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This MANU-SPEC® utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*™, *SectionFormat*™ and *PageFormat*™. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []; delete optional text in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies Curved Cold-Formed Steel Framing Products as manufactured by Radius Track Corp. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

SECTION 05 10 00
STRUCTURAL METAL FRAMING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: This Section specifies Curved Cold-Formed Steel Framing Products, including:
 - 1. Custom curved steel framing for curved walls, vaults, domes, arches, barrel arches and curved headers.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI *MasterFormat* and specifier's practice.

1.02 RELATED SECTIONS

Specifier Note: Include in this Article only those sections that directly affect the work of this section. Do not include Division 00 or Division 01 sections since it is assumed that all technical sections are related to all project Division 00 and Division 01 sections to some degree.

- A. Section [09 20 00 - Plaster and Gypsum Board] [_____].
- B. Section [09 70 00 - Wall Finishes] [_____].

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Contract Conditions or Section 01 42 19 - Reference Standards may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section. Retain only those reference standards to be used within the text of this Section. Add and delete as required for specific project.

1.03 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM C754 Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.



Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Contract Conditions and Section 01 33 00 - Submittal Procedures.

1.04 ACTION SUBMITTALS

- A. General: Submit listed submittals in accordance with Contract Conditions and Section [01 33 00 - Submittal Procedures] [_____].
- B. Product Data: Submit manufacturer's product data and installation instructions for each product. Include the following information as requested:
 - 1. Material.
 - 2. Finish.
 - 3. System components.
 - 4. Manufacturer's SPEC-DATA® product sheet.
- C. Shop Drawings:
 - 1. Submit dimensioned drawings with placement details. Include the following information:
 - a. Framing layout.
 - b. Components.
 - c. Anchorage.
 - d. Accessories.

1.05 INFORMATION SUBMITTALS

- A. Quality Assurance:
 - 1. Manufacturer's Instructions: Manufacturer's installation instructions as applicable.

1.06 CLOSEOUT SUBMITTALS

- A. Closeout Submittals: Submit the following:
 - 1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Section [01 78 00 - Closeout Submittals] [_____]. Include:
 - a. Methods for maintaining installed products.

1.07 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
 - 2. Manufacturer Qualifications: Company with sufficient capacity to produce and deliver required materials without causing delay in work.

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Contract Conditions and Section 01 41 00 - Regulatory Requirements. Repetitive statements should be avoided.

- B. Regulatory Requirements:
 - 1. In accordance with Section [01 41 00 - Regulatory Requirements] [_____].
 - 2. In accordance with ICBO, federal, state and local municipal code requirements.
- C. Preinstallation Meetings: Conduct preinstallation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section [01 31 19 - Project Meetings] [_____].

1.08 DELIVERY, STORAGE & HANDLING

- A. General: Comply with [01 61 00 - Common Product Requirements] [_____].
- B. Ordering:

1. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery, Storage and Protection:
 1. Deliver, store and handle in accordance with Section [01 61 00 - Common Product Requirements] [_____].
 2. Verify components are bundled, banded and delivered on pallets.
 3. Unpack and inspect metal products. Report damage immediately.
 4. Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
- D. Waste Management and Disposal:

Specifier Note: Environment: The disposal of packaging waste into landfill sites demonstrates an inefficient use of natural resources and consumes valuable landfill space. Specifying appropriate packaging and construction waste management and disposal procedures may contribute to points required for LEED construction project certification.

1. Separate waste materials for [Reuse] [And] [Recycling] [_____] in accordance with Section [01 74 19 - Construction Waste Management and Disposal] [_____].
2. Remove packaging materials from site and dispose of at appropriate recycling facilities.
3. Collect and separate for disposal [Paper] [Plastic] [Polystyrene] [Corrugated cardboard] [_____] packaging material [In appropriate onsite bins] [_____] for recycling.

Specifier Note: Coordinate article below with Contract Conditions and with Section 01 78 36 - Warranties.

