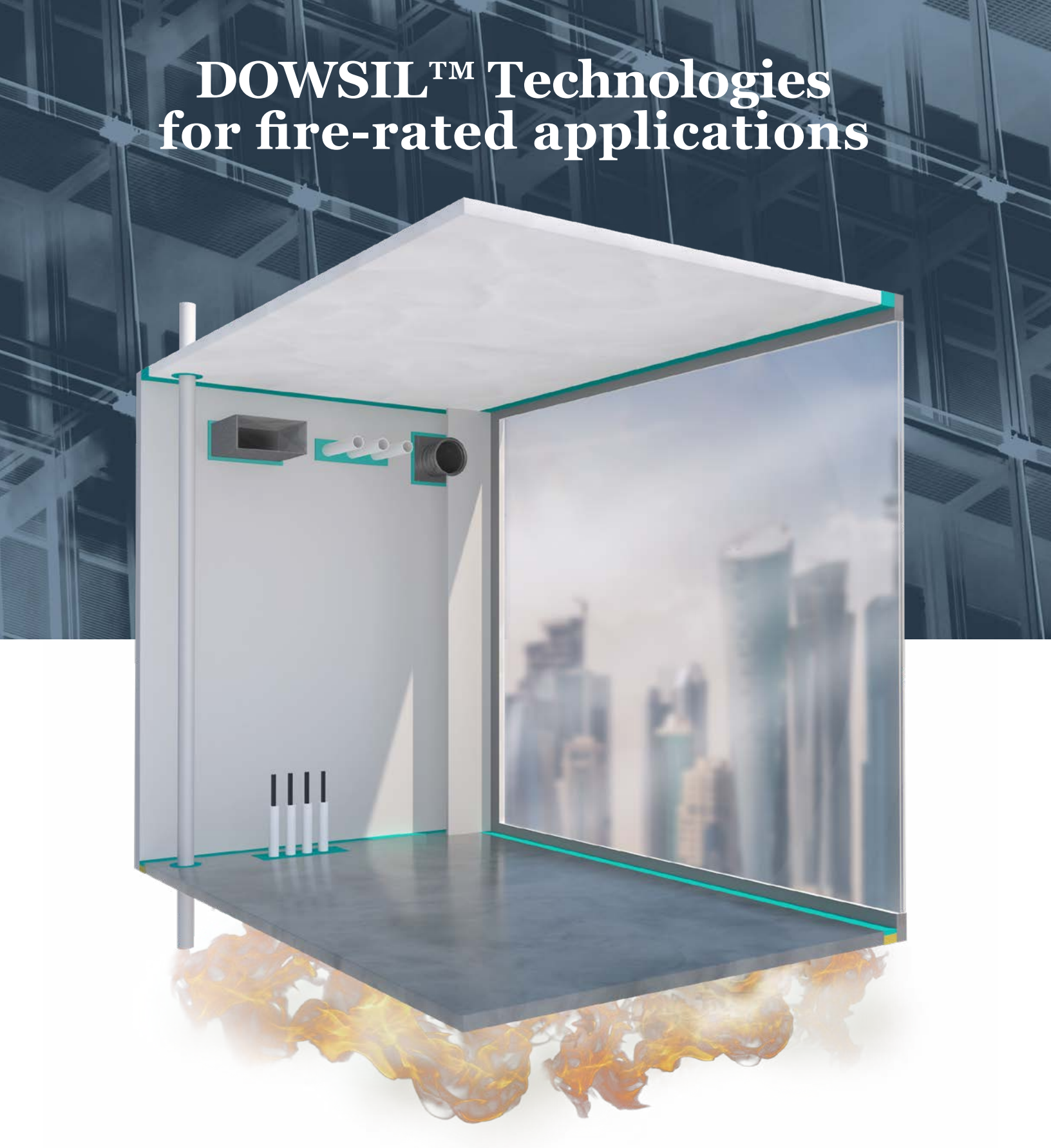
Fire safety for high-performance buildings

Sealants for smoke and fire retardancy

DOW®

DOWSIL™ Technologies for fire-rated applications



Silicone chemistry – beneficial in fire retardant designs.

