

This MANU-SPEC® utilizes the Construction Specifications Institute (CSI) Manual of Practice®, including MasterFormat™, SectionFormat™, and PageFormat™. A MANU-SPEC® is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. **Text indicated by brackets [] that appear in blue is optional and can be deleted in the final copy of this specification. Items that appear in red text are Specifier Notes.**

This MANU-SPEC® specifies pre-formed resilient base, marketed under the ArmorCove™ brand names, as manufactured by Forbo Flooring. Revise the MANU-SPEC® section number and title below to suit project requirements, specification practices, and section content. Refer to CSI MasterFormat™ for other section numbers and titles, including 09 60 00 Flooring; 09 65 13 Resilient Base.

SECTION 09 65 13.13 PRE-FORMED RESILIENT BASE

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This section includes the following Pre-Formed Resilient Base:
 - 1. Forbo ArmorCove™

Specifier Note: *Revise paragraph below to suit project requirements. Add section numbers and titles per CSI MasterFormat™ and specifier's practice.*

- B. Sections related to this section include:
 - 1. Concrete: Refer to Division 3 Concrete Sections for cast-in-place concrete, concrete toppings, and cementitious underlayments.
 - 2. Wood Subflooring: Refer to Division 6 Carpentry Section for wood subflooring and wood underlayment.
 - 3. Finishes: Refer to Division 9 Finishes Section for maintenance of pre-formed base and flooring.
 - 4. Resilient Flooring Accessories: Refer to Division 9 Finishes Sections for reducer strips, metal edge strips and other resilient flooring accessories.

Specifier Note: *Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. "Conditions of the Contract" or Division 1 References Section may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section.*

1.03 REFERENCES

- A. Forbo Technical Data Sheets
- B. Forbo Installation Guide
- C. Forbo Floor Care Guide
- D. Safety Data Sheets (MSDS or SDS)

- E. American Society for Testing and Materials (ASTM):
1. ASTM C 840 – Standard Specification for Application and Finishing of Gypsum Board
 2. ASTM E 648 – Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
 3. ASTM E 662 – Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
 4. ASTM F 141 – Standard Terminology Relating to Resilient Floor Coverings
 5. ASTM F 710 – Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
 6. ASTM F 1482 – Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring
 7. ASTM F 1861 – Standard Specification for Resilient Wall Base
 8. ASTM F 2419 – Standard Practice for Installation of Thick Poured Gypsum Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring
 9. ASTM F 2471 – Standard Practice for Installation of Thick Poured Lightweight Cellular Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring
 10. ASTM F 2678 – Standard Practice for Preparing Panel Underlayments, Thick Poured Gypsum Concrete Underlayments, Thick Poured Lightweight Cellular Concrete Underlayments, and Concrete Subfloors with Underlayment Patching Compounds to Receive Resilient Flooring
- F. National Fire Protection Association (NFPA):
1. NFPA 253 – Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
 2. NFPA 258 – Test Method for Specific Optical Density of Smoke Generated by Solid Materials
- G. Standards Council of Canada:
1. CAN/ULC S102.2 – Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies

***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 in "Conditions of the Contract" and Division 1 Submittal Procedures Section.*

1.04 SUBMITTALS

- A. General: Submit each item in this Article according to the "Conditions of the Contract" and Division 1 Specification Sections.
- B. Product Data: Submit three (3) copies of the manufacturer's technical data and installation recommendations for each type of flooring, base and accessory products specified.
- C. Shop Drawings:
1. Submit shop drawings showing layout, locations of seams, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
 2. Show details of profiles and product components, including anchorage, accessories, finish colors, patterns and textures.
- D. Samples: Submit three (3) sets of samples of each type, color and finish of flooring, pre-formed base and accessory products specified, with an indication of full range of color, pattern and texture variation. Provide samples with a minimum size of 6" x 9" for flooring products and 6" in length for accessories.
- E. Quality Assurance Submittals:
1. Submit three (3) copies of the manufacturer's Product Technical Data Sheet, specifying performance characteristics, criteria and physical requirements.
 2. Submit three (3) copies of the manufacturer's written installation recommendations.
- F. Closeout Submittals:
1. Submit three (3) copies of the maintenance and operations data. This should include methods for maintaining the installed products and any precautions against cleaning materials or methods that are detrimental to the product and their performance.
 2. Submit three (3) copies of the warranty as specified herein.
 3. Installer Certification: Submit proof of certification from the manufacturer certifying that the installers comply with the specified requirements.

