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**SECTION 05 51 00 - METAL STAIRS**

1. **GENERAL**
   1. SUBMITTALS
      1. Action Submittals:
         1. Shop Drawings: Illustrate products, installation, and relationship to adjacent construction.
      2. Informational Submittals:
         1. Certificate of Compliance: Certification that installed products meet specified design requirements.
   2. SYSTEM DESCRIPTION
      1. Design Requirements:

Standard Redi Treads are engineered to withstand 100 PSF uniform and 300 PSF concentrated loads as required by most building codes. Edit the following if different loading is required.

* + - 1. Design stair assembly to support a uniform live load of [100] [\_\_] PSF and a concentrated load of [300] [\_\_] pounds, with maximum deflection of L/240.
      2. Design guard rails and handrails to resist following without damage or permanent set:
         1. [50] [\_\_] pounds per linear foot applied in any direction at top, transferred via attachments and supports to building structure.
         2. Concentrated [200] [\_\_] pound load applied in any direction at any point along top, transferred via attachments and supports to building structure.
         3. Maximum deflection under loading: [L/120.] [\_\_.]
  1. QUALITY ASSURANCE
     1. Precast Concrete Tread Manufacturer Qualifications: Minimum 5 years’ experience in work of this Section.
     2. Installer Qualifications: Minimum [2] [\_\_] years’ experience in work of this Section.
     3. System design to be performed by Professional Structural Engineer licensed in State in which Project is located.
     4. Perform Work in accordance with ASTM E985.

Stair classifications are based on tolerances, welding, and other factors that primarily affect the stair’s aesthetics, with Industrial being the least restrictive and Architectural being the most restrictive. Most stairs in office building exits and similar locations are fabricated to Commercial Class. Architectural Class is typically used for exposed monumental stairs.

* + 1. Fabricate stair assembly to NAAMM AMP 510, [Industrial] [Service] [Commercial] [Architectural] Class.
    2. Fabricate guard rails and handrails in accordance with ASTM E985.

1. **PRODUCTS**
   1. MANUFACTURER – PRECAST CONCRETE TREADS
      1. Contract Documents are based on products by National Redi Tread. [www.nationalreditread.com](http://www.nationalreditread.com)
      2. Substitutions: Refer to Division 01.
   2. MATERIALS - STEEL
      1. Shapes: ASTM A36/A36M.
      2. Plate: ASTM A283.
      3. Pipe: ASTM A501.
      4. Tube: ASTM A500.
   3. MATERIALS – PRECAST CONCRETE TREADS

* + 1. Description: Reinforced, engineered, precast concrete, reinforced with honeycomb core, wet cast using 10,500 PSI concrete consisting of aggregate, silica, and Type II Portland cement.

Redi Treads are available in widths from 36 to 120 inches.

* + 1. Size: 11-5/8 inches deep x 1-1/2 inches thick x [[\_\_] wide.] [width as indicated on Drawings.]
    2. Nosing: [Concrete edge.] [2 inch wide aluminum edge with 1 inch photoluminescent strip.] [1-7/8 inch wide aluminum edge with 1 inch photoluminescent strip.] [Embedded 3 inch wide aluminum edge with 1 inch photoluminescent strip and 1.5 inch black traction strip.]
    3. Finish: Sand and epoxy coating, clear.
    4. Edge Profile: 4 degree angle.
  1. ACCESSORIES

Support pans consist of an integral tread and riser formed from steel or galvanized steel sheet that support the precast concrete treads and create closed risers. 14 gage support pans are suitable for stairs up to 48 inches wide; 12 or 10 gage treads will be required for stairs over 48 inches in width.

* + 1. Support Pan: Minimum 14 gage [steel] [G90 galvanized steel] formed to support precast concrete treads and provide closed risers.
    2. Adhesive: Type recommended by tread manufacturer.
  1. FABRICATION
     1. Fabricate stairs in accordance with approved Shop Drawings.
     2. Stringers: Fabricate from steel [channels.] [plates.] [clips.]
     3. Guard Rails and Handrails: Fabricate from steel [pipe] [or] [tube] stock.
  2. FINISHES
     1. [Exterior] Ferrous Metal: Galvanized; ASTM A123/A123M, to [1.3] [2.0] ounces per square foot.
     2. [Interior] Ferrous Metal:
        1. Shop painted except steel to be encased in concrete and surfaces to be welded.

SP2 and SPC are often used when the surface will receive standard paint systems. SP6 is typically required for surfaces to receive high-performance coatings.

* + - 1. Surface preparation: SSPC [SP2 - Hand Tool Cleaning or SP3 - Power Tool Cleaning.] [SP6 - Commercial Blast Cleaning.]

1. **EXECUTION**
   1. INSTALLATION
      1. Install stairs in accordance with approved Shop Drawings.
      2. Secure support pans to stringers with bolt clips.
      3. Secure precast concrete treads to support pans with adhesive.
      4. Attach precast treads to supports with adhesive.

END OF SECTION