**DIVISION 09 – FINISHES**

**SECTION 09 65 19 - RESILIENT TILE FLOORING**

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**BEGINNING OF SECTION 09 65 19.23**

**PART 1 – GENERAL**

1. **GENERAL PROVISIONS**
	1. 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.
2. **DESCRIPTION OF WORK**
	1. **Work Included:** Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
		1. Solid Vinyl Plank and Tile Flooring
		2. Substrate Preparation
	2. **Related Work:** The following items are not included in this Section and are specified under the designated Sections:
		1. Section 03 30 00 CAST-IN-PLACE CONCRETE for concrete substrate; slab surface tolerances
		2. Section 06 10 00 ROUGH CARPENTRY for plywood substrate and surface tolerances
		3. Section 09 69 00 ACCESS FLOORING for resilient floor covering for access panels
	3. **References (Industry Standards):**
		1. ASTM International (ASTM):
			1. ASTM F1700, Standard Specification for Solid Vinyl Tile
			2. ASTM E648 (NFPA 253), Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
			3. ASTM E662 (NFPA 258), Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
			4. CAN/ULC-S102.2, Service Burning
			5. ASTM D2047, Standard Test Method for Static Coefficient of Friction as Measured by the James Machine
			6. ASTM F970, Standard and Modified Test Method for Static Load Limit
			7. ASTM F925, Standard Test Method for Resistance to Chemicals of Resilient Flooring
			8. ASTM F1515, Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change
			9. ASTM F1914, Standard Test Method for Short-Term Indentation and Residual Indentation or Resilient Floor Covering
			10. ASTM F2199, Standard Test Method for Determining Dimensional Stability of Resilient Floor Tile After Exposure to Heat
			11. ASTM F710, Standard Practice for Preparing Concrete to Receive Resilient Flooring
			12. ASTM F1482, Standard Guide to Wood Underlayments products Available for Use Under Resilient Flooring
			13. ASTM F1869, Standard Test Method for Measuring Moisture Vapor Emissions Rate of Concrete Subfloor using Anhydrous Calcium Chloride
			14. ASTM F2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs using in situ Probes
3. **SUBMITTALS**
	1. **General:** Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures.
	2. **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.roppe.com](http://www.roppe.com)).
	3. **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.
4. **QUALITY ASSURANCE**
	1. **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.
		1. Provide resilient flooring products, including wall base, accessories and subfloor preparation products from one manufacturer to ensure color matching and compatibility.
		2. Manufacturer shall be capable of providing technical training and technical field service representation.
	2. **Installer Qualifications:** Installer must be professional, licensed, insured and familiar with the resilient flooring material to be installed. 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.
	3. **Sustainable Design Requirements:**
		1. Luxury 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.
		2. Luxury Vinyl Plank and Tile flooring compliant with CA Section 01350 (low-emitting (VOC) building products)
		3. Luxury Vinyl Plank and Tile flooring free of materials known to be teratogenic, mutagenic or carcinogenic including halogens, asbestos and chlorines.
		4. Luxury Vinyl Plank and Tile flooring that is 100% Recyclable.
		5. Luxury Vinyl Plank and Tile flooring that is SCS FloorScore® Certified.
		6. Luxury Vinyl Plank and Tile flooring that will contribute to LEED Credits.
		7. Luxury Vinyl Plank and Tile flooring that contains C-Shield UV Cured Ceramic Bead Finish.
5. **DELIVERY, STORAGE, AND HANDLING**
	1. 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.
	2. Deliver materials sufficiently in advance of installation to condition materials to the required temperature for 48-hours prior to installation.
6. **PROJECT CONDITIONS**
	1. Install Luxury Vinyl Plank and Tile after other finishing operations, including painting, have been completed.
	2. Maintain temperature at service levels and/or the ambient temperature must remain steady (± 10° F) between 65 degrees F and 85 degrees F for at least 48-hours prior to, during and until substantial completion.
	3. Maintain relative humidity at service levels, or between 40% and 65% RH.
7. **WARRANTY**
	1. Provide manufacturer’s standard limited residential and commercial warranty to cover manufacturing defects and labor cost.

