Technical Data Sheet
AQUAPANEL® Cement Board Rooftop

Technical Properties:

Thickness (mm)	12.5	
Length (mm)	1200/2400/2250	2400
Width (mm)	900	1200
Weight (kg/m²)	approx. 16.5	
Dry bulk density (kg/m³) according to EN 12467	1150	
Bending strength (MPa) according to EN 12467	≥ 7	
Thermal conductivity (W/mK) according to EN ISO 10456	0.35	
Thermal expansion (10^{-6} K^{-1})	7	
Water vapour diffusion coefficient μ (-) according to EN ISO 12572	66	
Length variation 65% - 85% humidity (mm/m) according to EN 318	0.23	
Mold resistance	No growth (IBR certified)	
pH-Value	12	
Building material class according to EN 13501	A1 non-combustible	

Additional detailed product characteristics for this product are given in Declaration of Performance (DoP).

Application:
AQUAPANEL® Cement Board Rooftop is used in commercial low slope roofing systems. It enhances roof system performance in several ways and functions:

1. As a cover board installed between the insulation and the waterproofing layer.
   - protects roof insulation underneath
   - reduces stress on the membrane
   - Adds structural strength to the entire roof system
   - provides a robust basis for accessible and ballasted roofs

2. As a substrate board installed directly onto the steel deck acting as:
   - substrate for the vapor barrier
   - basis for the roofing constructors to work on

Installation and handling:
AQUAPANEL® Cement Board Rooftop is attached to the surrounding layers inside the roof system. It can be mechanically fastened or adhered with appropriate MOY adhesive. During the planning phase the wind loads must be considered.

AQUAPANEL® Cement Board Rooftop is suited for a variety of rigid roof insulation and waterproofing membranes like single-ply, modified bitumen or liquid applied membranes. Consult the project specific specification or MOY Technical Services for details.

Storage:
Always carry boards upright using a board trolley or on a pallet using a forklift truck. When setting the boards down, make sure that corners and edges are not damaged.

The supporting surface must be able to carry the weight of the boards. A pallet of AQUAPANEL® Cement Board Rooftop 12.5mm applies a floor loading from about 900 to 1450 kg (as delivered).

AQUAPANEL® Cement Board Rooftop must be protected from the effects of moisture and weather before installation. Boards that have become damp must be dried on both sides before use.

Technical Data Sheet
AQUAPANEL® Cement Board Rooftop

Allow time for the boards to acclimatise to the ambient temperature and moisture conditions before installation. The material, ambient air and background temperature must not be below +5°C.

Disposal:
Information for this product is given in the Safety Data Sheet.

WINDLOAD CALCULATION

EN 1991-1-4/FM GLOBAL 1-28

Created by: Moy Technical - Moy Materials Ltd

16 December 2021

CUSTOMER

MOY MATERIALS (UK) LTD

CONTACT PERSON

NICK BEECHING

PROJECT

LONDON 4 COLT HIGHER TERRACE

Disclaimer

Windload calculation

EN 1991-1-4/FM Global 1-28

Date:	16 Dec 2021				
Customer:	Moy Materials (UK) Ltd				
Project:	London 4 Colt Higher Terrace				
Building height (m):	18.3	**Building length (m):**	10.6	**Building width (m):**	33.8
Type of roof:	Flat roofs ≤ 5°, Normal or parapet, Parapet height (mm): 1000				
Type of roof deck:	Concrete C25/30				
Pressure coefficient (Cpi):	Air tight roof deck (Cpi=0,0)				
Type of terrain:	Terrain category I				
Site location:	User defined..., FM Global-Eurocode (SL41DH, London)	**Wind speed at site (m/s):**	22.5		
Site related load factors:	Altitude: 24m | Calt: 1.000 | Co: 1.0 | Cdir: 1,0 | Cseason: 1,0 | Cpe1				
Characteristic wind pressure (Qp):	0.99 kN/m²				
Safety coefficient:	Main construction element (YQ=1,33)				

Insulation board fixing

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	70	93	16
Wtot (kN/sqm)	2.89	2.36	1.58
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.48	5.56	3.70
Fasteners/board (pcs)	14	12	8
Number of fixings (pcs)	457	515	60

Fixings summary (pcs): 1032

Roof membrane fixing

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	70 / 76	93 / 100	16 / 17
Wtot (kN/sqm)	2.89	2.36	1.58
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	PIR board	PIR board	PIR board
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Linear perimeter and upstand fixing

Method:	-
Total perimeter length (m):	80
Total number of fixings (pcs):	0

Windload calculation

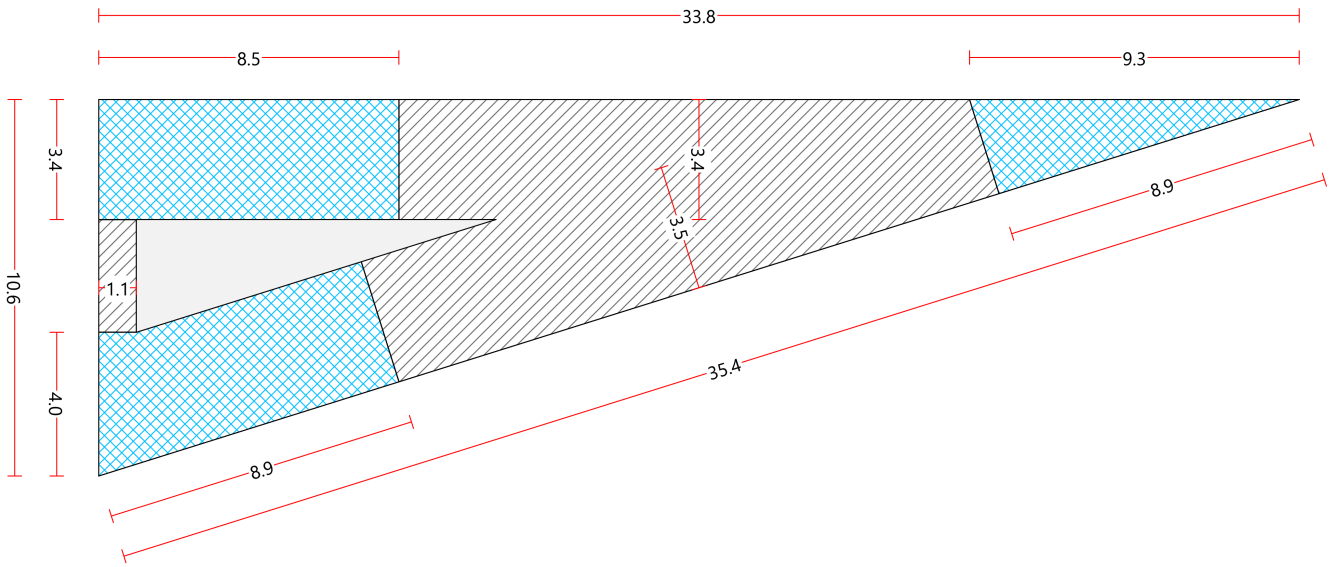
EN 1991-1-4/FM Global 1-28

Roof plan - Membrane fixing pattern

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Higher Terrace

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	70 / 76	93 / 100	16 / 17
Wtot (kN/sqm)	2.89	2.36	1.58
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	PIR board	PIR board	PIR board
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



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Windload calculation

EN 1991-1-4/FM Global 1-28

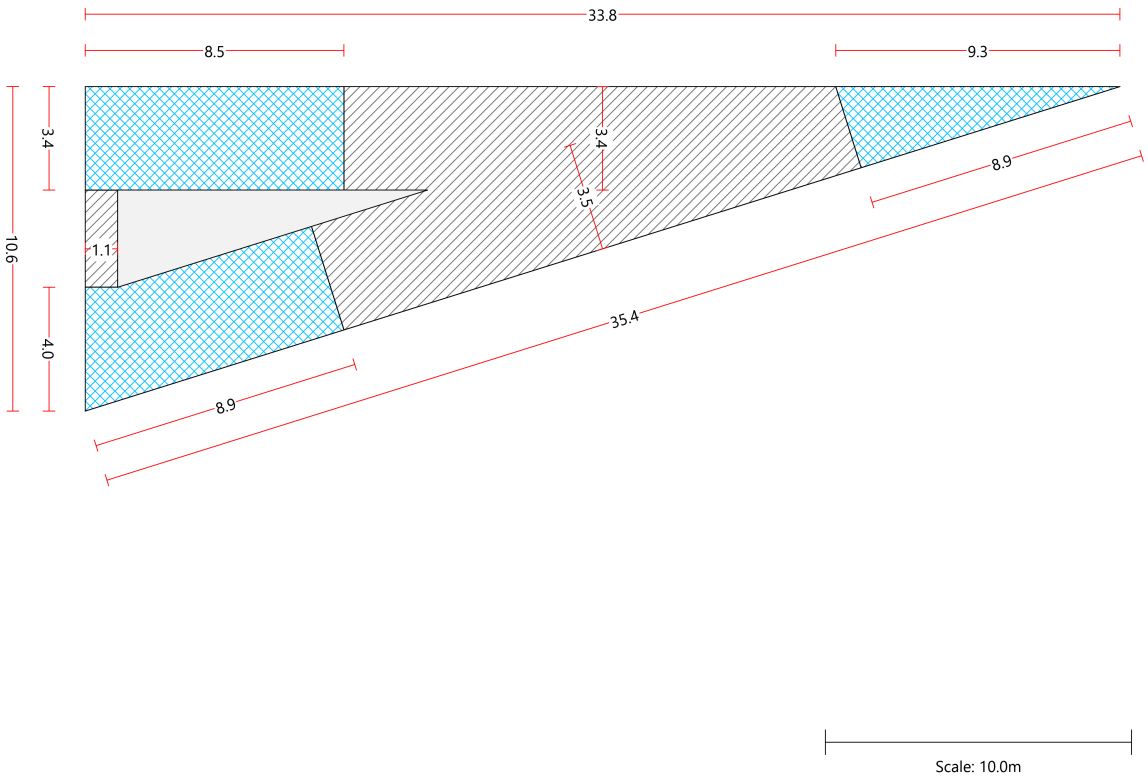
Roof plan - Separate fixing of insulation

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Higher Terrace

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	70	93	16
Wtot (kN/sqm)	2.89	2.36	1.58
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.48	5.56	3.70
Fasteners/board (pcs)	14	12	8
Number of fixings (pcs)	457	515	60