- G. Replacement Material: After completion of work, deliver to project site replacement materials from the same manufactured lot as materials installed. Package materials with protective covering and identify each with descriptive labels.
1. Pre-Formed Base Materials: No less than 10 linear feet for each 500 linear feet or fraction thereof each different type and color installed.
- H. [Sustainable Submittals:
1. Product Data for Credit MR 2.1 and Credit MR 2.2: Construction Waste Management as required by Division 01. (LEED 2009)
 2. Product Data for Credit MR 4.1 and Credit MR 4.2: For products having recycled content, documentation indicating percentages by weight of post-consumer and pre-consumer recycled content. (LEED 2009, LEED v4)
 - a. Include statement indicating costs for each product having recycled content.
 3. Product Data for Credit MR 6: For products having Rapidly Renewable content, documentation indicating percentages by weight of Rapidly Renewable content as required by Division 01.
 - a. Include statement indicating costs for each product having Rapidly Renewable content. (LEED 2009)
 4. Product Data for Credit EQ 4.1: Low-Emitting Materials – Adhesives and Sealants, including printed statement of VOC content as required by Division 01. (LEED 2009)
 5. Product Data for Indoor Environmental Quality Credit Low-Emitting Materials – Flooring and pre-formed base products must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.2, using the applicable exposure scenario. The default scenario is the private office scenario. If a product specified has not been tested as noted, provide a substitution to the Architect for review and approval of an equal product meeting the noted California Department of Health standard. (LEED 2009, LEED v4)
 6. Building Product Disclosure and Optimization – Environmental Product Declarations; Products must meet one of the disclosure criteria: (LEED v4)
 - a. Product-specific Type III EPD – Products with third-party certification (Type III)
 - b. Industry-wide (generic) EPD – Products with third-party certification (Type III)
 - c. Product-specific declaration – Products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044)
 7. Building Product Disclosure and Optimization – Sourcing of Raw Materials; Option 2 – Leadership Extraction Practices, products containing one or more of the following attributes: (LEED v4)
 - a. BioBased products meeting Sustainable Agriculture Standard
 - b. Wood products certified to FSC/SFI standards (See further explanation, Calculating FSC/SFI Credit Contributions)
 - c. Reused materials
 - d. Post-consumer recycled materials
 - e. Pre-consumer recycled materials
 - f. Extended producer responsibility
 8. Building Product Disclosure and Optimization – Material Ingredients; Option 1 – Material Ingredient Reporting Health, products using any of the following programs: (LEED v4)
 - a. Product Declaration (HPD)
 - b. Declare Label
 - c. Cradle to Cradle v2 Basic level
 - d. Cradle to Cradle v3 Bronze level
 9. Emissions and Content Requirements General Emissions Evaluation: Building products must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.2, using the applicable exposure scenario – flooring. (LEED v4)
 10. Additional VOC Content Requirements for Wet-Applied Products: All adhesives and sealants wet-applied on site must meet the applicable chemical content requirements of SCAQMD Rule 1168 – July 1, 2005. (LEED v4)
 11. BioPreferred Construction/Maintenance & Repair: Floor Covering (Non-Carpet) Products, other than carpet products that are designed for use as the top layer on a floor.
 - a. 91% Minimum BioBased Content Required for GSA/Government/Federal Spending projects.
 12. Declare Red List Free Label from International Living Future Institute – Living Building Challenge (LBC).]

Specifier Note: Article below should include prerequisites, standards, limitations, and criteria which establish an overall level of quality for products and workmanship for this section. Coordinate below article with Division 1 Quality Assurance Section.

