in the primary structural system, avoiding unintended load transfer to non-loadbearing studs. Lateral deflection must be within limits appropriate for the proposed cladding materials.
2. Design steel in accordance with AISI NASPEC / S100.
3. Submit signed and sealed shop drawings and calculations for record.

D. Finish

1. All cold-formed metal framing shall be galvanized to inhibit corrosion. A minimum G60 coating is required.
2. As per BIA provide G90 for masonry veneer/steel stud backup applications.

IV. Metal Fabrications

A. General

1. All exterior metal fabrications shall be hot dip galvanized as per ASTM A123 and prime painted, after fabrication, ready for field finishing. Holes and other modifications shall be completed prior to hot-dip galvanizing.

V. Metal Railings

A. Materials

1. All metal pipe railings and components shall be fully welded steel or stainless steel.
2. Stainless steel railings shall be Type 316 at all exterior locations; Type 304 shall be acceptable at interior installations where not subject to exposure to de-icing.

B. Finish (for metal railings other than stainless steel)

1. All steel railing components and hardware exposed to the weather or in moisture prone locations shall be hot-dip galvanized to 5 mil: per ASTM A123. Prime and paint galvanized components as per the coating manufacturer's recommendations.
2. Steel railing components and hardware at other locations shall be primed and painted.

C. Installation

1. To the greatest extent feasible, employ only concealed fasteners for railing attachments to other materials.
2. Railing supports or posts shall be set using non-shrink, non-metallic grout that is premixed, factory- packaged, non-staining, non-corrosive, and non-gaseous. Special care shall be taken to avoid the use of setting materials which will deteriorate or fail in the presence of moisture, or which are incompatible with the railing or surrounding materials.
3. When railings are proposed at the roof, explore methods of mounting the railings that do not require penetration of roof membranes, roof copings and other roof components.

VI. Metal Gratings

A. Materials

1. Minimum bearing bar size shall be 1¼" x 3/16" unless supported by project-specific use case loading and span calculations.

2. Grating shall be galvanized.

3. Cut grating bearing bar edges shall be banded.

4. Grating shall be affixed to bearing substrate with removable fasteners.