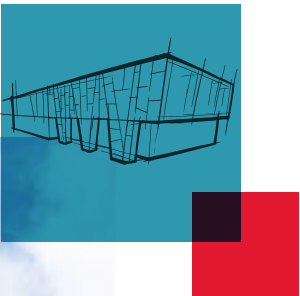


ROCKWOOL® is the registered trademark of ROCKWOOL Group.



ROCKWOOL FacadeRock DD/ DD Plus



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RW-CN/FRDD-BRO/06-2022/2/EN



www.rockwool.com.cn ROCKWOOL Wechat



Improve Energy Efficiency
Reduce Carbon Footprint
Ensure Sustainable Development



ROCKWOOL Group

We are the world leading stone wool manufacturer, with innovative products and systems, committed to protecting the environment and improving people's life.

ROCKWOOL Group is a global leader in thermal insulation, providing world-class firesafe and thermal insulation products and solutions for building structures. Our products help secure fire safety and reduce energy consumption of buildings, coupled with excellent performance in sound absorption, noise reduction and indoor comfort. ROCKWOOL provides green solutions for the horticulture industry, special engineered stone wool fiber for the manufacturing industry, as well as effective insulation solutions for refining and processing industries, marine and offshore industries and other areas. We also have acoustic and vibration reduction system for modern infrastructure construction.

ROCKWOOL Group has a major market share in Europe, but we have also actively expanded our market in Russia, North America, India and East Asia, with more production, sales and service activities operating locally. ROCKWOOL Group's global network helps promote our products and systems around the world.

Headquartered in Denmark, ROCKWOOL group is a listed company of NASDAQ OMX Nordic exchange Copenhagen. At present, it has 51 manufacturers around the world, nearly 12,000 employees and a sales network of more than 120 countries and regions around the world. At the level of corporate governance, ROCKWOOL has a perfect organizational structure and decision-making mechanism of listed companies, which are supervised and managed by the group's management, the board of directors and the

general meeting of shareholders respectively, and the audit committee and Remuneration Committee ensure the smooth development of the group's business strategy.

In China, ROCKWOOL provides a wide range of products for building insulation and other industrial areas that cater to different applications. We have more than 20 years of exploration and operation in China. ROCKWOOL stone wool is integrated with several excellent strengths: fire resilience, thermal properties, acoustic capabilities, durability and sustainability etc. Our products can stand the test of time. They protect buildings and people in any environment while reducing the carbon footprint. ROCKWOOL protects the environment and makes our society develop with a more sustainable approach.

ROCKWOOL China has an annual stone wool production capacity of 100,000 tons in Qingyuan and Yangzhou, and subsidiaries located in Beijing, Guangzhou, Hong Kong, Taiwan, Philippines and other major cities at present.

100 Times

Energy saved in the life cycle of building application is 100 times than energy consumption during the production.



ROCKWOOL

FacadeRock DD/DD Plus

Introduction

FacadeRock DD/DD Plus product is an innovative insulation solution provided by ROCKWOOL. It is made from natural rocks such as basalt and limestone. The rocks are melted in a cupola at temperature of higher than 1450°C, and the molten lava is fiberized by a spinner. The inorganic fibers are bonded together using a thermosetting resin to form the final product which is cut into suitable sizes for easyhandling and installation. Comparing with common stone wool board used in external wall insulation system, FacadeRock DD/DD Plus features lower density, higher adhesive strength to cementitious basecoat, and easier installation. It is an ideal combination of good thermal performance, fire resistance, acoustics, durability and sustainability.



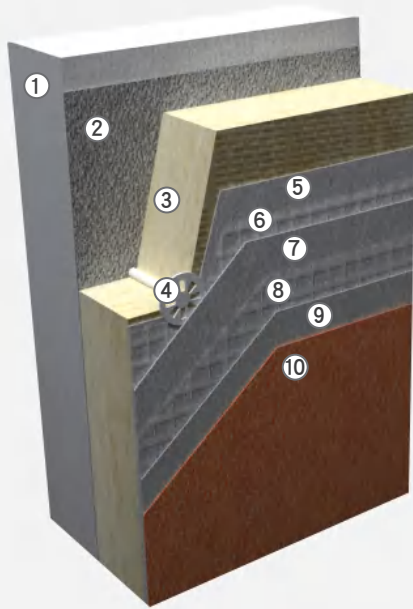
Application

FacadeRock DD/DD Plus is an ideal insulation material for new build, extension and retrofit projects as well as for rendered insulation system in non-transparent curtain wall structure. FacadeRock DD Plus is specially fits for buildings requiring high safety, such as super high rise buildings.

Typical structure

ROCKWOOL DD ETICS is the non-load-bearing system, with ROCKWOOL DD stone wool slabs as its core insulation material which are fixed to the external walls by adhesive, anchor, etc., The system consists of ROCKWOOL FacadeRock DD stone wool insulation layer, fixation material (adhesives, anchors, etc.), rendering material (glass fiber mesh embedded, etc.) and finishing coat. Besides high fire-resistance, the system also has excellent performance in thermal insulation, as well as durability, safety and reliability.

Typical structure



- ① Substrate
- ② Adhesive
- ③ FR-DD/FR-DD Plus (suggest to be treated with primer for both sides in advance)
- ④ Anchor
- ⑤ Basecoat
- ⑥ Alkaline-resistant glass fiber mesh
- ⑦ Basecoat
- ⑧ Alkaline-resistant glass fiber mesh
- ⑨ Basecoat
- ⑩ Finishing



Suitable for ultra-low/ near-zero/ zero energy consumption ETICS of the building

With the gradual improvement of building energy-saving standards, the thickness of the thermal insulation layer in the ETICS of the buildings continues to increase, resulting in a rise in the installation load and a rise in the difficulty of installation quality control. The FRDD product can reduce the thickness of the external insulation layer through better energy-saving performance. With the help of a super-strong structure manufactured by a special process, the ETICS system of the stone-wool external wall can be converted into a lightweight and high-strength enclosure structure system, providing a secure system for users, and further reducing the structural safety risks.

Reduce the labor load for installation and ensure installation quality

The ETICS system is composed of a variety of materials and is assembled on site. During the installation process, the installation work load has a great influence on the construction quality control. Under the same conditions, the FRDD product is light and thin, which can greatly reduce the labor load. In the meanwhile, the use of healthy fiber formula can effectively protect the health and safety of the installers. It is a typical low-carbon, environmentally friendly and healthy product.

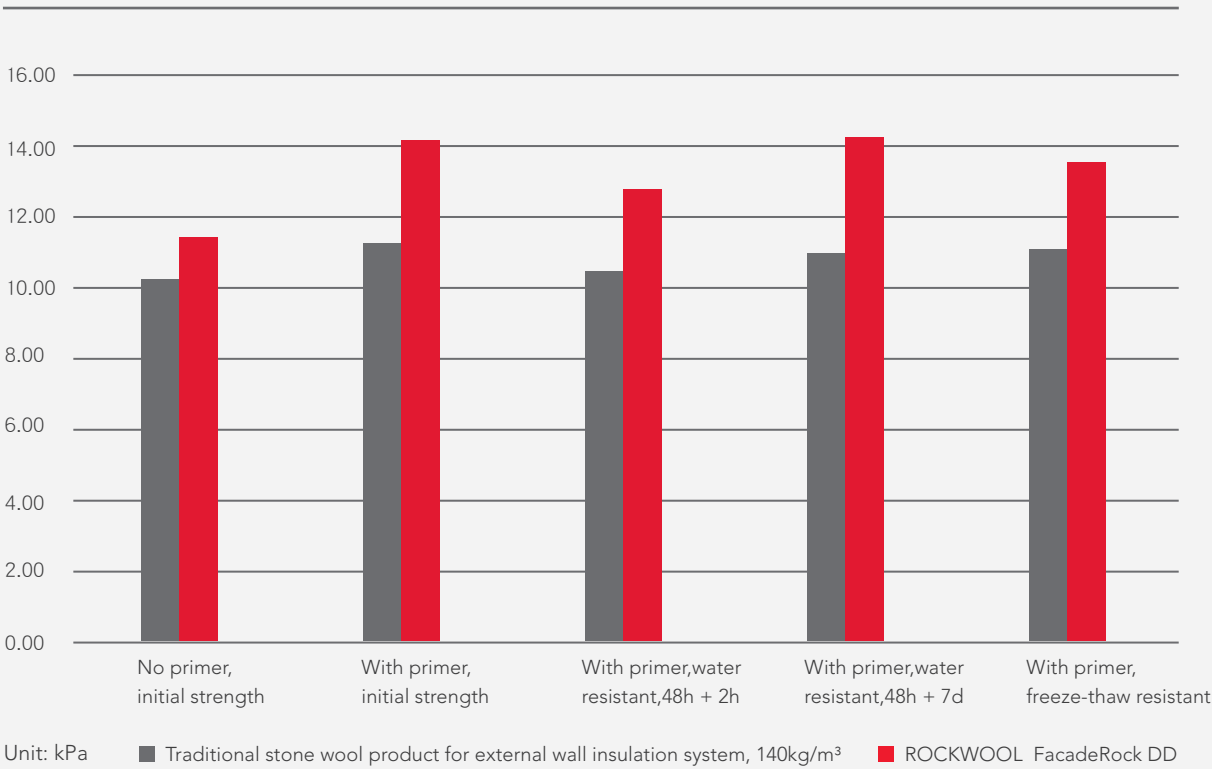


Technical Parameters

Item	Unit	FR-DD	FR-DD Plus	Standard
Nominal density	kg/m ³	≤120	≤140	GB/T 5480
Fire performance	-	A (A1)		GB 8624
Thermal conductivity	W/ (m·k)	≤0.039	≤0.040	GB/T 10295
Tensile strength (perpendicular to surface)	kPa	≥10	≥15	GB/T 25975
Tensile strength of top layer	kPa	≥12	≥20	GB/T 25975
Acidity ratio	-	≥1.8	≥1.8	GB/T 5480
Water repellence	%	≥99.5		GB/T 10299
Shot content (Shot size >0.25mm)	%	≤5		GB/T 5480
Short term water absorption (Partial Immersion, 24h)	kg/m ²	≤0.25		GB/T 30805
Long term water absorption (Partial Immersion, 28d)	kg/m ²	≤0.5		GB/T 30807
Moisture absorption	%	≤0.5		GB/T 54809

Achieve thermal insulation, and improve the system security and combination performance

Comparison of adhesive strength in systems

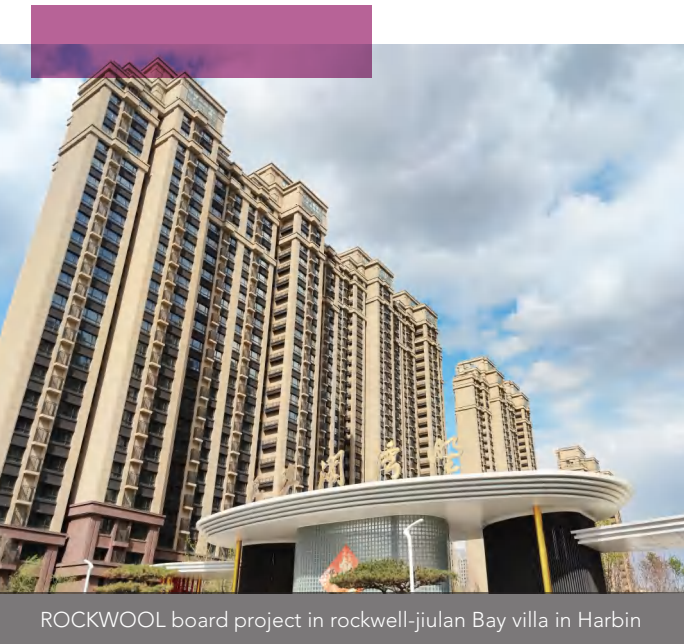
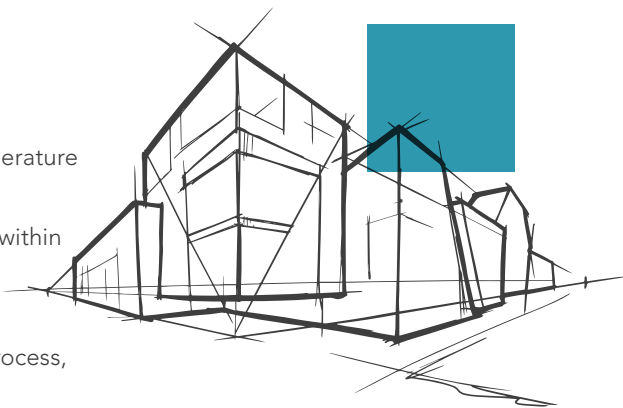


Performance comparison between FacadeRock DD and normal stone wool board:

ITEM	FR-DD	FR-DD Plus	Normal stone wool board	Normal stone wool board
Nominal density	≤120 kg/m³	140 kg/m³	140 kg/m³	160 kg/m³
Tensile strength (Perpendicular to surface)	TR10	TR15	TR7.5/TR10	TR15
Tensile strength of top layer	≥12kPa	≥20kPa	-	-
Adhesive strength to basecoat:	The strength can be increased 20% compared with normal board, leading to better system safety.			
Wind load resistance :	High	Super high	General	High
System weight (Based on 140kg/m³)	85%	100%	100%	114%
Application:	Lower bottom layer density allows easier flattening during installation		Not easy for leveling	

Benefits

- Class A non-combustible material, melting point above 1000°C;
- Good noise reduction and acoustic performance;
- Does not contain asbestos, non-hazardous to health;
- Does not release toxic gases, safe to use;
- Good dimensional stability, strong resistance to shrinkage at temperature encountered in fire conditions;
- Excellent air permeability, no corrosion to metal and components within the structure;
- Physically and chemically stable;
- No foaming agent and fire retardant needed during production process, contribute to sustainability of the environment.



ROCKWOOL board project in rockwell-jiulan Bay villa in Harbin

Specifications

Product code	Thickness (mm)	Length x Width (mm)
FacadeRock DD	50-150	1200,900,600×600
FacadeRock DD Plus	50-120	1200,900,600×600

Design and Installation Specifications

- ROCKWOOL FacadeRock DD/DD Plus has two sides with different mechanical strength, a “ROCKWOOL” mark is placed on the side with higher strength for ease of identification. When installing the product, the marked side must be facing towards the outside.
- In ETICS, FacadeRock DD/DD Plus is fixed to the substrate by adhesive and anchor together, and the effective binding area should not be less than 60% of the slab surface area.
- Avoid using small slab when installing FacadeRock DD/DD Plus. Each slab shall be fixed closely to adjacent ones, and in such a way that the gaps are staggered between rows and columns.
- Cutting should be done by sharp tools like knife or panel saw. Requirements of the design drawing, regulations and other applicable standards shall be complied.

Packaging and Storage

ROCKWOOL FacadeRock DD/DD Plus is shrink-wrapped in polyethylene sheets for ease of handling, transportation, storage and identification. Do not exposedirectly to water source (rain/snow) during transportation to prevent damage to products.

FacadeRock DD/DD Plus should be stored in a ventilated indoor space or in an open area covered with a tarpaulin.



Facade DD project- Yingkou Hospital, Liaoning