ROCKWOOL Smartrock® – Solution for Interior-Insulated Mass Walls

Frequently Asked Questions (FAQ)

This FAQ is designed to provide clear answers to common questions about ROCKWOOL Smartrock, including its features, applications, installation, availability, and overall benefits, to help you make informed decisions for your projects. Please note that some answers are necessarily generic; for project-specific questions or more in-depth information, you are encouraged to contact ROCKWOOL Technical Services directly.

1. Product Characteristics

What are ROCKWOOL Smartrock boards made of?
ROCKWOOL Smartrock boards consist of a humidity-dependent vapor retarder, ProClima INTELLO Plus®, laminated to the surface of a semi-rigid stone wool insulation board compliant with ASTM C612. The INTELLO Plus® membrane, which meets the ICC-ES Acceptance Criteria for Humidity-Dependent Vapor Retarders (AC538), is composed of a polypropylene nonwoven fabric, a vapor-variable polyethylene copolymer membrane, and a polypropylene microfiber fleece cover.

What membrane is installed on the interior of the Smartrock boards?
ProClima INTELLO Plus® membrane is laminated to the interior-facing surface of the semi-rigid stone wool insulation boards.

What is a smart vapor retarder?
A smart vapor retarder—also known as a smart membrane or humidity-dependent vapor retarder—is a vapor control layer whose permeability adjusts in response to changes in the surrounding relative humidity. Under higher indoor humidity conditions, such as during the heating season in winter, it acts as a low Class II vapor retarder (greater than 0.1 and up to 1.0 perm), effectively controlling vapor diffusion through the wall assembly. When indoor humidity decreases, as in the cooling season during summer, the material's vapor permeability increases, allowing it to function as a Class III vapor retarder (greater than 1.0 and up to 10 perms). This higher permeability enables moisture within the wall to dry out toward the interior, reducing the risk of moisture accumulation within the wall.

How resistant is the ProClima INTELLO Plus® membrane to UV exposure?
The INTELLO Plus® membrane has limited resistance to ultraviolet (UV) radiation and should not be left exposed to sunlight. Extended UV exposure can deteriorate the membrane, reducing its performance and potentially compromising its long-term integrity.

What features make Smartrock a suitable choice for retrofit applications?
Smartrock is particularly well suited for retrofitting masonry or concrete walls in scenarios where the application of exterior insulation is impractical due to zoning restrictions, aesthetic considerations, or property boundaries. However, it is critical to recognize that insulating mass walls in cold climates—especially those that are both cold and wet—can introduce significant performance and durability challenges if moisture management is not properly addressed.

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The key advantage of Smartrock is its integrated, laminated, humidity-dependent vapor retarder. This smart membrane dynamically adjusts its permeability in response to ambient moisture conditions. During the heating season, it restricts outward vapor diffusion, thereby reducing the risk of condensation on the interior face of the masonry. When vapor drive reverses (i.e., from exterior to interior), the membrane becomes more permeable, enabling inward drying and supporting effective moisture management as well as long-term durability of the wall assembly.

Smartrock is also classified as noncombustible in accordance with ASTM E136 and as Class A, with a flame spread index of 0 and a smoke developed index of 0, when tested in accordance with ASTM E84. These properties make it an optimal choice for enhancing fire resistance in legacy buildings without compromising safety. Furthermore, as documented in ICC-ES ESR-5374, Smartrock has been evaluated for compliance with the 2012, 2015, 2018, 2021, and 2024 editions of the International Building Code (IBC), International Residential Code (IRC), and International Energy Conservation Code (IECC).

In addition, the product's lower-density bottom layer enables it to conform effectively to irregular or uneven substrates, facilitating installation on historic masonry or stone surfaces. Its semi-rigid composition allows for straightforward removal, making Smartrock especially advantageous for heritage retrofit projects where reversibility and minimal intervention are essential preservation requirements.

How does Smartrock contribute to ROCKWOOL's commitment to sustainability, both in terms of certifications and broader environmental benefits?