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



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WINDLOAD CALCULATION

EN 1991-1-4/FM GLOBAL 1-28

Created by: Moy Technical - Moy Materials Ltd

16 December 2021

CUSTOMER

MOY MATERIALS (UK) LTD

CONTACT PERSON

NICK BEECHING

PROJECT

LONDON 4 COLT LOWER TERRACE

Disclaimer

Windload calculation

EN 1991-1-4/FM Global 1-28

Date:	16 Dec 2021				
Customer:	Moy Materials (UK) Ltd				
Project:	London 4 Colt Lower Terrace				
Building height (m):	12.2	**Building length (m):**	8.8	**Building width (m):**	32.8
Type of roof:	Flat roofs ≤ 5°, Normal or parapet, Parapet height (mm): 1000				
Type of roof deck:	Concrete C25/30				
Pressure coefficient (Cpi):	Air tight roof deck (Cpi=0,0)				
Type of terrain:	Terrain category I				
Site location:	User defined..., FM Global-Eurocode (SL41DH, London)	**Wind speed at site (m/s):**	22.5		
Site related load factors:	Altitude: 24m | Calt: 1.000 | Co: 1.0 | Cdir: 1,0 | Cseason: 1,0 | Cpe1				
Characteristic wind pressure (Qp):	0.91 kN/m²				
Safety coefficient:	Main construction element (YQ=1,33)				

Insulation board fixing

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	34	86	24
Wtot (kN/sqm)	2.66	2.17	1.45
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.02	5.09	3.24
Fasteners/board (pcs)	13	11	7
Number of fixings (pcs)	206	438	79

Fixings summary (pcs): 723

Roof membrane fixing

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	34 / 37	86 / 93	24 / 26
Wtot (kN/sqm)	2.66	2.17	1.45
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	Aquapanel®	Aquapanel®	Aquapanel®
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Linear perimeter and upstand fixing

Method:	-
Total perimeter length (m):	76
Total number of fixings (pcs):	0

Windload calculation

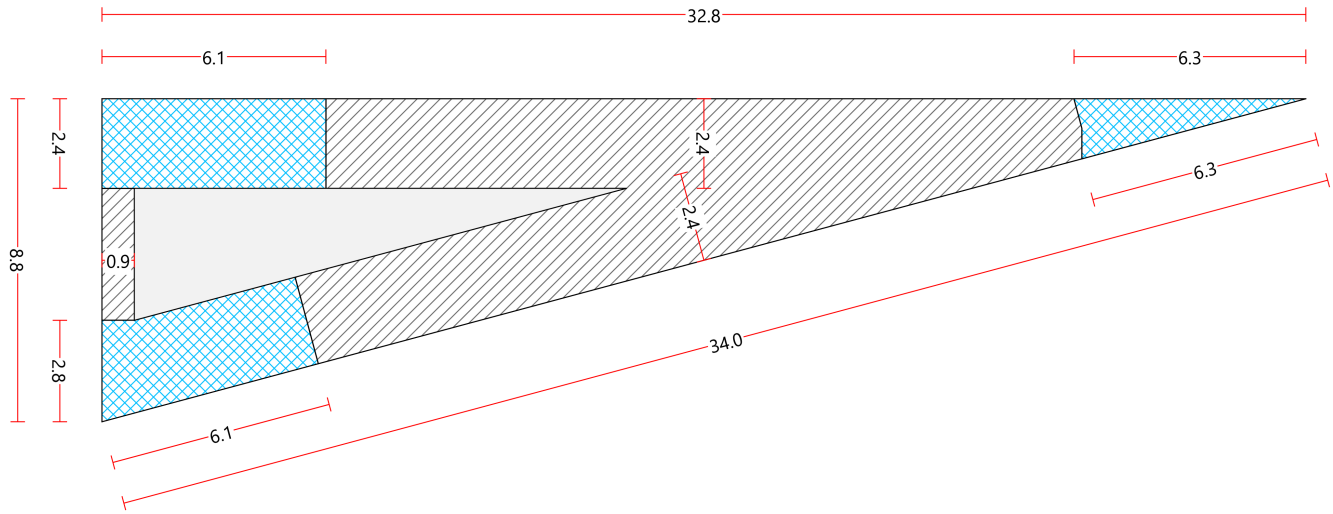
EN 1991-1-4/FM Global 1-28

Roof plan - Membrane fixing pattern

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Lower Terrace

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	34 / 37	86 / 93	24 / 26
Wtot (kN/sqm)	2.66	2.17	1.45
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	Aquapanel®	Aquapanel®	Aquapanel®
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



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Date: 16/12/2021
Customer: Moy Materials (UK) Ltd
Project: London 4 Colt Lower Terrace
Created by: Moy Technical - Moy Materials Ltd
Phone: 01245 707 449 , E-mail: info@moymaterials.com

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Windload calculation

EN 1991-1-4/FM Global 1-28

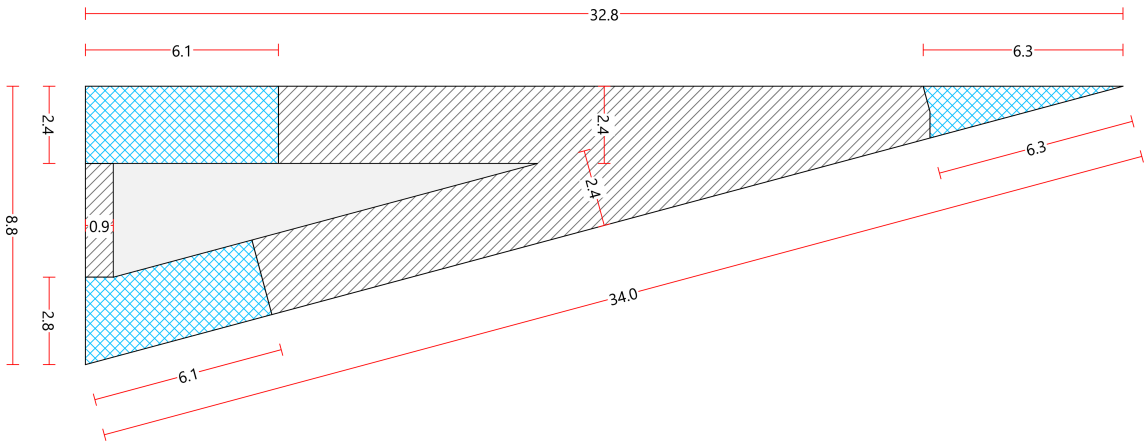
Roof plan - Separate fixing of insulation

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Lower Terrace

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	34	86	24
Wtot (kN/sqm)	2.66	2.17	1.45
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.02	5.09	3.24
Fasteners/board (pcs)	13	11	7
Number of fixings (pcs)	206	438	79

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



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Date: 16/12/2021
Customer: Moy Materials (UK) Ltd
Project: London 4 Colt Lower Terrace
Created by: Moy Technical - Moy Materials Ltd
Phone: 01245 707 449 , E-mail: info@moymaterials.com

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WINDLOAD CALCULATION

EN 1991-1-4/FM GLOBAL 1-28

Created by: Moy Technical - Moy Materials Ltd

16 December 2021

CUSTOMER

MOY MATERIALS (UK) LTD

CONTACT PERSON

NICK BEECHING

PROJECT

LONDON 4 COLT MAIN ROOF

Windload calculation

EN 1991-1-4/FM Global 1-28

Date:	16 Dec 2021				
Customer:	Moy Materials (UK) Ltd				
Project:	London 4 Colt Main Roof				
Building height (m):	26	**Building length (m):**	62.1	**Building width (m):**	59.2
Type of roof:	Flat roofs ≤ 5°, Normal or parapet, Parapet height (mm): 1000				
Type of roof deck:	Concrete C25/30				
Pressure coefficient (Cpi):	Air tight roof deck (Cpi=0,0)				
Type of terrain:	Terrain category I				
Site location:	User defined..., FM Global-Eurocode (SL41DH, London)	**Wind speed at site (m/s):**	22.5		
Site related load factors:	Altitude: 24m | Calt: 1.000 | Co: 1.0 | Cdir: 1,0 | Cseason: 1,0 | Cpe1				
Characteristic wind pressure (Qp):	1.07 kN/m²				
Safety coefficient:	Main construction element (YQ=1,33)				

Insulation board fixing

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	566	587	2400
Wtot (kN/sqm)	3.10	2.53	1.69
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.94	6.02	4.17
Fasteners/board (pcs)	15	13	9
Number of fixings (pcs)	3930	3535	10001

Fixings summary (pcs): 17466

Roof membrane fixing

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	566 / 611	587 / 634	2400 / 2592
Wtot (kN/sqm)	3.10	2.53	1.69
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	Aquapanel®	Aquapanel®	Aquapanel®
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Linear perimeter and upstand fixing

