

DIVISION 09 – FINISHES

SECTION 09 65 19.23 - RESILIENT VINYL TILE FLOORING

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BEGINNING OF SECTION 09 65 19.23

PART 1 – GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. **Work Included:** Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
- i. Solid Luxury Vinyl Plank and Tile Flooring
 - ii. Substrate Preparation
- B. **Related Work:** The following items are not included in this Section and are specified under the designated Sections:
- i. Section 03 30 00 CAST-IN-PLACE CONCRETE for concrete substrate; slab surface tolerances
 - ii. Section 06 10 00 ROUGH CARPENTRY for plywood substrate and surface tolerances
 - iii. Section 09 69 00 ACCESS FLOORING for resilient floor covering for access panels
- C. **References (Industry Standards):**
- i. ASTM International (ASTM):
 - a. ASTM F1700, Standard Specification for Solid Vinyl Tile
 - b. ASTM E648, Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
 - c. ASTM E662, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
 - d. CAN/ULC-S102.2, Surface Burning
 - e. ASTM D2047, Standard Test Method for Static Coefficient of Friction as Measured by the James Machine
 - f. ASTM F970, Standard Test Method for Static Load Limit
 - g. ASTM F970 (Modified) - Modified Test Method for Static Load Limit
 - h. ASTM F925, Standard Test Method for Resistance to Chemicals of Resilient Flooring

- i. ASTM F1515, Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change
- j. ASTM F1914, Standard Test Method for Short-Term Indentation and Residual Indentation or Resilient Floor Covering
- k. ASTM F2199, Dimensional Stability
- ii. **National Fire Protection Association (NFPA):**
 - a. NFPA 253, Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source
 - b. NFPA 258, Test Method for Specific Density of Smoke Generated by Solid Materials

1.3 SUBMITTALS

- A. **General:** Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures.
- B. **Product Data:** Submit manufacturer's technical data sheet, care & maintenance document, submittal and/or warranty for each material and accessory proposed for use (available at www.sixdegreesflooring.com).
- C. **Samples:** Submit representative samples of each product specified for verification, in manufacturer's standard size samples of each resilient product color, texture and pattern required.

1.4 QUALITY ASSURANCE

- A. **Manufacturer Qualifications:** Provide resilient flooring materials manufactured in the United States of America by a firm with a minimum of 10 years' experience with resilient flooring materials of type equivalent to those specified.
 - i. Provide resilient flooring products, including wall base, accessories and subfloor preparation products from one manufacturer to ensure color matching and compatibility.
 - ii. Manufacturer shall be capable of providing technical training and technical field service representation.
- B. **Installer Qualifications:** Installer must be professional, licensed, insured and acceptable to manufacturer of resilient flooring materials. Project Managers or Field Supervisors must be INSTALL (International Standards & Training Alliance) certified CFI (Certified Floorcovering Installers) Certified and/or an FCICA (The Flooring Contractors Association) CIM (Certified Installation Manager) for the requirements of the project.
- C. **Sustainable Design Requirements:**
 - i. Vinyl Plank and Tile flooring that does not require coatings and strippers or the use of chemicals that may be hazardous to human health to maintain.
 - ii. Vinyl Plank and Tile flooring compliant with CA Section 01350 (low-emitting (VOC) building products).
 - iii. Vinyl Plank and Tile flooring is free of materials known to be teratogenic, mutagenic or carcinogenic including halogens, asbestos and chlorines.
 - iv. Vinyl Plank and Tile flooring is 100% Recyclable.
 - v. Vinyl Plank and Tile flooring is SCS FloorScore® Certified.
 - vi. Vinyl Plank and Tile flooring contains EnviroSD, A Safe and Effective Antibacterial Agent.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in labeled packages. Store and handle in strict compliance with manufacturer's recommendations. Protect from damage due to weather, excessive temperatures, and construction operations.

- B. Deliver materials sufficiently in advance of installation to condition materials to the required temperature for 48-hours prior to installation.