1.05 QUALITY ASSURANCE

- A. Manufacturer: Whenever possible, provide each type of flooring and pre-formed base as provided by a single manufacturer, including recommended primers, adhesives, sealants, patching and leveling compounds.

Specifier Note: Coordinate paragraph below with Division 1 Project Management and Coordination (Project Meetings) Section.

- B. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation and floor care recommendations and manufacturer's warranty requirements. Comply with requirements according to the "Project Management and Coordination" in Division 1 Project Meetings Section.
- C. Pre-Installation Testing: Conduct and document pre-installation testing as specified by manufacturer in accordance with the latest version of the specified test methods.
1. Bond Testing: Conduct testing and document results in accordance with the manufacturer's recommendations.
- D. Contractor Qualifications:
1. The awarded contractor shall be an established firm, experienced in the installation of the specified product and shall have access to all manufacturer's required specifications, technical, installation and maintenance related documents.
- E. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in "Conditions of the Contract" and Division 1 Regulatory Requirements Section. Repetitive statements should be avoided.

- F. Regulatory Requirements: Provide flooring and pre-formed base products with the following fire performance characteristics as determined by testing identical products in accordance with the latest version of ASTM method indicated below by a certified testing laboratory or another testing and inspecting agency acceptable to authorities having jurisdiction.
1. ASTM E 648 – Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source or NFPA 253 – Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
 2. ASTM E 662 – Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials or NFPA 258 – Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
 3. [CAN/ULC S102.2 – Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies. (Canada Test Method Only)]

Specifier Note: Retain paragraph below for erected assemblies (either on-site or off-site) required for review of construction, coordination of work of several sections, testing, or observation of operation. Mock-ups, when accepted or approved, establish standards by which work will be judged. Coordinate below with Division 1 Quality Control (Mock-Up Requirements) Section.

- G. Standard of Quality Mock-Up: For the purpose of evaluating the quality of workmanship, install a mock-up of the specified flooring and pre-formed base completed by the pre-qualified installers following the manufacturer's installation recommendations. Obtain Owner's and Architect's acceptance of finish color, texture and pattern, and workmanship standard. Comply with requirements according to the "Quality Control" in Division 1 Mock-Up Requirements Section.
1. Size and Location of Mock-Up: [Specify the size and location of the mock-up.]
 2. Maintenance of Mock-Up: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.
 3. Approval of Mock-Up: Upon approval of the mock-up, this installation shall be considered the standard of quality and basis of comparison for the balance of the project. Areas to be found deficient by specification standards or application procedures shall be repaired or replaced at the contractor's expense.
 4. Incorporation of Mock-Up: The mock-up may be incorporated into final construction upon Owner's approval.

- H. Post-Installation Meetings: Conduct post-installation meetings to review methods and procedures related to floor care and warranty requirements.

Specifier Note: Coordinate article below with "Conditions of the Contract" and with Division 1 Closeout Submittals Warranty Section. Below warranty article assumes the use of The American Institute of Architects document A201 "Conditions of the Contract for Construction." If other "Conditions" are used for the project, revise article below accordingly.

1.06 WARRANTY

- A. Project Warranty: Comply with requirements according to the "Conditions of the Contract" in Division 1 Closeout Submittals Warranty Section for project warranty provisions.
- B. Manufacturer's Warranty: Submit the manufacturer's standard warranty document executed by authorized company official for Owner's acceptance. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.
1. Warranty Period: Limited lifetime puncture-proof warranty commencing on Date of Original Purchase from manufacturer.
- C. Installation Warranty: Submit the contractor's installation warranty signed by the General Contractor and Installer for Owner's Acceptance, agreeing to repair or replace work which has failed as a result of defects in workmanship. Failure shall include, but not limited to, tearing, cracking, separation, deterioration or loosening from substrate, seam failure, ripples, bubbling or puckering. Upon notification of such installation deficiencies, within the warranty period, make necessary repairs or replacement at the convenience of the Owner. Other warranties or warranties may not be substituted by the Contractor for the terms of this warranty. Installation warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents
1. Warranty Period: Two (2) year limited warranty commencing on Date of Substantial Completion from contractor.

