SECTION 05 71 13

FABRICATED SPIRAL STAIRS

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

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\*\* NOTE TO SPECIFIER \*\* Company; Stairways, Inc.; metal and wood spiral stairs; custom and standard; preassembled and knocked-down.  
 .  
 This section based on products made by Stairways, Inc., which is located at:  
 4166 Pinemont  
 Houston, TX 77018  
 Toll Free: (800) 231-0793  
 Phone: (713) 680-3110  
 Fax: (713) 680-2571  
 E-mail: [markanderson@stairwaysinc.com](mailto:markanderson@stairwaysinc.com)  
 Web Site: [www.stairwaysinc.com](http://www.stairwaysinc.com)  
 .  
 Stairways, 1nc., manufactures custom and standard spiral stairs. A large inventory of standard components (treads, handrails, and balusters) can be combined into any configuration. In-stock kits are also available, shipped knocked down for field assembly. Refer to their catalog or web site for available designs.  
 .  
 If this section is edited to specify all-wood stairs, the section number should be changed to 06430.  
   
 Three generations of craftsmanship and experience go into each stairway. Skilled engineering and cost efficient construction techniques are combined to create detailed stairways in metal and wood. Stairways are fully fabricated to the dimensions of your building. Each stair is built one step at a time. Custom stair work has been our specialty throughout the years and our stairways are simply the best available. In addition to spiral stairways, we manufacture all other types of stairs including circular and straight stairs. These stairs are available in many materials including mild steel, wood, stainless steel, aluminum, brass and bronze.  
   
 Our stairs are manufactured from only premium grade materials. We at Stairways believe this to be one of the most important qualities of our stairs. We also provide designers, architects and engineers alike with the support necessary to meet the needs of the most demanding projects. Experience throughout the years has elevated us to national recognition as a leader in the design and manufacture of spiral and custom stairs with the highest degree of quality and craftsmanship in mind, at the lowest possible cost to you. Our fully equipped shop and experienced craftsmen can help you with your design. For years now we have set the industry standards for quality, reliability and on-time delivery of precisely manufactured factory built stair systems.  
  
See our SpecWizard: [Click Here](http://www.arcat.com/specwizard/05715stw/index.htm)

1. GENERAL
   1. SECTION INCLUDES

\*\*NOTE TO SPECIFIER\*\* Delete items below not required for project.

* + 1. Wood Spiral Stairs.
    2. Metal Spiral Stairs.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 03 30 00 - Cast-in-Place Concrete.
    2. Section 05 50 00 - Metal Fabrications.
    3. Section 05 51 00 - Metal Stairs.

\*\* NOTE TO SPECIFIER \*\* Factory finishing of wood is not available.

* + 1. Section 09 90 00 - Painting and Coating: Field finishing of wood components.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2001a.
    2. ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings; 2001.
    3. ASTM C 1028 - Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method; 1996.
    4. AWS D 1.1 - Structural Welding Code - Steel; 2002.
    5. NAAMM AMP 510 - Metal Stairs Manual; 1992, Fifth Edition.
    6. SSPC Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 1982 (Ed. 2000).
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00.
     2. [Product Data](http://www.arcat.com/arcatcos/cos35/arc35716.cfm): Manufacturer's data sheets on each product to be used, including:
        1. Preparation instructions and recommendations.
        2. Storage and handling requirements and recommendations.
        3. Installation methods.
     3. Shop Drawings: Submit shop drawings for stairs and railings.
        1. Include plans, elevations, and details.
        2. Indicate floor opening details, including floor opening and stair height tolerances.
        3. Show connection and accessory items and locations for anchor and bolt installation.
        4. Include design loads, structural calculations and material properties.
        5. Shop drawings shall be signed and sealed by a structural engineer licensed in the state in which Project is located.
  2. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Firm that has produced types of stair and railing systems required for not less then ten years, with not less than five similar projects that have been successful use for not less than five years.
     2. Installer Qualifications: Minimum five years experience in successful installation of stair and railing systems of type specified.
  3. DELIVERY, STORAGE, AND HANDLING
     1. Store products in manufacturer's unopened packaging until ready for installation.
     2. Store in a weathertight location and protect from corrosion, distortion and other damage during delivery storage and handling.
  4. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Stairways, Inc., which is located at:4166 PinemontHouston, TX 77018Toll Free Tel: 800-231-0793Tel: 713-680-3110Fax: 866-423-3347Email:  [markanderson@stairwaysinc.com](mailto:markanderson@stairwaysinc.com?subject=RE:%20Spec%20Question%20(05715stw):%20);Web: <https://www.stairwaysinc.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.
  1. SPIRAL STAIRS
     1. Spiral Stairs: Designed by stair manufacturer for applicable code requirements for live and dead loads, dimensions, and other requirements.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three types. Metal knocked-down stair kits are in stock. Wood stairs are not available disassembled.

