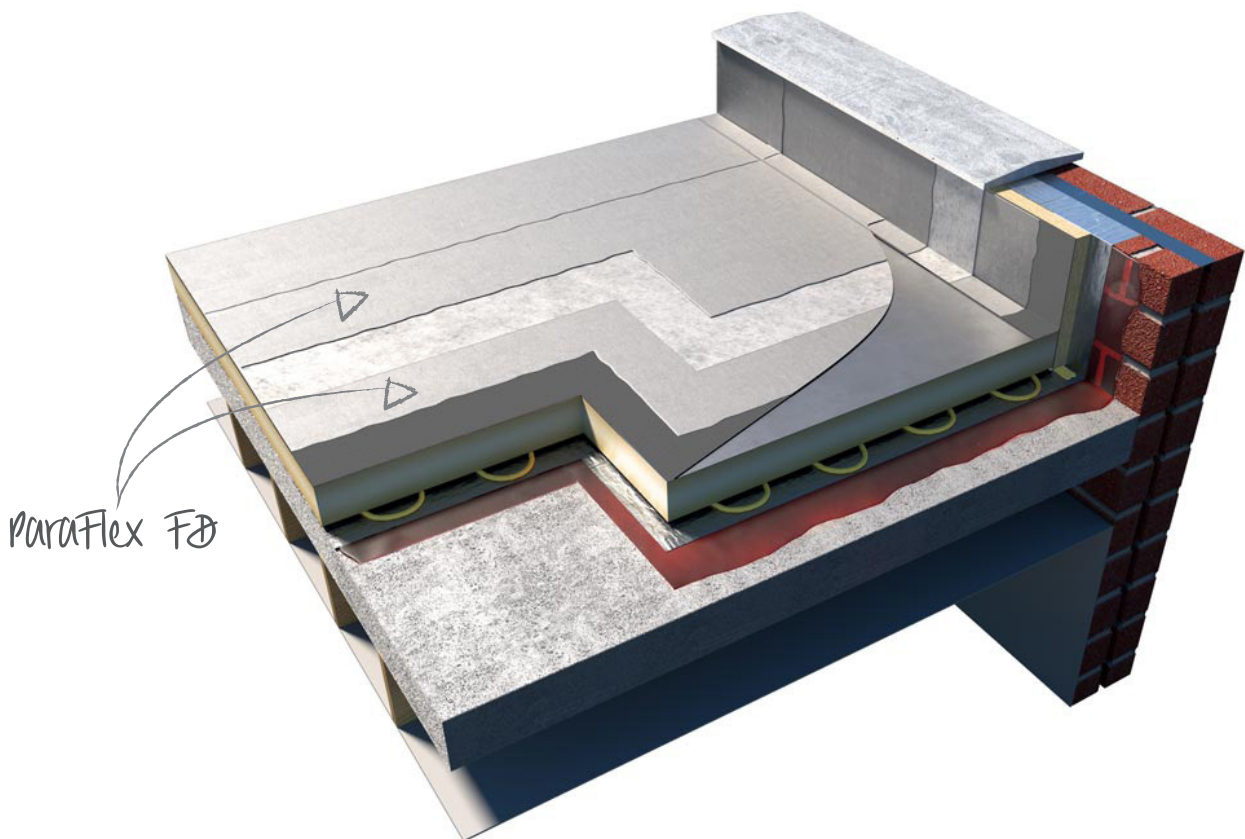


ParaFlex FD

Product Data Sheet



ParaFlex

FD

General Information

ParaFlex FD is a three component unsaturated polyester resin waterproofing system reinforced with a polyester fleece reinforcement that determines the breaking strength and elongation at break and provides for even layer thickness. Suitable for many roof types including flat, sloping roof and complex roof shapes such as cupolas and barrel roofs. ParaFlex FD also waterproofs vertical surfaces, junctions and roof openings such as ventilation and pipe openings, supports and structures, lighting domes and chimneys, balcony doors and windows, and for a variety of applications which are very costly to seal by conventional sealing methods or cannot be sealed at all.