Specifier Note: Article below should include special and unique requirements. Coordinate article below with Division 1 Product Requirements Section.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with the Division 1 Product Requirements Sections.
- B. Ordering: Comply with the manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.
1. All materials (flooring, pre-formed base, adhesives, weld rod and accessories) should be stored in areas that are fully enclosed and weathertight. The permanent HVAC should be fully operational and controlled and set at a minimum temperature 65° F (18.3° C). If this is not possible, the areas should be acclimated and controlled by means of temporary HVAC to the service level conditions expected during occupancy. The temperature and humidity should range from 75° F ± 10°F (23.9° C ± 5.5° C) with a 50% ± 10% ambient relative humidity.
 2. Store cartons flat with labels visible to ensure that the color and batch numbers can be easily read.
 3. Stack cartons per the manufacturer's recommendations.
 4. Comply with the manufacturer's recommendation for the acclimation of all materials in the space where they will be installed for at least 48 hours prior to the installation unless longer conditioning periods are required by the manufacturer.

1.08 PROJECT CONDITIONS

- A. Environmental Requirements/Conditions:
1. Areas to receive material should be clean, fully enclosed and weather tight. The permanent HVAC should be fully operational and controlled and set at a minimum temperature 65° F (18.3° C). If this is not possible, the areas should be acclimated and controlled by means of

- temporary HVAC to the service level conditions expected during occupancy. The temperature and humidity should range from 75° F ± 10°F (23.9° C ± 5.5° C) with a 50% ± 10% ambient relative humidity. These conditions **MUST** be established at least seven days prior to beginning the installation, maintained during the installation, and continued for at least seven days following the installation.
2. The pre-formed base and flooring materials should be conditioned in the same manner for at least 48 hours prior to the installation.
 3. Substrate evaluation and preparation should not begin until a stable, conditioned environment has been established as described in this section.
 4. Areas to receive pre-formed base and flooring must have adequate lighting to allow for proper inspection and preparation of the substrate, installation and final inspection.
- B. Temperature Requirements: Maintain air temperature in spaces where products will be installed for time period before, during, and after installation as recommended by manufacturer.
1. Temperature Conditions: 65° F (18.3° C) for at least seven days prior to beginning the installation, maintained during the installation, and continued for at least seven days following the installation.
- C. Substrate Conditions:
1. Existing Conditions: [\[Specify existing conditions affecting product use and installation.\]](#)
 2. Concrete Curing: Do not install flooring or pre-formed base over concrete substrates until substrates have cured and are dry to bond with adhesive as determined by the concrete and flooring manufacturer's recommendations.
 - a. [\[Owner assigned responsibility.\]](#)
 - b. [\[Flooring Contractor assigned to report responsibility back to Owner and/or Architect.\]](#)
 3. Testing Results: Conduct and document pre-installation testing as specified by manufacturer in accordance with the latest version of the specified test methods.
 - a. Bond Testing: Conduct testing and document results in accordance with the manufacturer's recommendations.
 4. Close spaces to traffic during installation and for time period after installation recommended in writing by the manufacturer.
 5. Installation should not begin until the work of all other trades has been completed, especially overhead trades.
 6. Where demountable partitions and other items are indicated for installation on top of flooring and pre-formed base material, install flooring and pre-formed base material before these items are installed.
- D. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes performance characteristics, material standards, and descriptions as applicable. Use of such phrases as "Equal" or "Approved Equal," or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal, and regulatory) and assignment of responsibility for determining "Equal" products.

