

**SHOCKGUARD MULTI-USE VINYL SHEET**

**CSI MASTER FORMAT GUIDE SPECIFICATION**

**09 65 66 RESILIENT ATHLETIC FLOORING**

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* Specifier notes are shown in blue like this: Editor Notes
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Roppe Corporation | 1600 North Union Street | Fostoria, Ohio 44830 U.S.A.

phone: (800) 537-9527 | e-mail: sales@roppe.com | website: [www.roppe.com](http://www.roppe.com)

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These products are intended for installation by professionals, prior to use the user must determine the suitability of our products for the intended use, and the user alone assumes all risks and liability.

**DIVISION 09 - FINISHES**

**SECTION 09 65 66 - RESILIENT ATHLETIC FLOORING**

1. **GENERAL**
	* + 1. **SUMMARY**
				1. Section Includes:

Resilient Athletic Flooring.

* + - * 1. Related Sections:

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. **REFERENCES**
				1. ASTM International (ASTM):

ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source

ASTM E662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials

ASTM F2772 - Standard Specification for Athletic Performance Properties of Indoor Sports Floor Systems

ASTM D2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine

ASTM E303 -Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester

ASTM F970 - Standard Test Method for Measuring Recovery Properties of Floor Coverings after Static Loading

ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

ASTM F1482 - Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring

ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs

ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes

ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

ASTM F3191 - Standard Practice for Field Determination of Substrate Water Absorption (Porosity) for Substrates to Receive Resilient Flooring

ASTM F3441 - Standard Guide for Measurement of pH Involving Resilient Flooring Installations

ASTM F3311 - Standard Practice for Mat Bond Evaluation of Performance and Compatibility for Resilient Flooring System Components Prior to Installation

* + - * 1. Resilient Floor Covering Institute (RFCI) - FloorScore Certification Program
			1. **SUBMITTALS**
				1. Review Submittals:

Product Technical Data Sheet: Provide data on specified products, describing physical and performance characteristics.

Samples:

Wood visual samples Minimum 24 inches by 36 inches to show that the appearance of wood plank pattern complies with these specifications

Solid color samples: Minimum 6 inches by 8 inches.

* + - * 1. Quality Control Submittals:

Certificates of Compliance:

Certification from an independent testing laboratory that flooring meets fire hazard classification requirements.

Certification from an independent testing laboratory that flooring meets ASTM F2772 - Standard Specification for Athletic Performance Properties of Indoor Sports Floor Systems indicating the product being furnished complies with all requirements of ASTM Indoor Sport Floor Classification, including minimum CLASS 2 force reduction or shock absorption. Third-party testing certification required; sales literature is not sufficient.

Certification from an independent testing laboratory that flooring meets minimum requirement of 0.5 Coefficient of Friction when tested according to ASTM D2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine using a leather sensor under dry conditions.

* + - * 1. Shop Drawings:

Showing installation details and locations of borders, patterns, game lines, locations of floor inserts and seams.

* + - * 1. Closeout Submittals:

Manufacturer Care & Maintenance Information

Manufacturer Material Warranty

Installer Installation Warranty

* + - 1. **QUALITY ASSURANCE**
				1. Manufacturer Qualifications:

At least ten years active experience in the manufacture and marketing of indoor resilient athletic flooring.

* + - * 1. Installer Qualifications:

At least five years [documented] experience in the installation of resilient athletic flooring.

Experience on at least three projects of similar size, type and complexity as this project.

* + - * 1. Product Qualifications:

Fire Test Characteristics: As determined by testing identical products according to ASTM E 648, Class 1, by a qualified testing agency acceptable to authorities having jurisdiction.

Athletic Performance Properties: Comply with ASTM F 2772 Performance Level CLASS 2 for force reduction, ball bounce, vertical deformation and surface friction.

* + - * 1. Environment and Indoor Air Quality:

LEED™ Documentation:

MR Credits: For products having recycled content, indicate percentage by weight of post-consumer and pre-consumer recycled content.

IEQ Credits: For adhesives and flooring, including a statement of VOC content.