1.6 PROJECT CONDITIONS

- A. Install Radius Luxury Vinyl Plank and Tile after other finishing operations, including painting, have been completed.
- B. Maintain temperature at service levels and/or a steady ambient temperature between 65 degrees F and 85 degrees F ($\pm 10^\circ$ F) for at least 48-hours prior to, during and until substantial completion of installation.
- C. Maintain relative humidity at service levels, or between 40% and 65% RH.

1.7 WARRANTY

- A. Provide manufacturer's standard limited residential and commercial warranty to cover manufacturing defects:
 - i. 10 – Year Commercial Warranty
 - ii. 20 – Year Residential Warranty

PART 2 - PRODUCTS

Note To specifier: remove and amend sections as necessary.

2.1 MANUFACTURER

- A. Basis-of-Design: Six Degrees Flooring Surfaces | 9315 Springville Ave. | Fostoria, OH 44830 | P: (844) 832-5885
- B. Substitutions: No substitutions permitted.

2.2 RESILIENT LVT AND LVP VINYL FLOORING

- A. SIX DEGREES RADIUS LUXURY VINYL TILES OR PLANKS - specify products with the following characteristics and meet the performance requirements for the following Industry Standards:
 - i. ASTM F1700, Specification for Solid Vinyl Tile, Class III, Type A & B - Printed Film Vinyl Tile, Type B Embossed Surface.
 - ii. FOR RADIUS TILES 12" x 24" x 1/8" (304.8mm x 609.6mm x 3mm) - Specify Color by Number and Name: (remove all but the color selecting) [RT269_C02 PERRY VINTAGE], [RT317_C05 HAYS BEIGE], [RT318_C02 EAGLE POINT], [RT362_C11 STEARNS SLATE], [RT317_C06 HUGHES GRAY], [RT315_C04 SUMMIT STONE], [RT349_C01 POTTER], [RT269_C03 STAR VINTAGE], [RT341_C16 STRATFORD], [RT365_C08 FINDLAY TWEED], [RT269_C10 DILLON METAL], [RT341_C02 SUMMER]
 - iii. FOR RADIUS PLANKS 7 1/8" X 47 1/4" x 1/8" (178.4mm x 1194.4 mm x 3mm) - Specify Color by Number and Name: (remove all but the color selecting) [RP159_C15 LESTER PINE], [RP324_C05 OXFORD GRAY], [RP316_C04 NYE SAWN CUT], [RP233_C17 SILVER STEELE], [RP324_C06 WATSON IRON], [RP233_C21 BURNHAM OAK], [RP208_C11 MILLER CLASSIC], [RP232_C04 UNION PLANK], [RP232_C12 FREMONT PLANK], [RP235_C05 CLARK MAPLE], [RP233_C57 WAGNER WHITE], [RP233_C20 ELWOOD], [RP314_C07 LAKEVIEW], [RP350_C01 VINTAGE VANBUREN], [RP236_C13 TAYLOR TAUPE], [RP233_C08 MCDUGAL OAK], [RP251_C09 THOMAS CLASSIC], [RP381_C02 MEADOW LANE], [RP250_C01 EASTERN MAPLE], [RP210_C04 ALTON WOOD], [RP235_C08 CROCKER MAPLE], [RP147_C26 GRANT GINGER], [RP235_C15