ROCKWOOL Smartrock is engineered with a strong focus on sustainability, meeting key environmental certifications and standards that advance green building initiatives:

- Environmental Product Declaration (EPD): ROCKWOOL offers a product-specific Type III EPD, independently verified by UL in accordance with ISO 14025. This EPD delivers transparent, third-party-verified data on the environmental impacts of ROCKWOOL products—including Smartrock—across their entire lifecycle.
- Health Product Declaration (HPD): The composition and related health information for ROCKWOOL products, including Smartrock, are transparently disclosed in Health Product Declarations (HPDs) with a 100ppm disclosure threshold.
- Declare Label: ROCKWOOL Smartrock holds a Red List approved Declare label disclosing material inventory and health information, and meeting the Living Building Challenge's Red List requirements.
- VOC Emissions: Tested to CDPH Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions From Indoor Sources Using Environmental Chambers v1.2 (2017), ROCKWOOL Smartrock passes both classroom and office environment requirements.
- LEED Standard: ROCKWOOL Smartrock can contribute to achieving LEED credits. Refer to the LEED letter generator on the ROCKWOOL website for more information about its contribution.

Refer to www.rockwool.com/producttransparency for more information.

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What are the storage requirements for Smartrock?
Smartrock should always be stored in a cool, dry environment, protected from direct sunlight, heat, frost, and humidity. The laminated INTELLO Plus smart vapor retarder is sensitive to prolonged exposure to the elements; such exposure can degrade membrane performance and compromise product integrity. Factory packaging is intended for protection during transit and short-term site storage only—it is not suitable for long-term or outdoor storage.

If the insulation is inadvertently exposed to moisture, it must be fully dried before installation. However, if the product has suffered physical damage, contamination, or has been subjected to freeze-thaw cycles, its performance may be compromised, and it should be replaced. Similarly, insulation that has experienced long-term improper storage or severe weather exposure should not be used.

For more information, please refer to the Storage of ROCKWOOL Stone Wool Insulation Technical Bulletin.

2. Product Application

What fasteners are approved for use with Smartrock installation?
Smartrock should be installed using mechanical fasteners suitable for interior applications on concrete or masonry substrates. Project architects and engineers may adjust the type of fasteners to suit specific project conditions and design requirements. Fasteners must be capable of meeting required pull-out resistance. Recommended fastener types include, but are not limited to:

- Plastic or metal insulation anchors designed for rigid or semi-rigid mineral wool (e.g., Trufast Plasti-Grip® PMF Anchors or equivalent)
- Insulation washers with powder-actuated or screw fasteners (e.g., Trufast Thermal-Grip® Insulation Pins or equivalent)
- Concrete or masonry screws (e.g., Trufast Thermal-Grip® ci Prong Washers & Self-Drilling Screws or equivalent)

Can Smartrock be used in below-grade applications?
Yes, Smartrock is well-suited for below-grade applications, as interior continuous insulation on concrete or masonry foundation walls. It is an excellent choice for basements and partially below-grade walls where continuous insulation is required to meet energy codes such as the IECC. Smartrock's humidity-dependent vapor resistance facilitates moisture diffusion and helps prevent condensation in wall assemblies that must dry inward—an important benefit for basements with exterior waterproofing.

What tapes are approved for use in Smartrock installation?
When seams between boards, transition details, fastener heads, and penetrations are appropriately taped in assemblies using ROCKWOOL Smartrock, vapor-permeable or highly vapor semi-permeable tapes should be used. In this way, the assembly's vapor-control ability is preserved—an essential consideration given Smartrock's integrated humidity-dependent vapor retarder. By using compatible, vapor-permeable tape, air tightness is maintained in accordance with modern building science principles and the air barrier continuity requirements of the IECC.

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Recommended tapes include:

- Pro Clima TESCON VANA – Highly vapor-permeable and durable, ideal for interior air sealing of seam and penetration.
- Pro Clima CONTEGA SOLIDO IQ – Humidity-variable (smart) tape designed for interior air sealing at window and door interfaces.

Standard construction tapes (e.g., duct tape, packing tape, or polyethylene-based sealing tapes) should be avoided, as these are typically vapor-closed and could increase the risk of moisture accumulation within the assembly. In addition, such products generally do not provide the long-term adhesion and air sealing performance required for a durable air barrier system. For tapes not listed above, the manufacturer's technical documentation should be consulted.

Why is it recommended to use two air barriers with Smartrock—one fluid-applied on the substrate and the other being the Smartrock membrane?
For optimal performance in mass wall assemblies, a fluid-applied, vapor-permeable air and water-resistive barrier is typically recommended on the interior face of the mass wall. This barrier serves as the primary air barrier, preventing localized water intrusion and accumulation at floor levels while allowing water vapor to move in both directions for effective moisture management. Where needed, the masonry surface can be leveled with lime mortar or a high-build air and water-resistive barrier to ensure a tight fit and continuous insulation coverage.