Method:	-
Total perimeter length (m):	243
Total number of fixings (pcs):	0

Windload calculation

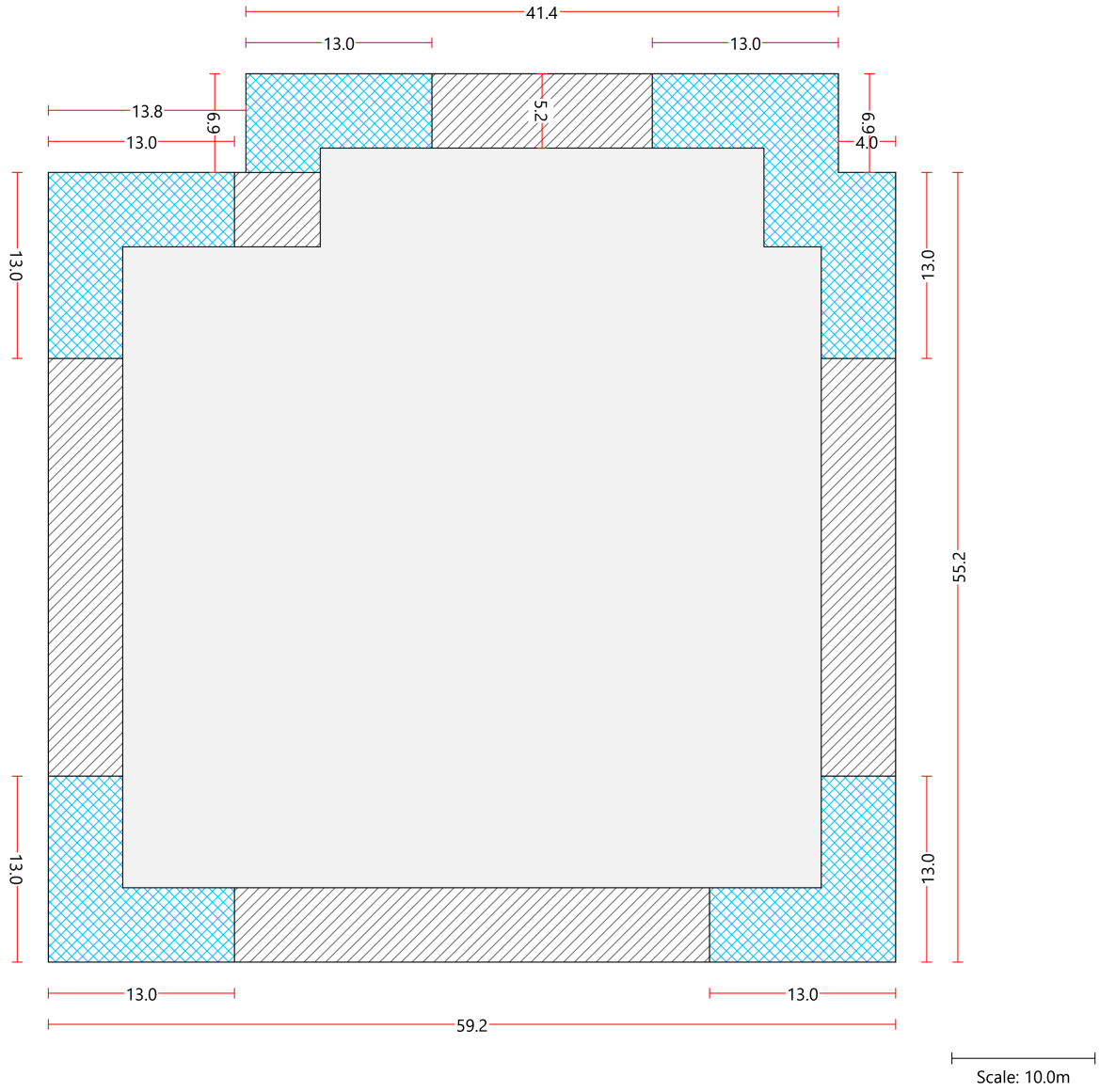
EN 1991-1-4/FM Global 1-28

Roof plan - Membrane fixing pattern

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Main Roof

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	566 / 611	587 / 634	2400 / 2592
Wtot (kN/sqm)	3.10	2.53	1.69
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	Aquapanel®	Aquapanel®	Aquapanel®
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



Windload calculation

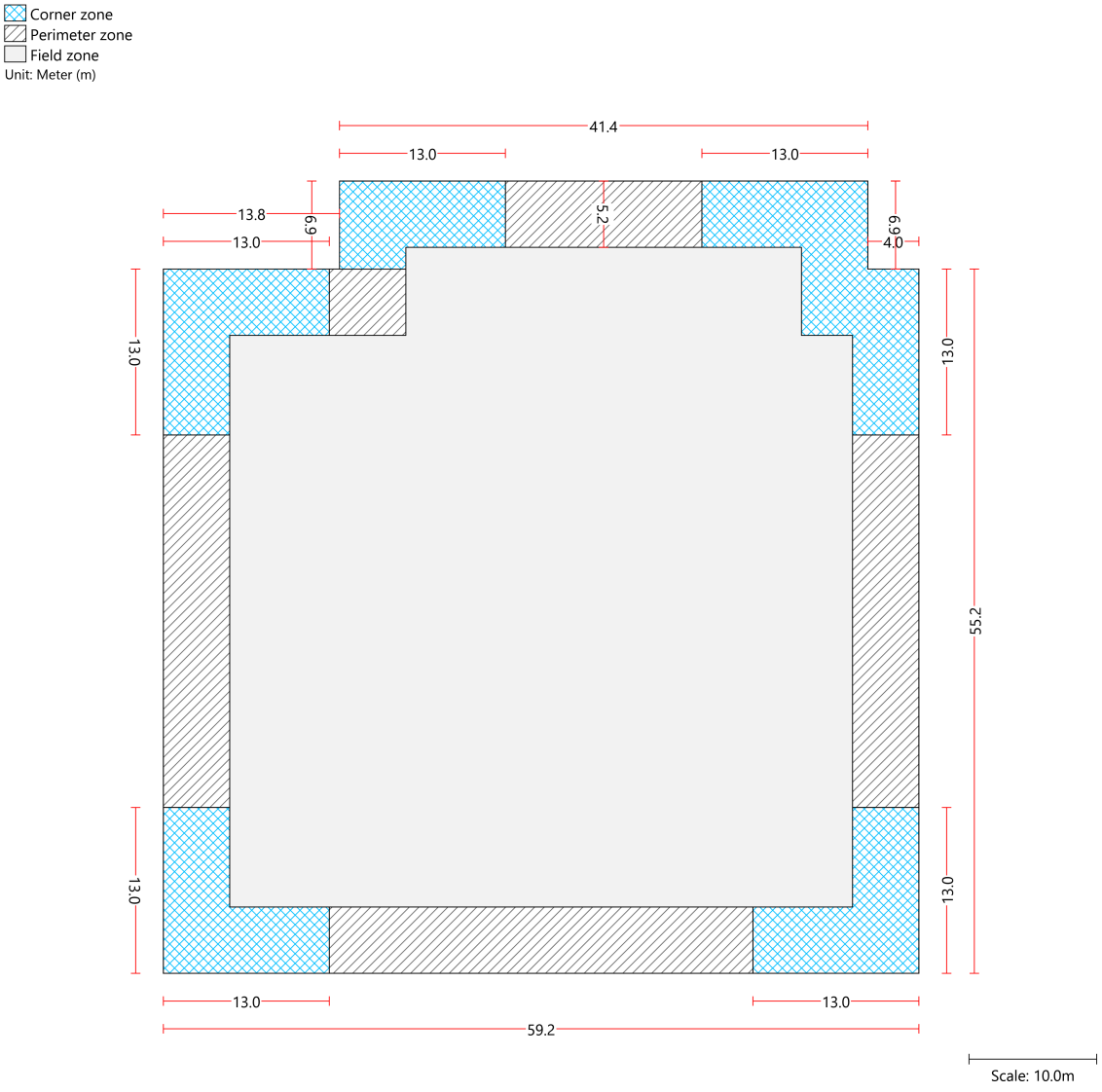
EN 1991-1-4/FM Global 1-28

Roof plan - Separate fixing of insulation

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Main Roof

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	566	587	2400
Wtot (kN/sqm)	3.10	2.53	1.69
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.94	6.02	4.17
Fasteners/board (pcs)	15	13	9
Number of fixings (pcs)	3930	3535	10001



WINDLOAD CALCULATION

EN 1991-1-4/FM GLOBAL 1-28

Created by: Moy Technical - Moy Materials Ltd

16 December 2021

CUSTOMER

MOY MATERIALS (UK) LTD

CONTACT PERSON

NICK BEECHING

PROJECT

LONDON 4 COLT ROOF A

Windload calculation

EN 1991-1-4/FM Global 1-28

Date:	16 Dec 2021				
Customer:	Moy Materials (UK) Ltd				
Project:	London 4 Colt Roof A				
Building height (m):	26	**Building length (m):**	65.4	**Building width (m):**	25.3
Type of roof:	Flat roofs ≤ 5°, Normal or parapet, Parapet height (mm): 1000				
Type of roof deck:	Concrete C25/30				
Pressure coefficient (Cpi):	Air tight roof deck (Cpi=0,0)				
Type of terrain:	Terrain category I				
Site location:	User defined..., FM Global-Eurocode (SL41DH, London)	**Wind speed at site (m/s):**	22.5		
Site related load factors:	Altitude: 24m | Calt: 1.000 | Co: 1.0 | Cdir: 1,0 | Cseason: 1,0 | Cpe1				
Characteristic wind pressure (Qp):	1.07 kN/m²				
Safety coefficient:	Main construction element (YQ=1,33)				

Insulation board fixing

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	282	474	899
Wtot (kN/sqm)	3.10	2.53	1.69
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.94	6.02	4.17
Fasteners/board (pcs)	15	13	9
Number of fixings (pcs)	1957	2851	3747

Fixings summary (pcs): 8555

Roof membrane fixing

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	282 / 304	474 / 511	899 / 971
Wtot (kN/sqm)	3.10	2.53	1.69
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	Aquapanel®	Aquapanel®	Aquapanel®
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Linear perimeter and upstand fixing

Method:	-
Total perimeter length (m):	181
Total number of fixings (pcs):	0

Windload calculation

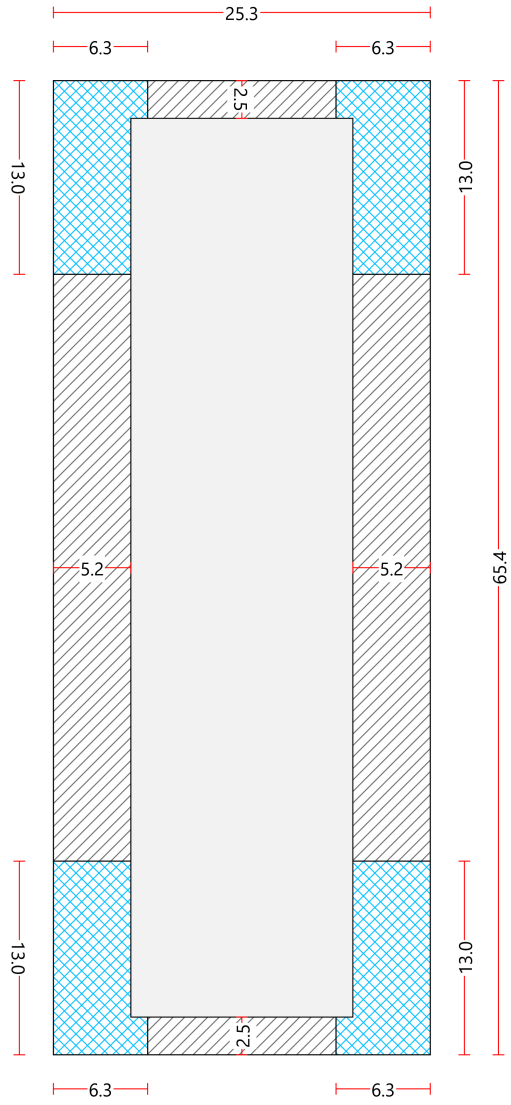
EN 1991-1-4/FM Global 1-28

Roof plan - Membrane fixing pattern

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Roof A

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	282 / 304	474 / 511	899 / 971
Wtot (kN/sqm)	3.10	2.53	1.69
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	Aquapanel®	Aquapanel®	Aquapanel®
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



