**DIVISION 09 – FINISHES**

**SECTION 09 65 19.33 – RUBBER TILE FLOORING**

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BEGINNING OF SECTION 09 65 19.33

**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. Resilient Flooring
		2. Accessories required for installation, maintenance and repair.
	2. **Related Work:** The following sections serve as a guide to what is essential information needed to determine the acceptability of the site conditions required for the installation of resilient flooring.
		1. Section 02 25 00 Existing Material Assessment
		2. Section 03 05 00 Common Work Results for Concrete
		3. Section 06 05 00 Common Work Results for Wood, Plastics and Composites
		4. Section 07 05 00 Common Work Results for Thermal and Moisture Protection
		5. Section 07 10 00 Dampproofing and Waterproofing
	3. **References (Industry Standards):**
		1. ASTM International (ASTM):
			1. ASTM F1344, Standard Specification for Rubber Floor Tile
			2. ASTM D2047, Standard Test Method for Static Coefficient of Friction as Measured by the James Machine
			3. ASTM D2240, Standard Test Method for Rubber Property – Durometer Hardness
			4. ASTM D3389, Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader)
			5. ASTM E648, Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
			6. ASTM E662, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
			7. ASTM G21, Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi
			8. ASTM F386, Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces
			9. ASTM F925, Standard Test Method for Resistance to Chemicals of Resilient Flooring
			10. ASTM F970, Standard and Modified Test Method for Static Load Limit
			11. ASTM F1514, Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color Change
			12. ASTM F2199, Standard Test Method for Determining Dimensional Stability of Resilient Floor Tile After Exposure to Heat
			13. ASTM F2055, Standard Test Method for Size and Squareness of Resilient Floor Tile by Dial Gauge Method
			14. ASTM E492, Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine
			15. ASTM E90/E413, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
			16. ASTM E2179, Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors
			17. ASTM F710, Standard Practice for Preparing Concrete to Receive Resilient Flooring
			18. ASTM F1482, Standard Guide to Wood Underlayments products Available for Use Under Resilient Flooring
			19. ASTM F1869, Standard Test Method for Measuring Moisture Vapor Emissions Rate of Concrete Subfloor using Anhydrous Calcium Chloride
			20. ASTM F2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs using in situ Probes
		2. **National Fire Protection Association (NFPA):**
			1. NFPA 253, Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source
			2. NFPA 258, Test Method for Specific Density of Smoke Generated by Solid Materials
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 style, color and texture 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, welding beads, installation and maintenance products, 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 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.
	3. **Sustainable Design Requirements:**
		1. Performance Compound Rubber Tiles have a published EPD
		2. Performance Compound Rubber Tiles have a published HPD
		3. Performance Compound Rubber Tiles are PVC free
		4. Performance Compound Rubber Tiles and accessories are easily cleaned and do not require coatings and strippers, or the use of chemicals that may be hazardous to human health
		5. Performance Compound Rubber Tiles contribute to LEED credits
		6. Performance Compound Rubber Tiles are SCS FloorScore® Certified and meet California Specifications Section 01350
		7. Performance Compound Rubber Tiles are Recyclable under the Roppe IMPACT Program for returning jobsite scrap
		8. Performance Compound Rubber Tiles are free of materials known to be teratogenic, mutagenic or carcinogenic including halogens, asbestos and chlorines
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 Performance Compound Tiles after other finishing operations, including painting, have been completed.
	2. Maintain temperature at service levels and/or the ambient temperature must remain steady (plus or minus 10 degrees F) between 65degrees 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.
	4. Avoid conditions in which dew point causes condensation on the installation surface.
7. WARRANTY
	1. Provide manufacturer’s standard limited commercial warranty to cover manufacturing defects.