It is equally important to address interior air flow resistance to minimize the risk of natural convection within the wall assembly. This is accomplished by the INTELLO Plus® membrane, which acts as a convection barrier, effectively controlling air movement at insulation board joints.

In new construction, if the concrete or fully grouted concrete block masonry substrate meets the criteria to function as an effective air barrier, an interior fluid-applied membrane may not be necessary. In such cases, Smartrock can be installed directly onto the substrate.

Can batt insulation be installed between interior studs inboard of an assembly insulated on the interior with Smartrock?
While the addition of batt insulation between interior studs may enhance thermal performance, it is generally not recommended in wall assemblies that already feature Smartrock as interior continuous insulation.

Adding insulation inboard of the smart membrane alters the temperature gradient and relative humidity profile within the wall, which can cause the vapor permeance of the membrane to respond in ways that may not be optimal. This can increase the risk of moisture accumulation or related issues within the assembly. The suitability of this approach should always be evaluated based on project-specific conditions.

Can the Smartrock membrane be painted?
The membrane on Smartrock should not be painted. However, when completing the interior finish—such as over gypsum board—latex paint is a suitable choice, as it is sufficiently vapor permeable to

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maintain the assembly's inward drying potential. Lime-based or acrylic-based paints can also be considered as low-VOC alternatives.

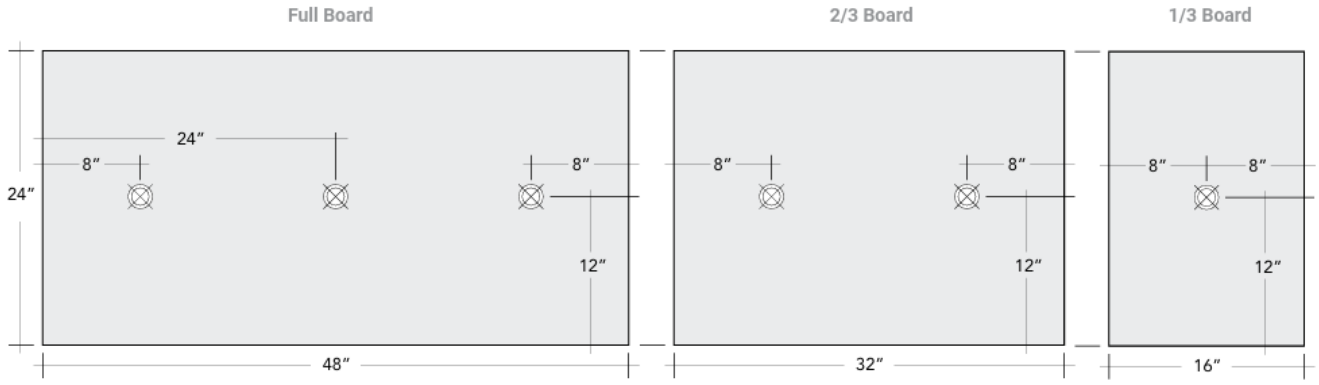
3. Product Installation

When and how should Smartrock be installed, and what preparatory steps are required?
Smartrock is typically installed during the interior finishing stage of construction, before framing and the application of interior drywall or other finishes. In new construction, this involves installing Smartrock once the supporting mass wall has been fully erected and appropriately prepared. For retrofit projects, installation should occur only after removing any existing interior furring, lath, or plaster to fully expose the masonry substrate from the interior. This approach is essential, as materials like gypsum are moisture-sensitive, and retaining old layers can create voids that may cause unintended air leakage and compromise the building envelope.

Before installing Smartrock, a fluid-applied, vapor-permeable air and water-resistive barrier should be applied to the back of the mass wall. This barrier serves as the primary air barrier, prevents localized water leakage from penetrating and collecting at floor levels, and allows moisture vapor to move in both directions, supporting effective moisture management.

How should Smartrock be installed if the wall has interior furring?
Smartrock is typically installed during the interior finishing stage of construction, before framing and the application of interior drywall or other finishes. For retrofit projects, installation should occur only after removing any existing interior furring, lath, or plaster to fully expose the masonry substrate from the interior. This approach is essential, as materials like gypsum are moisture-sensitive, and retaining old layers can create voids that may cause unintended air leakage and compromise the building envelope.

