

Application Guide

SilShield™ Silicone
Elastomeric Coating

Optic™ Translucent
Silicone Coating



Architectural Coatings

SilShield™ 3100 Silicone Architectural Coating and Optic™ 3101 Translucent Silicone Coating are low VOC 100% silicone elastomeric coatings used to provide a waterproof barrier to vertical and horizontal above-grade surfaces. Refer to Technical Data Sheets for Key Features & Typical Benefits.

SilShield Architectural Coating can be manufactured to nearly any color. Contact a Momentive Performance Materials (MPM) representative or visit www.siliconesforbuilding.com to request a color fan deck or for color matching needs.

Optic Translucent Coating is clear, allowing visibility to the substrate beneath or to allow the passage of light.



Recommended Uses

- Vertical wall applications on a wide variety of substrates for waterproofing and decorative purposes.
- Non-traffic horizontal (ledge, windowsill, etc.) and some roof applications. Contact MPM Technical Services for roof applications.

SilShield and Optic should NOT be considered for:

- Walking or traffic surfaces.
- Continuous water immersion applications.
- Surfaces which are wet, dusty, oily, mildewed, heavily chalked, blistered or structurally unsound.
- Building materials which might bleed oil or solvents such as: impregnated wood and certain vulcanized rubber gaskets or foams, tapes or failed sealants and caulking compounds. Compatibility testing is available and recommended when these products will be in contact with such materials.

System Components

To achieve a warrantable application, the silicone membrane must be continuous. This can be accomplished using a combination of silicone components. The most commonly used products for this application are:

- SilShield 3100/Optic 3101 Silicone Architectural Coating
- SilPruf™ family of Silicone Sealants
- SilGlaze™ II SCS2801 Translucent Silicone Sealant
- UltraSpan™ Pre-cured Silicone Weatherstrip and Silicone Transition Sheet

Application Conditions

Coating is best applied when the temperature is above 20°F (-7°C) as frost or moisture are less likely to be present on the surfaces to be coated. Coating may be applied in colder temperatures under certain conditions; refer to the MPM technical bulletin “Cold Weather Installation Guidelines” available at www.siliconesforbuilding.com for additional information. Surface temperature of the substrate to be coated should be below 120°F (49°C).

These coatings need atmospheric moisture to properly cure, and cure speed will vary relative to ambient temperature and humidity. As temperature and humidity increase, cure speed will also increase. In typical conditions, a tack free surface is usually attainable in 1-2 hours.

Application Methods

On projects where caulking is included in the scope of the work, it is recommended to apply any caulking prior to application of the SilShield or Optic coating.

Coating can be applied by roller, power roller, brush, or airless power sprayer. Rollers should be solvent resistant. Microfiber rollers are recommended as they are woven and more shed-resistant (tend to leave less roller lint in the coating). Roller naps of 3/8- to 1” (9 to 25 mm) have shown to be useful towards achieving the recommended coverage though naps of any size can be used to create the desired finish. A 9/16” (14 mm) microfiber nap for the first coat followed by a 3/8” (9 mm) microfiber roller for the second coat has proven to yield a desirable finish on multiple projects. Utilizing the minimum nap necessary to achieve required film thickness is recommended when a smoother final finish is desired.

Spray equipment must be capable of delivering 3000 psi (207 bar) at the spray tip. Please contact a technical representative for assistance with selecting an appropriate power roller or power sprayer. Removal of uncured product from equipment can be accomplished by flushing with mineral spirits. Coating should not be left in equipment and hoses for prolonged periods of time unless all hoses, piping connections and pump seals are vapor locked and lined/sealed with materials designed to prevent product from curing and adhering internally. Inadequate lining and seals will allow sufficient moisture vapor intrusion to gradually form cured material on hose walls and connections, resulting in increased operating pressures and material flow restrictions.