Scale: 10.0m

Windload calculation

EN 1991-1-4/FM Global 1-28

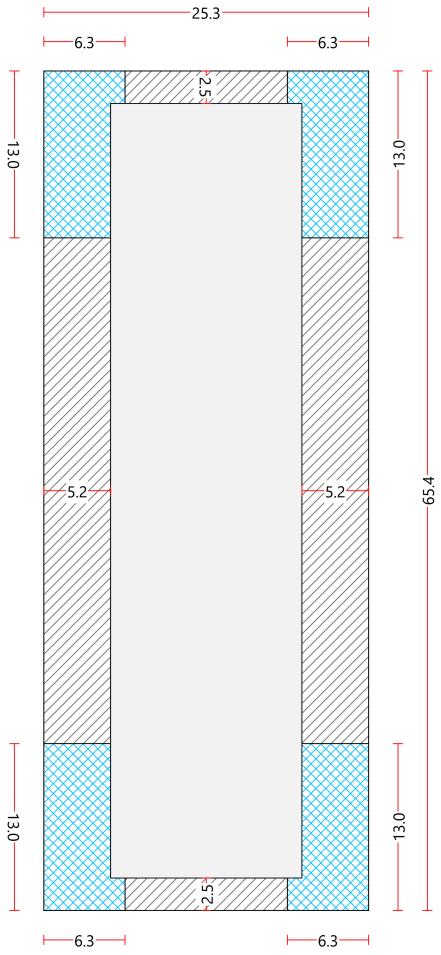
Roof plan - Separate fixing of insulation

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Roof A

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	282	474	899
Wtot (kN/sqm)	3.10	2.53	1.69
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.94	6.02	4.17
Fasteners/board (pcs)	15	13	9
Number of fixings (pcs)	1957	2851	3747

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



Scale: 10.0m

Date: 16/12/2021
Customer: Moy Materials (UK) Ltd
Project: London 4 Colt Roof A
Created by: Moy Technical - Moy Materials Ltd
Phone: 01245 707 449 , E-mail: info@moymaterials.com

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WINDLOAD CALCULATION

EN 1991-1-4/FM GLOBAL 1-28

Created by: Moy Technical - Moy Materials Ltd

16 December 2021

CUSTOMER

MOY MATERIALS (UK) LTD

CONTACT PERSON

NICK BEECHING

PROJECT

LONDON 4 COLT ROOF B

Disclaimer

These calculations and possible advice are based upon the project information provided to MAK Fastener Specialists Ltd by the customer mentioned above. These calculations and possible advice are based on Eurocode EN 1991-1-4 and the technology known to us at the date here of in relation to wind-uplift. MAK Fastener Specialists Ltd does not accept any liability for any kind of damage as a result of these calculations or possible advice.

Windload calculation

EN 1991-1-4/FM Global 1-28

Date:	16 Dec 2021				
Customer:	Moy Materials (UK) Ltd				
Project:	London 4 Colt Roof B				
Building height (m):	26	**Building length (m):**	18.4	**Building width (m):**	32.2
Type of roof:	Flat roofs ≤ 5°, Normal or parapet, Parapet height (mm): 1000				
Type of roof deck:	Concrete C25/30				
Pressure coefficient (Cpi):	Air tight roof deck (Cpi=0,0)				
Type of terrain:	Terrain category I				
Site location:	User defined..., FM Global-Eurocode (SL41DH, London)	**Wind speed at site (m/s):**	22.5		
Site related load factors:	Altitude: 24m | Calt: 1.000 | Co: 1.0 | Cdir: 1,0 | Cseason: 1,0 | Cpe1				
Characteristic wind pressure (Qp):	1.07 kN/m²				
Safety coefficient:	Main construction element (YQ=1,33)				

Insulation board fixing

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	112	127	202
Wtot (kN/sqm)	3.10	2.53	1.69
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.94	6.02	4.17
Fasteners/board (pcs)	15	13	9
Number of fixings (pcs)	778	766	841

Fixings summary (pcs): 2385

Roof membrane fixing

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	112 / 121	127 / 137	202 / 218
Wtot (kN/sqm)	3.10	2.53	1.69
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	Aquapanel®	Aquapanel®	Aquapanel®
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Linear perimeter and upstand fixing

Method:	-
Total perimeter length (m):	93
Total number of fixings (pcs):	0

Windload calculation

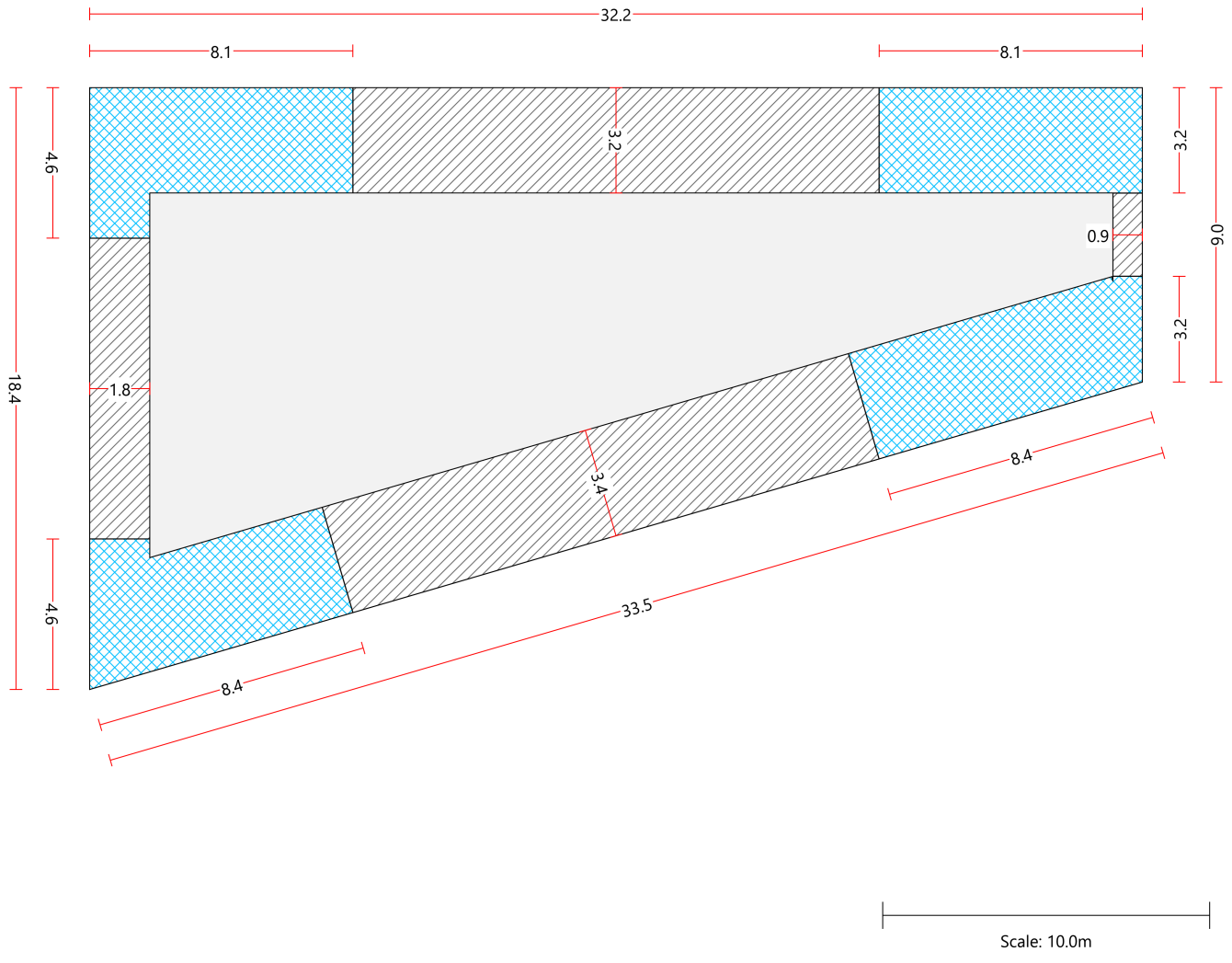
EN 1991-1-4/FM Global 1-28

Roof plan - Membrane fixing pattern

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Roof B

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	112 / 121	127 / 137	202 / 218
Wtot (kN/sqm)	3.10	2.53	1.69
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	Aquapanel®	Aquapanel®	Aquapanel®
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



Windload calculation

EN 1991-1-4/FM Global 1-28

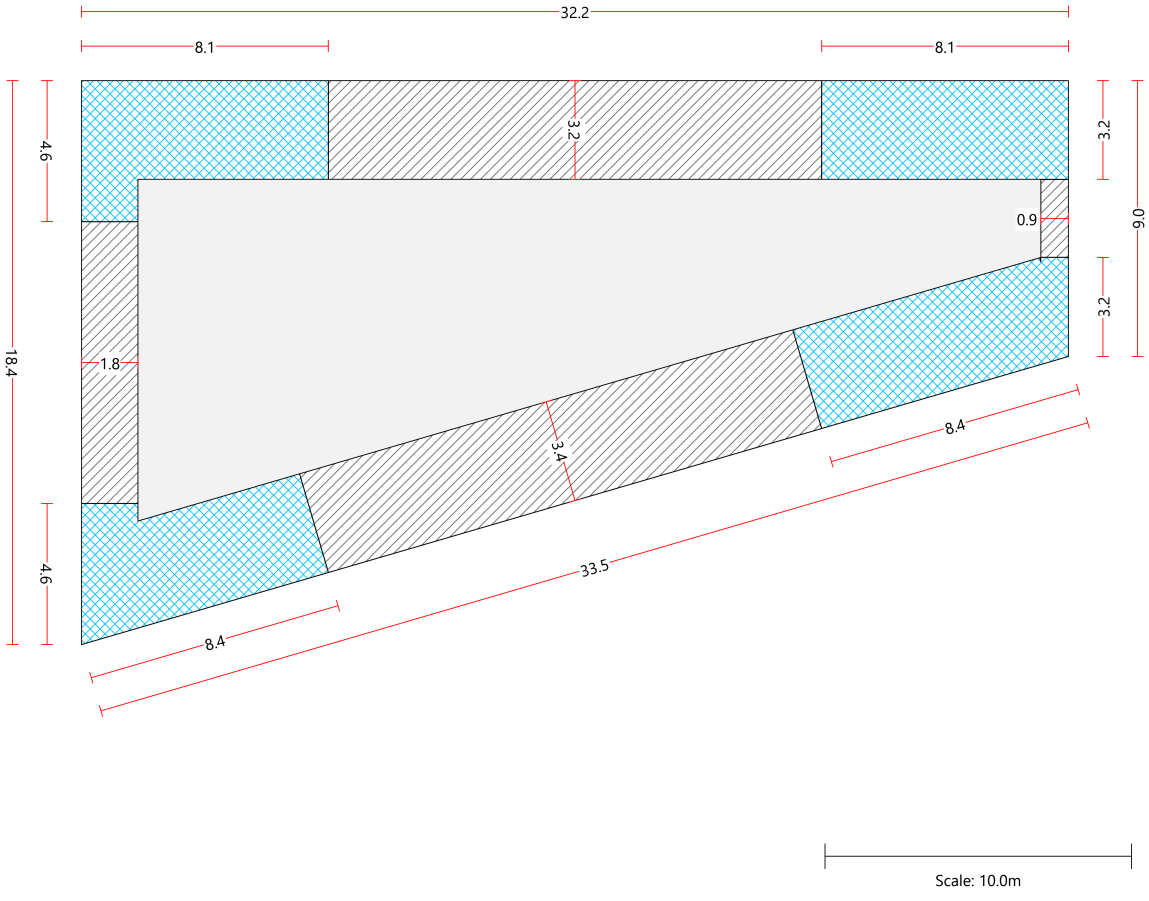
Roof plan - Separate fixing of insulation