How many fasteners are recommended per board?
Smartrock should be mechanically fastened to the supporting substrate using a minimum of three (3) fasteners per full-size 24" x 48" board, ensuring each fastener follows the recommended fastening pattern and penetrates the substrate by at least ½ inch. For partial boards, use a minimum of two (2) fasteners for 2/3 board sections and at least one (1) fastener for 1/3 board sections.



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The specific number and placement of fasteners may be adjusted by the project architect or engineer to accommodate unique project conditions and design requirements. All fasteners must be suitable for the substrate and capable of withstanding the necessary pull-out resistance to ensure reliable attachment.

What should be done if a fastener needs to be removed or repositioned during Smartrock installation?

If a fastener must be relocated—due to layout changes, obstructions, or alignment—Smartrock's semi-rigid design allows the board to be carefully detached and reused without damage. To maintain the integrity of the air and vapor control layers after adjusting fastener locations, these steps should be followed:

- The original fastener penetration in the Smartrock membrane should be sealed using an approved vapor-permeable or humidity-variable air sealing tape.
- Any hole or damage in the substrate should be sealed with an approved elastomeric, air barrier-compatible sealant or a fluid-applied air barrier product suitable for spanning small cracks or gaps. Airtightness at the wall plane is thus restored, which is especially important when the mass wall serves as part of the primary air barrier system.

Are fasteners still recommended if a service cavity is installed inboard of Smartrock, providing compression against the insulation?

Yes, fasteners are still recommended to securely attach Smartrock to the substrate, even when a service cavity is installed inboard. Additionally, the insulation should not be compressed, as this may impact its thermal performance.

How should I detail windows if my project conditions differ from those in the installation instructions?

Modifications to standard details may be necessary to accommodate project-specific conditions. When window configurations differ from those described in the ROCKWOOL Smartrock documentation, the following key objectives should guide window detailing:

- Extend Smartrock as close to the rough opening as possible, without interfering with window operation, to minimize exposed masonry, prevent thermal bridging, and avoid gaps between the insulation and window frame.
- Ensure continuity of the water, air, vapor, and thermal control layers to maintain optimal building envelope performance.
- Preserve the function of the integrated smart vapor retarder, particularly on the room-facing side, to facilitate controlled inward drying.

What should be done if the masonry is uneven, making it difficult to install a fluid-applied air barrier?

In mass wall retrofits using Smartrock, ensuring the substrate is airtight is essential. When the existing surface is uneven or highly textured, applying a fluid-applied air barrier can be challenging. However, several viable solutions can be employed to address this issue, including:

- A lime mortar to smooth the substrate, facilitating easier membrane application—an approach commonly recommended in deep-energy retrofits of historic masonry).
- A spray-applied, elastomeric vapor permeable air barrier with high build and crack-bridging capability (e.g., >1/16" bridging capacity).

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How can the condition of existing masonry or concrete be assessed before installing Smartrock?
Assessing the condition of existing masonry or concrete is a crucial first step—especially in retrofit applications. The substrate's integrity directly impacts the performance of the water, air, vapor, and thermal control layers, as well as the long-term durability of the wall assembly.

A thorough assessment should be carried out by a qualified professional and may include, but is not limited to, the following considerations:

- Inspecting for cracks, spalling, efflorescence, deteriorated mortar joints, or previous patchwork, which may signal water intrusion, structural movement, or poor adhesion surfaces.
- Checking for biological growth, staining, or delamination, which indicate moisture issues.
- Performing field adhesion tests if a fluid-applied air barrier is planned; poor adhesion may require cleaning or parging the substrate.
- Verifying that the substrate can support mechanical fastening of Smartrock, using pull-out tests or checking compressive strength.

How do you tie ROCKWOOL Smartrock into an existing roof assembly?
Integrating Smartrock with an existing roof requires careful detailing to maintain the continuity of all control layers—water, air, vapor, and thermal—across the wall-to-roof interface. This transition is critical; inadequate detailing can result in moisture intrusion, air leakage, thermal bridging and long-term durability issues. Early coordination with design professionals and enclosure consultants is recommended.

4. Fire & Code Compliance

Is it acceptable for Smartrock to be left exposed to the interior of a building after installation?
Smartrock is classified as noncombustible when tested in accordance with ASTM E136 and as Class A, with a flame spread index of 0 and a smoke developed index of 0, when tested in accordance with ASTM E84. Additionally, as detailed in ICC-ES ESR-5374, Smartrock has been evaluated for compliance with the 2012, 2015, 2018, 2021, and 2024 editions of the IBC, IRC, and IECC.

Whether Smartrock may be left exposed to the interior is subject to local building code requirements for interior finishes and fire protection. The IBC permits stone wool insulation to be left exposed in noncombustible construction, as well as in mechanical rooms, crawlspaces, and concealed spaces, where finish requirements are less restrictive. In most commercial and multifamily occupancies, a finish layer—such as gypsum board—is typically required to meet code provisions for interior finishes and fire protection. However, some jurisdictions may permit Smartrock to remain exposed in limited-access or non-occupied areas, provided the insulation satisfies applicable fire performance criteria.

It is essential to consult the IBC or local building code, ICC-ES ESR-5374, and the authority having jurisdiction (AHJ) to determine the acceptability of leaving Smartrock exposed in a specific application.

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Does NFPA 285 apply when installing Smartrock on the interior of masonry or concrete?
No, NFPA 285, "Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components," typically does not apply to the installation of Smartrock on the interior side of mass walls.

NFPA 285 would primarily apply to exterior wall assemblies to evaluate flame propagation along the exterior face. In most cases, NFPA 285 does not apply for projects installing continuous insulation on the interior when:

- The exterior wall construction is made of noncombustible materials such as concrete, concrete block masonry and brick, and
- Any combustible air barrier present is the only combustible component and is located on the interior side of the noncombustible substrate.

Can Smartrock be installed on non-sprinklered buildings over 75 feet?
Yes, Smartrock can be installed on non-sprinklered buildings over 75 feet in height, as it is classified as a noncombustible material in accordance with ASTM E136. The IBC requires noncombustible insulation for high-rise buildings in most applications, unless the building is protected by an automatic sprinkler system or specific exceptions are met. As with any project, it is important to review project-specific conditions and consult the Authority Having Jurisdiction (AHJ) to ensure compliance with local code interpretations and requirements.

Does Smartrock require the use of a thermal barrier or ignition barrier?
The use of a thermal or ignition barrier is not required for Smartrock under the IBC or IRC when it is installed on the interior face of mass walls, provided conditions do not exceed those for which it has been evaluated. This exemption is due to Smartrock's classification as noncombustible in accordance with ASTM E136 and its Class A rating per ASTM E84, with a flame spread index of 0 and a smoke developed index of 0.

These properties distinguish Smartrock from combustible insulation products, which are required to be protected by a thermal barrier (typically ½" gypsum board) and to comply with more stringent flame spread and smoke developed limits as specified in IBC Chapter 26.

It is essential to consult the IBC or local building code, ICC-ES ESR-5374, and the authority having jurisdiction (AHJ) to determine the acceptability of leaving Smartrock exposed in a specific application.

5. Product Availability

Why is Smartrock only available in select states?
ROCKWOOL Smartrock is currently available in select U.S. states—mainly in the Northeast, Midwest, and Mid-Atlantic regions—due to a combination of factors, including regional energy code requirements, strong demand for mass wall insulation, and manufacturing logistics. These areas have a high concentration of buildings with above-grade masonry or concrete walls, where interior continuous insulation like Smartrock is often necessary to comply with local energy codes. By focusing distribution within these regions, we can ensure reliable product availability, deliver

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targeted training for installers and specifiers, and provide dedicated support during the initial launch phase, all of which set the stage for future expansion into additional markets.

What about availability in Canada and other U.S. states outside the initial launch region?
Limiting distribution during the launch phase allows us to maintain reliable product supply, deliver focused training for installers and specifiers, and provide targeted support. We anticipate expanding availability to Canada and additional regions of the United States in 2026.

In what thicknesses is Smartrock offered?
ROCKWOOL Smartrock is offered in a variety of thicknesses—2", 2.5", 3", 3.5", 4", 4.5", 5", and 6"—providing a broad spectrum of thermal resistance values to meet or exceed ANSI/ASHRAE/IESNA 90.1 requirements for interior continuous insulation on mass walls. This extensive range enables designers and specifiers to select the optimal thickness based on specific climate zones, wall assembly configurations, and desired R-values. Thicker options are particularly well-suited for achieving higher performance targets or complying with stretch codes in colder climates. If your project requires thicknesses below 2" or outside the standard options, please contact your sales representative to discuss available options and potential custom solutions.

For more information, please contact ROCKWOOL Technical Services at the phone number or email address below.

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