Surface Conditions

Some substrates can present challenges to attaining a continuous membrane. Such examples include extremely rough substrates, heavy aggregate concrete, raked or recessed mortar joints, grapevine mortar joints, and other similar surfaces. Additional measures may be required, such as brushing in certain mortar joints. Examples include:



Raked



Grapevine



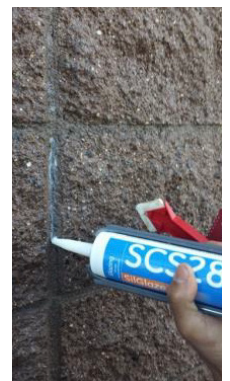
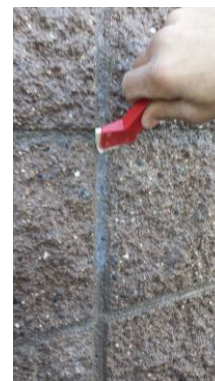
Brushing in raked mortar joints

Surface Preparation

Surfaces that will receive coating must be clean, dry, structurally sound and free of loose particles, dirt, dust, rust, oil, frost, mildew, and other contaminants. For most applications, cleaning with a high-pressure water wash should be satisfactory. Allow sufficient time after cleaning for the substrate to dry completely to the touch prior to the application of coating. Leak paths, such as cracks and holes, that are greater than $\sim 1/32$ " inch (~ 1 mm) width must be repaired/patched or otherwise filled prior to coating application as the final recommended DFT of these coatings are unlikely to bridge cracks of such size. When using Optic, repairs should match the existing substrate as closely as possible in texture and color, as the Optic coating has minimal hiding power.



Cracks, holes and gaps can be filled with SilPruf or SilGlaze II silicone sealants. Typically, a very small hole in the tip of the nozzle works best, allowing the sealant to be injected into narrow openings. On masonry substrates, SilGlaze II translucent silicone sealant is often used for filling gaps.



Narrower cracks can be otherwise repaired by brushing or dabbing coating into the crack with a brush or suitable tool.

SilShield and Optic coatings resist the formation of efflorescence by blocking the migration of water/salt mix to the surface of the porous material. If efflorescence is present, it should be removed prior to application of coating using standard industry practices.

Adhesion Testing

Adhesion testing to any/all substrates that will be coated is required for warranty purposes. The adhesion test procedure is shown later in this document.

Allow new concrete and masonry to cure for a minimum of 28 days prior to performing the adhesion test. After the 28-day cure, prepare the surface(s) using a wire brush to remove loose mortar and debris and then clean utilizing pressure washing or other suitable method. Alternately, these coatings may be applied prior to the 30-day cure time of new masonry when on-site testing verifies acceptable adhesion. Non-porous substrates such as steel, aluminum, galvanized metal, glazed tile etc. should be thoroughly clean and dry.

Visual Mockup

A mockup is highly recommended to validate color, appearance, sheen, coverage rates and hiding power for any given substrate(s) prior to coating entire surface. In the photo below left, SilShield is trialed with multiple color shades. In the photo to the below right, Optic is shown compared to an opaque coating.



Application Film Thickness

Dry Film Thickness (DFT) is approximately 10% less than the applied wet film thickness for SilShield and 25% less for Optic. On vertical surfaces, these coatings should be applied in 1 or 2 coats yielding a minimum final DFT of 10 mils (254 microns). SilShield can be applied in 1 coat at approximately 12 mils wet (305 microns) to yield 10 mils dry (254 microns) or 2 coats at 6 mils wet (152 microns) to yield 5 mils dry (127 microns) per coat. Optic should be applied at approximately 7 mils (178 microns) wet to yield 5 mils dry (127 microns) per coat. Subsequent coats may be applied when the previous coat is dry to the touch or is firm enough to resist disturbance when rolling or brushing, typically less than 2 hours. On horizontal surfaces, both SilShield and Optic may be applied in a single coat up to a DFT of 20 mils (508 microns).

Coverage

Maximum possible coverage rate at 10 mils (254 microns) DFT is approximately 145 ft² (13.5 m²)/gallon for SilShield and 120 ft² (11.2 m²)/gallon for Optic. Actual coverage rates should be verified using a mockup and will vary based on substrate texture, porosity, application method, applicator, and other factors.

Boxing

When using SilShield, "boxing" is recommended when painting surfaces that require more than one pail. Boxing is accomplished by combining pails into a larger container and mixing thoroughly to form a batch per se. If possible, box enough pails to cover each face of the wall with its own batch. Use architectural breaks such as corners, reveals, or other façade features to start boxing a new batch of coating.

