

**SECTION 09 65 13**  
**RESILIENT STAIR TREADS**

CSI 3-PART **LONG-FORM** GUIDE SPECIFICATION  
USE FOR CONTRACT DOCUMENT (CD) SPECIFICATION ISSUES  
EDIT TO SUIT PROJECT

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Work of this Section consists of resilient stair treads and accessories including, but not limited to:
1. C.I. Takiron **Stair Treads**
  2. Accessories
    - a. Adhesives
    - b. Nose caulk
    - c. Cleaning solutions
    - d. Finish top coatings
- B. Related Documents and Sections: Examine Contract Documents for requirements that directly affect or are affected by Work of this Section. A list of those Documents and Sections include, but is not limited to, the following:
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and DIVISION 01 General Requirements, Specification Sections, apply to this Section.
  2. SECTION 033000, CAST-IN-PLACE CONCRETE: For proper concrete design, underslab vapor barrier and finished concrete surface required to accept vinyl stair treads (VST) and sheet vinyl flooring (SVF)
  3. SECTION 035416, HYDRAULIC CEMENT UNDERLAYMENT: For leveling of existing concrete slabs.
  4. SECTION 061000, ROUGH CARPENTRY: For proper wood-based panel underlayment required to accept installation of sheet vinyl flooring (SVF).
  5. SECTION 079200, JOINT SEALERS: For exposed movement joints.
  6. SECTION 079513, EXPANSION JOINT COVER ASSEMBLIES: For expansion joint assembly penetrating through sheet vinyl flooring (SVF).
  7. SECTION 096513, RESILIENT BASE AND ACCESSORIES: For wall base, and expansion joint trim between sheet vinyl flooring (SVF) and other flooring surfaces.

**NOTE: Edit Abbreviations, Acronyms, Definitions, and References below to suit project.**

**1.2 REFERENCES**

**NOTE: Coordinate and edit to the correct Section number below. The numbers shown indicate relevant broad-scope, medium-scope, and narrow-scope numbers of the CSI MasterFormat® system.**

- A. Abbreviations and Acronyms per SECTION 011000, SECTION 014000, and as follows:
1. AHJ. Authority Having Jurisdiction from local, state and federal regulatory agencies.
  2. Per. In accordance with
  3. RH. Relative humidity.
  4. SCOF. Static Coefficient of Friction
  5. VST. Stair Tread
  6. SVF. Sheet Vinyl Flooring

**NOTE: Definitions are included here as an educational tool, but are not required for the final specification issue. Delete if desired.**

- B. Definitions per SECTION 011000, SECTION 014000, and as follows:
1. HAP. Hazardous Air Pollutant
  2. Resilient: The property of an elastic material to recover its shape after it is deformed under loading and then unloaded.
  3. VST. Stair Treads are produced by a press molding process in which a layer of PVC compound (PVC resin with plasticizers and other additives such as fungicides) is applied over a backing material.
  4. SVF. Sheet Vinyl Flooring is produced by a rolled “calendering” process in which a layer of PVC compound (PVC resin with plasticizers and other additives such as fungicides) is applied over a backing material.
  5. VOC. Volatile Organic Compounds are chemical compounds that have a high vapor pressure and low water solubility.
- C. Referenced Standards per SECTION 014000 and as follows:
1. ANSI. American National Standards Institute; [www.ansi.org](http://www.ansi.org)
  2. ASTM. ASTM International; [www.astm.org](http://www.astm.org)
    - a. Practices:
      - 1). ASTM F710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
      - 2). ASTM F1482, Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring
      - 3). ASTM F1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
      - 4). ASTM F2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
    - b. Specifications:
      - 1). ASTM F2169, Standard Specification for Resilient Stair Treads
    - c. Terminology:
      - 1). ASTM F141, Standard Terminology Relating to Resilient Floor Coverings
    - d. Test Methods – Performance:
      - 1). ASTM D2047, Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine
      - 2). ASTM D5116, Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products
      - 3). ASTM E648, Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
      - 4). ASTM E662, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
      - 5). ASTM E2179, Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors (IIC)
      - 6). ASTM F925, Standard Test Method for Resistance to Chemicals of Resilient Flooring
      - 7). ASTM F970, Standard Test Method for Static Load Limit