With the correct primers, ParaFlex FD adheres to almost any substrate and the attachments are made permanently waterproof. Combination with most bitumen and plastic roof sealing sheeting is also excellent.

Suitable substrates include concrete, plastic, wood, metal, reinforced bitumen membranes (including mineral surfaced), PUR or PIR insulation boards and mineral wool insulation batts.

Certificates

BBA certificate No. 09/4653

ParaFlex FD is resistant to roots in conformity with DIN EN 13948 (FLL guidelines), resistant to spreading fire and radiant heat, as specified in DIN 4102, Part 7 and is fireproof as defined by BS 476, Part 3, 2004.

Durability

Exposed applications should achieve an initial life expectancy of at least 35 years. When fully protected and subject to normal service conditions in an inverted roof specification with an open covering (eg aggregate pavers), the system can provide an effective barrier to the transmission of liquid water and water vapour for the design life of the roof in which it is incorporated.

Suitable Applications

ParaFlex FD is suitable for use as a waterproofing layer in numerous new build and refurbishment applications:

Roofs, Roof Terraces, Enclosed Balconies Over Heated Space and Insulated Walkways

- Inverted roofs, including zero falls designs, incorporating ProTherm Quantum PLUS⁺ Insulation, ProTherm G XPS X 300 ULTRA Insulation, ProTherm G XPS X 300 SL Insulation, ProTherm G XPS X 500 SL Insulation, ProTherm G XPS X 700 SL Insulation or FOAMGLAS[®] INVATHERM[™] Insulation and finished with either gravel ballast, paving, cast concrete or other suitable protection, with limited or pedestrian access.
- Inverted green roofs, including zero falls designs, incorporating ProTherm Quantum PLUS⁺ Insulation, ProTherm G XPS X 300 ULTRA Insulation, ProTherm G XPS X 300 SL Insulation, ProTherm G XPS X 500 SL Insulation, ProTherm G XPS X 700 SL Insulation or FOAMGLAS[®] INVATHERM[™] Insulation, with limited or pedestrian access or pitched with limited access.
- Inverted roof gardens, including zero falls designs, incorporating ProTherm Quantum PLUS⁺ Insulation, ProTherm G XPS X 300 ULTRA Insulation, ProTherm G XPS X 300 SL Insulation, ProTherm G XPS X 500 SL Insulation, ProTherm G XPS X 700 SL Insulation or FOAMGLAS[®] INVATHERM[™] Insulation, with limited or pedestrian access or pitched with limited access.
- Inverted podium decks, including zero falls designs, incorporating ProTherm Quantum PLUS⁺ Insulation, ProTherm G XPS X 300 ULTRA Insulation, ProTherm G XPS X 300 SL Insulation, ProTherm G XPS X 500 SL Insulation, ProTherm G XPS X 700 SL Insulation or FOAMGLAS[®] INVATHERM[™] Insulation, and finished with either gravel ballast, paving, cast concrete or other suitable protection, with limited or pedestrian access.
- Protected warm roofs, including zero falls designs, incorporating ProTherm PIR Insulation, ProTherm Mineral Wool Insulation or FOAMGLAS[®] Insulation, and finished with either gravel ballast, paving, cast concrete or other suitable protection, with limited or pedestrian access.
- Warm green roofs, including zero falls designs, incorporating ProTherm PIR Insulation, ProTherm Mineral Wool Insulation or FOAMGLAS[®] Insulation, with limited or pedestrian access or pitched with limited access.
- Warm roof gardens, including zero falls designs, incorporating ProTherm PIR Insulation, ProTherm Mineral Wool Insulation or FOAMGLAS[®] Insulation, with limited or pedestrian access or pitched with limited access.

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Suitable Applications (cont)

- Warm protected podium decks, including zero falls designs, incorporating ProTherm PIR Insulation, ProTherm Mineral Wool Insulation or FOAMGLAS® Insulation, and finished with either gravel ballast, paving, cast concrete or other suitable protection, with limited or pedestrian access.
- Warm exposed roofs, including zero falls designs, and pitched roofs with limited access, incorporating ProTherm PIR Insulation, ProTherm Mineral Wool Insulation or FOAMGLAS® Insulation.
- Cold exposed zero falls flat roofs and pitched roofs with limited access on a concrete or timber deck.