2.01 PRE-FORMED RESILIENT BASE – FORBO FLOORING SYSTEMS

- A. Manufacturer Address:
1. [\[US Headquarters
8 Maplewood Dr.
Hazleton, PA 18202
Phone: 1-800-842-7839
\[www.forboflooringNA.com\]\(http://www.forboflooringNA.com\)](#)
 2. [\[Canada Headquarters
3983 Nashua Dr.
Mississauga, ON L4V 1P3
Phone: 1-800-268-8108
\[www.forboflooringNA.com\]\(http://www.forboflooringNA.com\)](#)

3. Representative Contact: [Specify representative name and contact information.]

B. Proprietary Product Information:

1. Material Name: Forbo ArmorCove™
2. Description: Fully integrated coving system that is comprised of a 1-piece aluminum cove-former, full vertical backing and cap, with Forbo Flooring as the finished surface. It is puncture-proof and water resistant.
3. Gauge: 0.13" (3.30 mm)
4. Height: [4.25" (10.80 cm)] [6.25" (10.80 cm)]
5. Length: 10' (3.048 meters)
6. Toe Width: 3" (7.62 cm)
7. Backing: Aluminum
8. Cove Radius: 5/8" (1.59 cm)
9. Color and Pattern: Colors shall be selected by Architect. All selections shall be made from the manufacturer's full product lines (including premium colors). See Architectural drawings for color schedule list in reference to this material.
 - a. [Specify colors as selected by Architect.]
10. Adhesive: Forbo ArmorFix™
11. Net Fit Seams: All ArmorCove™ products shall be installed utilizing net fit seams and finished with Marmoleum® EZ-Weld.
 - a. [Seam Detailing: Forbo Marmoleum® EZ-Weld™ color-matched seam finishing product from manufacturer's standard colors.]
 - b. [Welding Rod: Forbo Marmoweld® color-matched [solid color] [multi-color] welding rod as selected by Architect from manufacturer's standard patterns and colors.]

2.02 ACCESSORIES

- A. Floor Care Products: Provide products as required in Section 3.7 Cleaning.
1. [Specify cleaning chemicals and equipment as recommended by flooring manufacturer.]

Specifier Note: Edit article below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 1 Project Requirements (Product Substitutions Procedures) Section.

2.03 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

Specifier Note: Add article below for alternates required for project; state work covered. Coordinate with Part 1 General Summary Article herein, applicable Division 1 Sections, and other Bid and Contract Documents.

2.04 RELATED MATERIALS

- A. Related Materials: Refer to other sections for related materials as follows.
1. Concrete: Refer to Division 3 Concrete Sections for cast-in-place concrete, concrete toppings, and cementitious underlayments.
 2. Wood Subflooring: Refer to Division 6 Carpentry Section for wood subflooring and wood underlayment.
 3. Finishes: Refer to Division 9 Finishes Section for maintenance of flooring.
 4. Resilient Flooring Accessories: Refer to Division 9 Finishes Sections for reducer strips, metal edge strips and other resilient flooring accessories.

2.05 SOURCE QUALITY

- A. Source Quality: Obtain pre-formed base and flooring product materials from a single manufacturer.

PART 3 EXECUTION

Specifier Note: Article below is an addition to the CSI SectionFormat and a supplement to MANU-SPEC®. Revise article below to suit project requirements and specifier's practice.

3.01 MANUFACTURER'S RECOMMENDATIONS

- A. Compliance: Comply with manufacturer's product technical data, including product technical bulletins, installation recommendations and floor care recommendations.

3.02 INSPECTION

- A. Site Verification of Conditions: The Flooring Contractor and Installer shall examine and verify conditions previously described in other sections under which flooring and accessories are to be installed to be in accordance with the manufacturer's installation recommendations and must notify the General Contractor in writing of conditions detrimental to proper and timely completion of work. Work shall not proceed until all unsatisfactory conditions are corrected to acceptable conditions to the Owner and Architect.
- B. Material Inspection: Visually inspect all materials prior to installation in accordance with the manufacturer's installation recommendations. Material with visual defects shall not be installed and shall not be considered as a legitimate claim if they are installed.