Note: Project specific testing is required when using DOWSIL™ Silicone at the connection between floor and curtainwall.

DOWSIL™

technologies by Dow

Building and fire safety

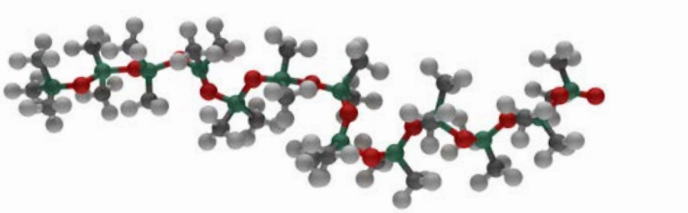
Recent events have reminded us that fire safety of buildings is critically important. In commercial and residential building designs, an acceptable level of fire protection must be installed to minimize the risks associated with flames, heat and smoke. This can be achieved by including passive fire-protection design within the façade and inside the structure according to local standards. Passive fire protection not only helps preventing the incidence of fire but also provides more time for building occupants to escape. Apart from flames, one of the most dangerous side effects of fire is smoke development and toxicity.

How can we limit the spread of fire when it comes to building design?

Buildings are typically sub-divided into discrete compartments specifically to limit the spread of fire, smoke and gases. These components also give occupants enough time for a safer evacuation.

This is why building materials we select are so vital: the materials' behavior in resisting fire is a key factor in determining how much time will be available to exit a building.

Compartment walls and floors form a complete barrier between each unit and are required to provide a minimum degree of fire resistance. It is crucial to ensure that the fire rating of junctions and openings in walls and floors is equivalent to the fire rating of the walls and floors themselves. Joints and openings between fire-separating elements should be fire retardant to maintain the continuity of resistance and be able to achieve the same fire rating as adjacent building materials.



Dow is committed to providing state-of-the-art high performance building technologies for fire safety applications. Safe building solutions that minimize risk and increased safety are our top priority.

A unique advantage

Sealants themselves cannot specifically protect from fire, but can play a key role in the system design and help limit the spread of fire and smoke. Silicone technologies are non-flame propagating, do not produce flaming droplets and have a limited non-toxic smoke development. These material properties can be especially beneficial in fire-rated systems and designs. Silicones are particularly renowned for their movement capability, adhesion profile, UV and temperature stability and durability. They help protect against water and air intrusion and provide excellent all-round protection and performance against damaging weather conditions.

When selecting fire retardant technologies, Dow High Performance Building offers a range of DOWSIL™ brand solutions for vertical and horizontal applications as well as cable penetrations, fenestrations and building element connections. Our technologies have been certified by external test institutes in a wide range of joint configurations. Dow's technical specialists look forward to collaborating on future projects and assisting in the selection of our technologies.

	DOWSIL™ FIRESTOP 700 Silicone Sealant	DOWSIL™ FIRESTOP 400 Acrylic Sealant
	Fire-rated sealant for interior and exterior linear joints and penetration seals	**Fire-rated paintable seals for interior walls and gap sealing**
Description	A one-part, neutral curing silicone sealant that provides excellent unprimed adhesion to a range of common construction substrates including steel, masonry and brick.	A one-part, intumescent acrylic sealant that provides good adhesion to a wide variety of substrates without the need for a primer. Its intumescent qualities allow the material to swell under high-temperature conditions, producing a fire and smoke-resistant seal.
Features and benefits	• Up to four hour fire rating • Neutral curing with joint movement capability of ±50% • Excellent weathering characteristics, including resistance to ozone, UV radiation and temperature extremes • Long service life • Ready to apply	• Up to four hour fire rating • Paintable water-based sealant • Swells under heat conditions to produce a fire- and smoke-resistant seal • Does not emit halogenated by-products under fire conditions • Ready to apply
Color and available packaging	• Colors: white, black, grey • Available in 310 ml cartridges, 600 ml foil packs, 25 L pails, 250 kg drums	• Colors: white and grey • Available in 310 ml cartridges
How to apply	Please follow substrate preparation and joint design recommendations as detailed in the technical datasheet. DOWSIL™ FIRESTOP 700 Sealant may be applied using a manual applicator sealant gun.	Please follow substrate preparation and joint design recommendations as detailed in the technical datasheet. DOWSIL™ FIRESTOP 400 Sealant may be applied using a manual applicator sealant gun.
Certifications and approvals	• Fire resistance tested according to 1366-4; classified up to EI240 according to 13501-2 depending on detailing • Fire resistance tested according to BS476-20; classified up to EI240 depending on the joint configuration • Conforms to ISO 11600-F&G25LM • CE marked as a fire-resistant sealant according to EAD 350141-00-1106 • Fire reaction tested according to EN1716, EN11925 • Fire reaction classification B, s1, d0 according to EN13501-1 • Tested according to and meeting the requirements of DIN 18545-E and DIN 18540 • SNJF Category 1 • Civil Defense Approval for UAE	• Fire resistance tested according to BS476-22 and classified up to EI240 depending on joint configuration