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Roof B

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	112	127	202
Wtot (kN/sqm)	3.10	2.53	1.69
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.94	6.02	4.17
Fasteners/board (pcs)	15	13	9
Number of fixings (pcs)	778	766	841

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



Date: 16/12/2021
Customer: Moy Materials (UK) Ltd
Project: London 4 Colt Roof B
Created by: Moy Technical - Moy Materials Ltd
Phone: 01245 707 449 , E-mail: info@moymaterials.com

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WINDLOAD CALCULATION

EN 1991-1-4/FM GLOBAL 1-28

Created by: Moy Technical - Moy Materials Ltd

16 December 2021

CUSTOMER

MOY MATERIALS (UK) LTD

CONTACT PERSON

NICK BEECHING

PROJECT

LONDON 4 COLT STAIRWELL 1

Disclaimer

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Windload calculation

EN 1991-1-4/FM Global 1-28

Date:	16 Dec 2021				
Customer:	Moy Materials (UK) Ltd				
Project:	London 4 Colt Stairwell 1				
Building height (m):	27	**Building length (m):**	9.9	**Building width (m):**	13.8
Type of roof:	Flat roofs ≤ 5°, Normal or parapet, Parapet height (mm): 1000				
Type of roof deck:	Concrete C25/30				
Pressure coefficient (Cpi):	Air tight roof deck (Cpi=0,0)				
Type of terrain:	Terrain category I				
Site location:	User defined..., FM Global-Eurocode (SL41DH, London)	**Wind speed at site (m/s):**	22.5		
Site related load factors:	Altitude: 24m | Calt: 1.000 | Co: 1.0 | Cdir: 1,0 | Cseason: 1,0 | Cpe1				
Characteristic wind pressure (Qp):	1.07 kN/m²				
Safety coefficient:	Main construction element (YQ=1,33)				

Insulation board fixing

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	23	29	84
Wtot (kN/sqm)	3.12	2.55	1.70
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.94	6.02	4.17
Fasteners/board (pcs)	15	13	9
Number of fixings (pcs)	163	174	352

Fixings summary (pcs): 689

Roof membrane fixing

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	23 / 25	29 / 31	84 / 91
Wtot (kN/sqm)	3.12	2.55	1.70
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	Aquapanel®	Aquapanel®	Aquapanel®
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Linear perimeter and upstand fixing

Method:	-
Total perimeter length (m):	47
Total number of fixings (pcs):	0

Windload calculation

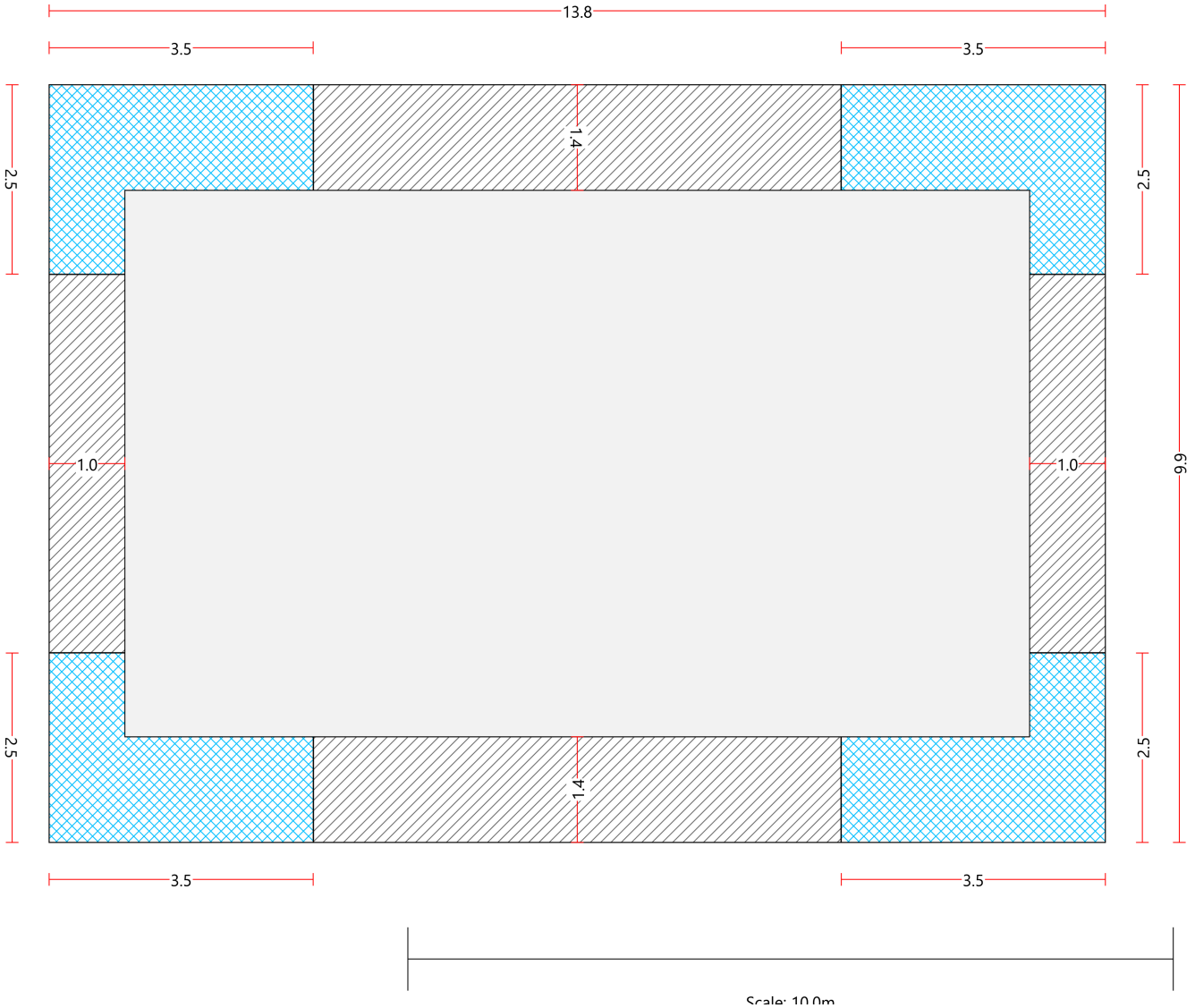
EN 1991-1-4/FM Global 1-28

Roof plan - Membrane fixing pattern

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Stairwell 1

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	23 / 25	29 / 31	84 / 91
Wtot (kN/sqm)	3.12	2.55	1.70
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	Aquapanel®	Aquapanel®	Aquapanel®
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



Date: 16/12/2021
Customer: Moy Materials (UK) Ltd
Project: London 4 Colt Stairwell 1
Created by: Moy Technical - Moy Materials Ltd
Phone: 01245 707 449 , E-mail: info@moymaterials.com

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Windload calculation

EN 1991-1-4/FM Global 1-28

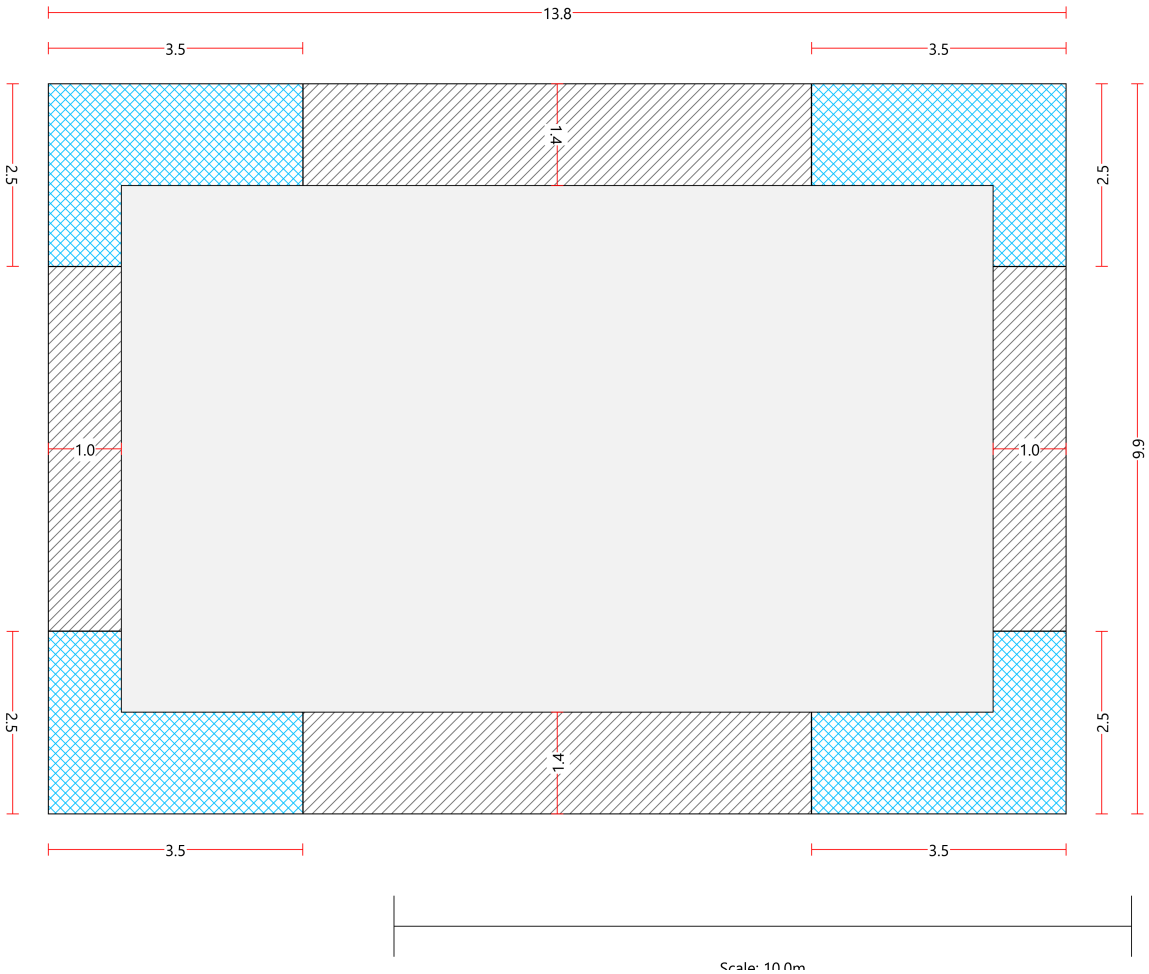
Roof plan - Separate fixing of insulation