- COLUMBUS RED], [RP188_C14 GLENVIEW], [RP220_C12 ALEXANDER OAK], [RP131_C02 BRIGGS RUSTIC], [RP239_C10 WEDGEWOOD], [RP174_C14 COOPER BROWN], [RP266_C08 TIFFIN HAND SCRAPPED], [RP330_C02 WOODLAND]
- iv. ASTM E648 / NFPA 253, Flammability/Critical Radiant Flux; Class 1, > 0.45 W/cm²
 - v. ASTM E662 / NFPA 258, Smoke Density; Passes < 450
 - vi. CAN / ULC – S102.2, Surface Burning: 30 FSR, 250 SDR
 - vii. ASTM D2047, Slip Resistance; Passes > 0.6
 - viii. ASTM F970, Static Load Limit; Passes 250 PSI, Modified, Maximum Weight 2000 PSI
 - ix. ASTM F925, Chemical Resistance; Excellent (list of chemicals available)
 - x. ASTM F1515, Light Stability; Passes < ΔE 8
 - xi. ASTM F1514, Heat Stability; Passes < ΔE 8
 - xii. ASTM F1914, Short Term and Residual Indentation; Passes < 8%
 - xiii. ASTM F2199, Dimensional Stability; Passes, 0.020” Lin/ft. maximum
 - xiv. Six Degrees Radius does not require coatings and strippers or the use of chemicals that may be hazardous to human health to maintain.
 - xv. Six Degrees Radius is compliant with CA Section 01350 (low-emitting (VOC) building products)
 - xvi. Six Degrees Radius is free of materials known to be teratogenic, mutagenic or carcinogenic including halogens, asbestos and chlorines.
 - xvii. Six Degrees Radius is 100% Recyclable.
 - xviii. Six Degrees Radius is SCS FloorScore® Certified.
 - xix. Six Degrees Radius contains EnviroSD, A Safe and Effective Antibacterial Agent.
 - xx. Six Degrees Radius is manufactured in the U.S.A.

2.3 INSTALLATION AND MAINTENANCE MATERIALS

- A. **Moisture Mitigation:** Moisture testing is required for all Six Degrees LVP and LVT installations. Mitigation should be performed if results indicate high levels of moisture. Recommended Moisture Mitigation Product:
- i. Excelsior MM-100, Moisture Mitigation provided by Six Degrees
 - a. Unit Size: 2.5 Gallons
 - b. Coverage: 1000 square feet per unit with one coat
 - c. MM-100 is a water, solvent and VOC free, polyurethane-based moisture mitigation product used to treat concrete slabs with excessive moisture levels beyond what flooring adhesives allow.
 - d. MM-100 can block moisture up to 20 lbs. MVER or 99% RH.
 - e. MM-100 is a single component product, eliminating extensive mix times and concerns regarding pot life.
 - f. MM-100 does not require aggressive concrete preparation, such as shotblasting or diamond grinding.
 - g. MM-100 is a two coat system that is incredibly easy to apply and does not require any specialized equipment, its excellent coverage rates also make it incredibly cost effective.
 - h. Despite being a two coat system, MM-100 is incredibly fast drying.
 - i. Flooring or subsequent coatings can be installed in less than two hours.

- j. Backed by a 10 year material and labor warranty, MM-100 is a fast and easy solution for the moisture issues that commonly plague flooring installations.
- B. Substrate Preparation Products:** Substrates should be prepared to properly receive the resilient flooring products being specified. Trowelable leveling and patching compounds that are latex-modified, Portland cement based or blended hydraulic cement based formulation. Recommended Substrate Preparation Products:
- i. Excelsior NP-230, Non-Porous Substrate Primer provided by Six Degrees
 - a. Unit Size: 2.5 Gallons
 - b. Coverage: 1000 Square Feet per unit with one coat
 - c. Used over MM-100 to promote adhesion of cementitious materials
 - d. Single component and fast drying to allow for quick and easy installation
 - e. Contains an aggregate to provide mechanical bond for cementitious materials
 - ii. Excelsior CP-300, Cementitious Patch provided by Six Degrees
 - a. Unit Size: 10 lb. Pail
 - b. Coverage: 33 Square Feet per unit @ 1/8"
 - c. Doesn't require primer over porous substrates
 - d. Install flooring in as little as 30 minutes
 - iii. Excelsior SU-310, Self-Leveling Underlayment provided by Six Degrees
 - a. Unit Size: 50 lb. Bag
 - b. 5500 PSI Compressive Strength after 28 days
 - c. Install flooring within 12 hours
 - d. Pumpable
- C. Adhesives:** Adhesives should be selected based on the site conditions and use of the space being installed. Recommended Adhesive Products:
- i. Excelsior SP-500, Acrylic Aerosol Pressure Sensitive Spray Adhesive provided by Six Degrees
 - a. Unit Size: 22 Ounces
 - b. Coverage: 100 Square Feet per 22 Ounce Can
 - c. Should only be used if Heat Welding finished seams
 - d. Standard installations over porous and non-porous substrates
 - e. Excellent sheer strength
 - f. Approved for Hill-Rom Beds
 - g. Approved for Immediate Use
 - h. Installation Limits
 - (1) 90% RH, ASTM F2170
 - (2) 8 lbs. MVER, ASTM F1869
 - ii. Excelsior AP-520, Acrylic Roll-On Pressure Sensitive Adhesive provided by Six Degrees
 - a. Unit Size: 2.5 Gallons
 - b. Coverage: 1000 Square Feet per Unit
 - c. Should only be used if Heat Welding finished seams
 - d. Standard installations over porous and non-porous substrates