Projecting Open Balconies, Projecting Enclosed Balconies, Recessed Open Balconies or Recessed Enclosed Balconies (including Specified Attachments on Relevant Buildings over 18m)

- Inverted protected balconies, including zero falls designs, incorporating FOAMGLAS® INVATHERM™ Insulation and finished with either paving, cast concrete or other suitable protection, with pedestrian access.
- Warm protected balconies, including zero falls designs, incorporating ProTherm Mineral Wool Insulation or FOAMGLAS® Insulation, and finished with either paving, cast concrete or other suitable protection, with pedestrian access.
- Cold balconies with pedestrian access.
- Cold walkways with pedestrian access.

Properties in relation to fire

Exposed Applications: When tested in accordance with BS 476-3 : 2004 ParaFlex FD achieves an EXT.F.AC.X rating (BBA Certificate No. 09/4653).

Buried Applications: when used with one of the surface finishes detailed in Part iii of Table A5 of Appendix A of Approved Document B of the Building Regulations (England and Wales) or Technical Booklet E, Table 4.6, Part iv of the Building Regulations (Northern Ireland) (listed below), would be deemed to be of designation AA (BBA Certificate No. 09/4653).

Resistance to wind uplift

The system will resist the effects of any likely wind suction acting on the roof (BBA Certificate No. 09/4653).

Resistance to foot traffic

The system can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance operations. However, reasonable care should be taken to avoid puncture by sharp objects or concentrated loads.

For areas of pedestrian access such as balconies and walkways, an anti-slip finish is applied. (BBA Certificate No. 09/4653).

Resistance to penetration from roots

The system will resist the penetration of roots (BBA Certificate No. 09/4653).

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Installation instructions

Radmat ParaFlex FD is a liquid applied waterproofing system that must be installed according to guidelines given by Radmat Building Products Ltd.

Substrates to which the system is to be applied must be properly prepared as adhesion to substrates will depend on the condition and cleanliness of the substrate. Substrates must be visibly dry, sound and free from loose materials or contamination (eg moss, algae). High pressure sand-blasting or water-jetting may be used to remove loose or flaking materials, but the substrate must be visibly dry before application of the system. Damaged areas of the substrate (eg broken fibre-cement sheets, blistered bitumen, roofing felt) must be removed, replaced or repaired. Deck surfaces should be free from sharp projections, such as protruding fixing bolts and concrete nibs. Gutters and outlets should be checked to ensure that they are, and remain, clear of all debris.

The substrate should be primed with ParaFlex Primer prior to application of the system at a coverage rate of 300 g/m² to 500 g/m². Kiln-dried quartz sand, with a grain size of 0.3–0.8 mm, is broadcast into the wet primer.

ParaFlex FD is mixed on site by adding the hardener to the resin in the correct proportion, and the accelerator in proportions relevant to the surface/air temperature (see table below), and stirred in accordance with the mixing instructions.

ACCELERATOR PROPORTION

Surface and/or air temperature	Accelerator per kg of ParaFlex FD (g) Approximate amount of ParaFlex	Pot life
-5 - 0 °C	30g	30-40 mins
1 - 5 °C	25g	25-35 mins
6 - 10 °C	20g	20-30 mins
11 - 15 °C	15g	20-25 mins
16 - 20 °C	10g	15-20 mins
21 - 35 °C	5g	10-20 mins

The first coat of ParaFlex FD is applied using a lambswool roller, and spread evenly prior to the installation of the polyester reinforcement, which is rolled into the wet resin and pressed free of trapped air using the roller. Each subsequent piece of reinforcement should have an overlap of at least 50 mm and sufficient resin should be beneath the reinforcement to maintain the system's bond. A second layer of ParaFlex FD is applied and evenly spread.

The total coverage of the system is between 2.4 kg·m⁻² and 3.0 kg·m⁻² giving a finished cured thickness of 2.3 mm.

