



6 things you need to know

About the fire resilience of stone wool



In recent years, high-profile fire incidents have led to increased scrutiny of the fire safety of our buildings, and thus many countries have strengthened their requirements for fire properties of building materials. Over 3.7 million fires occur in cities worldwide every year and more than 43,000 lives are lost as a result. This, combined with the fact that fires today develop more than six times faster than in the 1950s, means there are good reasons for looking at improving fire safety requirements.

Non-combustible insulation materials, such as stone wool, play a crucial role in improving the fire-resistance of buildings, boasting good thermal properties that help limit the spread of fire and assist in ensuring a safer environment for all residents.

Here are six important facts about the fire resilience of stone wool:

1

Stone wool limits the spread of fire

Stone wool is typically classified as a non-combustible material^{1&2}, which means it has minimal or zero contribution to the spread of fire. Stone wool insulation will not ignite when exposed to flames and can prevent fire from spreading to other materials. By limiting fire spread, stone wool also contributes in assuring the safe escape of buildings' occupants and first responders' intervention.

These characteristics stem from stone wool's very high melting point (over 1,000°C) and excellent thermal insulation properties. Stone wool is a natural fire barrier³, and is often used to protect combustible elements as well as steel structures from fire that gives residents more time to evacuate the building and to firefighters a safer environment to extinguish the fire and rescue people.

3

Stone wool contributes to fire resilience

Stone wool is more than a fire resistant material - it is in fact a fire resilient material, which can hinder the spread of fire, decreasing fire-related damages and the associated environmental, societal and financial impacts. Fire resilient materials are key drivers in reducing the major cost of fires, currently estimated at approximately 1 percent of global GDP per year⁴. By minimising the potential impact of fire, stone wool products also contribute to maintaining a healthy and safe environment. ROCKWOOL insulation products truly support fire resilient societies.

2

Stone wool is considered fire resistant

Construction products and building elements made with stone wool have been proven to be fire resistant. They help to ensure the integrity of the building structure and to reducing the transfer of heat to another space for long periods of time (over 90 minutes in many cases) during a fire.

1 - CE marking

2 - DS/EN 13501-2:2016 - Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services, Dansk Standard

3 - CONLIT calculation program, available via <https://www.rockwool.se/support/berakningsprogram/conlit-brandsikring-berakningsprogram/>, accessed at 23 Jan.2020.

4 - The Geneva Association, World Fire Statistics Bulletin No. 29 (Downloaded in January 2020 from <https://www.genevaassociation.org/research-topics/world-fire-statistics-bulletin-no-29>)

4

Stone wool does not significantly contribute to smoke toxicity

Inhaling toxic smoke from fires can be extremely dangerous, and is the cause of most fire-related casualties⁵. In sufficiently high concentrations over a long enough time, toxic smoke creates hazardous health conditions for people exposed to it and may impede their ability to rescue themselves from the fire. Various tests⁵ have shown that stone wool does not produce significant amounts of toxic smoke and makes a negligible contribution to fire toxicity in comparison to other insulation materials.

This is also due to the very low organic content of stone wool insulation (approximately three percent, compared to up to 100 percent in other products).

5

Stone wool does not contain flame retardants

"Flame retardants are chemicals that are added or applied to materials in order to slow or prevent the start/growth of fire. They have been used in many consumer and industrial products since the 1970s, to decrease the ability of materials to ignite."⁶ Although there are many types of flame retardants, research has shown that some of the chemicals can have a negative impact on health and environment. Stone wool is naturally fire resistant, which means that flame retardants are not needed, which is why our products do not contain any.



6

Stone wool's fire properties are built to last

The fire safety performance of stone wool lasts a lifetime, with no maintenance required. A FIW München⁷ durability study revealed that stone wool samples retained the same mechanical and thermal properties and thus fire resistance, more than 60 years after installation.

To learn more and get in contact with us, please visit:

www.rockwool.com

5 - Fire Statistics United Kingdom 2007, Department for Communities and Local Government, August 2009

6 - Stec A. and Hull R., Assessment of the fire toxicity of building insulation materials, Energy and Buildings, 43, pp. 498-506, 2011

7 - FIW, Durability Project Mineral Wool (2016), "Conclusions and Outlook." Available via EURIMA (European Insulation Manufacturers Association) at https://www.eurima.org/uploads/ModuleXtender/Publications/168/2017-02-21_EURIMA-55YearsOfUse_Info_Sheet_V08_final.pdf, accessed at 23 Jan.2020