* + - * 1. Indoor Air Quality Certification:

Flooring products must be FloorScore® Certified.

FloorScore® certification proves compliance with the volatile organic compound emissions criteria of the California Section 01350 standard.

FloorScore® certification proves compliance with the testing and product requirements of the California Department of Health Services “Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers.”

FloorScore® documentation must include certificate number for specified product.

* + - * 1. Collaborative for High Performance Schools (CHPS): Flooring products must meet Collaborative for High Performance Schools (CHPS) requirements.
				2. Flooring products must meet the following:

100% Reach compliant

100% free of Heavy Metals

100% free of Solvents

100% free from Formaldehyde

100% Manufacturing Waste Recycled

Manufactured with non-phthalate plasticizers

* + - 1. **DELIVERY, STORAGE, AND HANDLING**
				1. Store flooring and installation materials in protected dry spaces, with ambient temperatures maintained within range recommended by manufacturer, but not less than 55 deg F (13 deg C) nor more than 85 deg F (29 deg C).
				2. Store the indoor resilient athletic surfacing rolls in an upright position on a smooth flat surface immediately upon delivery to Project.
			2. **PROJECT CONDITIONS**
				1. Product Installation:

Maintain temperatures during installation within the range recommended by manufacturer, but not less than 60 deg F (15.5 deg C) or more than 85 deg F (29 deg C) in spaces to receive flooring for 48 hours prior, during and 48 hours after the installation.

After installation, maintain temperatures within range recommended by manufacturer, but not less than 60 deg F (15.5 deg C) or more than 85 deg F (29 deg C).

Prohibit traffic during flooring installation and for at least 48 hours after flooring installation.

Install flooring only after other finishing work, including painting and overhead work, has been completed.

* + - * 1. Project Coordination:

Coordinate layout and installation of flooring with other gymnasium equipment.

* + - 1. **WARRANTY**
				1. Manufacturer’s Limited Warranty: Manufacturer's standard product warranty in which manufacturer agrees to repair or replace material deemed defective during specified warranty period.

Warranty Period: 10 Year Limited Commercial Warranty from Date of Substantial Completion.

* + - * 1. Installation Warranty: Installer's standard form in which installer agrees to repair or replace sports flooring that fails due to poor workmanship or faulty installation within the specified warranty period.

Warranty Period: 2 Years from Date of Substantial Completion.

* + - 1. **MAINTENANCE MATERIALS**
				1. Extra Materials: Attic stock to coordinate any repairs necessary by the facility includes a minimum of 10% percent of needed materials to be stored appropriately after completion of project.
1. **PRODUCTS**
	* + 1. **RESILIENT ATHLETIC FLOORING**
				1. Basis-of-Design: Subject to compliance with requirements, provide Roppe ShockGuard Multi-Use Vinyl Sheet Flooring with Roppe provided Excelsior full-spread adhesive.

Editor Note:

Select one of the following 3 paragraphs to address consideration of additional manufactures:

If no substitutions will be accepted:

* + - * 1. Substitution Limitations:

No substitutions.

If products from other manufacturers will be considered, insert the manufacturer's name, the product name and/or model number:

* + - * 1. Other Manufactures: Subject to compliance with all the requirements of this specification including full-spread adhesive coverage provide products by one of the following:

**[Insert flooring manufacturer name**] **-** [**Insert flooring product name/model**].

If other manufacturers are allowed to submit requests for approval prior to bid:

* + - * 1. Substitution Limitations:

All other manufacturers: Submit formal substitution request prior to bid in accordance with Section 01 25 00 - "Substitution Procedures”.

Approval of other manufacturers does not relieve the Flooring Contractor of responsibility to provide products which comply with all requirements of this specification including full-spread adhesive coverage.

* + - * 1. Product Description: Dual-durometer foam-backed sheet vinyl flooring designed for fully adhered athletic flooring applications.