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Stairwell 1

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	23	29	84
Wtot (kN/sqm)	3.12	2.55	1.70
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.94	6.02	4.17
Fasteners/board (pcs)	15	13	9
Number of fixings (pcs)	163	174	352

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



WINDLOAD CALCULATION

EN 1991-1-4/FM GLOBAL 1-28

Created by: Moy Technical - Moy Materials Ltd

16 December 2021

CUSTOMER

MOY MATERIALS (UK) LTD

CONTACT PERSON

NICK BEECHING

PROJECT

LONDON 4 COLT STAIRWELL 2

Windload calculation

EN 1991-1-4/FM Global 1-28

Date:	16 Dec 2021				
Customer:	Moy Materials (UK) Ltd				
Project:	London 4 Colt Stairwell 2				
Building height (m):	27	**Building length (m):**	6.9	**Building width (m):**	5.2
Type of roof:	Flat roofs ≤ 5°, Normal or parapet, Parapet height (mm): 1000				
Type of roof deck:	Concrete C25/30				
Pressure coefficient (Cpi):	Air tight roof deck (Cpi=0,0)				
Type of terrain:	Terrain category I				
Site location:	User defined..., FM Global-Eurocode (SL41DH, London)	**Wind speed at site (m/s):**	22.5		
Site related load factors:	Altitude: 24m | Calt: 1.000 | Co: 1.0 | Cdir: 1,0 | Cseason: 1,0 | Cpe1				
Characteristic wind pressure (Qp):	1.07 kN/m²				
Safety coefficient:	Main construction element (YQ=1,33)				

Insulation board fixing

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	6	7	22
Wtot (kN/sqm)	3.12	2.55	1.70
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.94	6.02	4.17
Fasteners/board (pcs)	15	13	9
Number of fixings (pcs)	42	45	94

Fixings summary (pcs): 181

Roof membrane fixing

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	6 / 6	7 / 8	22 / 24
Wtot (kN/sqm)	3.12	2.55	1.70
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	PIR board	PIR board	PIR board
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Linear perimeter and upstand fixing

Method:	-
Total perimeter length (m):	24
Total number of fixings (pcs):	0

Windload calculation

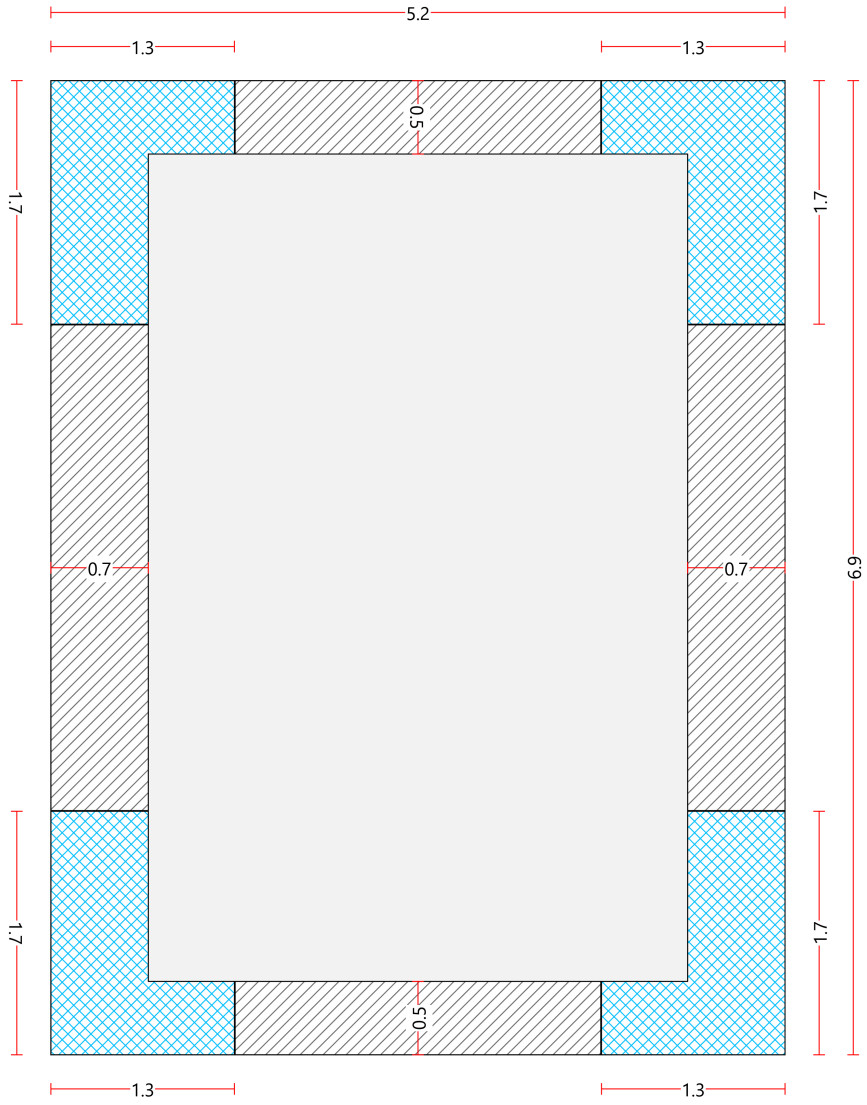
EN 1991-1-4/FM Global 1-28

Roof plan - Membrane fixing pattern

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Stairwell 2

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	6 / 6	7 / 8	22 / 24
Wtot (kN/sqm)	3.12	2.55	1.70
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	PIR board	PIR board	PIR board
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



Windload calculation

EN 1991-1-4/FM Global 1-28

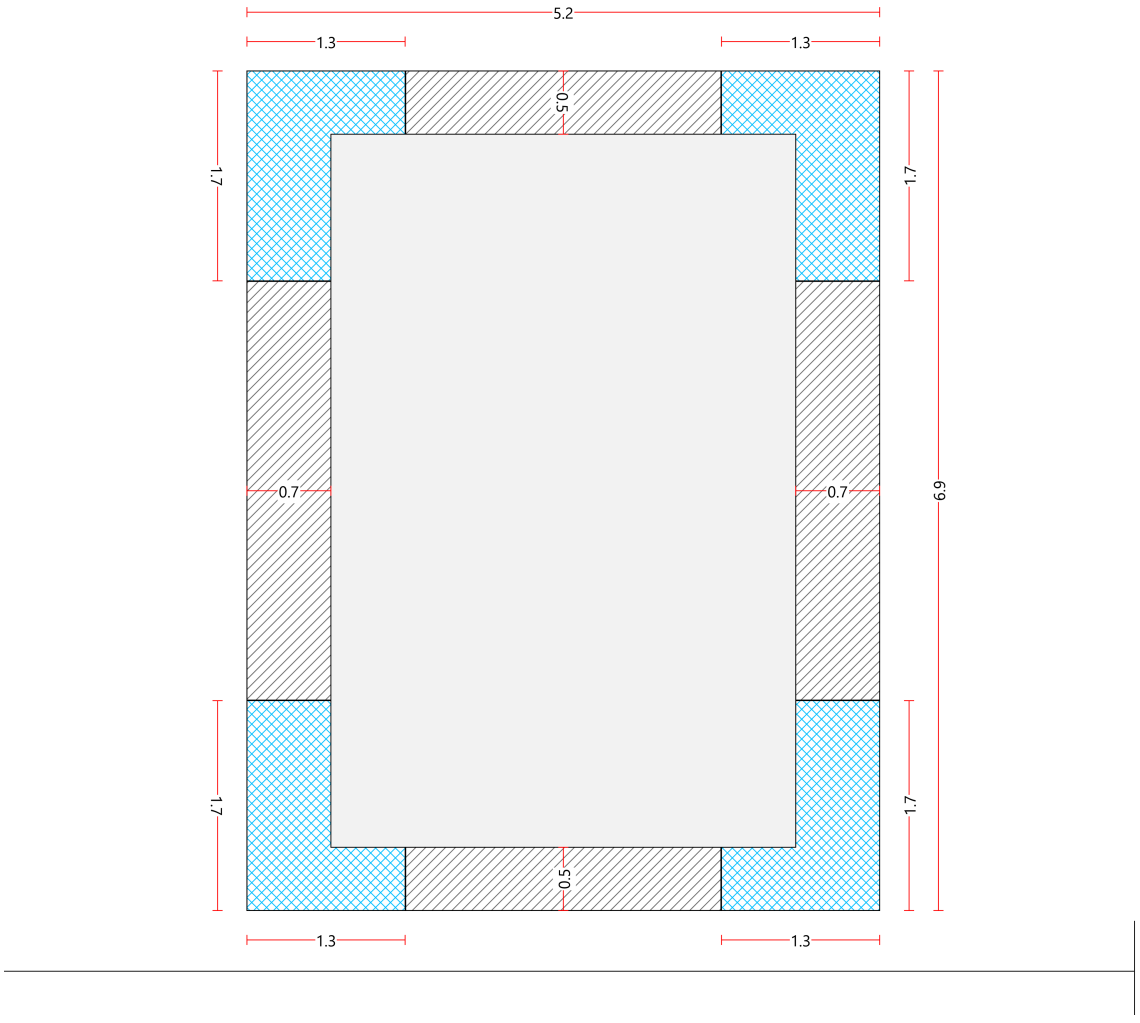
Roof plan - Separate fixing of insulation

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Stairwell 2

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	6	7	22
Wtot (kN/sqm)	3.12	2.55	1.70
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.94	6.02	4.17
Fasteners/board (pcs)	15	13	9
Number of fixings (pcs)	42	45	94

Corner zone
Perimeter zone
Field zone
Unit: Meter (m)



WINDLOAD CALCULATION

EN 1991-1-4/FM GLOBAL 1-28

Created by: Moy Technical - Moy Materials Ltd

16 December 2021

CUSTOMER

MOY MATERIALS (UK) LTD

CONTACT PERSON

NICK BEECHING

PROJECT

LONDON 4 COLT STAIRWELL 3

Disclaimer

These calculations and possible advice are based upon the project information provided to MAK Fastener Specialists Ltd by the customer mentioned above. These calculations and possible advice are based on Eurocode EN 1991-1-4 and the technology known to us at the date here of in relation to wind-uplift. MAK Fastener Specialists Ltd does not accept any liability for any kind of damage as a result of these calculations or possible advice.