3.03 PREPARATION

- A. General: Comply with manufacturer's written installation recommendations for preparing substrates indicated to receive flooring products, pre-formed base and accessories.
- B. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.
- C. Surface Preparation:
 - 1. General: Prepare substrate in accordance with manufacturer's recommendations and ASTM industry standards. Work shall not proceed until all unsatisfactory conditions are corrected to acceptable conditions to the Owner and Architect.
 - 2. Substrates: Substrates to receive flooring and pre-formed base must be structurally sound, rigid, smooth, flat, clean, and permanently dry. The substrates must be free of all foreign materials including, but not limited to, dust, solvent, paint, wax, oils, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, and other foreign materials that might affect the rate of moisture dissipation from the concrete, the adhesion of flooring and pre-formed base to the concrete or cause a discoloration of the flooring and pre-formed base from below.
 - 3. Concrete Substrates: Concrete substrates shall be cured per the concrete manufacturer's recommendations. They must have a minimum compressive strength of 3,000 psi and a minimum dry density of 150 pounds per cubic foot. Refer to Division 3 Concrete Sections for patching, repairing crack materials and leveling compounds with Portland cement based compounds.
 - a. Refer to Division 3 Concrete Sections for cast-in-place concrete, concrete toppings, and cementitious underlayments.
 - b. Reference Standard: Comply with the latest version of ASTM F 710 – Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
 - 4. Wood Substrates: Wood substrates must be double construction with a minimum total thickness of 1 inch. Wood substrates must be rigid, free from movement and have at least 18" of well-ventilated air space below. Forbo flooring and pre-formed base products should not be installed over wooden subfloors built on sleepers over on or below grade concrete floors without first making sure that adequate precautions have been taken to ensure the structural integrity of the system, and to prevent moisture migration from the concrete slab.
 - a. Refer to Division 6 Carpentry Section for wood substrates and wood underlayment.
 - b. Reference Standard: Comply with the latest version of ASTM F 1482 – Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring.
- D. Substrate Testing: In order to ensure that the condition of the substrate is within acceptable limits, it is essential that testing be conducted and documented on ALL substrates regardless of age or grade level, including those where resilient flooring has already been installed. Testing should only be conducted once a stable, conditioned environment has been established in accordance with the latest version of the specified test methods. A diagram of the area showing the location and results of each test should be submitted to the Architect, General Contractor or End User. If at the time of testing the test results exceed the limitations set forth by the flooring manufacturer, the installation must not

proceed until the problem has been corrected. The Contractor responsible for the substrate shall be responsible for the costs associated with analysis of the substrate and subsequent remediation requirements.

1. Bond Testing

- a. Conduct testing in accordance with the manufacturer's recommendations in various locations throughout the area where flooring and pre-formed base are to be installed. Although the number of tests required may vary, enough tests should be performed to allow an evaluation of the entire area where material will be installed.
- b. When evaluating adhesive mat bond tests using Forbo ArmorFix™ adhesive, significant force should be required to remove the test sample. The bond failure should occur within the adhesive layer when the test sample is removed. There should be approximately the same amount of adhesive on the substrate and the material backing. The anticipated result is that the material will be destroyed when removing the sample.

***Specifier Note:** Coordinate article below with manufacturer's recommended installation details and requirements.*

3.04 INSTALLATION

- A. Material Installation: **The installation guidelines in this document are a representation of the installation requirements. It is required that the contractor follows the current full version of the installation guidelines from the manufacturer.**