- 8). ASTM F1514, Standard Test Method for Measuring Heat Stability of Resilient Vinyl Flooring by Color Change.
  - 9). ASTM F1515, Standard Test Method for Measuring Light Stability of Resilient Vinyl Flooring by Color Change
  - 10). ASTM F1914, Standard Test Method for Short-Term Indentation and Residual Indentation of Resilient Floor Covering
- e. Test Methods – Products and Materials:
- 1). ASTM F137, Standard Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus
  - 2). ASTM F386, Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces
  - 3). ASTM F410, Standard Test Method for Wear Layer Thickness of Resilient Floor Coverings by Optical Measurement
3. NFPA. National Fire Protection Association; [www.nfpa.org](http://www.nfpa.org)
    - a. NFPA 253, Standard Method of Test for Critical Radiant Flux for Floor Covering Systems Using a Radiant Energy Source.
  4. RFCI. Resilient Floor Covering Institute; [www.rfci.com](http://www.rfci.com)
    - a. Recommended Work Practices for Removal of Resilient Floor Coverings
  5. Takiron Flooring Technical Documents
    - a. [Material Handling & Subfloor Preparation Guide](#)
    - b. [Installation Guide](#)
    - c. [Tech Data Sheet](#)
    - d. [Maintenance Guide](#)

### 1.3 ADMINISTRATIVE REQUIREMENTS

NOTE: Coordinate and edit to the correct Section number below.

- A. Coordination per SECTION 013000 or 013100, and as follows:
1. Coordinate expansion joint system installation prior to installing resilient sheet flooring. Refer to SECTION 079200 and SECTION 079500, 079510 or 079513.

RED NOTE: Specifier to closely coordinate applicable sections between concrete and other subfloor finishes with floor covering.

2. Coordinate concrete topping finish per SECTION 035400 or 035416.

NOTE: Coordinate and edit to the correct Section number below.

- B. Preinstallation Meetings per SECTION 013000 or 013100 and as follows:
1. Meeting purpose is to review site conditions, installation procedures, schedules, coordination with other work, and warranty requirements.

NOTE: Coordinate and edit to the correct Section number below.

- C. Sequencing: Per SECTION 010000 or 011100.

NOTE: Coordinate and edit to the correct Section number below.

- D. Scheduling: Per Section 010000 or 011100, and SECTION 013000 or 013200.

### 1.4 SUBMITTALS

NOTE: Coordinate and edit to the correct Section number below.

- A. Product Data per SECTION 013000 or 013300 and as follows: Submit manufacturer's printed descriptions of materials, components and systems, performance criteria, use limitations, recommendations, installation information, and the following:

1. Typical section details indicating each specified system on proposed substrates and transitions to other flooring systems.
2. Sections indicating flooring system abutting walls.
3. Typical plan views of various layout patterns.

NOTE: Coordinate and edit to the correct Section number below.

- B. Shop Drawings per SECTION 013000 or 013300 and as follows: Submit keyed location plans, plans indicating resilient sheet flooring type, layout, pattern direction, edge transitions, columns, doorways, enclosing partitions, built-in furniture, cabinets, cutouts, expansion and control joints, and attachment requirements.

NOTE: Coordinate and edit to the correct Section number below.

- C. Samples per SECTION 013000 or 013300 and as follows:
1. Initial for Selection: Submit printed color charts, sample chains or Architectural Binder indicating manufacturer's complete range to determine color, texture, shape, and/or composition for each type of material finish.
  2. Final Selection: Submit two (2) 4" samples of each different type, color and pattern selected for acceptance.
- D. Quality Assurance Submittals per SECTION 014000 and as follows:
1. Test and Evaluation Reports: Submit certified test results by a recognized testing laboratory in accordance with specified test methods for each product and/or system indicating physical, chemical and performance characteristics.

NOTE: Edit LEED Requirements below to suit project.

- E. Sustainable Design (USGBC LEED®) Submittals: Submit the following in accordance with the requirements of SECTION 018113, LEED REQUIREMENTS:
1. LEED Credit MR, Materials & Resources. Submit completed LEED 2009-NC v.3 Submittal Templates, and other required paperwork as follows:
    - a. MR 4.1: Recycled Content: 10 Percent (post-consumer + 1/2 pre-consumer)
      - 1). Submit product data indicating percentage by weight of recycled content with a statement indicating costs for each.
    - b. MR 6: Rapidly Renewable Materials: 2.5 percent of the total value of the building materials in the project.
      - 1). Submit the product name, material manufacturer, total product cost for each tracked material, total product cost for each tracked material, percentage of product by weight, for each material that meets the rapidly renewable criteria.
  2. LEED Credit EQ, Indoor Environmental Quality. Submit completed LEED 2009-NC v.3 Submittal Templates and required paperwork as follows:
    - a. EQ 4.1: Low Emitting Materials, Adhesives & Sealants, VOC Data
      - 1). Submit manufacturers' product data for construction adhesives and sealants, including printed statement of VOC content and MSDS Sheets.
    - b. IEQ 4.3: Low Emitting Materials, Carpet and Resilient Flooring Systems
      - 1). Submit manufacturer's product data for systems that includes printed statement of VOC content.

