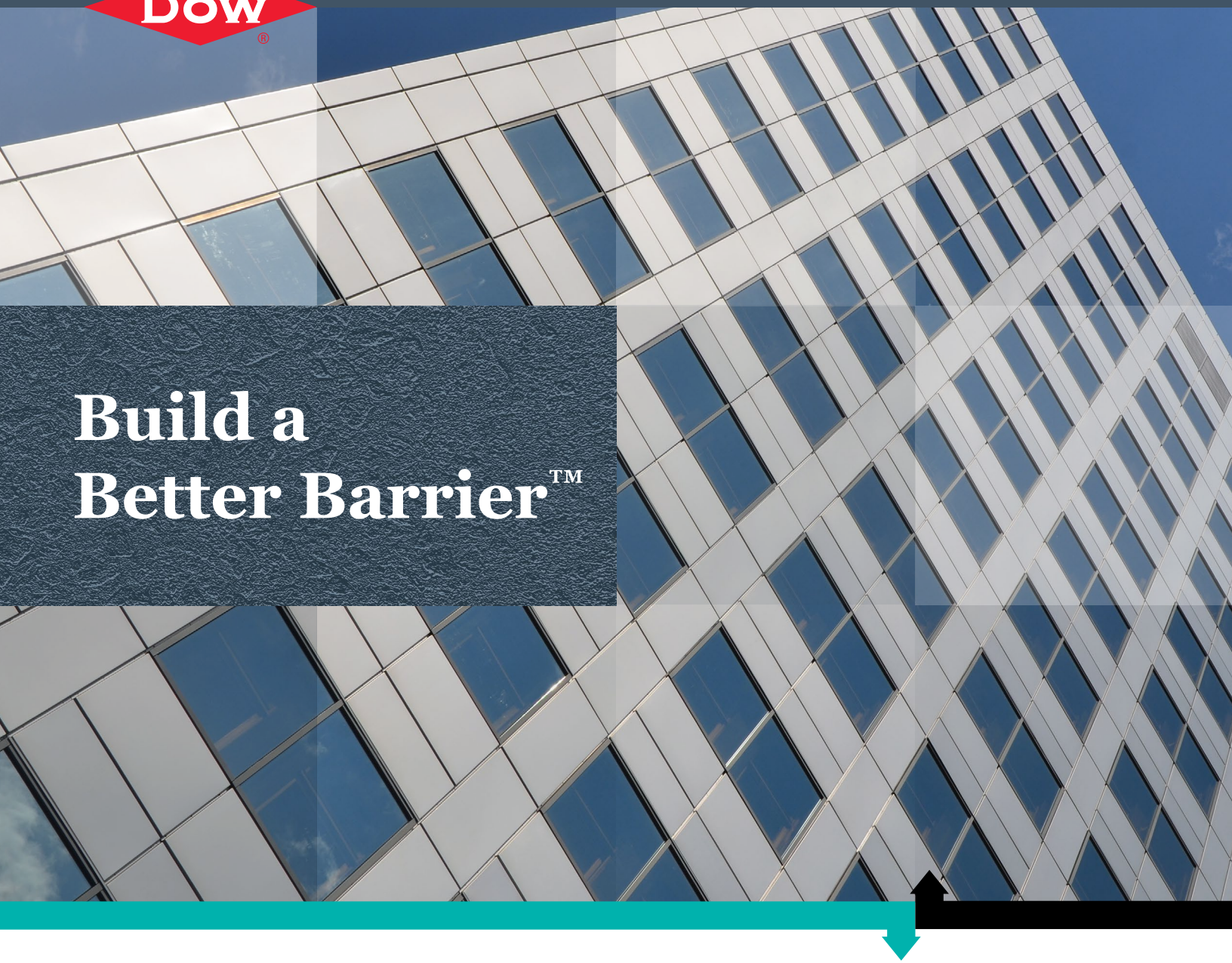
BUILDING SCIENCE



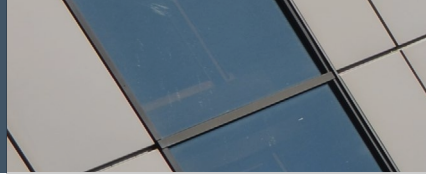
Build a Better Barrier™

DOWSIL™ Silicone Air Barrier System

Tech Talks

DOWSIL™

silicones by DOW



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The DOWSIL™ Silicone Air Barrier System is a suite of fully compatible high-performance silicone technologies from Dow work in concert to help protect the entire building envelope in both new construction and renovation projects.

DEFENDAIR™ 200C Air and Weather Barrier Coating absorption on common sheathing substrates

DEFENDAIR™ 200C Air and Weather Barrier Coating may be specified as a low-build or medium-build fluid-applied air barrier to be installed at a required minimum total dry-film thickness of 15-mil or 17-mil on the surface of the substrate.

To help ensure a robust application of the air barrier and address industry concerns surrounding achieving the appropriate mil thickness on different substrates when using a low-build system, Dow has completed absorption testing on common sheathing substrates and found that the absorption of DEFENDAIR™ 200C Air and Weather Barrier Coating can change by substrate and substrate manufacturer. Based on our testing, some substrates absorb more coating than others and will require a different wet-film application thickness to achieve the required minimum total dry-film thickness on the surface of the substrate.

The total wet-film thickness needed is going to depend on the substrate and the desired final dry-film thickness (low-build or medium-build). A project-specific mockup is recommended to determine the actual wet-film thickness needed which will result in the required minimum total dry-film thickness on the surface of the substrate. It may be possible to utilize DOWSIL™ DEFENDAIR 200 Primer before applying DEFENDAIR™ 200C Air and Weather Barrier Coating to reduce the amount of coating absorbed into the substrate.