1.09 WARRANTY

- A. Project Warranty: Refer to Contract Conditions and Section [01 78 36 - Warranties] [_____] for project warranty provisions.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Ensure manufacturer has minimum [5] [_____] years experience in manufacturing.

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.02 CURVED COLD-FORMED STEEL FRAMING PRODUCTS

- A. Radius Track Corp.
 1. Contact: 9320 Evergreen Blvd. N.W., Suite G, Minneapolis, MN 55433; Telephone: (888) 872-3487, (763) 795-8885; Fax: (763) 795-8884; E-mail: info@radiustrack.com; website: www.radiustrack.com.
- B. Proprietary Products/Systems:
 1. Pre-Curved Cold-Formed Steel Framing Components:

Specifier Note: Repeat the following article when more than one type of framing component is required for project.

- a. Materials: Steel to ASTM A653/A653M.

Specifier Note: Custom components can be created using varied types of materials (track, studs, hat-channel, CRC, angle). Complex surface framing components can be generated in virtually any shape or size.

Specifier Note: Pre-curved components are available in lengths needed to meet most project requirements. Consult Radius Track Corp. for project-specific length availability.

- b. Shape and Size: [Standard bend] [Curve - Leg in] [Curve - Leg out] [Curved angle - Leg in] [Curved angle - Leg out] [Custom], Length [__ feet (__m)], Radius [__ feet (__m)].
 - 1) Studs: Rolled steel, channel shaped, punched for utility access or unpunched.

- a) Core Material Thickness: [14 gauge (1.98 mm)] [16 gauge (1.59 mm)] [18 gauge (1.3 mm)] [20 gauge (0 mm)] [22 gauge (0.79 mm)] [25 gauge (0.56 mm)].
 - b) Material Web Width: [1 5/8 inches (41.3 mm)] [2 1/2 inches (63.5 mm)] [3 5/8 inches (92.1 mm)] [4 inches (101.6 mm)] [6 inches (152.4 mm)] [8 inches (203 mm)] [10 inches (254 mm)] [12 inches (4.8 mm)] [__ inches (__mm)].
- 2) Track/Runners: Same width, gauge, material and finish as studs, channel shaped, unpunched.
 - 3) Slotted Track/Runners: Same width, gauge, material and finish as studs, channel shaped, unpunched.

Specifier Note: Compound and/or complex curved steel profiles can be created where surfaces require framing members to be shaped in more than one dimensional direction. Consult Radius Track to discuss project requirements.

2. Complex Surfaces Framing Kits: [_____].

Specifier Note: Structural dome framing kits and in-fill dome framing kits are available depending on dome diameter and height profile.

3. Structural Dome Framing Kits: Diameter [__ feet (__m)] Height [__ feet (__m)].
4. In-Fill Dome Framing Kits: Diameter [__ feet (__m)] Height [__ feet (__m)].

Specifier Note: Pre-cut plywood is an optional roofing sub-laminate for structural dome framing kits. Refer to Radius Track Corp.'s First Source Manufacturer Profile and select the Dome Packet Catalog to learn more regarding the pre-cut plywood option, which is designed to match the exact framing member dome design.

5. Pre-Cut Plywood: [_____].

Specifier Note: Structural curved steel headers and structural curved steel beams are available. Refer to Radius Track Corp.'s First Source Manufacturer Profile and select First Source CAD to view drawings illustrating header and beam component design.

6. Structural Curved Header: Length [__ feet (__m)].
7. Structural Curved Beam: Length [__ feet (__m)].
8. Accessories:
 - a. Anchors and Fasteners: Type recommended by framing manufacturer to suit project conditions - galvanized or corrosion resistant coated steel.

2.03 FABRICATION

- A. Custom form components with compound indents at regular intervals to permit curving to arcs and radii indicated on drawings.
- B. Fabrication Tolerances: Plus or minus 1/8 inch (3.2 mm) of required arcs.

2.04 SOURCE QUALITY CONTROL

- A. Ensure Curved Cold-Formed Steel Framing Products are from single manufacturer.