NOTE: Coordinate and edit to the correct Section number below.

- F. Closeout Submittals per SECTION 017000 or 017800, unless noted otherwise.
1. Operation and Maintenance Data: Including, but not limited to, methods for maintaining installed products and precautions against cleaning materials with methods detrimental to finishes and performance.

2. Executed Warranty Documentation: Manufacturers' material warranties and installers workmanship warranty.
3. Record Documents: Drawings, Specifications, and Product Data.

NOTE: Edit LEED Requirements below to suit project.

4. Sustainable Design Closeout Documentation: Submit completed USGBC LEED® Submittal Worksheet Templates for the following credits:
  - a. MR 4.1
  - b. EQ 4.1, EQ 4.3

NOTE: Edit percentage below to suit scope of project.

- G. Maintenance Material Submittals - Extra Materials: Submit no less than five (5) percent additional of each type and pattern of stair tread used.

#### 1.5 QUALITY ASSURANCE

##### A. Regulatory Requirements

1. Fire-Test-Response Characteristics: As determined by testing identical products as follows by a qualified testing agency.
  - a. ASTM E648: Critical Radiant Flux Classification: Class I
  - b. ASTM E662: Smoke Density: 450 or less

##### B. Qualifications:

1. Manufacturer: A company with a minimum ten (10) years' experience in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance. A single source manufacturer supplying both product and adhesive.
  - a. Company shall be ISO 9001 Certified.
  - b. Company shall be ISO 14001 Certified.
2. Installer / Applicator: Perform installation with skilled, experienced, and trained workmen with demonstrated ability to install Takiron products supervised by trained personnel who shall have a minimum three (3) years successful experience in installations of similar size and scope.
3. Testing Agency: An independent testing agency with the experience and capability to conduct the testing indicated, meeting requirements of ISO/IEC Standard 17025 or ASTM E699 and ASTM E329.

##### C. Source Limitations: Obtain primary resilient stair treads through one source from a single manufacturer.

1. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

##### A. Delivery, Storage and Handling per industry and manufacturer guidelines, SECTION 016000, and as follows:

1. Delivery and Acceptance Requirements
  - a. Deliver materials to Project site in an undamaged condition, in original unopened rolls or other packaging bearing manufacturer's intact label, names, brand names, types and sizes of contents, and proper handling, storing, unpacking, protecting, and installation instructions, as warranted.
  - b. Inspect shipped materials on delivery to ensure compliance with requirements of Contract Documents and to ensure that products are undamaged and properly protected.

- 1). Document and report damaged goods at time of delivery. Accept properly ordered, protected and undamaged goods. [Material Handling & Subfloor Preparation Guide](#).
2. Storage and Handling Requirements
  - a. Store materials in a dry, temperature-controlled interior area at 65-80 deg F (18-27 deg C). Avoid exposure to temperature extremes. Protect materials from damage from improper handling, and the action of other trades.
    - 1). Store treads in supplied cartons lying flat on a cool, dry, flat, substrate. Never bend or store cartons upright.
3. Packaging Waste Management
  - a. Request that manufacturers, suppliers and shippers provide least amount of packaging that adequately and properly protects, supports and contains the items shipped, and is reusable, returnable or recyclable.

#### 1.7 WARRANTY

- A. Manufacturer Warranty. Provide manufacturer's limited warranty to be free from defects in material and workmanship, under normal use and service, to repair or replace all defective sheet flooring.
  1. Warranty Period: Five (5) year limited warranty from the date of CBC invoice. Warranty to include reasonable labor. [Product Warranty](#)