Start/Stop

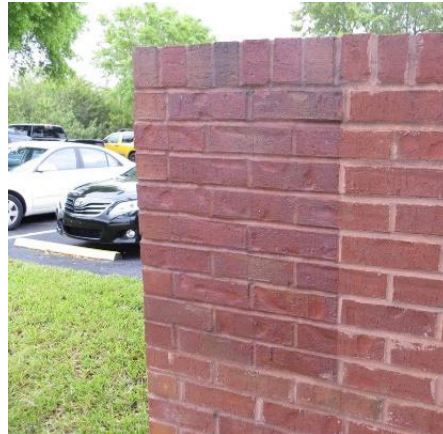
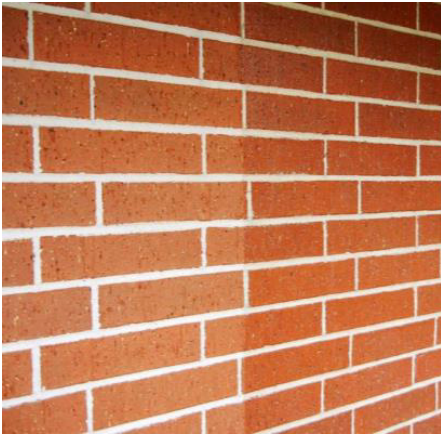
During application, it is important maintain a wet leading edge. If the coating dries prior to completion of an application area, it can result in a "dry edge" that creates a visible line. To maintain a wet edge, an entire wall should be painted at once when at all possible. Starting and stopping at defined architectural breaks is ideal.

If the coating must be applied to a dry edge, the best way to minimize visible lap marks is to feather out the coating along the edges. For the second application, the coating should be applied in the opposite direction in a crisscrossing manner.

When projects are performed in multiple phases and all coating cannot be ordered for the entire project at once, it is the user's responsibility to ensure that successive batches of material are acceptable for color when applied. External variables may create visual differences between batches. These variables may include: Lighting, UV exposure, time of day, weathering, cleanliness, application method and/or other factors. A small area should be applied adjacent to a previously coated area, allowed to cure, and then evaluated for color prior to proceeding with coating application.

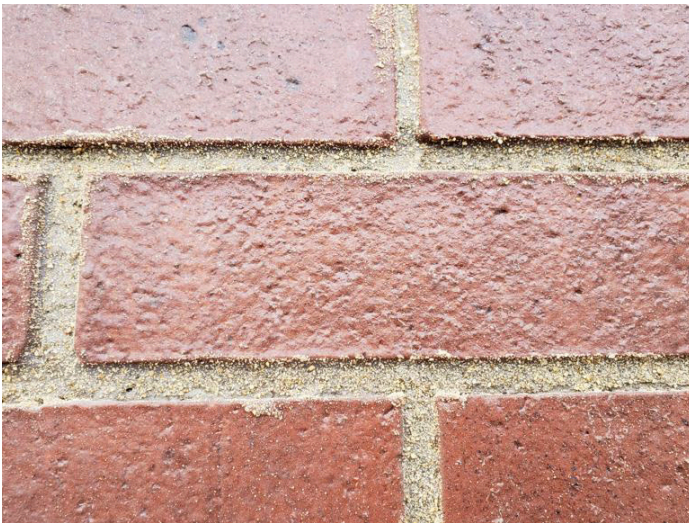
Optic Appearance

Optic coating will typically alter the appearance of a substrate to some degree. It is strongly recommended that a mockup on actual project substrates be performed to validate appearance as well as expected coverage rate. The degree of appearance change is dependent on a number of factors, such as substrate type, color, age and porosity, with more porous substrates showing a higher change in contrast and darkening. The three photos below represent minor, to significant appearance change. In all cases, approval of the appearance be obtained from the owner or the owner's representative prior to application.



As the applied thickness increases the transparency will decrease and a 'milky' appearance may develop with overapplication. Generally, the darker the substrate, the more noticeable the loss of transparency becomes as thickness increases. Care should be taken to avoid overapplication. Example circled in red of an area with excessive mil thickness applied resulting in a hazy looking patch.

Casting sand particles or mortar/grout dust into the wet sealant or coating can also be utilized to achieve a final appearance that resembles that of the mortar or grout. Phot below shows sanded mortar joints.



Adhesion Test Procedure (similar to ASTM C794)

This test procedure can be utilized by embedding GE RF100 reinforcing fabric, wire mesh, cheesecloth or similar materials. Prepare substrate surfaces in accordance with the product datasheet. The substrate should be clean, dry, structurally sound and free of loose particles, dirt, dust, rust, oil, frost, mildew, and other contaminants.