Windload calculation

EN 1991-1-4/FM Global 1-28

Date:	16 Dec 2021				
Customer:	Moy Materials (UK) Ltd				
Project:	London 4 Colt Stairwell 3				
Building height (m):	27	**Building length (m):**	3.6	**Building width (m):**	12.1
Type of roof:	Flat roofs ≤ 5°, Normal or parapet, Parapet height (mm): 1000				
Type of roof deck:	Concrete C25/30				
Pressure coefficient (Cpi):	Air tight roof deck (Cpi=0,0)				
Type of terrain:	Terrain category I				
Site location:	User defined..., FM Global-Eurocode (SL41DH, London)	**Wind speed at site (m/s):**	22.5		
Site related load factors:	Altitude: 24m | Calt: 1.000 | Co: 1.0 | Cdir: 1,0 | Cseason: 1,0 | Cpe1				
Characteristic wind pressure (Qp):	1.07 kN/m²				
Safety coefficient:	Main construction element (YQ=1,33)				

Insulation board fixing

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	15	29	0
Wtot (kN/sqm)	3.12	2.55	1.70
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.94	6.02	0.00
Fasteners/board (pcs)	15	13	0
Number of fixings (pcs)	102	174	0

Fixings summary (pcs): 276

Roof membrane fixing

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	15 / 16	29 / 31	0 / 0
Wtot (kN/sqm)	3.12	2.55	1.70
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	Aquapanel®	Aquapanel®	Aquapanel®
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Linear perimeter and upstand fixing

Method:	-
Total perimeter length (m):	31
Total number of fixings (pcs):	0

Windload calculation

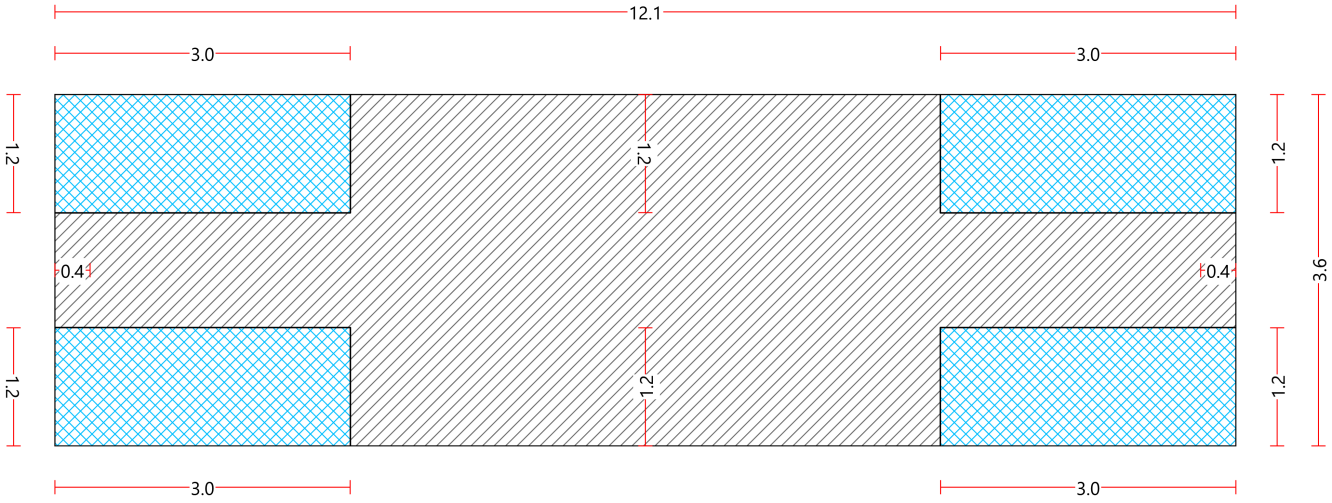
EN 1991-1-4/FM Global 1-28

Roof plan - Membrane fixing pattern

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Stairwell 3

	Corner	Perimeter	Field
Total area / Est. membrane area (sqm)	15 / 16	29 / 31	0 / 0
Wtot (kN/sqm)	3.12	2.55	1.70
Membrane:	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer	Bonded Bitumen - Verify Values with Producer
Bonding type	Bonded Bitumen Membrane	Bonded Bitumen Membrane	Bonded Bitumen Membrane
Substrate	Aquapanel®	Aquapanel®	Aquapanel®
Bonding pattern	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)	Torched-bitumen fully bonded >80% (9,000.0N)

Corner zone
Perimeter zone
Unit: Meter (m)



Windload calculation

EN 1991-1-4/FM Global 1-28

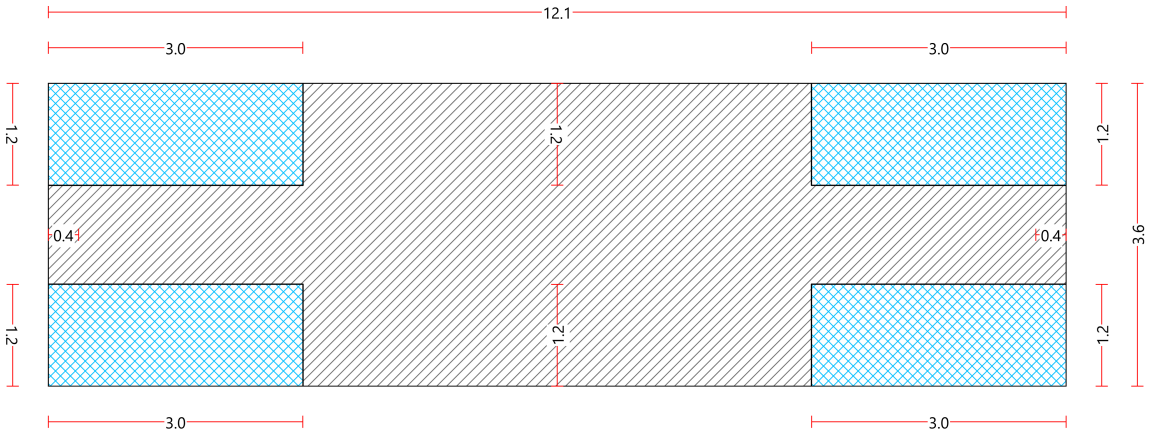
Roof plan - Separate fixing of insulation

Date:	16 Dec 2021
Customer:	Moy Materials (UK) Ltd
Project:	London 4 Colt Stairwell 3

Insulation board type:	Aquapanel® Cement Board (0,9x2,4m)
Insulation board size (m):	0.9x2.4
Insulation thickness (mm):	150
Insulation old build up (mm):	13
Fastener methodology:	100% Design capacity for windload

	Corner	Perimeter	Field
Total area (sqm)	15	29	0
Wtot (kN/sqm)	3.12	2.55	1.70
Plate/Tube	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)	50mm OMG Round Plate (22-SPGA50) (450N, 0mm)
Fastener	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)	OMG HD-6,3mm (N, 200mm)
Design load (N/pc):	450N	450N	450N
Fasteners/sqm (pcs)	6.94	6.02	0.00
Fasteners/board (pcs)	15	13	0
Number of fixings (pcs)	102	174	0

Corner zone
Perimeter zone
Unit: Meter (m)



BITUMEN

Declaration of Performance
PARAFLEX ARD/S

Accompanying Technical Documentation	Declaration of Performance n° 2SQN08	CE
		13

1. Unique identification code of the product type: 2SQN08
2. Product Identification:

PARAFLEX ARD/S		
Length, Width: 8x1 (-1%) m	Weight of thickness: 4,50 kg/m²	Reinforcement: Stabilised polyester
Finishing TOP/BOTTOM: MINERAL / TERMOTENE	Installation (*): Torch	

(*) Storage in vertical position, out of sun and freezing. Stabilise for 24 h at +5°C, prior to use, where otherwise TDS

3. Intended uses:

Harmonised technical spec. EN	Intended uses	
13707:2004+A2:2009	☐ ☒ ☐ ☐ ☐	FLEXIBLE SHEET FOR WATERPROOFING – DEFINITIONS AND CHARACTERISTICS REINFORCED BITUMEN SHEET FOR ROOF WATERPROOFING (*): - SINGLE LAYER - EXPOSED MULTILAYER – TOP LAYER - EXPOSED MULTILAYER – UNDERLAY OR INTERMEDIATE LAYER - UNDER HEAVY PROTECTION - ANTIROOT (*) Refer to our technical assistance service about correct stratigraphy
13859-1:2010	☒	FLEXIBLE SHEETS FOR WATERPROOFING – DEFINITIONS AND CHARACTERISTICS: - UNDERLAY FOR DISCONTINUOS ROOFING
13969:2009	☐	FLEXIBLE SHEETS FOR WATERPROOFING - DEFINITIONS AND CHARACTERISTICS: - BITUMEN DAMP PROOF SHEETS INCLUDING TANKING SHEET
13970:2004/A1:2006	☐	FLEXIBLE SHEETS FOR WATERPROOFING - DEFINITIONS AND CHARACTERISTICS: - BITUMEN WATER VAPOUR CONTROL LAYERS
14695:2010+AC:2011	☐	FLEXIBLE SHEETS FOR WATERPROOFING - DEFINITIONS AND CHARACTERISTICS: REINFORCED BITUMEN SHEET - WATERPROOFING OF CONCRETE BRIDGE DECKS

4. Name of manufacturer: IMPER ITALIA srl, Via Rita Atria 9, 10079 Mappano (TO), Italy
5. Authorised Representative: Moy Materials Ltd, Unit K, South City Business Park, Whitestown Way, Tallaght, Dublin.
6. Systems of assessment and verification of constancy of performance of the construction product:

Harmonised technical spec. EN	Systems of assessment and verification of constancy of performance of the product
13707:2004+A2:2009, 13969:2004, 14695:2010+AC:2011	AVCP 2+
13859-1:2010, 13970:2004/A1:2006	AVCP 3

7. In accordance with the above-mentioned AVCP systems, notified bodies/laboratories have performed the initial inspection of the manufacturing plant of factory production control, or the initial type testing provided, and the continuous surveillance, assessment and evaluation of factory production control, and issued the certificate of conformity of the factory production control, or the test reports as described below:

Harmonised technical spec. EN	Notified body	Code	Certificate of conformity/ Test report
13707:2004+A2:2009	BUREAU VERITAS ITALIA	1370	1370 – CPR 0054

