

**SECTION 09 65 00**  
**RESILIENT SHEET FLOORING SPECIFICATION**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section Includes: This section specifies resilient sheet vinyl flooring including:
1. Smoothing/filling compounds
  2. Self-leveling underlayment
  3. Adhesives and seam treatment
  4. Double faced tape
  5. Chemical sealer
  6. Welding thread

Specifier Note: Revise paragraph below to suit project requirements.

1.02 RELATED SECTIONS

Specifier Note: Include in this Article only those sections that directly affect the work of this section.

- A. Section [\_\_\_\_\_].

1.03 REFERENCES

- A. Americans with Disabilities Act (ADA) of 1990.
- B. American Association of Textile Colorists and Chemists (AATCC):
1. •Gray Scale for Color Change – Evaluation Procedure 1.
  2. •Gray Scale for Staining – Evaluation Procedure 2.
- C. ASTM International (ASTM):
1. ASTM C109/C109M Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens).
  2. ASTM C472 Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete.
  3. ASTM C1028 Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.
  4. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
  5. ASTM D2240 Standard Test Method for Rubber Property-Durometer Hardness.
  6. ASTM D3884 Standard Guide for Abrasion Resistance of Textile Fabrics (Rotary Platform, Double-Head Method).
  7. ASTM E648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
  8. ASTM E662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
  9. ASTM E1155 Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.
  10. ASTM F137 Standard Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus.
  11. ASTM F386 Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces.
  12. ASTM F410 Standard Test Method for Wear Layer Thickness of Resilient Floor Coverings by Optical Measurement.
  13. ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

14. ASTM F925 Standard Test Method for Resistance to Chemicals of Resilient Flooring.
  15. ASTM F970 Standard Test Method for Static Load Limit.
  16. ASTM F1303 Standard Specification for Sheet Vinyl Floor Covering with Backing.
  17. ASTM F1514 Standard Test Method for Measuring Heat Stability of Resilient Vinyl Flooring by Color Change.
  18. ASTM F1515 Standard Test Method for Measuring Light Stability of Resilient Vinyl Flooring by Color Change.
  19. ASTM F1914 Standard Test Method for Short-Term Indentation and Residual Indentation of Resilient Floor Covering.
  20. ASTM F2199 Standard Test Method for Determining Dimensional Stability of Resilient Floor Tile after Exposure to Heat.
  21. ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
  22. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- D. National Fire Protection Association (NFPA):
1. NFPA 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
  2. NFPA 258 Standard Research Test Method for Determining Smoke Generation of Solid Materials.
- E. International Organization for Standardization
1. ISO TR4918 Castor Chair Test
  2. ISO 9001 Quality Systems – Model Quality Assurance in Production, Installation, and Servicing
  3. ISO 14001 Environmental Management Systems – Specification with Guidance for Use.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities.

#### 1.04 ACTION SUBMITTALS

- A. Samples: Submit as follows:
1. [Duplicate] [8 inches x 10 inches (305 x 305 mm)] [ ] samples of high performance resilient sheet vinyl flooring.
- B. Product Data: Submit manufacturer's product data and installation instructions for each product. Include the following information as requested:
1. Product Name.
  2. Color.
  3. Manufacturer's Product Specifications.
  4. Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) for:
    - a. Resilient sheet vinyl flooring.
    - b. Adhesives.
    - c. Double face tape.
    - d. Chemical seam sealer.
- C. Shop Drawings:
1. Submit dimensioned drawings with placement details. Include the following information:
    - a. Seam layout.

#### 1.05 INFORMATION SUBMITTALS

- A. Quality Assurance:
1. Test Reports: Qualification test reports issued by a nationally recognized testing laboratory showing product compliance with specified performance characteristics and physical requirements.
  2. Manufacturer's Instructions: Manufacturer's installation instructions; manufacturer's instruction sheets.

Specifier Note: Coordinate paragraph below with Part 3 Field Quality Control Article. Retain or delete as applicable.

- B. Manufacturer's Field Reports: Indicate compliance with performance requirements.

Specifier Note: Include the following for projects obtaining LEED® certification.

- C. Sustainable Design Submittals:
  - 1. Document of verification of recycled content.
  - 2. Document of verification of low VOC content.

#### 1.06 CLOSEOUT SUBMITTALS

- A. Closeout Submittals: Submit following:
  - 1. Warranty: Warranty documents specified.
  - 2. Maintenance Data: Maintenance data for installed products include:
    - a. Methods of initial maintenance to be performed 48 hours after installation.
    - b. Methods for maintaining installed products.