1. After substrate preparation, apply a layer of the coating (by spray, brush or roller) several mils thick (10-15 mils should suffice for most substrates).
2. While coating is still wet, embed a 1- to 2-inch-wide strip of fabric (RF100 or similar) into the coating leaving a tab of sufficient length uncoated and accessible for hand pull. Dabbing the fabric with a brush is an effective way to ensure that it is sufficiently wetted into the coating.
3. After placement, immediately apply a second coat to fully embed the fabric (see photo 1 & 2).
4. Allow 24 to 48 hours prior to performing the test pull.
5. Perform test by pulling the fabric away from the surface at an angle between 90 and 180 degrees and at a slow steady rate. Continue pulling until the coating tears cohesively or releases from the surface. (photo 3)
 - Cohesive failure of the coating (>75% of coating remains on substrate) represents acceptable adhesion. (photo 3)
 - A fish scale can also be utilized if desired to generate peel force value. When this is chosen, a minimum 5 pounds PLI (pounds per linear inch) is required for acceptable adhesion. Cohesive failure is not required.
 - Coating that releases easily from the substrate represents poor adhesion. If this occurs, contact an MPM representative to discuss alternate surface preparations that may improve adhesion quality.
6. The pull test(s) should be photographed (or videotaped) for project records and/or proof of performance. Any suspect result should be reviewed with an MPM representative prior to proceeding.



Photo 1



Photo 2



Photo 3

Cleaning and Maintenance

While these coatings have good resistance to surface contaminants, coating cleanliness is not warranted. A regular visual inspection and cleaning/maintenance program can help reduce the likelihood of permanent appearance changes due to surface contaminants.

Routine cleaning can be accomplished with light power washing. Power washing should use a maximum 500 psi water blast with the washer tip at least 24" from the wall and not directed at a sharp or perpendicular angle. Use caution and verify that the existing coating or other components are not being damaged in the cleaning process. All surfaces, including horizontal, vertical, and/or sloped ledge surfaces, should be cleaned equally. Not all contaminants may be able to be removed.

In locations where power washing alone is not fully effective, agitation with a soft bristle brush / wetted white cotton towel, and the use of a cleaning agent has been shown to be effective.

Suggested cleaning agents:

- ZEP® Commercial Heavy-Duty Citrus Degreaser
- Consumer Dish Soap (Dawn®)

In this test², a 50/50 solution of warm water/cleaning agent was combined in a spray bottle, sprayed onto the soiled area and immediately wiped with a clean cloth until the solution was completely removed from the surface. Power washing was performed on similarly soiled surfaces. Results were visually observed and recorded. Performed over the course of 10 days, the results indicated that the cleaning agent method was more effective at removing normal build-up on the surface of the coating than power wash alone, and the cleaning agent solution left no visible indications of incompatibility with the coatings.

Specific Surface Contaminants:

Mildew/organics: Scrub with a soft bristle brush with a 5% bleach solution. Additionally, other mildewcide products may be used effectively. Test a small, inconspicuous area prior to broader application to ensure compatibility and effectiveness.

Oil/Grease: Hot water solution with Trisodium phosphate (TSP).

² Test was performed for general evaluative purposes only, and as such, reported results are in no way to be relied upon, and/or otherwise construed as conclusive or authoritative, or as an endorsement by MPM of a particular process and/or cleaning agent

Warranty

A standard limited warranty is provided under Momentive's General Terms & Conditions of Sale & Delivery, or as otherwise printed on the back of order acknowledgments and invoices.

A project-specific Limited Performance Warranty may be issued for buildings other than single-family residential dwellings through a formal application process; such a warranty requires, in general, that SilShield or Optic be applied in strict accordance with published application guidelines and documented adhesion testing be performed. Contact your MPM Sales Representative for program details or to apply for a project-specific warranty. This warranty is subject to certain restrictions and does not provide coverage for faults attributable to workmanship or the physical appearance of the applied coating.

For additional information or to contact a representative, please visit www.siliconesforbuilding.com.

¹ Based on VOC content of less than 50 g/L, as provided for in the 06/2018 US EPA (40 CFR 59) and the 02/2016 South Coast AQMD (Rule 1113) VOC emission standards for architectural coatings.