- e. Excellent sheer strength
 - f. Approved for Hill-Rom Beds
 - g. Approved for Immediate Use
 - h. Installation Limits
 - (1) 80% RH, ASTM F2170
 - (2) 8 lbs. MVER, ASTM F1869
- iii. Excelsior AW-510, Acrylic Wet-Set Adhesive provided by Six Degrees
- a. Unit Size: 1 Gallon & 4 Gallon
 - b. Coverage: 150 Square Feet
 - c. Standard installations over porous and non-porous substrates
 - d. Hard set adhesive adding to dimensionally stable materials
 - e. Excellent sheer strength
 - f. Approved for Hill-Rom Beds
 - g. Installation Limits
 - (1) 90% RH, ASTM F2170
 - (2) 6 lbs. MVER, ASTM F1869
- iv. Excelsior MS-700, Modified Silane Wet-Set Adhesive provided by Six Degrees
- a. Unit Size: 3 Gallon
 - b. Coverage: 480-705 Square Feet per unit
 - c. Standard installations over porous and non-porous substrates
 - d. Excellent green grab
 - e. Hard set adhesive adding to dimensionally stable materials
 - f. Excellent sheer strength
 - g. Approved for Hill-Rom Beds
 - h. Superior bond strength
 - i. Great for environments with topical moisture
 - j. Great for exterior applications
 - k. Installation Limits, Indoor Installations only
 - (1) 95% RH, ASTM F2170
 - (2) 10 lbs. MVER, ASTM F1869
- v. Excelsior EW-710, Epoxy Wet-Set Adhesive provided by Six Degrees
- a. Unit Size: 1 Gallon
 - b. Coverage: 150 Square Feet per unit
 - c. Standard installations over porous and non-porous substrates
 - d. Excellent green grab
 - e. Hard set adhesive adding to dimensionally stable materials
 - f. Excellent sheer strength
 - g. Approved for Hill-Rom Beds
 - h. Superior bond strength

- i. Great for environments with topical moisture
 - j. Great for exterior applications
 - k. Installation Limits, Indoor Installations only
 - (1) 90% RH, ASTM F2170
 - (2) 6 lbs. MVER, ASTM F1869
- D. **Maintenance Materials:** Proper maintenance of the installation is critical to the long term performance of the flooring products being specified. Using the appropriate chemicals to maintain the product according to the environment in which it is specified is critical. Recommend maintenance products:
- i. Excelsior NC-900, All-Purpose Neutral pH Cleaner provided by Six Degrees
 - a. For initial maintenance
 - b. For daily and routine maintenance
 - ii. Excelsior MF-940, Acrylic Matte Floor Finish provided by Six Degrees
 - iii. Excelsior GF-950, Acrylic Gloss Floor Finish provided by Six Degrees
 - iv. Excelsior FR-920, Finish Remover provided by Six Degrees