**PART 2 - PRODUCTS**

*Note To specifier: remove and amend sections as necessary.*

1. **MANUFACTURER**
	1. Basis-of-Design: Roppe Corporation | 1602 N. Union St. | Fostoria, OH 44830 | P: (800) 862-7238
	2. Substitutions: No substitutions permitted.
2. **RESILIENT LVT AND LVP VINYL FLOORING**
	1. Roppe ***northern parallels LUXURY VINYL TILES OR PLANKS*** - specify products with the following characteristics and meet the performance requirements for the following Industry Standards:
		1. ASTM F1700, Solid Vinyl Tile: **Class III, Type B**
		2. ASTM E648 (NFPA 253), Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source: **Class I, > 0.45 W/cm²**
		3. ASTM E662 (NFPA 258), Specific Optical Density of Smoke: **Passes, < 450**
		4. CAN/ULC-S102.2, Service Burning: **30 FSR, 250 SDC**
		5. ASTM D2047, Static Coefficient of Friction: **> 0.60**
		6. ASTM F970, Static Load Limit: **Passes, 250 PSI**
		7. ASTM F970 (Modified), Max Load Limit: **2000 PSI**
		8. ASTM F925, Resistance to Chemicals: **Passes** *(see chart)*
		9. ASTM F1514, Heat Stability: **Passes**
		10. ASTM F1515, Light Stability: **Passes**
		11. ASTM F1914, Short-Term Indentation and Residual Indentation: **Passes**
		12. ASTM F2199, Dimensional Stability: **Passes**
	2. Roppe northern parallels shall have an **Embossed** finish.
	3. Roppe northern parallels dimensions *(remove all but the size you are selecting)*: [12” x 24” x 3mm tile] [18” x 18” x 3mm tile*”* ][9.25 x 59.25” x 3mm plank]
	4. Roppe northern parallels style and color *(remove all but the style and color you are selecting)* : [288 pyrenees] [286 alps] [287 dolomites]
		1. Northern parallels Luxury Vinyl Plank and Tile flooring does not require coatings and strippers or the use of chemicals that may be hazardous to human health to maintain.
		2. Northern parallels Luxury Vinyl Plank and Tile flooring are SCS FloorScore® Certified.
		3. Northern parallels Luxury Vinyl Plank and Tile flooring is compliant with CA Section 01350 (low-emitting (VOC) building products)
		4. Northern parallels Luxury Vinyl Plank and Tile flooring is free of materials known to be teratogenic, mutagenic or carcinogenic including halogens, asbestos and chlorines.
		5. Northern parallels Luxury Vinyl Plank and Tile flooring is 100% Recyclable.
		6. Northern parallels Luxury Vinyl Plank and Tile flooring contains has a C-Shield UV Cured Ceramic Bead Finish.
		7. Northern parallels Luxury Vinyl Plank and Tile flooring is manufactured in the U.S.A.
3. **INSTALLATION AND MAINTENANCE MATERIALS**
	1. **Moisture Mitigation:** Moisture testing is required for all Roppe LVP and LVT installations. Mitigation should be performed if results indicate high levels of moisture. Recommended Moisture Mitigation Product:
		1. Excelsior MM-100, Moisture Mitigation provided by Roppe
			1. Unit Size: 2.5 Gallons
			2. Coverage: 1000 square feet per unit with one coat
			3. 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.
			4. MM-100 can block moisture up to 20 lbs. MVER or 99% RH.
			5. MM-100 is a single component product, eliminating extensive mix times and concerns regarding pot life.
			6. MM-100 does not require aggressive concrete preparation.
			7. MM-100 is not recommended as a moisture mitigation system over a non-porous substrate. The substrate should be porous as per ASTM F3191 with 90% of the original substrate exposed.
			8. 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.
			9. Despite being a two coat system, MM-100 is incredibly fast drying.
			10. Flooring or subsequent coatings can be installed in less than two hours.
			11. 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.
	2. **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:
		1. Excelsior NP-230, Non-Porous Substrate Primer provided by Roppe
			1. Unit Size: 2.5 Gallons