* + - 1. Type Metal structure, preassembled; designed in accordance with NAAMM Metal Stairs Manual.
      2. Type Metal structure, knocked-down; designed in accordance with NAAMM Metal Stairs Manual.
      3. Type: All wood, preassembled; members of premium grade and stair manufacturer's grain selection for field staining; 6 percent maximum moisture content..

\*\* NOTE TO SPECIFIER \*\* Select Species required and delete those not required. Stock components are available in oak. Treads and landing platforms are normally either oak or teak regardless of what species the remainder is made of, for long lasting wear. Custom stairs can be made of virtually any species.

* + - * 1. Species: Oak. (Standard)
        2. Species: Teak.
        3. Species: Pine, unless otherwise indicated.
        4. Species: Walnut, unless otherwise indicated.
        5. Species: Cherry, unless otherwise indicated.
        6. Species: Mahogany, unless otherwise indicated.
        7. Species: Maple, unless otherwise indicated.
        8. Species: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Spiral Direction: Clockwise rotation.
      2. Spiral Direction: Counterclockwise rotation.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Stair Well: Square.
      2. Stair Well: Round.
      3. Provide platforms with integral nosings matching tread nosings.
      4. Provide well rail matching stair balusters and handrails around entire well opening.

\*\* NOTE TO SPECIFIER \*\* Select the Treads and Landings, Handrail, Balusters, Center Column, Stringer and Landing Frame from the following components. Delete all but one type of each component. If treads and landings are different, edit the headings to indicate which is which. Wood treads may be used with both wood and metal stairs; metal treads are used only with metal stair structure. In-stock metal stair kits have a more limited selection than custom stairs -- verify availability and type of in-stock kits.

* + 1. Treads and Landings: Wood.
       1. Treads: Oak.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Landings: Oak.
      2. Landings: Teak.
      3. Thickness: 1-1/2 inch (38 mm).

\*\* NOTE TO SPECIFIER \*\* The following two paragraphs are optional. Nosing is not available on stock teak landings.

* + - 1. Provide wood nosing on leading edge.
      2. Provide rubber nosing on treads.
    1. Treads and Landings: Checker plate.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Material: Stainless steel.
      2. Material: Steel.
      3. Material: Aluminum.

\*\* NOTE TO SPECIFIER \*\* Stainless steel treads are not available in stock in 3/16 inch thickness. Aluminum treads are not available in stock in 12 gage.

* + - 1. Thickness: 12 gage.
      2. Thickness: 3/16 inch (5 mm).
    1. Treads and Landings: Rubber covered metal.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Material: Stainless steel.
      2. Material: Steel.
      3. Material: Aluminum.

\*\* NOTE TO SPECIFIER \*\* Stainless steel treads are not available in stock in 3/16 inch thickness. Aluminum treads are not available in stock in 12 gage.

* + - 1. Thickness: 12 gage.
      2. Thickness: 3/16 inch (5 mm).
    1. Treads and Landings: Abrasive surfaced.
       1. Material: Steel plate with abrasive granules rolled into surface or metallically bonded to steel by proprietary process; coefficient of friction of 0.6 or higher when tested in accordance with ASTM C 1028.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Thickness: 12 gage.
      2. Thickness: 3/16 inch (5 mm).
    1. Treads and Landings: Smooth metal surface.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Treads: Stainless steel.
      2. Treads: Steel.
      3. Treads: Aluminum.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Landings: Stainless steel.
      2. Landings: Steel.
      3. Landings: Aluminum.

\*\* NOTE TO SPECIFIER \*\* Stainless steel treads are not available in stock in 3/16 inch thickness. Aluminum treads are not available in stock in 12 gage.