#### 1.07 QUALITY ASSURANCE

- A. Flooring Contractor Qualifications:
  - 1. The awarded contractor shall be an established firm with experience in the installation of the specified product and have access to all manufacturers' required technical, maintenance, specifications and related documents.
  - 2. The flooring contractor shall have completed at least 3 projects of similar scope, material and complexity, and must provide project reference details including contact names and telephone numbers.
- B. Installer Qualifications:
  - 1. An experienced installer, as determined by contractor, who has specialized in the installation of work similar to that required for this project is to perform the work of this section.
  - 2. Installation procedures should be in strict accordance with Lonseal, Inc.'s published technical documentation and shall not begin until the work of all other trades has been completed.

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section.

- C. Regulatory Requirements:
  - 1. In accordance with ICC-ES, federal, state and local, municipal code requirements.
- D. Pre-installation Meetings: Conduct preinstallation meeting to verify project requirements, manufacturer's installation instructions, maintenance guidelines and manufacturer's warranty requirements.

#### 1.08 DELIVERY, STORAGE & HANDLING

- A. Ordering:
  - 1. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Delivery, Storage and Protection:
  - 1. Store materials in clean, dry and temperature-controlled environment.
  - 2. Remove rolls from shipping pallet immediately and store standing on end.
  - 3. Wrap opened rolls tightly and face out to avoid material distortion. Store standing on end.
  - 4. Maintain storage temperature range of 65 - 85 degrees F (18 - 29 degrees C).
  - 5. Ensure materials and adhesives are correct for job, and that pattern, color, style and lot numbers match those called for in finish schedule as specified for project.
- C. Waste Management and Disposal:
  - 1. Remove from site and dispose of packaging materials at appropriate recycling facilities.

#### 1.09 WARRANTY

- A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's 10 year product warranty document executed by authorized company official.
- B. The resilient sheet vinyl shall be covered against manufacturing defects by a one (1) year warranty and as a result of normal foot traffic; wear is covered by a ten (10) year warranty. Manufacturer's warranty is in addition to, and does not limit, other rights Owner may have under Contract Documents.

## PART 2 PRODUCTS

### 2.01 MANUFACTURER

- A. Manufacturer: The manufacturer of the flooring product must be accredited to both ISO 9001 (Quality Management System) and ISO 14001 (Environmental Management System).
1. Lonseal Corporation
    - a. Address: 5-3 Higashi Nakanuki-Cho, Tsuchiura-shi, Ibaraki-pref, Japan
- B. Distributor: The distributor of the flooring product must be accredited to ISO 9001 (Quality Management System).
1. Lonseal, Inc.
    - a. Contact: 928 E. 238th St., Carson, CA 90745-6208; Telephone: (800) 832-7111, (310) 830-7111; Fax: (310) 830-9986; E-mail: [info@lonseal.com](mailto:info@lonseal.com); website: [www.lonseal.com](http://www.lonseal.com).

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable.

### 2.02 PERFORMANCE CRITERIA

Specifier Note: Review performance requirements with Lonseal, Inc.'s Product Specifications and insert values to suit product and project requirements.

- A. Interior Resilient Sheet Vinyl Flooring: To ASTM F1303 and as follows:

1. Type: 1
2. Grade: 1
3. Backing: Class B or Class C

Specifier Note: Refer to Lonseal, Inc.'s Product Specifications to select appropriate data to specified flooring.

4. Size:
  - a. Nominal Thickness: [\_\_\_\_\_]
  - b. Wearlayer Thickness: [\_\_\_\_\_]
  - c. Middle and Backing Layer Thickness: [\_\_\_\_\_]
  - d. Closed-cell Layer Thickness: [\_\_\_\_\_]
5. Weight: [\_\_\_\_\_]
6. Roll Size: [72 inches wide x 60 feet long] [72 inches wide x 50 feet long] [96 inches wide x 60 feet long]

Specifier Note: Refer to Lonseal, Inc.'s Product Specifications to select appropriate data to specified flooring.