			2. Coverage: 1000 Square Feet per unit with one coat
			3. Used over MM-100 to promote adhesion of cementitious materials
			4. Single component and fast drying to allow for quick and easy installation
			5. Contains an aggregate to provide mechanical bond for cementitious materials
		2. Excelsior CP-300, Cementitious Patch provided by Roppe
			1. Unit Size: 10 lb. Pail
			2. Coverage: 33 Square Feet per unit @ 1/8”
			3. Doesn’t require primer over porous substrates
			4. Install flooring in as little as 30 minutes
		3. Excelsior SU-310, Self-Leveling Underlayment provided by Roppe
			1. Unit Size: 50 lb. Bag
			2. 5500 PSI Compressive Strength after 28 days
			3. Install flooring within 12 hours
			4. Pumpable
	3. **Adhesives:** Adhesives should be selected based on the site conditions and use of the space being installed. Recommended Adhesive Products:
		1. Excelsior SP-500, Acrylic Aerosol Pressure Sensitive Spray Adhesive provided by Roppe
			1. Unit Size: 22 Ounces
			2. Coverage: 150 Square Feet per 22 Ounce Can
			3. Should only be used if Heat Welding finished seams
			4. Standard installations over porous and non-porous substrates
			5. Excellent sheer strength
			6. Approved for Hill-Rom Beds
			7. Approved for Immediate Use
			8. Installation Limits
				1. 90% RH, ASTM F2170
				2. 8 lbs. MVER, ASTM F1869
		2. Excelsior AP-520, Acrylic Roll-On Pressure Sensitive Adhesive provided by Roppe
			1. Unit Size: 2.5 Gallons
			2. Coverage: 1000 Square Feet per Unit
			3. Should only be used if Heat Welding finished seams
			4. Standard installations over porous and non-porous substrates
			5. Excellent sheer strength
			6. Approved for Hill-Rom Beds
			7. Approved for Immediate Use
			8. Installation Limits
				1. 80% RH, ASTM F2170
				2. 8 lbs. MVER, ASTM F1869
		3. Excelsior AW-510, Acrylic Wet-Set Adhesive provided by Roppe
			1. Unit Size: 1 Gallon & 4 Gallon
			2. Coverage: 150 Square Feet/Gal
			3. Standard installations over porous and non-porous substrates
			4. Hard set adhesive adding to dimensionally stable materials
			5. Excellent sheer strength
			6. Approved for Hill-Rom Beds
			7. Installation Limits
				1. 90% RH, ASTM F2170
				2. 6 lbs. MVER, ASTM F1869
		4. Excelsior MS-700, Modified Silane Wet-Set Adhesive provided by Roppe
			1. Unit Size: 3 Gallon
			2. Coverage: 480-705 Square Feet per unit
			3. Standard installations over porous and non-porous substrates
			4. Excellent green grab
			5. Hard set adhesive adding to dimensionally stable materials
			6. Excellent sheer strength
			7. Approved for Hill-Rom Beds
			8. Superior bond strength
			9. Great for environments with topical moisture
			10. Great for exterior applications
			11. Installation Limits, Indoor Installations only
				1. 95% RH, ASTM F2170
				2. 10 lbs. MVER, ASTM F1869
		5. Excelsior EW-710, Epoxy Wet-Set Adhesive provided by Roppe
			1. Unit Size: 1 Gallon
			2. Coverage: 150 Square Feet per unit
			3. Standard installations over porous and non-porous substrates
			4. Excellent green grab
			5. Hard set adhesive adding to dimensionally stable materials
			6. Excellent sheer strength
			7. Approved for Hill-Rom Beds
			8. Superior bond strength
			9. Great for environments with topical moisture
			10. Great for exterior applications
			11. Installation Limits, Indoor Installations only
				1. 90% RH, ASTM F2170
				2. 6 lbs. MVER, ASTM F1869
	4. **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:
		1. Excelsior NC-900, All-Purpose Neutral pH Cleaner provided by Roppe
			1. For initial maintenance
			2. For daily and routine maintenance
		2. Excelsior MF-940, Acrylic Matte Floor Finish provided by Roppe
		3. Excelsior GF-950, Acrylic Gloss Floor Finish provided by Roppe
		4. Excelsior FR-920, Finish Remover provided by Roppe

