

Below Grade Applications with Stone Wool Insulation

Frequently Asked Questions (FAQ)

Is it possible to backfill free draining material directly against ROCKWOOL Comfortboard®, or is a drainage mat necessary?"

The necessity for a drainage mat in front of below-grade ROCKWOOL stone wool insulation varies based on several factors such as soil conditions and the anticipated rain load. Generally, installing a drainage mat may be advised to facilitate water management and shield the insulation from moisture, particularly in regions susceptible to significant rainfall. It is advisable to consult a structural engineer, a drainage system expert, or to adhere to local building codes to ascertain the requirement for a drainage mat in your specific situation.

Additionally, compression of insulation for below-grade foundation walls typically occurs during backfilling and with the application of permanent surcharges. By the end of construction, all significant compression of the insulation should have taken place, with minimal additional compression from periodic surcharges like vehicle loads. Deformation of the ROCKWOOL Comfortboard® insulation for loading of up to 459psf (22 kPa) appears to be within acceptable exterior grading tolerances, but it is the designer's responsibility to ensure that final grading adjustments accommodate any insulation deformation before applying exterior finishes.

How does ROCKWOOL Comfortboard® perform when exposed to moisture in under-slab or below-grade applications?

Historically, untreated fibrous insulation was used as a drainage medium due to its ability to attract water and facilitate downward drainage by gravity. However, it would absorb some water, leading to retention within the material, resulting in a loss of performance of the insulation. This issue prompted the use of hydrophobically-treated fibrous insulation in applications without drainage layers. ROCKWOOL Comfortboard® rigid and water-repellent insulation, is designed to repel water rather than drain it, which means it does not absorb water, helping it maintain its thermal resistance. This makes it particularly effective and durable in moist environments, where it can continue to perform optimally without degradation over time.

Effective water management around buildings is crucial to prevent foundation damage. Surface water can be controlled by using management systems and strategies such as gutters, downspouts, and proper site grading to direct water away from the foundation and minimize soil saturation. Groundwater management involves preventing water accumulation near foundation walls and beneath slabs using drainage strategies such as free draining backfill with no fines, drainage mats, functional footing drains, and granular fill to mitigate hydrostatic pressure and prevent water ingress through foundation imperfections.

Is ROCKWOOL Comfortboard® suitable for below-grade applications in areas with high water tables or areas prone to flooding?

Materials with high water resistance or flood damage resistance should be utilized in these areas, thereby advising against the use of ROCKWOOL Comfortboard® under these conditions. Groundwater or floodwater may contain organic contaminants that promote mold growth and compromise the integrity of stone wool insulation. Should ROCKWOOL insulation become submerged, it may gradually absorb water, adversely affecting its properties. For more detailed guidance, consulting the Authority Having Jurisdiction (AHJ) for the project's location is recommended.

What protective measures are necessary for ROCKWOOL Comfortboard® when used as exterior foundation insulation that contacts the ground?"

Where foundation insulation is on the exterior of the foundation wall and touches the ground, it needs to be protected. Refer to the technical bulletin "*Protection of Stone Wool Insulation for Foundation at Grade*" for more information on this topic.

Where should the vapor control layer be installed in an under-slab application using ROCKWOOL Comfortboard®?

The polyethylene sheet, also known as the 'vapor barrier', should be positioned atop the insulation, sandwiched between the rigid insulation and the underside of the concrete slab. This placement is crucial as it prevents water vapor from migrating up from the ground into the concrete, and protect it from potential moisture damage, while shielding the insulation from moisture during the pouring and curing of the concrete. For typical architectural details, please refer to the [ROCKWOOL architectural detail sets](#) illustrating below-slab applications.

What is the compressive resistance of ROCKWOOL Comfortboard®?

The minimum compressive resistance of ROCKWOOL Comfortboard® 80 and ROCKWOOL Comfortboard® 110 at 10% deformation is determined using the ASTM C165 *Standard Test Method for Measuring Compressive Properties of Thermal Insulations*. For the specific values, please refer to the technical datasheets of [ROCKWOOL Comfortboard® 80](#) and [ROCKWOOL Comfortboard® 110](#).

What is the minimum thickness of a slab required when using ROCKWOOL Comfortboard® in under-slab applications?

The thickness of a concrete slab is typically determined independently of the insulation used underneath it. The required thickness depends on various factors including the imposed loads the slab must support, the strength of the concrete, the underlying soil conditions, and the slab's spanning capability. Each of these factors contributes to defining the structural requirements necessary to ensure stability and durability of the slab in its specific application.

The performance of ROCKWOOL Comfortboard® 80 and ROCKWOOL Comfortboard® 110 was evaluated for slab thicknesses ranging from 4 to 10 inches (100mm to 250mm). Detailed information on these evaluations is available upon request.



What is the maximum load that ROCKWOOL Comfortboard® can withstand in an under-slab application?

At this time, ROCKWOOL products are recommended for under-slab installations in buildings that sustain static live loads of up to 100psf (4.8kPa). Suitable applications would typically include residential, retail, commercial office spaces, institutional buildings, schools, hospitals, clinics, museums, theaters, and recreational facilities. Buildings subject to moving loads, such as those involving forklifts or vehicles, as well as live loads with variable, patterned loading, should avoid using these products unless a specialized concrete reinforcement design is implemented. It is essential that ROCKWOOL products be installed beneath the entire area of the concrete floor slab unless specific design details are provided by the designer for areas without under-slab insulation. Please contact ROCKWOOL Technical Services for more information.

Do ROCKWOOL Comfortboard® insulation boards compress when a concrete slab is poured over them, and what are the long-term effects on these insulation boards installed under a concrete slab?

ROCKWOOL Comfortboard® 80 and ROCKWOOL Comfortboard® 110 can handle various strains, suitable for under-slab use. Concrete slab tolerances vary by building use and finishes like tiles, which may need grout thickness adjustments for insulation deformation. It is the designer's responsibility to address both dead and live load deflections to prevent floor finish damage, especially near moving joints. Comfortboard® 110, being denser, exhibits less deflection, when compared to Comfortboard® 80.

Additionally, long-term deformation, or creep, of ROCKWOOL products occurs mostly within the first 14 days, stabilizing shortly thereafter. As initial deformations can delay construction, finishes are usually not applied until at least 14 days post slab placement. Deformations occurring between day 14 and day 100 are minimal, thereby posing little to no risk to finishes.

Detailed information regarding this application is available upon request.

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

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