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURER

- A. Manufacturers List: Subject to compliance with requirements, provide products by one of the following:
  1. C.I. TAKIRON, a flooring manufacturer represented by CBC AMERICA LLC, 2000 Regency Parkway, Cary, NC 27518; Telephone: 919.230.8700; E-mail: [technical@cbcflooring.com](mailto:technical@cbcflooring.com); website: [www.cbcflooring.com](http://www.cbcflooring.com)
  2. Substitution Limitations: No substitutions permitted because of the specific attributes listed in sections 2.2, 2.3 and 2.4
- B. Product Options
  1. Flooring Type: **TAKIRON Stair Treads**
    - a. **TAKIRON Stair Treads:** Class I per ASTM E648
      - 1). A. Size: 4' x 19.69" by 0.100 inches (1220 mm x 500 mm x 2.5mm)
      - B. Size: 6' x 19.69" by 0.100 inches (1828 mm x 500 mm x 2.5mm)
    - 2). Color and Pattern: The [Collection](#)
  2. Accessories
    - a. Underlayment leveling compound per SECTION 035416
    - b. Expansion joints per SECTIONS 079200 and 079513
    - c. Interior & Non-Wet Area
      - 1). CBC 5001 High Performance Resilient Flooring Adhesive
      - 2). CBC Opti Tape Site applied tape adhesive
    - d. Wet Area & Exterior Adhesive
      - 1). CBC 951 2-Part Epoxy Floor Covering Adhesive for Indoor (wet area) and Outdoor Installations
    - e. Wet Area and Exterior Accessory
      - 1). Edge Sealer Henkel Terostat MS939 Sealant or equivalent for Indoor (wet area) and Outdoor Installations

- f. [Cleaning products](#)
- g. Takiron Welding Rod to match

## 2.2 DESCRIPTION

**NOTE: Select one of the following two descriptions, deleting the one not chosen.**

- A. TAKIRON **STAIR TREADS** per ASTM F2169 are Type TV, Class 2, Group 2, Nosing Style 3 (Square Nose with Integral Riser), inlaid embossed slip-resistant commercial stair treads.
- B. **Sustainability Characteristics**
  - 1. **USGBC LEED Rating:** Comply with project requirements intended to achieve the following Rating, as measured and documented according to the USGBC LEED® Green Building Rating System, Version indicated:

**NOTE: Each LEED Version requires a different credit total to achieve the desired LEED Rating.**  
**NOTE. Select one of the following Ratings:**

- a. Rating: Certified
- b. Rating: Silver
- c. Rating: Gold
- d. Rating: Platinum
- 2. **Applicable LEED Credits:** Performance requirements of the following LEED Categories and Credits apply to this Section and are met as follows:
  - a. **Materials & Resources (MR):**
    - 1). **MR 4.1: Recycled Content: 10 Percent** (post-consumer + 1/2 pre-consumer
      - a). Takiron Stair Treads contains 4.0% post-consumer and 6.0% pre-consumer, for a 7% calculated recycled content.
      - b). CBC 5001 adhesive comes packaged in a recyclable plastic pail.
    - 2). **MR Credit 6, Rapidly Renewable Materials**
  - b. **Indoor Environmental Quality (EQ):**
    - 1). **EQ Credit 4.1, Low-Emitting Materials: Adhesives and Sealants:** as applied to CBC 5001 acrylic, CBC 800 epoxy nose caulk, CBC OPTI Tape and CBC 951 Epoxy adhesives.
      - a). Acrylic Adhesive - CBC 5001 VOC: 0 g/L
      - b). Tape Adhesive – CBC OPTI Tape VOC: 0 g/L
      - c). Epoxy Adhesive – CBC 951 VOC: 0 g/L
      - d). Epoxy Nose Caulk- CBC 800 VOC: 0 g/L
    - 2). **EQ Credit 4.3, Low-Emitting Materials: Carpet and Resilient Flooring Systems**
      - a). Takiron Stair Treads certified low-emitting: MAS Laboratory Certified Green® in accordance with California DHS Section 01350. Passes.

## 2.3 PERFORMANCE / DESIGN CRITERIA

- A. **Performance Capacities – TAKIRON Stair Treads**
  - 1. Average Thickness per ASTM F386: Pass - 0.100" ± 0.005' (2.4mm ± 2.6mm)
  - 2. Static Load Limit per ASTM F970: 600 psi ≤ 0.005" residual indentation
  - 3. Critical Radiant Flux per ASTM E648: Class I ≥ 0.45 Watts/cm<sup>2</sup>
  - 4. Heat Resistance per ASTM F1514: Pass; Max. avg. Delta E ≤ 1
  - 5. Light Resistance per ASTM F1515: Pass; Max. avg. Delta E ≤ 1
  - 6. Flexibility per ASTM F137: Pass; 1/4 inch (6.4mm) Mandrel

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- |                                       |                                  |
|---------------------------------------|----------------------------------|
| 7. Chemical Resistance per ASTM F925: | Pass                             |
| 8. TVOC Emissions per ASTM D5116:     | Pass; CA Section 01350 Compliant |
| 9. Slip Resistance per ASTM D2047:    | ≥ 0.8 ADA Compliant              |
| 10. Hardness per ASTM D2240:          | Grade 2 (70 – 85)                |