**PART 3 – EXECUTION**

1. **GENERAL**
	1. General Contractor Responsibilities:
		1. Supply a safe, climate controlled building and subfloor as detailed in Roppe Technical Data Sheets.
		2. Ensure substrate meets the requirements of ASTM F710, Roppe Technical Data Sheets and Excelsior Technical Data Sheets.
		3. 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.
		4. 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.
		5. Ensure areas with direct prolonged exposure to sunlight are protected with protective UVA/UVB restrictive coatings or films.
		6. 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.
		7. Conduct initial maintenance prior to final usage per the Roppe Care & Maintenance Documents. Do not conduct initial maintenance until adhesive has cured per the adhesive technical data.
	2. Flooring Contractor Responsibilities:
		1. Provide trained installers that are professional, licensed, insured and familiar with the resilient flooring material to be installed.
		2. Ensure installers or installation teams meet one of the following requirements:
			* 1. Have completed INSTALL (International Standards & Training Alliance) or CFI (Certified Floorcovering Installers) training programs and/or are certified by INSTALL or CFI.
				2. Are being supervised by Project Managers or Field Supervisors that are INSTALL (International Standards & Training Alliance) certified.
				3. CFI (Certified Floorcovering Installers) Certified and/or an FCICA (The Flooring Contractors Association).
				4. CIM (Certified Installation Manager).
		3. Follow all requirements in the appropriate ***Roppe*** and/or Excelsior Technical Data Sheets, Care & Maintenance Documents, Warranties and other technical documents or instructions.
2. **EXAMINATION**
	1. **General**: Follow guidelines laid out in Division 01, Section 01 71 00 – Examination and Preparation, as well as Section 01 43 00 – Quality Assurance.
	2. **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.
	3. **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. **SUBSTRATE PREPARATION**
	1. **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.
	2. **Preparation**: Ensure substrate meets the requirements of ASTM F710 for concrete substrates and ASTM F1482 for wood substrates and/or Roppe Technical Data Sheets and Excelsior Technical Data Sheets.
		1. 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.
		2. 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’.
		3. Acclimate all products to be used during the installation and the installation environment prior to installation according to the manufacturers written instructions
	3. **Concrete Substrates:**
		1. **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.
			1. New Slabs on all grade levels: it is recommended to perform ASTM F2170 Relative Humidity testing no more than a week prior to installation too determine the levels present and when to proceed with the installation.
			2. 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.
		2. 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.
		3. 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 Roppe.
		4. Do not install material over expansion joints.
	4. **Wood Substrates:** wood substrates must have a minimum 18” (45.7 cm) of cross ventilated space beneath the joist.
		1. Wood substrates must be a minimum 1” thick with a double layer construction.
		2. Wood substrates must be rigid and free of movement.
		3. Wood substrates must not be OSB (Oriented Strand Board), particle board, chipboard, luan or composite type underlayments.
		4. Wood substrates that are Single Wood or Tongue & Groove subfloors must be covered with the appropriate APA approved underlayment plywood:
			1. 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
			2. 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
4. **INSTALLATION**
	1. **General**: Follow all relevant guidelines detailed in Division 01, as well as flooring and adhesive manufacturer’s technical data sheets.
	2. **Resilient Luxury Vinyl Flooring:** Install material in accordance with manufacturer’s recommendations
		1. Select the appropriate adhesive for the application and job site conditions.
		2. Install material according to directional arrows (if applicable) on the back of the material.
		3. Ensure material is rolled appropriately into the adhesive using a 100 lb. three section roller.
5. CLEANING & MAINTENANCE
	1. **General**: Clean up installation area and vacuum, dust or wipe material to remove any dirt, dust or debris.
	2. **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 Roppe website: [www.roppe.com](http://www.roppe.com). Excelsior Cleaning and Maintenance products are the recommended products for use; all can be found linked to the product on the Roppe website or at [www.excelsiorproducts.net](http://www.excelsiorproducts.net).
	3. **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.
6. **CLOSEOUT ACTIVITIES**
	1. **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.
	2. **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 wall base from scuffing and tearing using temporary floor protection as well.

END OF SECTION 09 65 19.23