* + - 1. Thickness: 12 gage.
      2. Thickness: 3/16 inch (5 mm).
    1. Treads and Landings: Smooth metal with wood overlay surface.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Treads: Steel.
      2. Treads: Aluminum.
      3. Treads: Wood overlay, Oak, thickness, 1-1/2 inch (38 mm).

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Landings: Steel.
      2. Landings: Aluminum.
      3. Landings: Wood overlay, Oak, thickness, 1-1/2 inch (38 mm).

\*\* NOTE TO SPECIFIER \*\* Aluminum treads are not available in stock in 12 gage.

* + - 1. Thickness: 12 gage.
      2. Thickness: 3/16 inch (5 mm).
    1. Treads and Landings: Metal pan type.
       1. Treads: Steel.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Landings: Stainless steel.
      2. Landings: Steel.
      3. Landings: Aluminum.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Thickness: 12 gage.
      2. Thickness: 3/16 inch (5 mm).

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Concrete Tread Inserts: By others.
      2. Concrete Tread Inserts: \_\_\_\_\_\_\_\_\_.
    1. Treads and Landings: Grating.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Pattern: Rectangular bar grating, 1 inch (25.4 mm) by 3/16 inch (4.8 mm).
      2. Pattern: Radial grating, 1 inch (25.4 mm) by 3/16 inch (4.8 mm).

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Treads: Stainless steel.
      2. Treads: Steel.
      3. Treads: Aluminum.

\*\* NOTE TO SPECIFIER \*\* Radial grating landings are not available in stainless steel or aluminum.

* + - 1. Landings: Stainless steel.
      2. Landings: Steel.
      3. Landings: Aluminum.

\*\* NOTE TO SPECIFIER \*\* The following paragraph is optional.

* + - 1. Provide nosing on leading edge.
    1. Treads and Landings: Perforated metal.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Material: Steel.
      2. Material: Stainless steel.
      3. Thickness: 12 gage.
    1. Treads and Landings: Patterned metal.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Material: Steel.
      2. Material: Aluminum.
      3. Material: Stainless steel.

\*\* NOTE TO SPECIFIER \*\* Delete all but one pattern below. Traditional pattern is available in steel only.

* + - 1. Pattern: Filigree, 1 inch (25.4 mm) by 3/16 inch (4.8 mm).
      2. Pattern: Arc, 1 inch (25.4 mm) by 3/16 inch (4.8 mm).
      3. Pattern: Traditional, 12 gage.
      4. Pattern: Traditional, 3/16 inch (4.8 mm).

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following types of handrails.

* + 1. Handrails: Round.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following materials.

* + - 1. Material: Steel.
      2. Material: Aluminum.
      3. Material: Stainless steel.
      4. Material: Brass.
      5. Material: Chrome plated.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Diameter: 1-1/2 inches (38 mm).
      2. Diameter: 2 inches (50 mm).
    1. Handrails: Flat metal bar.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following materials.

* + - 1. Material: Steel.
      2. Material: Aluminum.
      3. Material: Stainless steel.
      4. Size: 1/4 inch (6 mm) by 1-1/4 inches (32 mm).

\*\* NOTE TO SPECIFIER \*\* The following is optional.

* + - 1. Provide black vinyl cover, Julius Blum Colorail.
    1. Handrails: Metal, molded design.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following materials.

* + - 1. Material: Steel.
      2. Material: Aluminum.
      3. Material: Stainless steel.
      4. Material: Nickel Bronze (Silver).

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Pattern: 1-5/8 inch (41 mm) wide (No. 210).
      2. Pattern: 2-1/4 inch (57 mm) wide (No. 211).
    1. Handrails: Bronze, molded design.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following patterns.

* + - 1. Pattern: 1-15/16 inch 49 mm) wide (No. 220).
      2. Pattern: 2-1/4 inch (57 mm) wide (No. 221).
      3. Pattern: 2 inch (51 mm) oval nickel bronze (No. 222).
      4. Pattern: Oval (No. 223).

\*\* NOTE TO SPECIFIER \*\* The following is optional. Available in stock for No. 220 only.

* + - 1. Provide volute at top and bottom end.
    1. Handrails: Oak.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following sizes.

