The IRON Shop

SECTION 05710

FABRICATED SPIRAL STAIRS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Prefabricated spiral stair, including center support pole, radial treads, and spiral handrail.

B. Miscellaneous installation hardware and accessories.

1.2 RELATED SECTIONS

A. Section 05510 - Metal Stairs: Standard fire exit stairs.

B. Section 06100 - Rough Carpentry: Framed floor opening.

C. Section 07900 - Joint Sealers: Sealants applied between spiral stair and adjacent work.

D. Section 09900 - Paints and Coatings: Paint finish to match adjacent materials.

1.3 REFERENCES

A. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2000.

B. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2000.

C. NAAMM AMP 510 - Metal Stairs Manual; The National Association of Architectural Metal Manufacturers; 1992, Fifth Edition.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. [Product Data]: Manufacturer's data sheets on stair model to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Complete assembly and anchorage requirements.

C. Shop Drawings: Indicate detailed stair configuration, supporting accessories and connections, required floor opening and stair height tolerances, and other measurements affecting the stair.

D. Selection Samples: For each finish specified, one complete set of color chips representing manufacturer's full range of available colors and patterns.

E. Local Building Codes:
1. International Building Code (IBC)
2. Southern Building Code Congress International (SBCCI).
3. Building Officials Code Administrators (BOCA).
4. Council of American Building Officials (CABO).

5. International Residential Code (IRC).
6. Uniform Building Code (UBC).
7. International Conference of Building Official (ICBO).
8. Code Requirements for Housing Accessibility (CRHA).
9. Residential & Light Commercial Construction Standards (RLCCS).

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A company specializing in the manufacture of spiral stairs with not less than ten years of documented experience.

B. Field Measurements: Verify that field measurements are within tolerances acceptable to manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store stair in manufacturer's unopened packaging until ready for installation.

B. Handle stair as recommended by manufacturer to avoid damage to stair and adjacent finishes.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: The Iron Shop, which is located at: 400 Reed Road; Broomall, PA 19008; Toll Free Tel: 800-523-7427; Email: info@theironshop.com; Website: www.theironshop.com

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 STAIR DESIGN

A. Conform to applicable building code for loads applicable to work of this section.

B. Design Loads: Comply with NAAMM AMP 510.
1. Uniform Live Load: 100 lb/sq ft (4.7 kPa).
2. Concentrated Live Load: Minimum 300 lb (1330 N).
3. Maximum Lateral Load to Handrail Without Permanent Set: 200 lbs (890 N).

C. Stair Design:
1. The Iron Shop Spiral Stair Design: _____.
2. Tread Angle: 18 degrees.
3. Tread Angle: 22-1/2 degrees.
4. Tread Angle: 29 degrees.
5. Tread Angle: 30 degrees.
6. Top Landing: 90 degrees.
7. Top Landing: ___ degrees.
8. Nominal Stair Diameter: 42 inches (1,066.8 mm).
9. Nominal Stair Diameter: 48 inches (1,219.2 mm).
10. Nominal Stair Diameter: 54 inches (1,371.6 mm).
11. Nominal Stair Diameter: 60 inches (1,524 mm).
12. Nominal Stair Diameter: 66 inches (1,676.4 mm).
13. Nominal Stair Diameter: 72 inches (1,828.8 mm).
14. Nominal Stair Diameter: 78 inches (1,981.2 mm).
15. Nominal Stair Diameter: 84 inches (2,133.6 mm).
16. Nominal Stair Diameter: 90 inches (2,286 mm).
17. Nominal Stair Diameter: 96 inches (2,438.4 mm).
18. Nominal Stair Diameter: 102 inches (2,590.8 mm).

19. Nominal Stair Diameter: _____inches (_____mm).
20. Floor to Floor Height: _____inches (_____mm).

2.3 STAIR COMPONENTS

A. Center Support Pole: A-500, Gr B 3 inch Schedule 10 steel pipe, 3.5 inch (88.9 mm) outside diameter. See Dimension Table.

B. Center Support Pole: 6061-T6 3 inch Schedule 40 aluminum pipe, 3.5 inch (88.9 mm) outside diameter. See Dimension Table.

C. Treads and Landings: A-1011 12 gauge steel plate, minimum 7/64 inch (2.778 mm).

D. Treads and Landings: 5052-H32 aluminum plate, minimum 3/16 inch (4.762 mm).

E. Tread Collars: Steel or aluminum pipe, tight fitment between collar and center pole, set with (4) 5/16-18 set screws per tread.

F. Railing Spindles: Standard 3/4 inch (19 mm) by 3/4 inch (19 mm) square steel tubing with cast aluminum adjustable top fittings

G. Balusters: Standard 3/4 inch (19 mm) diameter round Aluminum rod formed and milled to fit the curvature of the spiral rail for a clean and neat appearance, and with countersunk holes for mechanical connection of spiral rail.

H. Spiral Handrail: Standard 3003-O cold formed aluminum pipe with 1.25 inch (31.75 mm) outside diameter.

I. Spiral Handrail: Red oak railing, custom profiles ‘A’, ‘B’, or ‘V’, machined and sanded in preparation for field applied finishes in accordance with requirements of Section 09900.

2.4 FABRICATION

A. Fabricate stair to suit adjacent construction with tolerances for installation, including application of joint sealers in joints between stair and adjoining work, in accordance with requirements of Section 07900.

B. Weld structural stair components together, except where bolted or screwed field connections are required. Site welding is not permitted.

C. Weld cantilever, gusset, channel support beams, and other tread supports to tread collars.

D. Aluminum spiral handrails to be continuous and cold formed to match spiral form of stair within specified manufacturer's minimum factory tolerance. Wood spiral rails to be machined and sanded to match spiral form of stair within specified manufacturer's minimum factory tolerances.

E. All stair parts to be inspected prior to shipment to ensure stair construction adheres to specified requirements. On-site assembly to consist of mechanical fastening only. Field welding of components will not be accepted.

2.5 FINISHES

A. General: Apply factory finishes to all steel surfaces, including mounting hardware and integral structural members, after stair has been assembled. Remove scratches and blemishes from surfaces that will be exposed after installation and refinish as necessary.

B. Surface Preparation: Pretreat metal surfaces with a multi-stage cleaning, pretreatment, and chemical conversion coating, in strict accordance with coating

manufacturer's recommendations.

C. All steel parts to be chemically cleaned and apply one coat of water-based rust inhibitive green primer to all steel parts, using applicators licensed by coating manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field measurements are acceptable to suit stair assembly tolerances.

B. Do not begin installation of stair until field conditions are acceptable. Do not field cut or otherwise modify stair components.

3.2 INSTALLATION

A. Install stair assembly in accordance with manufacturer's instructions.

B. Install stair to be plumb, level, and true, properly aligned with adjacent work. Rigidly secure with clips, bolts, and anchors as required.

C. Application of field coatings is specified in Section 09900.

3.3 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged components before Substantial Completion.

END OF SECTION