Specifier Note: Edit paragraph below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Section 01 25 13 - Product Substitution Procedures.

2.05 PRODUCT SUBSTITUTIONS

- A. Substitutions: [In accordance with Section 01 25 13 - Product Substitution Procedures] [_____] [No substitutions permitted].

PART 3 EXECUTION

3.01 INSTALLERS

- A. Provide experienced and qualified technicians to carry out installation of Curved Cold-Formed Steel Framing Products.

3.02 MANUFACTURER'S INSTRUCTIONS

Specifier Note: Article below is an addition to the CSI *SectionFormat* and a supplement to MANU-SPEC. Revise article below to suit project requirements and specifier's practice.

- A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and Radius Track Corp.'s SPEC-DATA® sheets.

3.03 EXAMINATION

- A. Site Verification of Conditions:
1. Verify that site conditions are acceptable for installation.
 2. Correct unsatisfactory conditions prior to installation.

3.04 PREPARATION

- A. Coordinate installation of Radius Track Corp. products with other construction trades.

3.05 INSTALLATION

- A. Install in accordance with ASTM C754, manufacturer's instructions and approved Shop Drawings.
- B. Curved Walls:
1. Attach top and bottom runner channels at ends to maximum 24 inches (610 mm) on center.
 2. Position studs vertically in runners, spaced maximum [16 inches (406.4 mm)] [24 inches (610 mm)] [__ inches (____ mm)] on center.
 3. Locate studs maximum [2 inches (50.4 mm)] [__ inches (____ mm)] from door frames and abutting construction.
 4. Use double studs on both sides of openings in partitions.
 5. Install horizontal runner as header above openings in partitions. Install studs from header to top runner.
 6. Screw attach components at intersections.
- C. Barrel Vaults:
1. Install curved stud components spanning width of vault.
 2. Space studs maximum [32 inches (813 mm)] [48 inches (1220 mm)] [__ inches (____ mm)] on center.
 3. Install hat channels longitudinally, spaced maximum [12 inches (305 mm)] [16 inches (406.4 mm)] [24 inches (610 mm)] [__ inches (____ mm)] on center.
 4. Screw attach components at intersections.
- D. Simple Vaults:
1. Install curved stud components spanning width of vault.
 2. Space studs maximum [16 inches (406.4 mm)] [24 inches (610 mm)] [__ inches (____ mm)] on center.
 3. Screw attach components at intersections.
- E. Domes:

Specifier Note: A continuous rolled beam or tube is the recommended surface for mounting Radius Track Corp. structural domes. Other acceptable mounting surfaces include 3000 psi concrete to 3 inches (76 mm) minimum thickness or minimum 18 gauge (1.3 mm) thick steel decking.

1. Mount Radius Track Corp. structural domes to [Continuous rolled beam or tube] [3000 psi (20.7 MPa) concrete to 3 inches (76 mm) minimum thickness] [Minimum 18 gauge (1.3 mm) steel decking].
2. Install stud ribs and curved track headers for arch length.
3. Space studs maximum [16 inches (406.4 mm)] [24 inches (610 mm)] [__ inches (____ mm)] on center.
4. Screw attach components at intersections.

F. Arches:

1. Install curved track and straight stud components assembled into curved load-bearing box beams and arches as indicated.
2. Space studs maximum [16 inches (406.4 mm)] [24 inches (610 mm)] [__ inches (____ mm)] on center.
3. Screw attach components at intersections, both sides.

3.06 FINAL CLEANING

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- A. Proceed in accordance with Section [01 74 23 - Final Cleaning] [_____].
 - B. On completion and verification of installation, remove surplus materials, rubbish, tools and equipment.

3.07 PROTECTION

Specifier Note: Coordinate the following Article with Section 01 76 00 - Protecting Installed Construction.

- A. Protect installed product from damage during construction in accordance with Section [01 76 00 - Protecting Installed Construction] [_____].

END OF SECTION