Below are estimated wet-film thicknesses needed to achieve a dry-film thickness of 15-mil or 17-mil on common sheathing substrates:

Substrate	Wet Mil	Dry Mil	Wet Mil	Dry Mil
GP DensGlass Sheathing (yellow)	34	15	39	17
Gold Bond eXP Sheathing (purple)	33	15	37	17
USG Securock Brand UltraLight Glass-Mat Sheathing (green)	34	15	38	17
CertainTeed GlasRoc Sheathing (white)	37	15	42	17
Plywood (APA Exposure 1)	33	15	37	17

Coverage rates for your specific substrate may differ and should be verified by completing a mockup.

Please contact your local Dow sales development professional for further assistance.

DEFENDAIR™ 200C Air and Weather Barrier Coating on damp substrates and in rain

Damp substrates

Dow has completed testing of DEFENDAIR™ 200C Air and Weather Barrier Coating on selected wet and damp substrates (on variety of sheathing, plywood, OSB and concrete). Our findings have consistently shown that damp substrates can be effectively coated with DEFENDAIR™ 200C Air and Weather Barrier Coating and adhesion is acceptable.

The adhesion of DEFENDAIR™ 200C Air and Weather Barrier Coating is not affected by the moisture content or “dampness" of most substrates. Testing has shown, however, that when OSB is damp, primer is required for the DEFENDAIR™ 200C Air and Weather Barrier Coating to help achieve acceptable adhesion.

Dow always recommends field adhesion testing be completed for job site specific conditions, as not every brand of every substrate, especially sheathing, could be included in the study.

Dry time before precipitation

While damp substrates are acceptable, DEFENDAIR™ 200C Air and Weather Barrier Coating should not be applied when raining or when rain is imminent. Rain will wash the DEFENDAIR™ 200C Air and Weather Barrier Coating off the substrate if the coating is not at least partially dry. DEFENDAIR™ 200C Air and Weather Barrier Coating dry times will depend on the temperature and humidity at the time of application and while it is drying.