2.4 MATERIALS

- A. Takiron **Stair Treads** per ASTM F 2169 “Standard Specification for Resilient Stair Treads” are Type TV, Class 2, Group 2, Nosing Style 3 (Square Nose with Integral Riser), inlaid embossed slip-resistant commercial stair treads.
1. Composition: Stair treads press molded under heat and pressure from a PVC layer formulated from polyvinyl esters and inorganic fillers materials, with a backing material of recycled PVC and virgin PVC from polyvinyl esters and inorganic filler materials.
  2. Thickness: 0.100 inches (2.5 mm)
    - a. Size: 4’ x 19.69” by 0.100 inches (1220 mm x 500 mm x 2.5 mm)
    - b. Size: 6’ x 19.69” by 0.100 inches (1828 mm x 500 mm x 2.5 mm)
  3. Color and Pattern - TAKIRON **Stair Treads**: As selected by Architect from [Manufacturer’s Standard Collection](#).

2.5 ACCESSORIES

- A. Leveling and Patching Compound: Trowelable, latex-modified Portland cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Expansion Joints: Refer to SECTION 079200 and SECTION 079500 or 079513.

NOTE: Select one of the following adhesive types, deleting that not chosen.

NOTE: Select CBC 951 Epoxy adhesive for all exterior installations or when expecting floors to be frequently washed or wet, or floors installed in extremely hot, cold or wet spaces, such as near outside entrances or freezer cases, or floors subject to heavy loads, including hospital beds, heavy carts, pallet jacks, rolling chairs, etc.

CBC 5001 and CBC OPTI Tape adhesives are suitable for indoor dry area applications.

- C. Adhesive - Acrylic: Solvent-free, low odor, acrylic based, high tack type adhesive acceptable to resilient sheet flooring manufacturer to suit flooring product and substrate conditions indicated. (indoor non-wet applications only)
1. Manufacturer / Product: CBC 5001 HP Resilient Floor Adhesive
- D. Adhesive-Site Applied Tape system recommended for all interior installations over porous and non-porous substrates when used with edge sealer.
1. Manufacturer / Product: CBC OPTI Tape site applied tape adhesive for Indoor Installations
- E. Adhesive – Heavy Duty Epoxy: 2-part solvent-free, low odor, flooring epoxy adhesive recommended for all exterior and wet area installations over porous and non-porous substrates.
1. Manufacturer / Product: CBC 951 2-Part Epoxy Floor Covering Adhesive for Indoor and Outdoor Installations
- F. Nose Caulk- Heavy Duty Epoxy: 2-part solvent-free, low odor, nose caulk required for all installations.
1. Manufacturer / Product: CBC 800 2-Part Epoxy Nose Caulk for all Installations

RED NOTE: Use of Non-CBC adhesives with TAKIRON sheet vinyl products will void TAKIRON Warranty adhesion claims.

- G. Edge Sealing- Recommended for all exterior and wet area non-clamped edges



1. Manufacturer / Product: Henkel Terostat MS939 or equivalent sealant for Indoor wet area and all Outdoor Installations
- H. Adhesive Equipment: “V” notched professional adhesive application trowel for interior applications.
  1. V-notch 1/16’ x 1/16” x 1/16” (1.59mm x 1.59mm x 1.59mm).
  2. Dual cartridge nose caulk gun.
- I. Floor Cleaning Systems: Clean as recommended by flooring manufacturer’s [Maintenance Product Guide](#)

### PART 3 - EXECUTION

#### 3.1 FIELD CONDITIONS

- A. Conditions and Measurements: Visit jobsite to verify installation conditions and floor measurements.

**NOTE: Coordinate and edit to the correct Section number below.**

- B. Ambient Conditions per most recent published written manufacturer’s recommendations, SECTION 017000 or 017100 or 017116, and as follows:
  1. New concrete slabs shall be flat, clean and dry meeting each moisture test, passing manufacturer’s most recent published written requirements. [Material Handling & Subfloor Preparation Guide](#).
  2. Acclimate product to installation location.
    - a. Deliver materials to jobsite room in which it will be installed 48 hours before installation.
    - b. Maintain Temperature: Minimum 65 deg F (18 deg C), and maximum 80 deg F (27 deg C) for forty-eight (48) hours prior to, during and after installation.
      - 1). Thereafter, maintain minimum temperature of 50 deg F (10 deg C) for interior applications when using CBC 5001 adhesive..
    - c. Maintain Humidity: 20 to 65 percent forty-eight (48) hours prior to, during and after installation.
- C. Environmental Limitations: Do not deliver or install until building is enclosed, wet work is complete, and HVAC system is operating and consistently maintaining temperature and relative humidity at occupancy levels for a minimum two (2) weeks in accordance with manufacturer’s recommendations.