**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) 537-9527
	2. Substitutions: No substitutions permitted
2. PRODUCTS
	1. ROPPE HOMOGENEOUS PERFORMANCE COMPOUND RUBBER TILE FLOORING
		1. ASTM F1344, Rubber Floor Tile; Class1 A, Grade 1
		2. *(remove all but the style selecting)*[Style #Q991 Slate Design], [Style #Q992 Low Profile Circular], [Style #Q993 Textured Design], [Style #Q994 Raised Square Design], [Style #Q995 Hammered Design], [Style #Q996 Raised Circular Design] for Solid Color Raised finish.
		3. Dimensions: 19 11/16 inches x 19 11/16 inches (50 cm)
		4. Thickness: 1/8 inch (3.175 mm)
		5. ASTM D2047, Slip resistance; >0.6 (wet & dry)
		6. ASTM D3389, Abrasion resistance; <1 g loss (1000 cycles)
		7. ASTM E648/NFPA 253, Critical Radiant Flux; Class 1, > 0.45 W/cm2
		8. ASTM E662/NFPA 258, Smoke Density; Passes, < 450
		9. ASTM F386, Thickness, Passes
		10. ASTM F970, Static Load Limit, Passes 250 psi
		11. ASTM F970 (modified), Static Load Limit; 1100 psi
		12. ASTM F925, Chemical Resistance; Passes
		13. ASTM F1514, Color Heat Stability; Passes, < 8.0 ΔE
		14. ASTM F2055, Size and Squareness, Passes
		15. ASTM F2199, Dimensional stability; <0.15 % (MD & AMD)
		16. ASTM G21, Resistance to Fungi; Excellent
		17. Performance Compound Rubber Tiles are resistant to petroleum-based oil, grease and hydrocarbons
		18. Performance Compound Rubber Tiles qualify under the Roppe IMPACT Program for returning jobsite scrap as recyclable
		19. Performance Compound Rubber Tiles have a published EPD
		20. Performance Compound Rubber Tiles have a published HPD
		21. Performance Compound Rubber Tiles are easily cleaned and do not require coatings and stripping, or use chemicals that may be hazardous to human health
		22. Performance Compound Rubber Tiles are SCS FloorScore® Certified and meets California Specifications Section 01350
		23. Performance Compound Rubber Tiles meet NSF 332 Gold Criteria
		24. Performance Compound Rubber Tiles meet CHPS Criteria
		25. Performance Compound Rubber Tiles are manufactured in the U.S.A.
		26. Performance Compound Rubber Tiles are free of materials known to be teratogenic, mutagenic or carcinogenic
		27. Performance Compound Rubber Tiles are free of Halogens
		28. Performance Compound Rubber Tiles are free of Asbestos
		29. Performance Compound Rubber Tiles are free of Phthalates
		30. Performance Compound Rubber Tiles are free of Heavy Metals
		31. Performance Compound Rubber Tiles are free of any Red List Chemicals
		32. Performance Compound Rubber Tiles are free of PVC
3. INSTALLATION AND MAINTENANCE MATERIALS
	1. **Moisture Mitigation:** Moisture testing is required for all Roppe Performance Compound Rubber Tile 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, such as shotblasting or diamond grinding.
			7. 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.
			8. Flooring or subsequent coatings can be installed in less than two hours.
			9. 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 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
		2. 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
				3. 7-10 pH
	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 maintenance
			3. For routine maintenance
		2. Excelsior CM-910, Cleaner/Maintainer provided by Roppe
			1. For daily maintenance
			2. For routine maintenance
			3. Creates protective film that protects flooring and eases maintenance

**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, ACI and RFCI guidelines, 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 degrees F and 85 degrees 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 which can be accessed at [www.roppe.com](http://www.roppe.com).
		8. 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 acceptable to manufacturer of resilient flooring materials.
		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, CFI (Certified Floorcovering Installers) Certified and/or an FCICA (The Flooring Contractors Association) 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 which can be accessed at [www.roppe.com](http://www.roppe.com).
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 of an inch within 6 feet or 3/16 of an inch within 10 feet.
		3. If flooring is installed over radiant heating ensure the temperature of the radiant heating system does not exceed 85 degrees F (29.5 degrees C).
		4. 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. **Cleaning:** Mechanically remove contamination on the substrate that may cause damage to the flooring material, this includes paint, sweeping compounds, curing compounds, residual adhesives and adhesive removers, concrete hardeners or densifiers, solvents, wax, oil, grease, asphalt, visible alkaline salts, mold, mildew and any other coatings, films or foreign matter.
		3. **Cracks:** 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. **Expansion joints:** Do not install material over expansion joints.
	4. **Wood Substrates:** wood substrates must have a minimum of 18 inches (45.7 cm) of cross ventilated space beneath the joist.
		1. Wood substrates must be a minimum 1 inch 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, fiberboard, or cementitious tile backer board.
		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 inches (7.62 cm) or less and is tongue-and-groove and with a smooth surface, use minimum 1/4 of an inch (6.4 mm) underlayment panels.
			2. Boards with a face width greater than 3 inches (7.62 cm) or not tongue-and-groove, or with a rough surface, use minimum 1/2 of an inch (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 Rubber Tile:** Install material in accordance with manufacturer’s recommendations.
		1. Select the appropriate adhesive for the application and job site conditions.
		2. Install resilient flooring following Manufacturer’s current printed guidelines.
		3. Install material in a Monolithic pattern following the guidelines in section 5 of the Technical Data Sheet.
		4. Install material according to directional arrow on the back of the material and do not reverse sheets.
		5. Ensure material is rolled appropriately into the adhesive using a 100 lb. three section roller
	3. **Interface with Other Work:** If caulking or sealing is required after installation, please contact the manufacturer for a suitable, color matching caulk.
	4. **Repair:** Repair material must come from the same original dye lot as the Manufactured Product Initially installed.
		1. Repairs are to be performed by installer who have completed INSTALL (International Standards & Training Alliance) or CFI (Certified Floorcovering Installers) training programs and/or are certified by INSTALL or CFI or 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).
5. CLEANING & MAINTENANCE
	1. **General**: Clean up installation area and vacuum and then damp mop 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. Excelsior Cleaning products are the recommended products for use. All can be found linked to the product on the Roppe website: [www.roppe.com](http://www.roppe.com) 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 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, dirt and dust is 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 19.33