These are typical properties, not to be construed as specifications.

DOWSIL™ Smoke Seal 800SL

Fire-rated self-leveling sealant for floor joints and horizontal connection seals

This self-leveling, one-part silicone sealant has excellent unprimed adhesion on many common, non-porous building substrates. A low-modulus sealant, it has excellent fire sealing properties, adhesive strength and high movement capability, which can help prevent the spread of smoke and flames between horizontal floor joints.

- Up to four hour fire rating
- Cures at room temperature when exposed to moisture in the air
- No tooling required
- Long service life
- Excellent weathering characteristics, including resistance to ozone, UV and high temperatures
- Non-corrosive to metals
- Ready to apply

- Color: black
- Available in 10 kg and 22 kg pails

Please follow substrate preparation and joint design recommendations as detailed in the technical datasheet. DOWSIL™ Smoke Seal 800SL may be poured directly from the pail and will self-level.

- Fire resistance tested according to EN1366-4; classified up to EI240 according to EN13501-2 depending on detailing
- Fire resistance tested according to UL2079; classified up to three hours FT depending on the joint configuration
- Fire reaction tested according to EN1716 and EN11925
- Fire reaction classification E according to EN13501-1
- Tested according to EN15651-4

DOWSIL™ 3-6548 RTV Silicone Foam

Fire-rated silicone foam for sealing cable/pipe penetrations and linear gaps

This two-part, room-temperature vulcanizing (RTV) foam has outstanding fire resistant properties, coupled with an excellent movement accommodation capacity, providing a reliable safety solution. It has been specifically developed to withstand high temperatures and to confine such hazards as smoke, flames and gases. It can also be used to seal buildings against damaging contaminants.

- Up to four hour fire rating
- 50% closed-cell foam preventing smoke and gas penetration through the seal
- Forms to fit complex, irregular shapes and fills difficult to reach places to prevent smoke and gas penetration through the seal
- Long service life
- Resistant to ozone, ultra-violet radiation and temperature extremes

- Color: black
- Available in 198 g kits, 204.1 kg drums

Please follow substrate preparation and joint design recommendations as detailed in the technical datasheet. DOWSIL™ 3-6548 RTV Silicone Foam is available in drums and a two-part, 1:1 ratio kit which enables easy mixing and application directly from the container.

- Fire resistance tested according to EN1366-4, classified up to EI180 according to EN13501-2 depending on detailing
- Fire resistance tested according to EN1366-3, classified up to EI60 according to EN13501-2
- Fire resistance tested according to BS476/22; classified up to four hours integrity depending on detailing
- Fire resistance tested according to UL1479; classified up to three hours FT depending on detailing
- Fire reaction tested according to EN1716, EN11925
- Fire reaction classification E according to EN13501-1

For more information

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

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

DOWSIL™
technologies by DOW

Dow High Performance Building website:
dow.com/construction

Contact Dow High Performance Building:
dow.com/customersupport

Visit us on Twitter
@DowHPBuilding

Visit us on LinkedIn
Dow High Performance Building

Images: 86124473, 175558063, 191042472, 248639711

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT WWW.DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

2000005584

Form No. 62-2150-01-0920 S2D