**RED NOTE: Use of portable heaters may cause failure.**

#### 3.2 EXAMINATION

**NOTE: Coordinate and edit to the correct Section number below.**

- A. Examination per SECTION 017000 or 017100 or 017116, and as follows:
  1. Acceptance of Conditions: Carefully examine installation areas with Installer/Applicator present, for compliance with requirements affecting Work performance.
    - a. Verify that field measurements, surfaces, substrates, structural support, tolerances, levelness, plumbness, temperature, humidity, moisture content level, cleanliness and other conditions are as required by the manufacturer, and ready to receive Work.
      - 1). Verify that substrate meets ASTM F710 requirements and is flat to within 3/16 inch in 10 ft (4.8mm per 3m) or the equivalent of 1/32 inch in 12 inches (0.8mm in 300mm).
  2. Test substrates as required by manufacturer to verify proper conditions.

**NOTE: Coordinate and edit requirements to the project substrates present.**

- a. Concrete:

- 1). Provide moisture testing to verify that concrete substrates are sound and dry. Perform both of the following tests:
    - a). Perform relative humidity (RH) test using in situ probes per ASTM F2170. Proceed with installation only after each substrate measures a maximum 85 percent RH (subject to Adhesive Specification). [Adhesive Reference Chart](#).
    - b). Perform anhydrous calcium chloride testing per ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 6 lbs of water/1000 sf (2.27 kg of water/92.9m<sup>2</sup>) in 24 hours (subject to Adhesive Specification). [Adhesive Reference Chart](#).
  - 2). Perform alkalinity testing to verify pH level is between 7.0 and 10.0 per ASTM F710. [Adhesive Reference Chart](#).
  - 3). Perform and document bond testing per ASTM F710 to determine compatibility of adhesive to concrete substrate and establish open time and working time.
- b. Wood Substrate: Shall be dry, clean, structurally sound, and flat to within 1/8 inch in 10 ft (3mm per 3m) and 1/32 inch in 12 inches (0.8mm in 300mm), well nailed and/or glued, free of voids and with joints that do not exceed 1/16 inch (1.6mm) per underlayment manufacturer's installation instructions. Underlayment manufacturer shall warrant underlayment compatibility with stair treads.
- 1). Perform pin meter reading to verify maximum 14 percent moisture with all readings to be within 2 percent of each other.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.3 PREPARATION

**NOTE: Coordinate and edit to the correct Section numbers below.**

- A. Preparation per manufacturer's most recent published written instructions, SECTION 017000 or 017100 or 017123, and as follows:
1. General: Prepare substrate(s) to ensure proper adhesion of flooring system per adhesive manufacturer's most recent published written instructions. [Takiron Installation Guide](#).

**NOTE: Select correct substrate(s), edit to suit project, and delete items that do not suit project.**

2. Concrete Substrates:
  - a. Prepare and perform testing per ASTM F710 on all existing and new concrete substrates to receive product.
    - 1). Mechanically remove top layer of exceptionally porous, soft or dusty concrete, and other non-bonding type surfaces.
      - a). Test pH level after scarification is complete.
      - b). Use non-chemical methods of removal, such as abrasive cleaning or bead blasting, on existing slabs at a minimum 48 hours prior to testing.

**RED NOTE: Use of plaster or gypsum patch for flooring repair or leveling is NOT acceptable.**

- 2). Prime and/or cover surface cracks, grooves, depressions, control joints or other non-moving joints, and other irregularities with a Portland-based cementitious underlayment-patching compound with a 3,000 psi (20.68 MPa) minimum compressive strength. Refer to SECTION 035416.

**RED NOTE: Lightweight concrete of <115 pcf is unsuitable. Coordinate with Engineer to place a minimum 1 inch (25mm) topping of >140 pcf normal weight concrete, or an acceptable panel underlayment.**

- 3). Concrete substrates shall pass each testing requirement prior to beginning resilient flooring installation.