PART 3 – EXECUTION

3.1 GENERAL

- A. General Contractor Responsibilities:
- i. Supply a safe, climate controlled building and subfloor as detailed in Six Degrees Technical Data Sheets.
 - ii. Ensure substrate meets the requirements of ASTM F710, Six Degrees Technical Data Sheets and Excelsior Technical Data Sheets.
 - iii. Provide a secure storage area that is maintained permanently or temporarily at normal operating temperature and humidity conditions between 65° F and 85° F and between 40% and 65% relative humidity, for at least 48-hours prior to and during the application of the flooring, so the flooring contractor can acclimate the flooring materials per manufacturer’s instructions.
 - iv. Provide an installation area that is weather tight and maintained either permanently or temporarily at ambient service temperature and humidity. Normal operating temperature and humidity conditions are between 65° F and 85° F and between 40% and 65% relative humidity, for at least 48-hours prior to and during the application of the flooring per the manufacturer’s instructions.
 - v. Ensure areas with direct prolonged exposure to sunlight are protected with protective UVA/UVB restrictive coatings or films.
 - vi. Areas of the flooring that are subject to direct sunlight through doors or windows should have them covered using blinds, curtains, cardboard or similar for the time of the installation and 72-hours after the installation to allow the adhesive to cure. Note: These areas should be installed using wet adhesives only.
 - vii. Conduct initial maintenance prior to final usage per the Six Degrees Care & Maintenance Documents. Do not conduct initial maintenance until adhesive has cured per the adhesive technical data.
- B. Flooring Contractor Responsibilities:
- i. Provide trained installers that are professional, licensed, insured and acceptable to manufacturer of resilient flooring materials.

- ii. Ensure installers or installation teams meet one of the following requirements:
- iii. Have completed INSTALL (International Standards & Training Alliance) or CFI (Certified Floorcovering Installers) training programs and/or are certified by INSTALL or CFI.
- iv. Are being supervised by Project Managers or Field Supervisors that are INSTALL (International Standards & Training Alliance) certified, CFI (Certified Floorcovering Installers) Certified and/or an FCICA (The Flooring Contractors Association) CIM (Certified Installation Manager).
- v. Follow all requirements in the appropriate Six Degrees and/or Excelsior Technical Data Sheets, Care & Maintenance Documents, Warranties and other technical documents or instructions.

3.2 EXAMINATION

- A. **General:** Follow guidelines laid out in Division 01, Section 01 71 00 – Examination and Preparation, as well as Section 01 43 00 – Quality Assurance.
- B. **Verification of Conditions:** Inspect all substrates to ensure they are clean, smooth, permanently dry, flat, and structurally sound. Confirm all areas are properly sealed and acclimated per manufacturer’s requirements.
- C. **Verification of Products:** In accordance with manufacturer’s installation requirements, visually inspect material for size, color or visual defects prior to installing. Any material that is incorrect or visually defective shall not be installed.

3.3 SUBSTRATE PREPARATION

- A. **General:** Follow guidelines laid out in Division 01, Section 01 71 00 – Examination and preparation. All work required ensuring substrate or subfloor meets manufacturers’ guidelines are the responsibility of the general contractor.
- B. **Preparation:** Ensure substrate meets the requirements of ASTM F710 for concrete substrates and ASTM F1482 for wood substrates and/or Six Degrees Technical Data Sheets and Excelsior Technical Data Sheets.
 - i. Substrates must be free of visible water or moisture, dust, sealers, paint, sweeping compounds, curing compounds, residual adhesives and adhesive removers, concrete hardeners or densifiers, solvents, wax, oil, grease, asphalt, visible alkaline salts or excessive efflorescence, mold, mildew and any other extraneous coating, film, material or foreign matter.
 - ii. It is recommended that all substrates have a floor flatness of FF32 and/or flatness tolerance of 1/8” in 6’ or 3/16” in 10’.
 - iii. Acclimate all products to be used during the installation in the installation environment prior to installation according to the manufacturers written instructions.
- C. **Concrete Substrates:**
 - i. **Moisture Testing:** Perform moisture testing per the manufacturer’s recommendations to determine conditions, it is recommended to treat new and existing slabs a little bit different to ensure adequate conditions exist for installation.

