



7 facts about

# Durability and stone wool



If a product is durable, it can endure continued use over a long period, maintaining a constant performance.<sup>1</sup>

Durability is an important factor when selecting a construction material for your project. A durable construction product will last the lifetime of the building, and will not require maintenance.

# 1

## There are two main aspects of durability

If a construction product is durable, it should:

- Maintain a constant performance in all important aspects (such as thermal, mechanical, or fire resistance).
- Have a long duration, according to its function

As buildings can remain standing for many decades, it's essential that the materials used to construct them will last as well. Stone wool products do just that.

# 2

## A durable product offers more than just a long lifespan

A durable construction product that maintains a strong performance throughout its lifetime does not need maintenance or regular replacement. A durable construction product thus consumes less resources, creates less waste and its manufacturing impact is spread over long periods of time. Durability supports eco-efficiency and secures progress towards sustainable consumption and production.

# 3

## Durability is important when it comes to ceilings

Ceiling systems installed during construction usually remain in place for decades. While one can change ceiling tiles to adjust to the acoustic needs of a space, it can be challenging to replace in some areas. It is therefore important to use a durable ceiling tile that will perform consistently throughout the building's lifetime.

The main purpose of a ceiling system is to create beautiful, comfortable spaces with good acoustics. The ceiling's performance shouldn't degrade over time.

Because stone wool is moisture resistant, ceiling tiles won't warp or sag over time. Even in high humidity environments and wet rooms, like kitchens and bathrooms, stone wool ceiling tiles maintain their shape and acoustic performance.

Another important parameter for selecting durable ceiling products is fire safety. Ceiling products can have a significant impact on the fire safety of a construction. It is thus important that the fire safety properties of ceilings do not deteriorate over time. Non-combustible stone wool will improve the fire resistance of construction elements, which can result in extra time for safe escape in case of a fire. Stone wool does not require any added flame retardants and the fire resistance properties will remain unchanged during the life of the building.

# 4

## Stone wool is hydrophobic and its performance is unaffected by moisture

Because stone wool does not absorb or hold moisture, it remains dimensionally stable, meaning the performance will not be affected by changes in temperature and humidity.

In high humidity environments, stone wool ceiling products do not sag, droop, or warp due to the moisture.



# 7

## Stone wool does not promote corrosion, and is resistant to mold and mildew

Corrosion is defined as the destructive and unintentional degradation of a material caused by its environment.<sup>2</sup> A common type of corrosion is rust, which affects iron and steel structures. When exposed to moisture, some types of materials can release components that increase corrosion on metal surfaces.

Corrosion of metal structures (e.g. steel deck roofs) can lead to extensive damage, sometimes even resulting in the collapse of the structure. Stone wool does not promote corrosion, and will not be impacted by corrosion.

# 5

## Stone wool is a durable ceiling material

When used in combination with a suspension grid, stone wool ceiling tiles are durable enough to be removed repeatedly for any necessary maintenance in the plenum.

# 6

## Stone wool's durability compares well versus other ceiling products

Stone wool's inherent moisture and fire resistance means Stone Wool does not require additional chemicals and flame retardants to ensure durable performance. Materials made of organic compounds often rely on flame retardants and other chemical additives to prevent mold growth.

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With excellent acoustic absorption, moisture and fire resistance, stone wool is a ceiling material that provides lasting durability. Stone wool's performance stays as strong as the day it was installed.

2. UNSW Sydney, School of Materials Science and Engineering, Faculty of Science, definition of corrosion, available via <http://www.materials.unsw.edu.au/tutorials/online-tutorials/1-what-corrosion>, accessed at 23 Jan.2020