In our studies, we have found that if a 30 mil (wet) coating is applied and is allowed to dry for eight hours, rain after that time did not negatively affect the coating. When rain is expected sooner than eight hours, or the weather cannot be predicted, it is possible to apply one 15 mil (wet) coat of DEFENDAIR™ 200C Air and Weather Barrier Coating. At the thinner wet film thickness, rain will not negatively affect the DEFENDAIR™ 200C Air and Weather Barrier Coating after only a four hour drying time. A second coat can then be applied after four hours or when the rain has subsided. This technique allows the air barrier to be applied in more unpredictable weather conditions.

This testing was completed at 70°F and low relative humidity (15%RH) when the DEFENDAIR™ 200C 200C Air and Weather Barrier Coating had potential to dry more quickly than would be seen in high humidity conditions. A higher humidity or lower temperature will lengthen the required drying time prior to the DEFENDAIR™ 200C Air and Weather Barrier Coating being unaffected by rain.

Thickness of DEFENDAIR™ 200C Air and Weather Barrier Coating

We understand that a “thick mil" or even sheet applied materials may seem more comfortable, but in reality, the question is: What performs, and what can be installed over and over the same way, and still perform for many years?

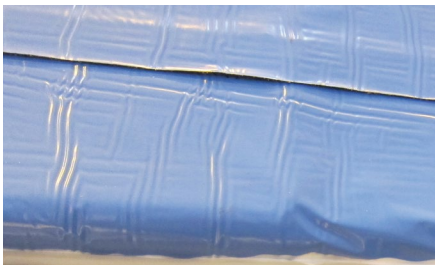
Our versatile air barrier can be specified as either a low-build or medium-build fluid-applied air barrier to be installed at a required minimum total dry-film thickness of 15-mil or 17-mil on the surface of the substrate. This versatility allows building design professionals additional flexibility when considering our product. DEFENDAIR™ 200C Air and Weather Barrier Coating has been ABAA Evaluated to have passed the rigorous material testing set by the ABAA S0008 Standard for Air and Water-Resistive Barriers, providing confidence in its performance. In addition, it’s silicone technology helps enable long-term UV resistance and a remarkable 300°F maximum service temperature rating, which surpasses many competitors.

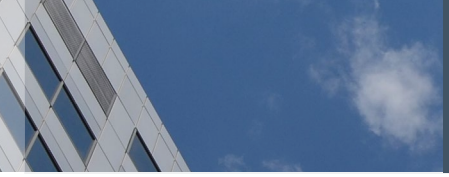
Sheet applied materials help to achieve a certain thickness. But in application, there are joints, seams and folds to worry about, in addition to achieving 100 percent adhesion of the adhesive backing. Dow has shown, through our own testing, that not fully sealing the seams, or having a “fishmouth" such as shown below, may yield air infiltration results that do not pass current air barrier standards and/or exceed the infiltration rate of liquid applied membranes.

Thick mil fluid-applied materials must still be applied at the thickness stated and validated for the correct thickness.

Taking care to assess progress, as Dow recommends with any sealant or coating application, is part of a quality installation; and it is not difficult. It is a matter of measuring the wet mil thickness during application using a hand held gauge. It is similar to other measurement or quality control methods in place for any number of construction products.

Please contact your local Dow sales development professional for further assistance with on-site and hands-on training regarding quality control.





DEFENDAIR™ 200C Air and Weather Barrier Coating certified applicators and warranty

DEFENDAIR™ 200C Air and Weather Barrier Coating is offered with a 10-year limited warranty. When DOWSIL™ brand sealants and transition materials are applied with DEFENDAIR™ 200C Air and Weather Barrier Coating, the system may qualify for a 15-year limited warranty.

When sealing the building envelope with DEFENDAIR™ 200C Air and Weather Barrier Coating, it is critical to choose and install the appropriate materials correctly.