- b. Level stair surfaces with Portland based patching compound and remove all raised materials, such as nails, screws, and dowels.
3. Wood Substrates and Panel Type Underlayment. Prepare and install per PS1, PS2, APA Form L335, and manufacturer's installation instructions as follows:
  - a. Wood substrate shall be double layer construction minimum 1 inch (25.4mm) total thickness with a minimum 18 inches (457mm) of well-ventilated airspace beneath.
    - 1). Crawl spaces shall be insulated and protected by a vapor barrier.
  - b. The top layer of a wood substrate shall be completely free of knots or surface voids and specified as underlayment grade for resilient flooring.

**NOTE:** Edit below to wood substrate type and thickness used. Delete APA item above if not used.

- c. [Insert wood product or panel type selected]
- d. Thickness: [Insert product thickness]
- e. Underlayment shall be smooth, dry and clean being free of paint, varnish, wax, oils, solvents or other foreign matter, structurally sound, and meets flatness requirements, well nailed or screwed per manufacturer's installation instructions.
  - 1). Ensure that each nail or screw head is set flush with or below surface.
4. Existing Substrates:

**RED NOTE:** Unacceptable surfaces include, but are not limited to, lauan, plywood with knots, underlayment made of pine or other soft woods, particleboard, Masonite® or other hardboard underlayment, hardwood flooring, textured or cushioned flooring or other uneven or unstable substrates.

- a. Properly prepare manufacturer acceptable substrates to accept flooring.
  - 1). Cover manufacturer unacceptable substrates with a minimum 1/4-inch (6.4mm) panel underlayment, such as Tecply, designed for use intended.
- b. Substrate shall be smooth, dry, clean, and flat to within 1/8 inch in 10 ft. (3mm per 3m), well nailed and/or glued, free of voids and with joints that do not exceed 1/16 inch (1.6mm).
- c. Underlayment shall be sanded smooth to remove varnish, high edges, chips, or other contaminants.
- d. Ensure that each nail head is set flush with or below surface.
- e. Allow 1/32 to 1/16-inch (0.8mm to 1.6mm) expansion space between sheets with staggered joints. Leave 3/4 inch (19mm) minimum expansion space at all vertical obstructions.
- f. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps, ridges, and other irregularities to produce a uniform and smooth substrate.
  - 1). Verify that substrate is flat to within 3/16 inch in 10 ft (4.8mm per 3m).
  - 2). Comply with manufacturer's recommendations for compatible products.

**RED NOTE:** Do not fill expansion and isolation joints with patching compound or cover with resilient flooring. Use an expansion joint covering system.

5. Doorway Moldings: Remove existing base moldings and undercut each doorjamb. Cover jambs with appropriate molding.
6. Sweep and vacuum clean flooring substrates immediately prior to installation of stair treads.

### 3.4 INSTALLATION

**NOTE:** Coordinate and edit to the correct Section number below and to project requirements.

- A. Installation per manufacturer’s most recent published written [instructions](#), SECTION 017000 or 017300 or 017316, and the following:
1. Storage on site:
    - a. Store treads in factory cartons lying flat on a smooth surface
    - b. Do not stand cartons up or on their sides.
    - c. Protect treads and adhesives from temperature extremes.
  2. Acclimation:
    - a. Deliver all materials to the job site at least 48 hours before installation.
    - b. Acclimate materials and job site to stable environmental conditions between 65-80 degrees Fahrenheit.
  3. Trial Laying: Dry fit treads without adhesive.
  4. OPTIONAL: Apply cove stick where tread meets riser.
  5. Cutting and Trimming: Follow instructions as contained in CBC Takiron Stair Tread Installation Instruction sheet. [Takiron Installation Guide](#).
  6. Adhesive Application and Rolling: Evenly comb adhesive on stair and riser perpendicular to length of stair tread using proper trowel for conditions. Gun nose caulk into the back of the stair tread nose in an even bead.
    - a. Allow for proper “flash-off” time before placing the tread into adhesive.
    - b. Only spread as much adhesive as can be reasonably covered with current environmental conditions and adhesive working and open time.
    - c. Remove uncured residual adhesive per recommendations.
    - d. Carefully roll tread into adhesive and avoid trapping air or allowing wrinkles or stresses in material.
      - 1). Acrylic and Tape Adhesives: Immediately roll flooring into adhesive with a hand roller.
        - a). Roll across the width to remove air bubbles and then roll in the length.
        - b). Ensure adhesive transfer to the back of the flooring.
  7. Edge sealing: Apply Henkel Terostat MS939 or equivalent sealant for Indoor wet area and all Outdoor Installations ramping to and 1/8” above the sheet vinyl on all non-clamped sheet vinyl edges.