Overall Thickness: Not less than 0.28 inch (7 mm)

Wear-Layer Thickness: Not less than 0.03 inch (0.7 mm)

Backing:

100% PVC high density, two layer, dual-durometer, closed cell foam

One layer of woven grid fiberglass reinforcement for dimensional stability and indentation resistance

Seaming Method: Heat welded

Adhesive Method:

Full-spread adhesive coverage to completely adhere flooring to substrate

Complete adhesive coverage to eliminate the possibility of gaps or space between the slab and flooring material where moisture could accumulate and create an environment conducive to mold growth

Flooring to be fully adhered to the concrete slab in all locations eliminating the possibility of waves or wrinkles forming caused by the floor shifting, moving or by rolling loads displacing it

Traffic-Surface Texture:

Wood visuals shall have wood grain embossed texture for a genuine wood appearance.

Solid colors to have “hammered” embossed texture for an attractive appearance.

Applied Finish: Manufacturer's, factory-applied, permanent and UV-cured.

No-Wax finish: Published product literature identifying factory applied finish as, “No-Wax-Just clean and rinse”

Basis-of-Design Product: Roppe EverProtect – a Factory Applied Permanent Polyurethane Finish.

Field-Applied Finishes: None required and not allowed

Roll Size:

Roll Width: Rolls to be a minimum width of 71 inches (1.8 m) wide.

Roll Length:

Wood visual rolls to be a minimum length of 85 feet (25.9 m) to minimize the number of end-seams

Roll length of wood visual flooring shall be sufficient to cover the full length of a high school main basketball court (84’-0”) without splicing or end-of-roll (butt) seams within the main court boundary.

Solid color rolls to be a minimum length of 49 feet (15 m) to minimize the amount of waste if accent colors are selected for borders, keys or center circle

Color and Pattern:

As selected by the Owner from the manufacturer's standard colors and patterns.

Wood visual pattern shall accurately simulate the true visual appearance of natural athletic wood strip flooring

Pattern shall replicate random-length stock by simulating non-uniform board lengths ranging from 18 inches to 48 inches with a maximum board width of 2-1/2 inches

Wood visual pattern shall not include a dark line simulating edges or ends of individual boards

Surface texture shall simulate realistic wood grain and not be raised or "hammered" embossing

Performance Criteria:

ASTM F 2772 Indoor Sport Floor Standard:

Shock Absorption/Force Reduction: Class 2 (22% to 33%)

Ball Bounce: Minimum 90%

Surface effect/Coefficient of Friction: Between 80-110

Vertical deformation: Maximum 3.5mm

Fire Performance: ASTM E648; Greater than 0.45 W/cm2, Class 1

Resistance to Rolling Load: EN 1569

Chemical Resistance: ASTM F925

Impact Resistance: EN 1517

Abrasion Resistance: EN ISO 5470\

Gloss/Brightness: EN ISO 2813

Organic Emission: ASTM D5116

Surface Maintenance Requirements: No-wax surface requiring only cleaning and rinsing.

* + - 1. **ACCESSORIES**
				1. Trowelable patching compound for standard slab surface preparation: Latex-modified, hydraulic-cement-based formulation recommended by flooring manufacturer.
				2. Adhesives: recommended by athletic flooring manufacturer for substrate and conditions indicated

Basis-of-Design Product: Roppe provided Excelsior PS-525 Modified Pressure Sensitive Adhesive.

Moisture Resistance Limit:

New Slabs: 95% relative humidity (RH) when tested according to ASTM F2170

Existing Slabs: 90% relative humidity (RH) when tested according to ASTM F2170

Coverage Type: Full-spread application for 100% coverage.

* + - * 1. Heat Welding Rod: As supplied by flooring manufacturer and color shall blend with resilient athletic flooring color
				2. Game-Line and Marker Paint: Complete system including primer, compatible with flooring and recommended by flooring and paint manufacturers.