Measure the area to be installed and determine the starting point and seam placement. It is recommended to start at an inside corner. When this is not possible, start at a door frame. Cut the first piece with a compound miter saw set to cut a 45° angle. Place the first piece into position to verify the accuracy of the cut. When in place, follow the edge of the ArmorCove™ on the floor with a pencil, marking the substrate for placement. Use the digital angle-finder to measure the angle of the corner and divide by 2. Cut the second piece in the same manner as the first piece. For outside corners, position a piece of ArmorCove™ properly along both side of the outside corner and follow the edge of the ArmorCove™ on the floor with a pencil, marking the substrate 3" (7.62cm) past the corner. Mark the edge of the outside corner on the cap portion and transfer the mark onto the edge of the ArmorCove™. Adjust the compound miter saw to cut the angle for the mark on the cap and for the extension of the material onto the substrate. Place the piece into position to verify the accuracy of the cut. Make any minor adjustments as required to ensure a proper fit at the corner. Repeat these steps for the other side of the outside corner. For straight installation, dry fit the pieces, butting the factory edges for seaming. To adhere, take the first piece and apply a 1" (2.54cm) piece of double sided power or contact tape to the top of the ArmorCove™. Apply Forbo ArmorFix™ adhesive to the back of the ArmorCove™ (but not overlapping the tape) and to the floor. Be sure to spread adhesive all the way to the pencil lines without leaving any voids. Remove the backing of the tape and position the first piece into the adhesive, ensuring it is tightly seated where the wall and floor meet. Immediately roll the ArmorCove™ into the adhesive with a steel seam roller. Pay equal attention to rolling the floor and wall. Remove any residual adhesive from the floor with a putty knife. Repeat these steps for each piece until the room is completed. Seal the cap to the wall using a fine bead of clear moisture and mildew resistant silicone.

- B. Adhesive Application: Use trowel recommended by flooring manufacturer for Forbo ArmorFix™ adhesive.
1. 1/16" x 1/16" x 1/16" square notch trowel
 2. [When installing 4.25" ArmorCove™, the spread rate is approximately 206 linear feet per gallon.]
 3. [When installing 6.25" ArmorCove™, the spread rate is approximately 162 linear feet per gallon.]
- C. Seaming: All ArmorCove™ shall be installed utilizing net fit seams. A properly executed net fit seam will have no gaps or fullness. If the material is cut too full, it will result in bubbled or peaked seams. Gaps will allow dirt or contaminants to accumulate. Cut the material at an angle so as to slightly undercut the material. This will compensate for any slight expansion that may occur. Roll the seam with a steel seam roller, making sure that the material is placed into wet adhesive.
- D. [Seam Detailing: Use Marmoleum® EZ-Weld™ for color-matched seam finishing to seal the seams.]

***Specifier Note:** Add or delete article below to suit project requirements. Heat welding is not required for all applications. It should only be used in areas that require hygienic or seamless installations.*

- E. [\[Heat Welded Seamless Flooring Installation: Groove out seams and heat weld together with complementary colored heat welding rod of complimentary composition in accordance with the flooring manufacturer's recommendations.\]](#)
- F. Installation Techniques:
1. Where demountable partitions and other items are indicated for installation on top of finished pre-formed base and flooring, install pre-formed base and flooring before these items are installed.
 2. Scribe, cut, fit flooring to butt tightly to vertical surfaces, permanent fixtures and built-in furniture, including pipes, outlets, edgings, thresholds, nosings, and cabinets.
 3. Extend into toe spaces, door reveals, closets, and similar openings.
 4. Maintain overall continuity of color and pattern with pre-formed base pieces throughout the space.
 5. Adhere pre-formed resilient base and flooring to substrate without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections in completed installation.
 - a. Use adhesive applied to the substrate in compliance with the flooring manufacturer's recommendations, including those for proper spreading of the adhesive, adhesive missing and adhesive open and working times.
 6. Immediately roll the pre-formed base and flooring in all directions using a three-section wall roller or steel seam roller to ensure proper adhesive transfer.
- G. Finish Flooring Patterns: [\[Specify patterns as selected and detailed by Architect.\]](#)

***Specifier Note:** Coordinate article below with Division 1 Quality Assurance and Quality Control Sections.*

3.05 FIELD QUALITY REQUIREMENTS

***Specifier Note:** Edit paragraph below. Establish number and duration of periodic site visits with Owner and manufacturer, and specify below. Consult with manufacturer for services required. Coordinate paragraph below with Division 1 Quality Assurance Section and Part 1 Quality Assurance Submittals herein. Delete if manufacturer's field service not required.*

- A. Manufacturer's Field Services: Upon request of the Owner, General Contractor or Architect, and with at least 72 hours' notice, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's recommendations.
1. Site Visits: [\[Specify number and duration of periodic site visits.\]](#)

***Specifier Note:** Coordinate article below with Division 1 Execution Requirements Section.*

3.06 PROTECTION

- A. Protection: Do not allow heavy traffic or rolling loads for at least 72 hours following the installation. Additional time may be necessary if the installation is over a non-porous substrate. Protect installed product and finish surfaces from damage during construction. Remove and legally dispose of protective covering at time of Substantial Completion.