* + - 1. Size: 2 inches (51 mm) by 3-1/2 inches (89 mm) (No. 231).
      2. Size: 2-1/4 inches (57 mm) by 3-1/2 inches (89 mm) (No. 235).
      3. Size: 2-3/4 inches (70 mm) by 2-3/8 inches (60 mm) (No. 237).
      4. Size: 3-1/2 inches (89 mm) by 2-3/8 inches (60 mm) (No. 240 ).
      5. Size: 3 inches (76 mm) diameter (No. 241).
      6. Size: 2 inches (50.8 mm) diameter (No. 242).
      7. Size: 1-1/2 inches (38 mm) diameter (No. 243).
      8. Size: 2-1/4 inches (57 mm) by 1 inch (25 mm) oval (No. 247).
      9. Size: 1-1/2 inch (38 mm) by 2 inches (51mm) ( No. 248).

\*\* NOTE TO SPECIFIER \*\* The following is optional. Available in stock for No. 235, 237, and 240 only.

* + - 1. Provide volute at top and bottom end.

\*\* NOTE TO SPECIFIER \*\* Delete all but one type of balusters below. If more than one type is required, be sure to indicate where each is to be used. To effectively specify balusters other than square or round, it is necessary to specify a particular model or pattern number. See manufacturer's catalog or web site for current availability of standard patterns.

* + 1. Balusters: Wood.
       1. Species: Oak.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following sizes.

* + - 1. Size: 1-1/4 inches (32 mm) square.
      2. Size: 1-1/4 inches (32 mm) square, turned design; Model No. \_\_\_\_\_\_\_.
      3. Size: 1-3/4 inches (44 mm) square, turned design; Model No. \_\_\_\_\_\_\_.
      4. Size: 1-3/4 inches (44 mm) round, turned design; Model No. \_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Space balusters at 4 inches (102 mm) on center.
      2. Provide one baluster per tread, centered.
    1. Balusters: Metal.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following materials.

* + - 1. Material: Steel.
      2. Material: Aluminum.
      3. Material: Bronze.
      4. Material: Brass.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following cross-section dimensions. Bronze and brass are available in stock only in 1 inch round. 5/8 inch round is available in stock only in steel. Specify decorative balusters by Model Number -- see manufacturer's web site for available designs.

* + - 1. Cross-Section: 1 inch (25.4 mm) square.
      2. Cross-Section: 1 inch (25.4 mm) square, twisted.
      3. Cross-Section: 1 inch (25.4 mm) round.
      4. Cross-Section: 3/4 inch (19 mm) square.
      5. Cross-Section: 3/4 inch (19 mm) round.
      6. Cross-Section: 5/8 inch (16 mm) round.
      7. Cross-Section: 1/2 inch (13 mm) square.
      8. Cross-Section: 1/2 inch (13 mm) square, twisted.
      9. Design: Model No. \_\_\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Space balusters at 4 inches (102 mm) on center.
      2. Provide one baluster per tread, centered.

\*\* NOTE TO SPECIFIER \*\* Delete either wood or metal center column. Wood column is used only for all-wood stairs. Metal column can be used with any combination of metal or wood treads, handrails, and balusters.

* + 1. Center Column: Laminated wood.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following five paragraphs.

* + - 1. Shape: Round.
      2. Shape: 6 sided.
      3. Shape: 12 sided.
      4. Shape: 3 sided.
      5. Shape: 16 sided.
      6. Column Cap: Match material and finish of column.
      7. Treads mortised, glued and screwed into center column.
    1. Center Column: Round metal pipe or tube.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following materials.

* + - 1. Material: Steel.
      2. Material: Stainless steel.
      3. Material: Aluminum.

\*\* NOTE TO SPECIFIER \*\* Delete five of the following six paragraphs. 3-1/2 inch diameter is the standard size for in-stock kit stairs.