NOTE: Edit to use ACRYLIC adhesive verbiage above or EPOXY adhesive language below, deleting the one not chosen as appropriate.

RED NOTE: Do not wet mop until adhesive has properly set per adhesive manufacturer’s written instructions.

### 3.5 FIELD QUALITY CONTROL

NOTE: Coordinate and edit to the correct Section number below.

- A. Site Tests and Inspections: Per SECTION 014000 or 014500 or 014523, and as follows:
  - 1. Inspect tread installation for non-conforming work including, but not limited to, the following:
    - a. Improper substrate preparation as indicated by:
      - 1). Buckling or telegraphing
      - 2). Air blisters, buckles, and dirt or debris under the stair treads
    - b. Lack of adequate adhesion
      - 1). Loose edges or seams
    - c. Adhesive on top of the flooring
    - d. Edge sealant application workmanship
    - e. Wide or too tight joints
    - f. Damaged treads as indicated by dents, splits, cuts, cracks, punctures, melting, or burn marks
- B. Non-Conforming Work per General Conditions and as follows:
  - 1. Remove, Repair and Reinstall or Restore in Place damaged items.
    - a. Finish touch-up damaged surface finishes.
  - 2. Replace damaged materials or items with New if repair not acceptable to Architect.

### 3.6 CLEANING

NOTE: Coordinate and edit to the correct Section number below.

- A. Provide Progress Cleaning per SECTION 017000 or 017400 or 017413, and as follows:
  - 1. Work Areas: Continuously clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
    - a. Clean and maintain completed construction until Substantial Completion.

NOTE: Coordinate and edit to the correct Section number below.

- B. Provide Final Cleaning immediately prior to Substantial Completion inspection per Manufacturer's most recent published written instructions, and SECTION 017000 or 017400 or 017423. [Takiron Maintenance Guide](#).
  - 1. Protection: Remove installed protection immediately prior to Substantial Completion inspection.
    - a. Replace protection after inspection and remove just prior to Final Completion.

### 3.7 CLOSEOUT ACTIVITIES

NOTE: Coordinate and edit to the correct Section number below.

- A. Substantial Completion Requirements per SECTION 017000 or 017700 and as follows:
  - 1. Perform Closeout Procedures per SECTION 017000 or 017700.
  - 2. Perform Demonstration and Training with Owner's designated staff per SECTION 017000 or 017900.
  - 3. Sustainable Design Closeout Documentation per SECTION 017000, 017800 or 017853: LEED credit worksheet paperwork.

### 3.8 PROTECTION

- A. Protect materials from construction operations until date of Final Completion or Owner occupancy, whichever occurs first.

1. Protect finished floor from abuse and damage. Use additional non-damaging protective materials as needed.

**NOTE: Insert Light Traffic and Heavy Traffic Guidelines per Adhesive Manufacturers Recommendations.**

- B. Acrylic Adhesive Installation: Permit light foot traffic after 3-4 hours.
1. To prevent permanent indentations while the adhesive cures, use plywood or other panels to protect the floor from heavy traffic, point or rolling loads for 48 hours.

**NOTE: Edit to use ACRYLIC adhesive verbiage above or EPOXY adhesive language below, deleting the one not chosen.**

- C. Epoxy Adhesive Installation: Keep foot traffic off the new floor for a minimum 12 hours.
1. To prevent permanent indentations while the adhesive cures, use plywood or other panels to protect the floor from heavy traffic, point or rolling loads for 48 hours.
- D. Keep furniture, fixtures and rolling traffic off the new floor for 48 hours.

### 3.9 MAINTENANCE

- A. Initial Maintenance per flooring manufacturer's most recent published written instructions and as follows:
1. Begin initial maintenance only after the adhered treads have been properly cured and bonded to the subfloor.
  2. When adhesive is fully cured, sweep and lightly damp mop with well wrung mop.
  3. Wait 72 hours before wet cleaning.
  4. [Takiron Maintenance Guide](#).

END OF SECTION

**RED NOTE: Be sure to obtain the latest version of this Guide Specification.**

**This Guide Specification is not a completed document ready for use. It must be edited, deleting, adding, or modifying text, as required to suit project requirements.**

**The professional stamping and the contracting parties of the Contract Documents are responsible for the accuracy of issued project specifications, including any use of this Takiron Stair Tread Guide Specification.**

**C.I. TAKIRON AND CBC AMERICA LLC SHALL NOT BE LIABLE FOR DAMAGES ARISING OUT OF THE USE OF THIS GUIDE SPECIFICATION.**