7. Abrasion Resistance: To ASTM D3884 with net weight loss after 1000 revolutions [\_\_\_\_\_].
8. Castor Chair Test: To [ISO TR4918] with a composite index of change after 25,000 cycles [\_\_\_\_\_].
9. Chemical Resistance: Report any surface dulling [\_\_\_\_\_] surface attack [\_\_\_\_\_] or color change [\_\_\_\_\_].
10. Coefficient of Friction (COF): Surpasses ADA guidelines based on ASTM C1028. Wet [\_\_\_\_\_] Dry [\_\_\_\_\_].
11. Static Coefficient of Friction (SCOF): Neolite with floor finish [\_\_\_\_\_] without floor finish [\_\_\_\_\_].
12. Critical Radiant Flux: To ASTM E648 to meet Class 1 per NFPA 253 [\_\_\_\_\_].
13. Dimensional Stability: Reported dimensional change per ASTM F2199 [\_\_\_\_\_].
14. Flexibility: Passes mandrel flexion per ASTM F137 [\_\_\_\_\_].
15. Hardness: Passes per ASTM D2240 [\_\_\_\_\_].
16. Heat Stability: Report results  $\leq 8$  per ASTM F1514 [\_\_\_\_\_].
17. Light Stability: Report results  $\leq 8$  per ASTM F1515 [\_\_\_\_\_].
18. Smoke Density: To ASTM E662/NFPA 258.
19. Short-term Indentation: To ASTM F1914, Type I [0.012 in. max] [\_\_\_\_\_].
20. Static Load Limit: To ASTM F970. Maximum residual compression at 0.005 inches after exposure to load noted on tested report after 24 hours: [\_\_\_\_\_].

Specifier Note: Lonseal, Inc.'s Sheet Vinyl Flooring is available in a variety of patterns, textures and colors. Contact manufacturer for options and samples.

**LONSEAL**

21. Flooring Style: [Smooth][Embossed][Wood Grain]
22. Product Name: [\_\_\_\_\_].
23. Color: [\_\_\_\_\_].

Specifier Note: Lonseal, Inc.'s Sheet Vinyl Flooring is available in **GreenAir™** [Low VOC formulation], **GreenMedic™** [Antimicrobial formulation] and FloorScore® certified product. Refer to Lonseal, Inc.'s Product Specifications to select appropriate specified flooring. Contact manufacturer for options and samples.

24. [**GreenAir™**][**GreenMedic™**][FloorScore® Certified]

Specifier Note: Lonseal, Inc.'s Sheet Vinyl Flooring is available with a minimum 10% pre-consumer recycled content and 35% pre-consumer recycled content. Loneco and Loneco Mesa are composed of a minimum 50% pre-consumer recycled content.

25. [10][35][50]% pre-consumer recycled content

LEED® Certification: Lonseal sheet vinyl can assist the facility with contributing towards LEED® points towards LEED® Certification.

26.	<b>Materials and Resources</b>	<b>credit reference MR 4</b>	<b>Point(s)</b>
a.	Recycled Content	10%	--- 1Point ---
b.	Recycled Content	20%	--- 2 Point ---
27.	<b>Indoor Environmental Quality</b>	<b>credit reference IEQ 4.1</b>	<b>Point(s)</b>
a.	Low-Emitting Materials	Adhesives and Sealants	--- 1 Point ---
28.	<b>Indoor Environmental Quality</b>	<b>credit reference IEQ 4.3</b>	<b>Point(s)</b>
a.	Low-Emitting Materials	Flooring Systems	--- 1 Point ---

### 2.03 ACCESSORIES

#### A. Smoothing/Filling Compounds

Specifier Note: Specify the following compound for smoothing and filling indentations, holes and minor cracks on commercial projects and for all applications over concrete.

1. Portland cement-based products with a minimum cured compression strength of 3500 PSI (24.1 MPa) in accordance with ASTM C109 or ASTM C472. Gypsum based products are not recommended for this application.
  - a. Acceptable Material: Underlayment materials recommended by Lonseal, Inc.

Specifier Note: Self-leveling underlayment can be applied over virtually any dry, clean and solid substrate.

2. Self-leveling Underlayment: Self-leveling Portland cement-based, cured to 4100 PSI (24.1 MPa) or greater.
  - a. Acceptable Material: Self-leveling underlayment materials recommended by Lonseal, Inc.

#### B. Primer Purpose: Made and designed to encapsulate substrate.

1. Acceptable Material: As recommended by underlayment manufacturer and approved by Lonseal, Inc.

Specifier Note: Note that use of adhesives and other materials not specifically recommended in writing by Lonseal, Inc., will void the Lonseal, Inc., product warranty and may result in damage to the vinyl sheeting, jeopardizing appearance and performance.

#### C. Adhesives and Seam Treatment:

1. Porous and Non-Porous and Vertical Applications: Premium quality, white acrylic adhesive.
  - a. Acceptable Material: No. 755 Premium Bond sheet vinyl adhesive distributed by Lonseal, Inc.
2. Extreme Service Requirements: 2-component, high performance epoxy adhesive for transition areas.
  - a. Acceptable Material: No. 300 Epoxy distributed by Lonseal, Inc.
3. General Use for every substrate and vertical applications: Fast-drying Nitrile-based, high-strength adhesive formulated for spray, roller or brush application.
  - a. Acceptable Material: No. 400 Contact Adhesive distributed by Lonseal, Inc.

- D. Double Faced Tape (DFT): Aggressive, paper-backed, dry adhesive film tape.
  - 1. Size: 2 inches (51 mm) wide x 60 feet (18.3 m) long rolls.
  - 2. Acceptable Material: Lonseal Double Faced Tape (DFT), distributed by Lonseal, Inc.
- E. Chemical Seam Sealer: Fast-flash solvent supplied in metal tube with needle protruding from nozzle.
  - 1. Acceptable Material: Lonsealer, distributed by Lonseal, Inc.
- F. Welding thread: PVC rod for heat welded seams
  - 1. Acceptable Material: Color matched to specified products and supplied by Lonseal, Inc.

#### 2.04 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

### **PART 3 EXECUTION**

#### 3.01 INSTALLERS

- A. Provide experienced and qualified technicians to carry out installation of commercial sheet vinyl flooring.

#### 3.02 MANUFACTURER'S INSTRUCTIONS

Specifier Note: Article below is a supplement to the 3-part Specification. Revise article below to suit project requirements and specifier's practice.

- A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and Lonseal, Inc.'s Product Specifications.

#### 3.03 EXAMINATION

- A. Site Verification of Conditions:
  - 1. Verify that site is dry and has not been flooded for 2 weeks prior to installation.
  - 2. Provide and operate permanent HVAC and maintain work area and substrate at floor level temperatures between 65 - 85 degrees F (18 - 29 degrees C) for minimum of 48 hours prior to, during and 48 hours after installation. Do not use temporary gas-fired space heaters to warm installation area.
  - 3. Ensure substrate is not contaminated (including sweeping with oil-based products).
  - 4. Ensure other trades will remain out of the work area and off the floor until installation contractor advises it is safe to enter or for 48 hours post-installation.
  - 5. Provide adequate protective covering such as Masonite or Homasote panels to protect the vinyl from damage from other trades.

#### 3.04 PREPARATION

- A. Coordinate installation of Lonseal, Inc.'s vinyl flooring products with other construction trades.
- B. Prior to any installation of Lonseal sheet vinyl flooring over concrete:
  - 1. Test for moisture vapor drive, using both methods below:
    - a. ASTM F1869, with maximum slab moisture content not to exceed 5.0 lbs (2.3 kg).
    - b. ASTM F2170, with maximum slab moisture content not to exceed 75%.
  - 2. Test for alkalinity using the method below:
    - a. ASTM F710; maximum alkalinity not to exceed a pH of 9.
  - 3. Test that substrate is flat and level to ASTM E1155.
    - a. Floor Flatness (FF): FF18.
    - b. Floor Levelness (FL): FL15.
- C. Refer to Lonseal, Inc.'s "Technical Manual for Interior Flooring Products" for complete preparation requirements and for instructions related to different substrate preparation.

#### 3.05 INSTALLATION

- A. Refer to Lonseal, Inc.'s "Technical Manual for Interior Flooring Products" for complete installation guidelines.

### 3.06 FIELD QUALITY CONTROL

#### A. Site Tests, Inspection:

1. Inspect completed assembly for proper level and alignment.
2. Repair or replace damaged products prior to Substantial Completion.

### 3.07 FINAL CLEANING

- #### A. On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

### 3.08 PROTECTION & MAINTENANCE

- #### A. Protect installed product from damage during construction by providing adequate protective covering such as Masonite or Homasote panels in order to protect vinyl from damage caused by ladders and construction traffic.
- #### B. Install and maintain entry matting with a non-staining backing to reduce tracked-in dirt and contaminants.
- #### C. Initial maintenance is essential for increased longevity of vinyl flooring. Ensure initial maintenance is completed 48 hours after installation.
1. Depending on resilient floor covering style, this may include;
    - a. **Factory applied urethane:** This unique wear layer provides low maintenance that requires only dust and wet mopping using a microfiber mop pad with Lonseal's pH neutral cleaner - Loncare.
    - b. **Regular line:** Initial maintenance includes; dust and wet mop using a microfiber mop pad with Lonseal's pH neutral cleaner – Loncare. Let dry prior to applying 1 thin coat of Lonseal's base seal coat - Lonprime and 2-4 coats of floor finish - Lonfinish (glossy) or Lonsatin (matte). Allow 30-45 minutes to dry in-between finish coats. Allow to dry completely (4 hours) before allowing traffic.
- #### D. Refer to Lonseal, Inc.'s Technical Manual for Interior Flooring Products for detailed maintenance guidelines for the diverse styles of flooring products offered by Lonseal, Inc.