- a. New Slabs on all grade levels: it is recommended to perform ASTM F2170 Relative Humidity testing no more than a week prior to installation to determine the levels present and when to proceed with the installation.
 - b. Existing Slabs on all grade levels: in addition to ASTM F2170 testing, existing slabs that have previously had floor covering installed, must be tested to ASTM F1869 Calcium Chloride test kits to determine the MVER of the concrete.
 - ii. Mechanically remove contamination on the substrate that may cause damage to the flooring material, this includes paint, permanent and non-permanent markers, pens, crayons, etc. Leaving these on the substrate or marking with them on the back of the material could cause bleed through and damage the flooring.
 - iii. Fill cracks, holes, depressions and irregularities in the substrate to prevent transferring through to the surface of the resilient flooring. Use a high-quality Portland cement based product such as Excelsior installation products provided by Six Degrees.
 - iv. Do not install material over expansion joints.
- D. **Wood Substrates:** Wood substrates must have a minimum 18" (45.7 cm) of cross ventilated space beneath the joist.
- i. Wood substrates must be a minimum 1" thick with a double layer construction.
 - ii. Wood substrates must be rigid and free of movement.
 - iii. Wood substrates must not be OSB (Oriented Strand Board), particle board, chipboard, luan or composite type underlayments.
 - iv. Wood substrates that are Single Wood or Tongue & Groove subfloors must be covered with the appropriate APA approved underlayment plywood:
 - a. Boards with a face width of 3" (7.62 cm) or less and is tongue-and-groove and with a smooth surface, use minimum 1/4" (6.4 mm) underlayment panels.
 - b. Boards with a face width greater than 3" (7.62 cm) or not tongue-and-groove, or with a rough surface, use minimum 1/2" (12.7 mm) underlayment panels.

3.4 INSTALLATION

- A. **General:** Follow all relevant guidelines detailed in Division 01, as well as flooring and adhesive manufacturer's technical data sheets.
- B. **Resilient Luxury Vinyl Flooring:** Install material in accordance with manufacturer's recommendations.
 - i. Select the appropriate adhesive for the application and job site conditions.
 - ii. Install material according to directional arrows on the back of the material.
 - iii. Ensure material is rolled appropriately into the adhesive using a 100 lb. three section roller.

3.5 CLEANING & MAINTENANCE

- A. **General:** Clean up installation area and vacuum, dust or wipe material to remove any dirt, dust or debris.
- B. **Initial Maintenance:** Conduct initial maintenance per the manufacturer's recommended procedures stated in the Maintenance Documents. All documentation is available upon request or from the Six Degrees website: www.sixdegreesflooring.com. Excelsior Cleaning and Maintenance products are the recommended products for use; all can be found linked to the product on the Six Degrees website or at www.excelsiorproducts.net.

- C. **Regular Maintenance:** Conduct maintenance on regular intervals as needed. Insufficient cleaning will reduce the wear life of the flooring and alter the aesthetic properties of the planks and tiles. The amount of maintenance depends directly upon the amount of dirt and particulates the floor is subjected to.

3.6 CLOSEOUT ACTIVITIES

- A. **General:** Follow all federal, state and local requirements and Division 01 Section 01 76 00 – Protecting Installed Construction and Section 01 78 00 – Closeout Submittal requirements for these activities.
- B. **Protection:** Protect newly installed material with construction grade paper or protective boards, such as Masonite or Ram Board, to protect material from damage by other trades. Be sure all construction debris is swept up and removed prior to the protective material being installed and does not get trapped underneath. Limit usage and foot traffic according to the adhesive's requirements. When moving appliances or heavy furniture, protect flooring material from scuffing and tearing using temporary floor protection as well.

END OF SECTION 09 65 19.23