Dow has completed extensive hands-on training seminars with our distributors and key contractors specifically for DEFENDAIR™ 200C Air and Weather Barrier Coating (and other associated sealants and materials used with it).

DEFENDAIR™ 200C Air and Weather Barrier Coating is Air Barrier Association of America (ABAA) evaluated. Specifications often call for ABAA certified installers.

Dow fully supports this program. It is not a specific Dow requirement, but an ABAA certified installer can be chosen for your quality project.

Please contact your local Dow sales development professional for further assistance.

Note: Not intended for use on single family residential dwellings.

DEFENDAIR™ 200C Air and Weather Barrier Coating compatibility with accessory building products

When sealing the building envelope, many different materials come into contact. DEFENDAIR™ 200C Air and Weather Barrier Coating adheres to and is compatible with a wide range of building substrates including, but not limited to: gypsum-based sheathing, plywood, OSB, brick, concrete, concrete masonry units (CMU), aluminum, and galvanized and stainless steel.

Other common building components that DEFENDAIR™ 200C Air and Weather Barrier Coating may come into contact with include self-adhering flashings, mechanical flashings, other liquid flashings, sealants, weatherstrips and insulation.

DEFENDAIR™ 200C Air and Weather Barrier Coating can be continuously sealed to other mechanical and self-adhering flashings by creating a bridge between the two materials using either DOWSIL™ Silicone Transition Strip or DOWSIL™ 758 Silicone Weather Barrier Sealant. This allows for adhesion between the differing products, creating a continuous air and water tight seal. Mechanically attached flashings do not negatively affect the performance of DEFENDAIR™ 200C Air and Weather Barrier Coating. Furthermore, the asphaltic and/or butyl backings of the self-adhering flashings do not negatively affect the performance of DEFENDAIR™ 200C Air and Weather Barrier Coating.

If a liquid flashing from a company other than Dow is used, it should be fully cured before DEFENDAIR™ 200C Air and Weather Barrier Coating is applied over it. If the liquid flashing is to be applied over the DEFENDAIR™ 200C Air and Weather Barrier Coating, allow the DEFENDAIR™ 200C Air and Weather Barrier Coating to cure a minimum of three days. Verify adhesion of the liquid flashing at the start of the project, will adhere to DEFENDAIR™ 200C Air and Weather Barrier Coating. Dow is not aware of any liquid flashing currently in the industry that would negatively affect the performance of the DEFENDAIR™ 200C Air and Weather Barrier Coating when used either over or under the DEFENDAIR™ 200C Air and Weather Barrier Coating. Project-specific adhesion and compatability testing can be performed.

DEFENDAIR™ 200C Air and Weather Barrier Coating is compatible with silicone sealants. It can also contact non-silicone sealants with no negative effects, but the non-silicone sealant should be allowed to cure prior to applying DEFENDAIR™ 200C Air and Weather Barrier Coating. In all cases, adhesion between the two materials should be verified with field adhesion testing. In general, DEFENDAIR™ 200C Air and Weather Barrier Coating will adhere to cured sealants of any chemistry. Only silicone sealants would be expected to adhere to DEFENDAIR™ 200C Air and Weather Barrier Coating.

DEFENDAIR™ 200C Air and Weather Barrier Coating is compatible with rigid foam board insulation.

Please contact your local Dow sales development professional for further assistance.

Example of quality control wet mil thickness form

Date _____

Project Name _____

Project Address _____

Reading Number	Elevation	Floor	Location/Drop	Gauge Reading	Initials
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

For more information

Learn more about Dow's full range of High Performance Building solutions, including service and support, by visiting us online at **dow.com/buildingscience.**

Dow has sales offices, manufacturing sites and science and technology laboratories around the globe. Find local contact information at **dow.com/contactus.**

Dow Building Science website:
dow.com/buildingscience

Contact Dow Building Science:
dow.com/customersupport

Build a Better Barrier™ website:
dow.com/buildabetterbarrier

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