***Specifier Note:** Coordinate article below with Division 1 Execution Requirements (Cleaning) Section.*

3.07 CLEANING

- A. Initial Maintenance: Allow an appropriate amount of time for the adhesive and silicone seal to dry before conducting wet cleaning procedures or initial maintenance. Additional time may be necessary if the installation is over a non-porous substrate. Damp cleaning can be done immediately.
- B. Procedure:
1. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's recommendations prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.
 2. Remove visible adhesive and other surface blemishes using cleaning methods recommended by floor manufacturer.
 3. [\[ArmorCove™ with Marmoleum® with TopShield 2™ is pre-sealed and pre-finished. It is occupancy ready and no additional finish is required at the time of installation. See manufacturers' recommendations for further information.\]](#)

4. Remove all surface soil, debris, sand and grit by dust mopping, sweeping or vacuuming the floor.
5. Mix a neutral pH cleaning solution according to the label directions and apply the solution to the floor. Do NOT flood the floor. Allow the solution to dwell on the floor for 5 – 10 minutes.
6. Scrub the floor using a 3M™ Red Buffer Pad #5100 or equivalent. For pre-formed resilient base areas where this is not possible, use a clean cloth with the solution to clean the ArmorCove™.
7. Pick up the scrubbing solution with a wet vacuum or an automatic scrubber.
8. Rinse the entire floor surface with a clean mop using clean, cool water.
9. Allow the floor to dry thoroughly before allowing traffic.

***Specifier Note:** Add or delete article below to suit project requirements.*

3.08 INITIAL MAINTENANCE PROCEDURES

- A. General: Include in Contract Sum Amount cost for initial maintenance procedures and execute procedures after pre-formed base and flooring installation as recommended by flooring manufacturer.
- B. Initial maintenance to be conducted by awarded Flooring Contractor.
 1. [\[Engage floor care professionals who are certified by Forbo as a “Forbo Certified Floor Care Technician.”\]](#)
- C. Drying Room Yellowing/Ambering: Marmoleum® and linoleum products are made from natural materials. During the manufacturing process while the material is maturing in the drying room stoves, the natural occurrence of a yellow cast, termed “drying room yellowing” or “ambering” appears on the surface. This yellow cast is caused by the oxidation of linseed oil, occurring intermittently and with varying intensity. It is most noticeable on light blues, greys and soft ivory shades of material. The yellow cast is only *TEMPORARY*. The yellow cast is most noticeable when a new roll or carton of material is opened. It can appear as being off shade from the sample materials. When the material is exposed to light, the yellow cast will dissipate. The process may take as little as a few hours in bright sunlight or longer with artificial light. Because this is a natural occurrence in the product, there is no set time frame for the yellowing to dissipate. *This is not a material defect*. Performing floor care procedures, such as applying floor finish to the material, will not prevent the dissipation but may slow the process. To discover the true color of the Marmoleum® or linoleum product, follow these few simple steps:
 1. Take a piece of the material and cover one half with heavy paper or thick surface, such as cardboard or another piece of material.
 2. Place these pieces in direct sunlight for approximately 1 hour.
 3. After the time has passed, remove the cardboard or heavy material and see the visual difference first hand.

***Specifier Note:** Retain article below to suit project requirements. CSI PageFormat allows for Schedules, Forms, and Tables to be located at the end of a section. Article may be used to describe specific criteria requirements of similar products or equipment.*

3.09 SCHEDULES AND (PRODUCT CRITERIA) FORMS

- A. Schedules: [\[Specify reference to applicable schedules.\]](#)

END OF SECTION 09 65 13.13

Manufacturer's Obligatory Disclaimer Statement (For Electronic Media; Not Print Media)