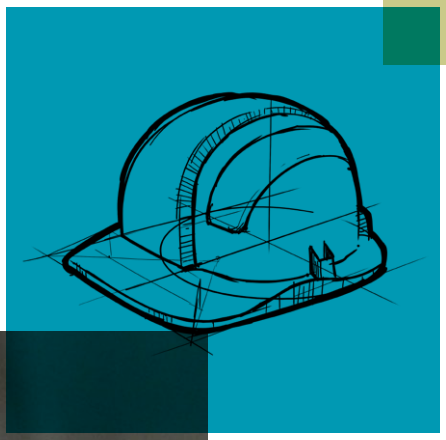
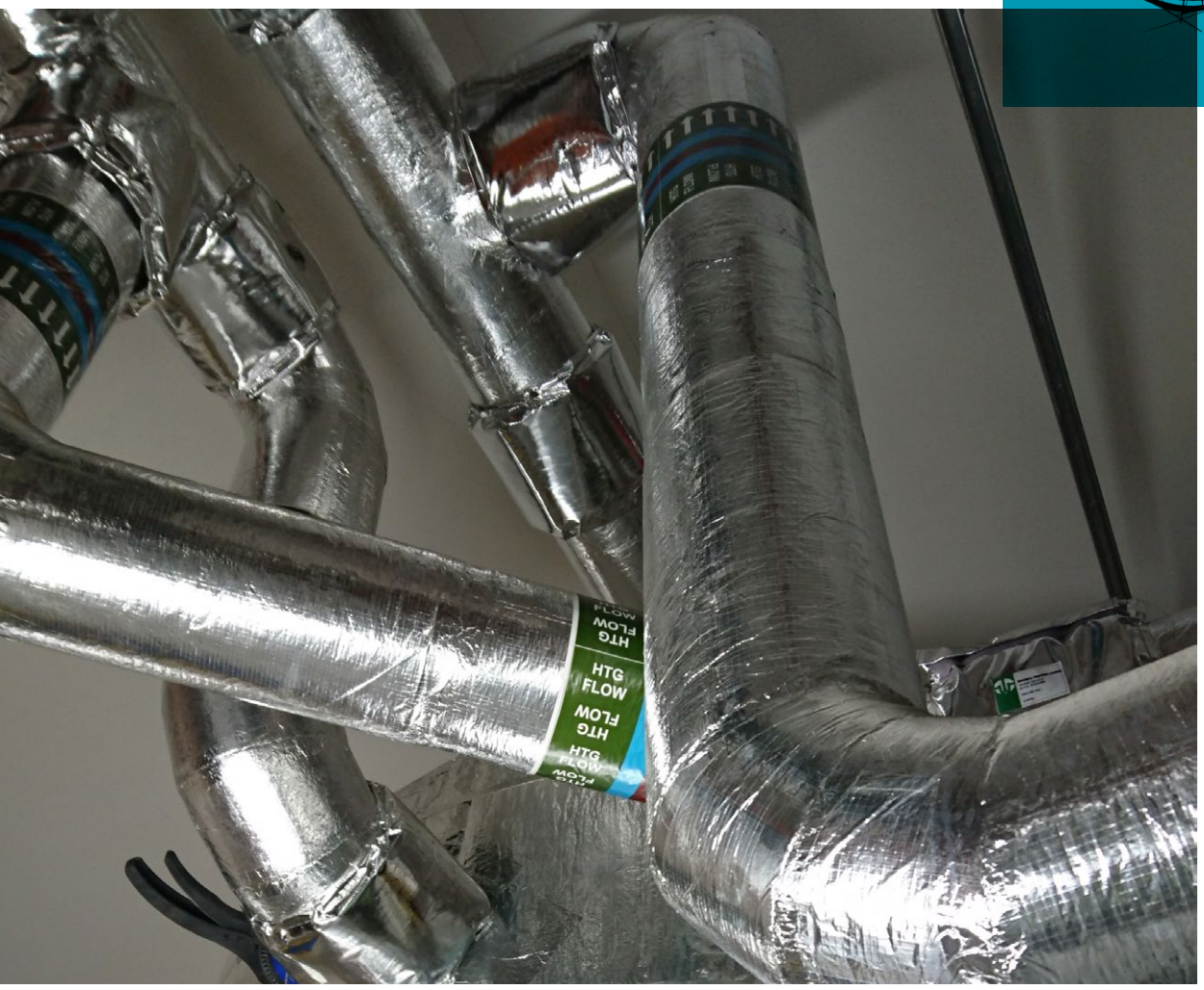
GUIDE TO ENHANCED CAPITAL ALLOWANCES





ROCKWOOL®

Understanding Enhanced Capital Allowances (ECAs)

What is the ECA scheme?

The Enhanced Capital Allowance (ECA) scheme enables businesses to claim a 100% first year capital allowance on investments in certain energy saving equipment, against the taxable profits of the period of investment. When used to thermally insulate pipes, ROCKWOOL insulation is eligible to qualify for ECAs.

However, the energy technology criteria for pipework insulation are based on compliance with British Standard BS5422 (For information please refer to our brochure "The thickness of ROCKWOOL insulation in accordance with BS5422:2009). As this specifies the thickness of insulation required in different circumstances, it is not possible to list specific products on the Energy Technology Product List (ETPL).

As such, businesses looking to claim an ECA for pipework insulation should refer to the relevant criteria listed on the ECA website and then consult suppliers and manufacturers to ensure the products they are purchasing are compliant and eligible for ECAs.

Pipework insulation is used to reduce the amount of heat lost from pipework containing hot fluids, and the amount of heat gained by pipework containing cold and chilled fluids, thus reducing the amount of energy wasted on maintaining the temperature of the fluids.

The ECA Scheme covers six categories of pipework insulation:

1. Refrigeration pipework
2. Chilled water pipework
3. Process pipework
4. 'Domestic' heating & hot water services (excluding insulation within individual dwellings)
5. Non-domestic hot water services
6. Non-domestic heating services

Pipework insulation and ECAs

Distribution losses from a heating or cooling system can account for as much as 20% of the total energy used – insulating the pipework effectively can reduce these losses. It is also important to identify leaks in valves and test points, as while these are often overlooked when installing pipework, they can actually account for 5% of energy consumption if not properly sealed.

Added to the Energy Technology List in 2001 (revised 2013), pipework insulation covers products that are specifically designed to be applied to the outer circumference of a pipe with the primary objective of reducing thermal flow into or out of the pipe.

ROCKWOOL and ECAs

ROCKWOOL HVAC products are generally used for pipework insulation in categories 2,4,5 and 6.

Investments in pipework insulation can only qualify for ECAs if the installation meets the relevant maximum heat loss eligibility criteria set out below. The calculated thickness of RockLap H&V Pipe Section required has been calculated. The tables also show the nearest available thickness.

Table 1

Chilled Water Pipework (Low Emissivity Outer Surface)

Outside diameter of steel pipe on which insulation has been based (mm)	Temperature of contents (°C) Thickness of ROCKWOOL RockLap H&V Pipe Section (mm)								
	+10			+5			0		
	Calculated thickness (mm)	Advised thickness (mm)	Heat gain (W/m)	Calculated thickness (mm)	Advised thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)	Advised thickness (mm)
17.2	13	20	2.48	17	20	2.97	21	25	3.47
21.3	14	20	2.72	18	20	3.27	22	25	3.81
26.9	15	20	3.05	20	20	3.58	24	25	4.18
33.7	16	20	3.41	21	25	4.01	25	25	4.60
42.4	17	20	3.86	22	25	4.53	27	30	5.11
48.3	18	20	4.11	23	25	4.87	28	30	5.45
60.3	18	20	4.78	24	25	5.48	29	30	6.17
76.1	19	20	5.51	27	30	6.30	36	40	6.70
88.9	19	20	6.17	28	30	6.90	33	35	7.77
114.3	21	25	7.28	28	30	8.31	34	35	9.15
139.7	21	25	8.52	29	30	9.49	35	35	10.45
168.3	21	25	9.89	29	30	10.97	37	40	11.86
219.1	22	25	12.27	29	30	13.57	37	40	14.61
273.0	22	25	14.74	29	30	16.28	37	40	17.48

Note 1 **Based on Table 10 (BS5422:2009)** Indicative thickness of insulation for cooled and chilled water systems to control heat gain – Low emissivity outer surfaces (ε = 0.05)

Note 2 Insulation thicknesses in this table have been calculated according to BS EN ISO 12241:2008 using standardised assumptions: horizontal pipe in still air at 25°C, emissivity of outer surface of insulated system as specified.

Note 3 Thicknesses derived solely against the criteria noted in this table may not necessarily satisfy other design requirements such as control of condensation.

Note 4 Heat gain relates to the specified thickness and temperature.

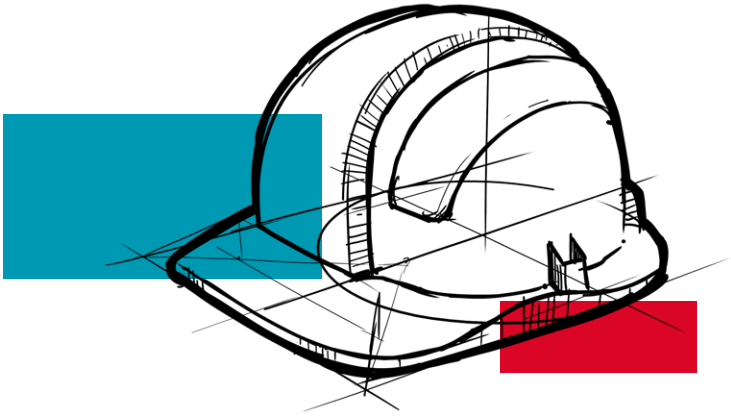


Table 2

Chilled Water Pipework (High Emissivity Outer Surface)

Outside diameter of steel pipe on which insulation has been based (mm)	Temperature of contents (°C) Thickness of ROCKWOOL RockLap H&V Pipe Section (mm)								
	+10			+5			0		
	Calculated thickness (mm)	Advised thickness (mm)	Heat gain (W/m)	Calculated thickness (mm)	Advised thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)	Advised thickness (mm)
17.2	18	20	2.48	23	25	2.97	26	30	3.47
21.3	19	20	2.72	24	25	3.27	27	30	3.81
26.9	20	20	3.05	27	30	3.58	29	30	4.18
33.7	22	25	3.41	27	30	4.01	31	35	4.60
42.4	23	25	3.86	28	30	4.53	33	35	5.11
48.3	24	25	4.11	29	30	4.82	35	35	5.45
60.3	24	25	4.78	31	35	5.48	36	40	6.17
76.1	27	30	5.51	34	35	6.30	43	45	6.70
88.9	27	30	6.17	35	35	6.90	40	40	7.77
114.3	28	30	7.28	35	35	8.31	42	45	9.15
139.7	29	30	8.52	36	40	9.49	43	45	10.45
168.3	29	30	9.89	37	40	10.97	44	45	11.86
219.1	29	30	12.27	37	40	13.57	45	45	14.61
273.0	30	30	14.74	37	40	16.28	45	45	17.48

Note 1 **Based on Table 11 (BS5422:2009)** Indicative thickness of insulation for cooled and chilled water systems to control heat gain – High emissivity outer surfaces (ε = 0.9)

Note 2 Insulation thicknesses in this table have been calculated according to BS EN ISO 12241:2008 using standardised assumptions: horizontal pipe in still air at 25°C, emissivity of outer surface of insulated system as specified.

Note 3 Thicknesses derived solely against the criteria noted in this table may not necessarily satisfy other design requirements such as control of condensation.

Note 4 Heat gain relates to the specified thickness and temperature.

Table 3

Domestic Heating & Hot Water

O.D. (mm)	Max Heat Loss (W/m)	RockLap H&V Pipe Section Calculated Thickness (mm)	RockLap H&V Pipe Section Advised Thickness (mm)
8	5.82	12	-
10	6.20	13	-
12	6.52	15	-
15	7.03	17	20
22	8.02	20	20
28	8.87	22	25
35	9.63	24	25
42	10.58	25	25
54	11.83	28	30

Note 1 **Calculation Assumptions**

Emissivity (ε):	0.05
Ambient Temp °C	15
Operating Temp °C	60
Orientation	Horizontal

Based on NES Y50 Enhanced and Enhanced Capital Allowance thickness tables

Table 4

Non-Domestic Hot Water Supply

O.D. (mm)	Max Heat Loss (W/m)	RockLap H&V Pipe Section Calculated Thickness (mm)	RockLap H&V Pipe Section Advised Thickness (mm)
17.2	6.04	28	30
21.3	6.45	31	35
26.9	7.00	34	35
33.7	7.71	36	40
42.4	8.46	39	40
48.3	9.01	43	45
60.3	9.94	43	45
76.1	11.25	48	50
88.9	12.17	50	50
114.3	14.29	51	60
139.7	16.09	53	60
168.3	18.24	54	60
219.1	22.06	55	60
273 and above	25.95	56	60

Note 1 **Calculation Assumptions**

Emissivity (ε):	0.05
Ambient Temp °C	15
Operating Temp °C	60
Orientation	Horizontal

Based on NES Y50 Enhanced and Enhanced Capital Allowance thickness tables

Table 5

Non Domestic Heating Services at Temperature Indicated

O.D. (mm)	75°C					100°C					125°C				
	Surface Emissivity (ε)					Surface Emissivity (ε)					Surface Emissivity (ε)				
	0.05		0.9			0.05		0.9			0.05		0.9		
	RockLap H&V Pipe Section		RockLap H&V Pipe Section			RockLap H&V Pipe Section		RockLap H&V Pipe Section			RockLap H&V Pipe Section		RockLap H&V Pipe Section		
	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)	Max heat loss W/m	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)	Max heat loss W/m	Calculated thickness (mm)	Advised thickness (mm)	Calculated thickness (mm)	Advised thickness (mm)	Max heat loss W/m
17.2	33	35	38	40	7.78	41	45	46	50	10.57	50	50	62	70	13.27
21.3	35	35	40	40	8.42	45	45	50	50	11.25	62	70	67	70	14.06
26.9	39	40	44	45	9.05	55	60	60	60	12.06	67	70	73	80	15.02
33.7	42	45	51	60	9.86	58	60	64	70	13.04	73	80	79	80	16.07
42.2	45	45	54	60	10.83	64	70	69	70	14.12	79	80	85	90	17.34
48.3	51	60	56	60	11.42	67	70	73	80	14.80	83	90	89	90	18.09
60.3	54	60	60	60	12.61	71	80	77	80	16.22	89	90	96	100	19.62
76.1	56	60	63	70	14.12	76	80	82	90	17.88	96	100	103	110	21.41
88.9	59	60	65	70	15.28	79	80	85	90	19.20	100	100	107	110	22.87
114.3	62	70	68	70	17.51	84	90	91	100	21.66	107	110	114	120	25.53
139.7	64	70	71	80	19.72	89	90	96	100	23.99	115	120	122	130	27.98
168.3	65	70	71	80	22.34	91	100	98	100	26.63	119	120	126	130	30.69
219.1	67	70	74	80	26.61	95	100	102	105	31.15	126	130	133	140	35.25
273.0	69	70	76	80	30.91	98	100	106	110	35.83	131	140	138	140	40.05

Note 1 **Calculation Assumptions**

Ambient Temp °C	15
Orientation	Horizontal

Based on NES Y50 Enhanced and Enhanced Capital Allowance thickness tables

ROCKWOOL Products and ECAs

ROCKWOOL insulation products typically used to thermally insulate pipes include:

- RockLap H&V Pipe Sections
- Pipe Section Mat (PSM) / ProRox PSM 971
- ProRox PS 971 ALU

Other ROCKWOOL products may be suitable for pipework insulation in other circumstances and be eligible to qualify for ECAs. To discuss further, contact our Technical Solutions team on technical.solutions@rockwool.co.uk or phone 01656 868 490.

pH Neutrality

ROCKWOOL insulation is chemically compatible with all types of pipes, ducts, equipment and fittings (guidance is given in BS5970 regarding the treatment of austenitic stainless steel pipework and fittings). Stone wool insulation is chemically inert. A typical aqueous extract of ROCKWOOL insulation is neutral or slightly alkaline (pH 7 to 9.5).

CE Marking

With the introduction of the Construction Products Regulation (CPR), CE marking has become mandatory for all construction products covered by a harmonised technical specification as of 1st July 2013. This regulation is an EU law and has been adopted by all member states including the United Kingdom. It is now illegal to sell any products covered by a harmonized European standard which are not CE marked accordingly. This new approach standardises the key features of technical insulation materials (e.g. thermal conductivity, reaction to fire, mechanical characteristics etc.) and ensures an accurate comparison of products across the market. ROCKWOOL has been CE marking products for the construction industry in the UK since 2002, constantly introducing more and more of its product range each year as requirements change. The exceptions are those products which are not currently covered by a harmonised European Standard. ROCKWOOL is committed to gaining all the necessary certification and accreditation of its products to comply with the regulations set by the EU law.

HVAC Products from ROCKWOOL

RockLap H&V Pipe Sections

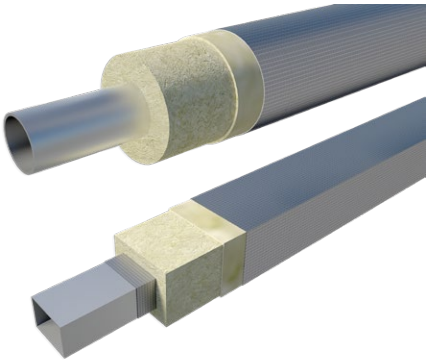
For rapid, efficient pipework insulation. RockLap H&V Pipe Sections are strong lengths of pre-formed insulation with a one piece, factory applied foil facing with integral self-adhesive lap. The integral lap ensures fast and easy installation: just snap the Sections onto the pipe, peel off the backing tape and smooth down for a completely sealed joint.

Ductwrap and Ductslab

For the thermal insulation of ductwork and water storage tanks. Ductwrap and Ductslab provide thermal insulation for air conditioning, warm air and extract ducts used in the internal and external environment generally within plant rooms and boiler houses.

Fire Duct Systems

Single layer fire protection for rectangular, circular and oval ducts. As part of the comprehensive ROCKWOOL FIREPRO® range of fire protection products, Fire Duct Systems provide fire protection and thermal and acoustic insulation for circular and rectangular steel ductwork.



Techwrap2 and Techtube

High performance acoustic solutions for pipes and equipment. Techwrap2 and Techtube form part of a range of high performance ROCKWOOL acoustic insulation products.

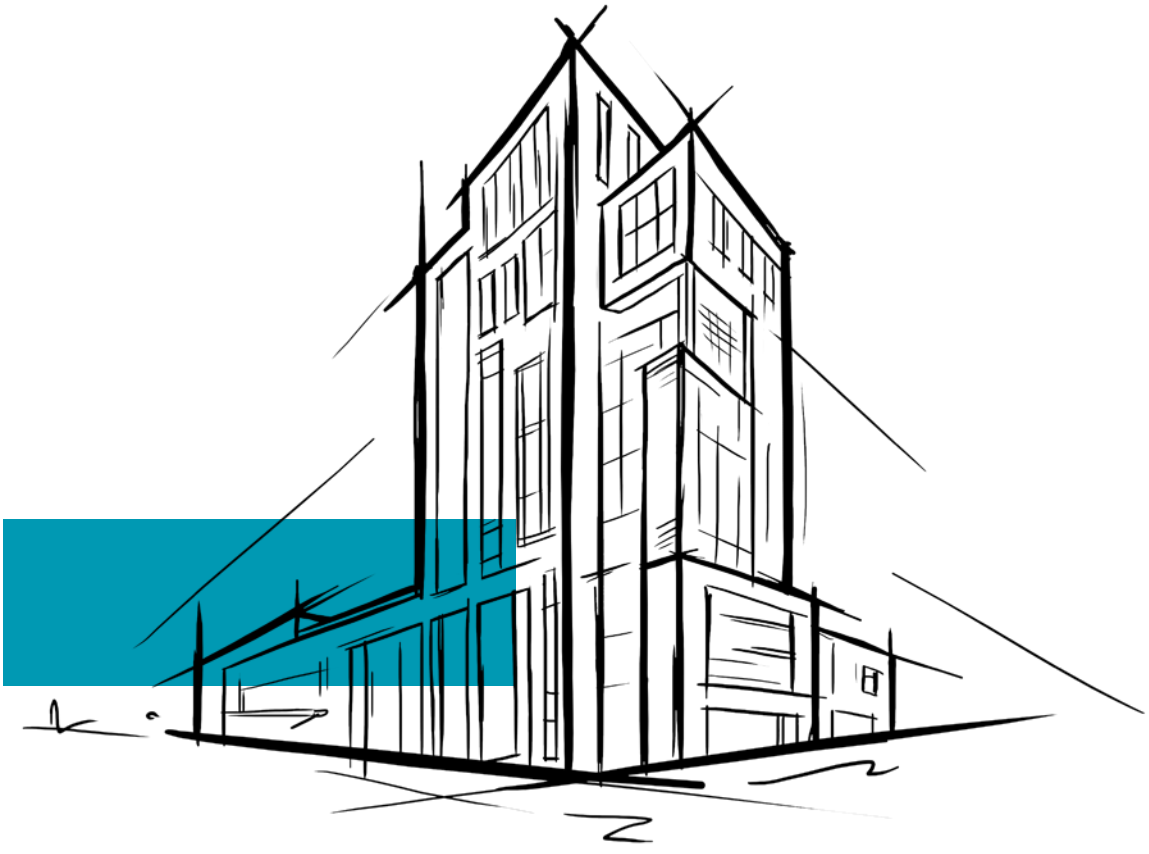
HVAC Products from ROCKWOOL

Lamella Mat

Lamella Mat is particularly suitable for the insulation of heating and ventilation pipework and ductwork and as an overlay to upgrade existing insulation.

Insulated Fire Sleeves

Fire stopping for insulated pipe penetrations. As part of the comprehensive ROCKWOOL FIREPRO® range of fire protection products, Insulated Fire Sleeves are a unique combination of stone wool and graphite intumescent. They provide all the ROCKWOOL thermal, noise and fire benefits with an added intumescent effect.



Sustainability

As an environmentally conscious company, ROCKWOOL promotes the sustainable production and use of insulation and is committed to a continuous process of environmental improvement.

All ROCKWOOL products provide outstanding thermal protection as well as four added benefits:

- **Fire resistance**
- **Acoustic comfort**
- **Sustainable materials**
- **Durability**

Health & Safety

In accordance with REACH health and environment regulations, there are no hazardous classifications associated with ROCKWOOL mineral wool in respect to physical, health and environmental considerations.

The safety of ROCKWOOL stone wool is confirmed by current UK and Republic of Ireland health & safety regulations and EU directive 97/69/EC: ROCKWOOL stone wool fibres are not classified as a possible human carcinogen. A Material Safety Data Sheet is available and can be downloaded from www.rockwool.co.uk to assist in the preparation of risk assessments, as required by the Control of Substances Hazardous to Health Regulations (COSHH).

Environment

Made from a renewable and plentiful naturally occurring resource, ROCKWOOL insulation saves fuel costs and energy in use and relies on trapped air for its thermal properties.

ROCKWOOL insulation does not contain (and has never contained) gases that have ozone depletion potential (ODP) or global warming potential (GWP).

ROCKWOOL stone wool insulation is approximately 97% recyclable. For waste ROCKWOOL material that may be generated during installation or at end of life, we are happy to discuss the individual requirements of contractors and users considering returning these materials to our factory for recycling.

The ROCKWOOL Trademark

ROCKWOOL® - our trademark

The ROCKWOOL trademark was initially registered in Denmark as a logo mark back in 1936. In 1937, it was accompanied with a word mark registration; a registration which is now extended to more than 60 countries around the word.

The ROCKWOOL trademark is one of the largest assets in the ROCKWOOL Group, and thus well protected and defended by us throughout the world.

If you require permission to use the ROCKWOOL logo for your business, advertising or promotion. You must apply for a Trade Mark Usage Agreement. To apply, write to: marketcom@rockwool.com.

Trademarks

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ROCKCLOSE®

RAINSCREEN DUO SLAB®

HARDROCK®

ROCKFLOOR®

FLEXI®

BEAMCLAD®

FIREPRO®

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