Basis-of-Design Product: Endura Game Line Paints provided by Canam Coatings; website: <https://www.canamcoatings.com/game-line.html>

* + - * 1. Finishing Accessories: Solid Vinyl or Rubber Composition minimum of 1 inch wide by the flooring thickness, tapered, color coordinated to flooring from manufacturer’s full color range where needed
1. **EXECUTION**
	* + 1. **EXAMINATION**
				1. Verify the Following:

Concrete floors have cured a minimum 28 days and do not exhibit negative alkalinity, carbonization, or dusting.

The area in which the indoor resilient athletic flooring will be installed is dry, weather-tight and in compliance with specified requirements.

Permanent heat, lighting and ventilation systems are installed and operable.

Other work, including overhead work, that could cause damage, dirt, dust or otherwise interrupt installation has been completed or suspended.

No foreign materials or objects are present on the substrate and that it is clean and ready for preparation and installation.

Tests to verify that the moisture evaporative rate or substrate relative humidity is within the specified ranges.

The concrete slab surface pH level is within the specified range.

The concrete slab surface deviation is no greater than 3/16 inch within 10 feet (3.2 mm within 3 m) when measured according to ASTM E1155.

The concrete slab complies with ACI 302.2R for concrete design including use of a low-permeance vapor barrier directly beneath the concrete subfloor with sealed penetrations according to ASTM E1745.

* + - 1. **PREPARATION**
				1. Prepare substrates according to manufacturer's written recommendations to ensure proper adhesion of resilient athletic flooring system
				2. Concrete Substrates: Prepare according to ASTM F710 and manufacturer’s recommendations

Verify that substrates are dry and free of sealers, curing compounds and other additives. Remove coatings and other substances that are incompatible with adhesives using mechanical methods recommended by the manufacturer

* + - * 1. Alkalinity Testing: Perform pH testing according to ASTM F3441 and proceed with installation only when readings are within ranges specified by the manufacturer
				2. Moisture Testing: Perform ASTM F2170 relative humidity test and proceed with installation only after substrates have maximum relative humidity (RH) of 95% for new concrete slabs

Existing slabs have a maximum relative humidity (RH) of 90%

* + - * 1. Use appropriate trowelable Portland cement-based patching compound with the same moisture vapor tolerance as the adhesive to fill depressions, holes, cracks, grooves or other irregularities in substrate.
				2. Place flooring and installation materials into spaces where they will be installed at least 48 hours before installation. Install flooring materials only after they have reached the same temperature as space where they are to be installed
				3. Sweep and then vacuum substrates immediately before installation. After cleaning, examine substrate for moisture, alkaline salts, grit, dust or other contamination. Proceed with installation only after unsatisfactory conditions have been corrected.
			1. **INSTALLATION**
				1. General:

Comply with resilient athletic flooring manufacturer's installation instructions.

Take necessary precautions to minimize noise, odors, dust and inconvenience during installation.

Fit flooring neatly and tightly to vertical surfaces, equipment anchors, floor outlets, and other interruptions of floor surface.

Extend flooring into toe spaces, door reveals, closets, and similar openings unless otherwise indicated.

* + - * 1. Lay out flooring as follows:

Minimize the number of seams and place them in inconspicuous areas.

Locate seams as shown on approved Shop Drawings

* + - * 1. Adhering Flooring: Attach products to substrates using a full-spread of adhesive applied to substrate to comply with adhesive and flooring manufacturer instructions.
				2. Flooring Seams: Finish seams to produce surfaces flush with adjoining flooring surfaces. Comply with ASTM F1516 Standard Practice for Sealing Seams of Resilient Flooring Products by the Heat Weld Method
			1. **GAME LINES AND LOGOS**
				1. Lay out game lines and logos to comply with rules and diagrams published by National Federation of State High School Association for the sports activities indicated and/or owners’ specific requirements.
				2. Mask flooring at game lines and logos, and apply paint of color indicated to produce clean, sharp and distinct edges.
			2. **CLEANING AND PROTECTION**
				1. Clean resilient athletic flooring installation in accordance with Manufacturer’s Care & Maintenance Instructions
				2. Protect flooring from abrasions, indentations, and other damage from subsequent operations and placement of equipment, during the remainder of the construction period.

**END OF SECTION**