An anti-slip finish is applied, where necessary, for use on balconies, walkways or other areas of pedestrian access,

Curing time

With hardener and accelerator: Rainproof after 20 minutes. Walkable after 30 minutes.

Product colour reference

RAL 7021
Anthracite

RAL 7035
Grey

Delivery conditions

Delivery form

10 kg and 20 kg (both sizes include hardener and accelerator)

Storage and transport

If container is kept closed, and at a storage temperature between 0°C and 25°C, the product will have a shelf-life of 6 months.

Product identification

Information on the can: Product name. Dimensions. Approvals. Production date.



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PRODUCT DESCRIPTION

Appearance top side	Light Grey or Anthracite
Reinforcement	Polyester fleece
Coating bottom side	Light Grey or Anthracite

DECLARED PERFORMANCE

Essential characteristics	Performance	Test
Visible defects	Pass	-
Minimum working temperature	- 5°C	-
Temperature resistance	- 20 to + 80°C	-
Flashpoint		-
- Resin	34°C	-
- Hardener	77°C	-
- Accelerator	210°C	-
- Primer	<15°C	-
Specific Gravity	1.013 g/cm3	-
Fire Performance	EXT.F.AC.X	BS476-3:2004
Fire behaviour Class	E	EN 13501-1
Tensile strength		
- Unaged	12.2 Nmm ⁻²	EN ISO 527-3
- Heat aged	19.2 Nmm ⁻²	
- UV aged	20.8 Nmm ⁻²	
- Prepared at -5°C	18.4 Nmm ⁻²	
- Prepared at 40°C	24.5 Nmm ⁻²	
Elongation		
- Unaged	22.6%	EN ISO 527-3
- Heat aged	19.2%	
- UV aged	20.8%	
- Prepared at -5°C	19.8%	
- Prepared at 40°C	24.4%	
Tensile bond strength, unaged		
- Concrete	2.66 MPa	EOTA TR 004
- Steel	1.05 MPa	
- Bitumen sheet	0.37 MPa	
- Conifer wood	1.62 MPa	
- Plastic	0.86 MPa	
- Day joint water exposure	1.14 MPa	
- Concrete	0.71 MPa	
Dynamic indentation, unaged		
- Mineral wool	I ₄	EOTA TR 006
- Concrete tested at -20°C	I ₄	
- Concrete heat aged (Heat ageing for 200 days at 80°C)	I ₄	
- Concrete UV aged (UV aged to EOTA TR 010 for - 1000 MJ m ² at 60°C (severe conditions)	I ₄	
- Concrete	I ₄	
Static indentation, unaged		
- Mineral wool	I ₄	EOTA TR 007
- Concrete water exposure	I ₄	
- Concrete (180 days at 60°C to EOTA TR 012)	I ₄	
Fatigue cycling	Unaged 1000 cycles at -10°C Heat aged 50 cycles at -10°C	Pass Pass
		EOTA TR 008
Root resistance	Pass	DIN 4062, Section 4.7
Watertightness	Pass	EOTA TR 003
Water vapour resistance	approx. 47.25 µ	EN ISO 12572
Resistance to wind loads	≥ 50kPa for tear resistant substrates	ETA-05/0210
Statement on hazardous substances	none included	ETA-05/0210

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DECLARED PERFORMANCE (CONT)

Levels of the use categories according to ETAG 005 with regard to:

Service life	W3	ETA-05/0210
Climate zones	M and S	ETA-05/0210
Load capacities	P1 to P4	ETA-05/0210
Roof pitch	S1 to S4	ETA-05/0210
Lowest surface temperature	TL3	ETA-05/0210
Highest surface temperature	TH3	ETA-05/0210

This information given in good faith and is based on the latest knowledge available to Radmat Building products Ltd. Whilst every effort has been made to ensure that the contents of the publication are current while going to press, customers are advised that products, techniques and codes of practice are under constant review and liable to change without notice.

For further information on Radmat products and services please call **01858 410372**, email techenquiries@radmat.com or visit our website www.radmat.com

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