* + - 1. Diameter: 3-1/2 inches (89 mm) outside.
      2. Diameter: 4 inches (102 mm) outside.
      3. Diameter: 6 inches (152 mm) outside.
      4. Diameter: As required for specified loading.
      5. Diameter: As indicated on drawings.
      6. Diameter: \_\_\_\_\_\_\_\_\_\_\_\_\_.
      7. Base Plate: 10 inches (254 mm) square, 1/4 inch (6 mm) thick.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Column Cap: Match material and finish of column.
      2. Column Cap: Brass; stair system manufacturer's standard profile.
    1. Stringers and Landing Framing:
       1. Material: Same as tread materials.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Size and Shape: As required for compliance with performance requirements.
      2. Size and Shape: As indicated on drawings.
      3. Provide connections and other components necessary for support and installation of stairs.

\*\* NOTE TO SPECIFIER \*\* Delete finishes that are not applicable. Edit finished paragraph selected if required.

* + 1. Finishes:
       1. Wood:
          1. Sanded smooth, ready for finishing.
          2. Sanded only.
       2. Steel:
          1. Manufacturer's standard prime paint finish.
          2. Stair manufacturer's standard zinc chromated reddish brown rust inhibitor.
          3. Hot-dipped galvanized to minimum 1.25 oz./sq ft (0.38 kg/sq m) zinc coating in accordance with ASTM A 123/A 123M.
       3. Stainless Steel:
          1. Polished #7 finish.
          2. Satin #4 finish.
       4. Aluminum:
          1. Mill finish.
          2. Sandblasted.
       5. Brass: Polished finish.
       6. Bronze: Satin finish.
       7. Chrome Plated:
          1. Polished finish.
          2. Sandlblasted.
  1. MATERIALS
     1. Fasteners and Anchorage Devices: Type as recommended by stair and railing system manufacturer.
     2. Welding Materials: Type required for materials being welded.
     3. Galvanizing Repair Paint: High-zinc-dust content paint for regalvanizing welds in steel, complying with SSPC Paint 20.
     4. Grout: Non-metallic, non-shrink grout, premixed, non-corrosive, non-staining product containing selected silica sands, portland cement, shrinkage compensating agents, plasticizing and water reducing agents.
  2. FABRICATION
     1. Fabricate to shapes and configurations indicated in Contract Documents.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + 1. Preassembled Stairs: Fabricate in largest practical sizes for handling through building openings; ship fully assembled except where access to installation area is restricted.
    2. Knocked-Down Stairs (Kits): Fabricate, disassemble and pack for shipping.
    3. Mark units for reassembly and coordinated installation.
    4. Mill balusters to fit angle of handrail. Glue and bolt balusters to handrails and treads.
    5. Form elbow bends and wall returns to uniform radius, free from buckles and twists, and with smooth finished surfaces free from blemishes. Form exposed ends to match or provide matching prefabricated end fittings.
    6. Join components with concealed fastener. Countersink fasteners that cannot be concealed.
    7. Welded Connections: Cope and weld or use welded-in fittings. Weld connections continuously. Remove sharp or rough edges on exposed surfaces.
    8. Welded Connections for Pipe Railings: Connect handrail and railing members with sleeve and socket fittings with concealed internal welds.

1. EXECUTION
   1. EXAMINATION
      1. Verify that field measurements are acceptable to suit stair assembly tolerances.
      2. Verify supports and anchors are correctly and securely positioned.
      3. Start of installation constitutes installer's acceptance of substrate and conditions.
   2. INSTALLATION
      1. Install in accordance with manufacturer's instructions and approved shop drawings.
      2. Install stair assembly in accordance with manufacturer's instructions and approved shop drawings and in accordance with specified performance requirements.
      3. Anchor components rigidly and securely to building structure, plumb and level, accurately fitted, and free from distortion or defects.
      4. Fit exposed connections to form tight hairline joints.
      5. Weld connections that cannot be shop welded because of size limitations.
         1. Perform field welding of steel in accordance with AWS D 1.1. Field bolt and weld to match shop bolting and welding.
         2. Clean field welds, bolted connections and abraded areas.
         3. Touch up shop primer.
         4. Repair galvanizing with galvanizing repair paint to comply with ASTM A 780.
   3. ERECTION TOLERANCES
      1. Maximum Variation from Plumb: 1/4 inch (6 mm) for full height of stair.
      2. Maximum Variation from Level: 1/8 inch (3 mm).
      3. Maximum Angular Variation of the Tread from True Position: 3 degrees.
   4. PROTECTION
      1. Do not permit traffic on the stair after installation.
      2. Protect installed products until completion of project.
      3. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION