

SECTION 090050

SPRAY APPLIED FLOOR ADHESIVE

CSI 3-PART **LONG-FORM** GUIDE SPECIFICATION
USE FOR CONTRACT DOCUMENT (CD) SPECIFICATION ISSUES
EDIT TO SUIT PROJECT

PART 1 - GENERAL

1.1 SUMMARY

- A. Work of this Section consists of spray adhesive, and includes but is not limited to the following:
1. Spray-Lock 0.0 g/ml VOC Adhesive per EPA test method 24
 2. Substrate preparation
 3. Substrate testing
- B. Related Documents and Sections: Examine Contract Documents for requirements that directly affect or are affected by Work of this Section. A list of those Documents and Sections include, but is not limited to the following:
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and DIVISION 01 General Requirements, Specification Sections, apply to this Section.
 2. SECTION 033000, CAST-IN-PLACE CONCRETE For proper concrete design, underslab vapor barrier and finished concrete surface required to accept flooring adhesive and finish flooring system.
 3. SECTION 035416, HYDRAULIC CEMENT UNDERLAYMENT: For leveling of existing concrete slabs.
 4. SECTION 061000, ROUGH CARPENTRY: For proper wood-based panel underlayment required to accept installation of finish flooring systems.
 5. SECTION 061600, SHEATHING: For proper wood-based panel underlayment required to accept installation of finish flooring systems.
 6. SECTION 096500, RESILIENT FLOORING
 - a. SECTION 096516, RESILIENT SHEET FLOORING
 - 1). SECTION 096516.13, LINOLEUM FLOORING
 - b. SECTION 096519, RESILIENT TILE FLOORING
 7. SECTION 096800, CARPETING
 - a. SECTION 096813, TILE CARPETING
 - b. SECTION 096816, SHEET CARPETING

1.2 REFERENCES

NOTE: Coordinate and edit to the correct Section number below. The numbers shown indicate relevant broad-scope, medium-scope and narrow-scope numbers of the CSI MasterFormat® system.

- A. Abbreviations and Acronyms per SECTION 011000 or 011100, SECTION 014000, and as follows:
1. AHJ. Authority Having Jurisdiction from local, state and federal regulatory agencies.
 2. Per. In accordance with.
 3. RH. Relative humidity.
- B. Definitions per SECTION 011000 or 011100, SECTION 014000, and as follows:

1. Adhesive: A substance that unites or bonds surfaces together.
2. [HAP](#). Hazardous Air Pollutant
3. [LEED®](#). Leadership in Energy and Environmental Design, a set of USGBC rating programs applicable to construction projects.
4. [VOC](#). [Volatile Organic Compounds](#) are chemical compounds that have a high vapor pressure and low water solubility. They include a variety of chemicals, some of which may have short- and long-term adverse health effects when concentrated indoors.

NOTE: Edit items below to reflect project requirements.

C. Referenced Standards per SECTION 014000 and as follows:

1. ASTM. ASTM International; www.astm.org
 - a. ASTM D907, Standard Terminology of Adhesives
 - b. ASTM D1144, Standard Practice for Determining Strength Development of Adhesive Bonds
 - c. ASTM D1151, Standard Practice for Effect of Moisture and Temperature on Adhesive Bonds
 - d. ASTM D3167, Standard Test Method for Floating Roller Peel Resistance of Adhesives
 - e. ASTM D3983, Standard Test Method for Measuring Strength and Shear Modulus of Nonrigid Adhesives by the Thick-Adherend Tensile-Lap Specimen
 - f. ASTM D5116, Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products
 - g. ASTM D6004, Standard Test Method for Determining Adhesive Shear Strength of Carpet Adhesives
 - h. ASTM E329, Standard Specification for Agencies Engaged in Construction Inspection and/or Testing
 - i. ASTM E699, Standard Practice for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating of Building Components
 - j. ASTM F710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
 - k. ASTM F1482, Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring
 - l. ASTM F1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
 - m. ASTM F2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
2. BAAQMD. Bay Area Air Quality Management District; www.baaqmd.gov
3. CARB. California Air Resources Board; www.arb.ca.gov
4. CRI. Carpet and Rug Institute; www.carpet-rug.org
5. EPA. U.S. Environmental Protection Agency; www.epa.gov
6. GS. Green Seal; www.greenseal.org
7. ISO/IEC. International Organization for Standardization, International Electrotechnical Commission; www.iec.ch/
8. NFPA. National Fire Protection Association; www.nfpa.org
 - a. NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response
9. RFCI. Resilient Floor Covering Institute; www.rfci.com
10. SCS. Scientific Certification Systems; www.scscertified.com
11. SCAQMD. South Coast Air Quality Management District; www.aqmd.gov
12. USGBC. United States Green Building Council; www.usgbc.org

1.3 ADMINISTRATIVE REQUIREMENTS

NOTE: Coordinate and edit to the correct Section number below.

A. Coordination per SECTION 013000 or 013100, and as follows:

1. Coordinate concrete slab or concrete topping finish per SECTION 033000 or 035400 or 035416, and DIVISION 09 finish flooring requirements.

RED NOTE: Specifier to closely coordinate applicable sections between concrete and other subfloor substrate finishes with floor finish covering.

1.4 SUBMITTALS

NOTE: Coordinate and edit to the correct Section number below.

- A. Product Data per SECTION 013000 or 013300 and as follows: Submit manufacturer's printed descriptions of materials, components and systems; performance criteria; use limitations; preparation instructions and recommendations; storage and handling requirements and recommendations; and installation methods.
- B. Quality Assurance Submittals per SECTION 014000 and as follows:
 1. Certificates: Submit with manufacturer's signature certifying that each product and/or system meets the requirements of the performance characteristics, physical criteria, and applicable standards specified.
 2. Test and Evaluation Reports: Submit certified test results by a recognized testing laboratory in accordance with specified test methods for each product and/or system indicating physical, chemical and performance characteristics.
- C. Sustainable Design (USGBC [LEED®](#)) Submittals: Submit the following in accordance with the requirements of SECTION 018113, LEED REQUIREMENTS:
 1. LEED Credit IEQ, Indoor Environmental Quality. Submit completed LEED 2009-NC v.3 Submittal Templates and required paperwork as follows:
 - a. IEQ 4.1: Low Emitting Materials, **Adhesives & Sealants**, VOC Data
 - 1). Submit manufacturers' product data for construction **adhesives** and sealants, including printed statement of VOC content and MSDS Sheets.
 - 2). Submit manufacturer's certification that products meet the requirements of SCAQMD Rule 1168 in areas where exposure to freeze/thaw conditions and direct exposure to moisture will not occur.
 - 3). Submit manufacturer's certification that products meet the requirements of BAAQMD Regulation 8, Rule 51 for containers larger than 16 oz and with CARB for containers 16 oz or less, for areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
 - b. IEQ 4.3: Low Emitting Materials, Carpet and Resilient Flooring Systems, CRI Green Label
 - 1). Submit manufacturers product data for carpet systems that includes printed statement of adhesive VOC content complying with CRI Green Label Plus Indoor Air Quality Test Program.

NOTE: Coordinate and edit to the correct Section number below.

- D. Closeout Submittals per SECTION 017000 or 017700, and as follows:
 1. Operation and Maintenance Data: Including, but not limited to, methods for maintaining installed products and precautions against cleaning materials with methods detrimental to finishes and performance.
 2. Executed Warranty Documentation: Manufacturers' material warranties and installers workmanship warranty.
 3. Record Documents: Drawings, Specifications, Product Data.

NOTE: Edit LEED Requirements below to suit project.

4. Sustainable Design Closeout Documentation: Submit completed USGBC LEED® Submittal [Worksheet Templates](#) for the following credits:
 - a. IEQ 4.1, IEQ 4.3

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Installer / Applicator: Perform installation with skilled, experienced and trained workmen supervised by trained personnel who shall have a minimum three (3) years successful experience in installations of similar size and scope.

NOTE: Installer / Applicator qualification requirement recommended for proper substrate preparation for the finish flooring material to be adhered.

2. Testing Agency: An independent testing agency with the experience and capability to conduct the testing indicated, meeting requirements of ISO/IEC Standard 17025 or ASTM E699 and ASTM E329.

B. Source Limitations: Obtain spray-applied adhesive through one source from a single manufacturer.

C. Sustainability Standards and Certifications:

NOTE: Edit sustainability standards and certifications below to suit project.

1. Adhesive and Sealant VOC Limits: According to South Coast Air Quality Management District [Rule 1168](#) and [GS-36](#) for aerosols.
2. VOC Limits: As tested using U.S. EPA Reference Test Method 24 and as defined by
 - a. South Coast Air Quality Management District Rules: In areas where exposure to freeze/thaw conditions and direct exposure to moisture will not occur.
 - 1). SCAQMD Rule 1168, Adhesive and Sealant Applications
 - b. Bay Area Air Quality Management District Regulation: For containers larger than 16 oz., for areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
 - 1). BAAQMD [Regulation 8, Rule 51](#)
 - c. California Air Resources Board: For areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
 - 1). CARB for containers 16 oz. or less.

NOTE: Benchmark mockup requirement recommended to test substrate preparation, workmanship, and compatibility between finish flooring material and adhesive.

- ### D. Benchmark Installations per SECTION 014000, and as follows: Provide mockup installations to verify final selections made under sample submittals and prototypes, to demonstrate aesthetic effects and set quality standard benchmarks for materials and execution.
1. Install mockup installations for benchmarking each unit type in the Work as indicated by the Drawings or directed by the Architect.
 2. Approved mockups shall be benchmark installations and may be incorporated into the Work if accepted without exception by the Architect.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery, Storage and Handling per manufacturer's recommendations, SECTION 016000, and as follows:

1. Delivery and Acceptance Requirements

- a. Deliver materials to Project site in an undamaged condition, in original, unopened and undamaged packages or containers bearing manufacturer's intact label, names, brand names, types and thicknesses of contents, and proper handling, storing, unpacking, protecting, and installation instructions, as warranted.
 - b. Inspect shipped materials on delivery to ensure compliance with requirements of Contract Documents and to ensure that products are undamaged and properly protected. Reject damaged goods and accept properly ordered, protected and undamaged goods.
2. Storage and Handling Requirements
 - a. Store adhesive materials in a dry, temperature-controlled interior area at 65-80 deg F (18-27 deg C). Protect materials from damage from improper handling, exposure to temperature extremes, and the action of other trades.
 3. Packaging Waste Management
 - a. Request in writing that manufacturers, fabricators, suppliers and shippers provide least amount of packaging that adequately and properly protects, supports and contains the items shipped, and is reusable, returnable or recyclable.

1.7 WARRANTY

- A. Provide Spray-Lock™ Flooring Adhesive Manufacturer's:
 1. Material and Workmanship Warranty:
 - a. Aerosol (22oz, 16oz) Flooring Adhesive shall be free from defects in material and workmanship for a period of two (2) years from date of manufacture when handled, stored and transported per adhesive manufacturer's requirements.
 2. Delamination Warranty that there shall be no delamination failure:
 - a. Due to adhesive failure for a period of five (5) years from date of installation when applied to adhere approved flooring materials per Adhesive manufacturer's requirements.
 - b. As long as moisture vapor emissions do not exceed 85 percent RH when tested in accordance with ASTM F2170
 - c. For moisture in concrete slab conditions up to 7 lb per 1,000 sf per 24 hours when tested with a prepackaged calcium chloride crystal kit performed in accordance with ASTM F1869.
 - d. For concrete slab conditions up to a pH of 11 when tested in accordance with ASTM F710.

PART 2 - PRODUCTS

2.1 MANUFACTURERS / FABRICATORS

- A. Manufacturers List: Subject to compliance with requirements, provide spray adhesive products by one of the following:
 1. Spray-Lock by Interlock Industries, Inc., 5959 Shallowford Road, Suite 309, Chattanooga, TN 37421; 423.305.6151; 423.305.6150 (fax); www.spraylock.com

NOTE: Coordinate and edit to the correct Section numbers below.

2. Substitution Limitations: Manufacturers of equivalent products beyond those listed above shall be considered when submitted per SECTION 013000 or 013300, and SECTION 016000, using CSI Substitution Request Form 1.5C (During the Bidding Phase) or Form 13.1 (After the Bidding Phase.) [link](#)

B. Product Options:

1. Spray-Lock™ 6500 for adhering approved vinyl backed carpet tile, and luxury vinyl tiles (LVT) or planks
2. Spray-Lock™ 9500 for adhering approved vinyl composition tile (VCT)
3. Spray-Lock™ 3500 for adhering approved resilient sheet vinyl flooring; and formulated for use in Medical / Health Care applications
4. Spray-Lock™ 4500 for adhering approved Homogenous and Felt back sheet flooring
5. Spray-Lock™ 4550 for adhering approved rubber flooring

2.2 DESCRIPTION

A. Spray-Lock Spray Adhesive is an aerosol water-based adhesive that acts similar to a pressure sensitive, VOC-Free, non-flammable, and is a non-HAP, emitting no dangerous fumes or odors.

B. Sustainability Characteristics

1. [USGBC](#) LEED Rating: Comply with project requirements intended to achieve the following Rating, as measured and documented according to the USGBC LEED® Green Building [Rating and Version](#) indicated:

NOTE: Each LEED Version requires a different credit total to achieve the desired LEED Rating.

NOTE. Select one of the following Ratings:

- a. Rating: Certified
- b. Rating: Silver
- c. Rating: Gold
- d. Rating: Platinum

NOTE. Select one of the following Versions:

- e. Version: [LEED 2009-NC](#) v. 3 (New Construction)
- f. Version: [LEED 2009-EB](#) v. 3 (Existing Building)
- g. Version: [LEED 2009-CI](#) v. 3 (Commercial Interiors)
- h. Version: [LEED 2009 for Schools](#)
- i. Version: [LEED for Retail](#), v. 2 (July 2008) Draft (Commercial Interiors)
- j. Version: [LEED for Health Care](#)
2. Applicable LEED Credits: Performance requirements of the following LEED Categories and Credits apply to this Section are met as follows:
 - c. Indoor Environmental Quality (EQ):
 - 1). EQ Credit 4.1, Low-Emitting Materials: **Adhesives** and Sealants: as applied to Spray-Lock adhesives.
 - a). SCAQMD Rule 1168 sets a limit of 50 grams / liter (g/L) for HVT adhesives.
 - b). BBAQMD Regulation 8, Rule 51, requires VOC limit of 150 g/L for Indoor Floor Covering Installation.
 - c). Spray-Lock™ 6500, and 9500 Adhesive VOC: **0.0** g/L per [SCS-FS-01551](#)
 - 2). EQ 4.3: Low Emitting Materials, Carpet and Resilient Flooring Systems, CRI Green Label
 - a). Spray-Lock™ Adhesives comply with the CRI Green Label Plus per certificate [#GLP 60255](#)

2.3 ACCESSORIES

A. Spray-Applied Adhesive per referenced ASTM Standards with each application accessory as recommended by the adhesive manufacturer.

1. Aerosol Container Holder/Dispenser

PART 3 - EXECUTION

3.1 FIELD CONDITIONS

- A. Conditions and Measurements: Visit jobsite to verify installation conditions and floor measurements.

NOTE: Coordinate and edit to the correct Section number below.

- B. Ambient Conditions per manufacturer's written recommendations, SECTION 017000 or 017100 or 017116, and as follows:
 1. New concrete slabs shall be flat, clean and dry meeting all moisture tests passing manufacturer's written requirements.
 2. Environmental Limitations: Maintain temperature and relative humidity per manufacturer's recommendations.
 - a. Maintain space, substrate temperatures, and RH for time prior to, during and after installation as recommended.
 3. Acclimate floor finish materials into spaces they will be installed a minimum 48 hours in advance of installation.
 - a. Do not install until all floor finish materials are same temperature as space where they are to be installed.

3.2 EXAMINATION

NOTE: Coordinate and edit to the correct Section number below.

- A. Examination per SECTION 017000 or 017100 or 017116, and as follows:
 1. Acceptance of Conditions: Carefully examine installation areas with Installer/Applicator present, for compliance with requirements affecting Work performance.
 - a. Verify that field measurements, surfaces, substrates, structural support, tolerances, levelness, plumbness, temperature, humidity, moisture content level, cleanliness and other conditions are as required by the manufacturer, and ready to receive Work.
 - 1). Verify that concrete substrates meet ASTM [F710](#) requirements and are flat as recommended by floor finish manufacturer.
 - 2). Verify that wood and panel type underlayment substrates meet ASTM [F1482](#) requirements and are flat as recommended by floor finish manufacturer.
 2. Test substrates as required by manufacturer to verify proper conditions.

NOTE: Coordinate and edit requirements to the project substrates present.

- a. Portland-Cement Concrete:
 - 1). Perform moisture testing to verify that concrete substrate is sound and dry. Both of the following tests are required:
 - a). Perform relative humidity (RH) test using in situ probes per ASTM [F2170](#). Proceed with installation only after each substrate measures a maximum 75 percent RH.
 - b). Perform anhydrous calcium chloride testing per ASTM [F1869](#). Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 7 lbs of water/1000 sq.ft. (3.18 kg of water/92.9m²) in 24 hours.
 - 2). Perform alkalinity testing to verify pH level is 11 or below per ASTM F710.
 - 3). Perform bond testing per ASTM F710 to determine compatibility of adhesive to concrete substrate.

- b. Wood Underlayment: Shall be dry, clean, structurally sound, well nailed and/or glued, free of voids and with joints that do not exceed 1/16 inch (1.6mm) per floor finish manufacturer's installation instructions.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION - FLOORING

NOTE: Coordinate and edit to the correct Section numbers below.

- A. Preparation per flooring manufacturer's written instructions, SECTION 017000 or 017100 or 017123, and as follows:
 1. Provide and prepare substrates to ensure proper adhesion of flooring system per spray-adhesive manufacturer's instructions.

NOTE: Select correct substrate(s), edit to suit project, and delete items that do not suit project.

2. Portland-Cement Concrete Substrates: Prepare substrate per ASTM F710, and as follows:
 - a. Verify the substrate is smooth, permanently dry and clean being free of dirt, rust, oil, wax, paint, or other contaminants that will interfere with adhesive bonding. If substrate is not acceptable:
 - 1). Mechanically abrade concrete slab with 350-400 rpm machine buffer using 16 grit sandpaper
 - 2). Remove debris by sweeping, brushing, or vacuuming then damp mop substrate
 - 3). Inspect substrate and patch, repeat buffing and remove debris as needed.

NOTE: One industry method of visually inspecting substrate is to, at night and/or with the lights out, lay a high candlepower (360 lumen or higher) LED Flashlight, on the floor of each room to be inspected, and roll around the flashlight.

3. Wood Substrates and Panel Type Underlayment per ASTM F1482 and floor finish manufacturer's requirements.

NOTE: Specify use of exterior glues in lieu of interior urea-formaldehyde glue to reduce amount of indoor air pollutants.

4. Existing Substrates: Properly prepare manufacturer acceptable substrates to accept finish flooring.
5. Sweep or vacuum, and damp mop clean flooring substrates immediately prior to spray-applied adhesive installation.

3.4 INSTALLATION / APPLICATION - FLOORING

NOTE: Coordinate and edit to the correct Section number below.

- A. Installation per each floor finish assembly product manufacturer's written instructions, SECTION 017000 or 017300 or 017316, and as follows:
 1. Spray-Applied Adhesive Method:
 - a. Do not place finish-flooring product until adhesive applied to substrate is ready to receive it per adhesive manufacturer's instructions.
 - b. Mark floor equivalent to manufacturer's recommended area for size of container used. Apply no more or less adhesive than what manufacturer recommends.
 - c. Outline perimeter of the room with a 4-5 inch (100mm to 125mm) wide band of adhesive. Apply the adhesive from 8-12 inches (200mm to 300mm) above the substrate.
 - d. Lay flooring finish material, adjust and reset until layout placement is certain.

- e. Following installation of finish flooring (typically within an hour after installing) roll entire floor area with a 75 to 100 lb (34 to 45 kg) roller to ensure proper bonding with instant shear strength.
2. Close space to traffic for 2 hours before beginning installation, however, flooring is immediately available after rolling for all range of use.

3.5 FIELD QUALITY CONTROL

NOTE: Coordinate and edit to the correct Section number below.

- A. Site Tests and Inspections: Per SECTION 014000 or 014500 or 014523, and as follows:
 1. Inspect floor finish system installation for non-conforming work including, but not limited to, the following:
 - a. Lack of adequate adhesion
 - b. Adhesive overspray
 - 1). Clean off water-based adhesive overspray with a damp cloth.
 - c. Improper substrate preparation as indicated by:
 - 1). Telegraphing of joints, dirt, or debris through the finish flooring
 - 2). Air blisters
 - 3). Buckling
 - 4). Cracks

3.6 CLEANING

NOTE: Coordinate and edit to the correct Section number below.

- A. Waste Management per SECTION 017000 or 017400 or 017419, and as follows:
 1. Store and recycle cartons and aluminum adhesive containers.

3.7 CLOSEOUT ACTIVITIES

NOTE: Coordinate and edit to the correct Section number below.

- A. Perform Closeout Procedures per SECTION 017000 or 017700 and as follows:
 1. Substantial Completion Requirements per SECTION 017000 or 017700.
 2. Perform required Demonstration and Training with Owner's designated staff per SECTION 017000 or 017900.
 3. Sustainable Design Closeout Documentation per SECTION 017000, 017800 or 017853: LEED credit worksheet paperwork.
- B. Correct Non-Conforming Work per General Conditions, and the acceptance of the Architect.

END OF SECTION

RED NOTE: Be sure to obtain the latest version of this Guide Specification.

This Guide Specification is not a completed document ready for use. It must be edited, deleting, adding, or modifying text, as required to suit project requirements.

The professional stamping and the contracting parties of the Contract Documents are responsible for the accuracy of issued project specifications, including any use of this SPRAY-LOCK Guide Specification.

SPRAY-LOCK AND INTERLOCK INDUSTRIES SHALL NOT BE LIABLE FOR DAMAGES ARISING OUT OF THE USE OF THIS GUIDE SPECIFICATION.