8. Declared performance:

Essential characteristics	U.M.	Tolerances	Performances	Harmonised technical spec. EN
External fire performance (1)	Class	-	NPD	EN 13707:2004+A2:2009
Reaction to fire	Class	-	E	EN 13707:2004+A2:2009, EN 13969:2004, EN 13859-1:2010, EN 13970:2004/A1:2006
Water tightness	kPa	≥	60	EN 13707:2004+A2:2009, EN 13969:2004, EN 13859-1:2010, EN 13970:2004/A1:2006, EN 14695:2010+AC:2011
Tensile properties L/T	N/50 mm	≥	800/600	EN 13707:2004+A2:2009, EN 13969:2004, EN 13859-1:2010, EN 13970:2004/A1:2006, EN 14695:2010+AC:2011
Elongation L/T	%	≥	50/50	EN 13707:2004+A2:2009, EN 13969:2004, EN 13859-1:2010, EN 13970:2004/A1:2006, EN 14695:2010+AC:2011
Root resistance	-	-	NPD	EN 13707:2004+A2:2009
Resistance to static loading	Kg	≥	NPD	EN 13707:2004+A2:2009, EN 13969:2004
Resistance to impact	mm	≥	NPD	EN 13707:2004+A2:2009, EN 13969:2004 EN 13970:2004/A1:2006
Tear resistance L/T	N	≥	160/180	EN 13707:2004+A2:2009, EN 13969:2004, EN 13859-1:2010, EN 13970:2004/A1:2006
Joint resistance: - Peel joint - Joint strength	N/5 cm N/5 cm	≥ ≥	- -	EN 13707:2004+A2:2009, EN 13969:2004, EN 13707:2004+A2:2009, EN 13969:2004, EN 13970:2004/A1:2006
Cold flexibility	°C	≤	- 25	EN 13707:2004+A2:2009, EN 13969:2004, EN 13859-1:2010, EN 13970:2004/A1:2006
Water vapour properties	μ	≥	20.000	EN 13970:2004/A1:2006
Durability: - Cold flexibility - Flow resistance at elevated temperature - UV resistance - Tensile properties: maximum tensile force L/T - Tensile properties: elongation L/T - Water tightness	 °C °C - N/5 cm % kPa	 ±15 -10 - ≥ ≥ -	 - ≥100 OK 700/500 45/45 NPD	EN 13707:2004+A2:2009 EN 13707:2004+A2:2009, EN 14695:2010+AC:2011, EN 14695:2010+AC:2011 EN 13707:2004+A2:2009, EN 14695:2010+AC:2011, EN 14695:2010+AC:2011 EN 13859-1:2010 EN 13859-1:2010 EN 13707:2004+A2:2009, EN 13859-1:2010,
Chemical resistance	-	-	NPD	EN 14695:2010+AC:2011
Dangerous substance	Note (2)			

(1) Determination of external fire performance is a system test which can be influenced by system components, thus performance for each individual product cannot be given.
(2) In the absence of European harmonised test methods, verification and declaration on release /content has to be done taking into account National provisions in the place.

9. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 8. The declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Mappano,

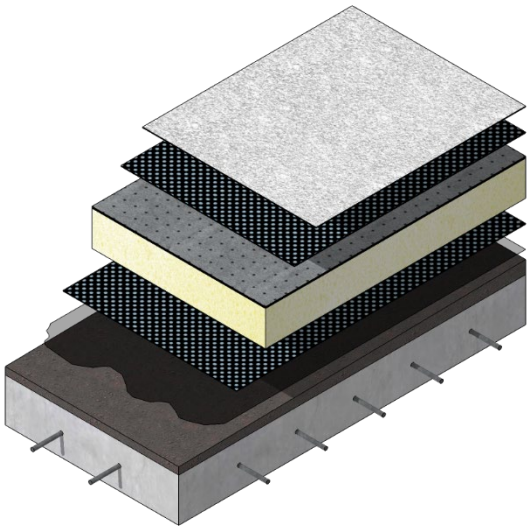
Legal representative:
Maurizio Alongi

Technical Data Sheet
Paraflex ARD/S

Product Description / Use:

Paraflex ARD/S is a modified bitumen SBS polymer waterproofing membrane intended for all waterproofing applications including; Flat Roofs, Terraces, Podiums, Car Parks and Bridge Decks, Tunnels, Foundations and Underground Structures.

The Paraflex range of waterproofing membranes, is FM approved and may be used in new build and refurbishment applications and is suitable for application in low temperature conditions. Paraflex remains flexible at low temperatures and exhibits high resistance to thermal stress.



Paraflex ARD/S is manufactured with a slate granule coating to the upper surface of the membrane in various colours, offering UV protection and slip resistance. The membrane compound is reinforced with a synthetic non-woven continuous filament polyester fabric, enabling plasticity, elastic behaviour and superior resistance to mechanical damage. The lower face is coated with Termotene® fusible film which aids unrolling and facilitates torch bonding to various substrates.

The Paraflex SBS bitumen compound's special formulation ensures high mechanical performance, cold flexibility at temperatures down to –25°C and excellent fatigue strength.

Paraflex membranes contain no asbestos, tar or other dangerous substances.

Certification:

System Fire Testing:
Classification Standard BS EN 13501-5: 2016
Test Standard: CEN/TS 1187:2012

Determination of external fire performance is a system test which will be influenced by the components within the roofing system.

Whilst Paraflex ARD/S can be included in compliant $B_{ROOF\ (t4)}$ systems, always check with MOY Technical Services for the very latest information on fire testing carried out.

Technical Data Sheet
Paraflex ARD/S

Technical Specification:

Specifications	EN Standards	Unit of Measure	Tolerances (1)	Paraflex ARD/S (2)
Roll dimensions	1848-1	m	≥	10 x 1 (-1%)
Thickness	1849-1	mm	±5%	-
Mass per unit area	1849-1	kg/m²	±10%	4.5
Watertightness	1928-B	kPa	≥	60
Cold flexibility	1109	°C	≤	-25
Flow resistance at elevated temperature	1110	°C	≥	+100
L/T tensile strength	12311-1	N/5cm	±20%	800/600
L/T tensile elongation	12311-1	%	±15 (3)	50/50
L/T dimensional stability	1107-1	%	2	0.3
Static puncture	12730	kg	≥	NPD (4)
Dynamic puncture	12691-B	mm	≥	NPD (4)
L/T tear resistance	12310-1	N	±30%	160/180
Joint peel resistance	12316-1	N/5cm	±20 N	NPD (4)
Joint cut resistance	12317-1	N/5cm	±20%	NPD (4)
Durability after ageing:				
• Cold flexibility	1296-1109	°C	+15°C	-10
• Flow resistance at elevated temperature	1296-1110	°C	-10°C	+100
• UV Ageing	1297	-	-	NPD (4)
• Watertightness	1296-1928	kPa	≥	60
• Chemical resistance	-	-	-	NPD (4)
• L/T tensile strength	12311-1	N/5cm	±20%	700/500
• L/T tensile elongation	12311-1	%	±15 (3)	45/45
Steam permeability	1931	μ	≥	20,000
Root resistance	13948		-	NPD (4)
External fire behaviour	13501-5	EC (6)	-	NPD (9)
Fire reaction	13501-1	EC (6)	-	F
Solar Reflectance Index (SRI)	ASTM Standard E1980	%	-	82.1 (8)

Notes:

(1) In compliance with the applicable AISPEC/SITEB-MBP Guidelines.
(2) Upper finish in slate flakes standard colour Natural grey. Other colours may be available upon request Red, Green, White Reflecta.
(3) ±2 for Glass Mat reinforcements.
(4) Characteristic not determined because it is not relevant for use.
(5) RFG: Failure away from joint. Or ≥ 500.
(6) Euroclass.
(7) Internal report
(8) Only Reflecta White version, in heavy wind conditions
(9) Determination of external fire performance is a system test which can be influenced by system components, thus performance for each individual product cannot be given.

Delivery form:
Rolls.

Technical Data Sheet
Paraflex ARD/S

Storage:
Rolls must be stored in their original package, in vertical position and under cool and dry conditions between temperatures of +5 °C and +35 °C. They must be protected from direct sunlight, rain, snow and ice.

Shelf life:
They can be stored for up to 24 months in cool, dry conditions.

Safety:
Safety precautions to be taken when using this product is given in the Safety Data Sheet.

Disposal:
Information for this product is given in the Safety Data Sheet.

Declaration of Performance
PARAFLEX NT3

Accompanying Technical Documentation	Declaration of Performance n° 0ND310	CE
		13

1. Unique identification code of the product type: 0ND310
2. Product Identification:

PARAFLEX NT3		
Length, Width: 10x1 (-1%) m	Weight of thickness: 3,00 mm	Reinforcement: Stabilised polyester
Finishing TOP/BOTTOM: TERMOTENE / TERMOTENE	Installation (*): Mechanical Fixing and Torch	

(*) Storage in vertical position, out of sun and freezing. Stabilise for 24 h at +5°C, prior to use, where otherwise TDS

3. Intended uses:

Harmonised technical spec. EN	Intended uses	
13707:2004+A2:2009	☐ ☐ ☒ ☒ ☐	FLEXIBLE SHEET FOR WATERPROOFING – DEFINITIONS AND CHARACTERISTICS REINFORCED BITUMEN SHEET FOR ROOF WATERPROOFING(*): - SINGLE LAYER - EXPOSED MULTILAYER – TOP LAYER - EXPOSED MULTILAYER – UNDERLAY OR INTERMEDIATE LAYER - UNDER HEAVY PROTECTION - ANTIROOT (*) Refer to our technical assistance service about correct stratigraphy
13859-1:2010	☐	FLEXIBLE SHEETS FOR WATERPROOFING – DEFINITIONS AND CHARACTERISTICS: - UNDERLAY FOR DISCONTINUOS ROOFING
13969:2009	☒	FLEXIBLE SHEETS FOR WATERPROOFING - DEFINITIONS AND CHARACTERISTICS: - BITUMEN DAMP PROOF SHEETS INCLUDING TANKING SHEET
13970:2004/A1:2006	☒	FLEXIBLE SHEETS FOR WATERPROOFING - DEFINITIONS AND CHARACTERISTICS: - BITUMEN WATER VAPOUR CONTROL LAYERS
14695:2010+AC:2011	☐	FLEXIBLE SHEETS FOR WATERPROOFING - DEFINITIONS AND CHARACTERISTICS: REINFORCED BITUMEN SHEET - WATERPROOFING OF CONCRETE BRIDGE DECKS

4. Name of manufacturer: IMPER ITALIA srl, Via Rita Atria 9, 10079 Mappano (TO), Italy
5. Authorised Representative: Moy Materials Ltd, Unit K, South City Business Park, Whitestown Way, Tallaght, Dublin.
6. Systems of assessment and verification of constancy of performance of the construction product:

Harmonised technical spec. EN	Systems of assessment and verification of constancy of performance of the product
13707:2004+A2:2009, 13969:2004, 14695:2010+AC:2011	AVCP 2+
13859-1:2010, 13970:2004/A1:2006	AVCP 3

7. In accordance with the above-mentioned AVCP systems, notified bodies/laboratories have performed the initial inspection of the manufacturing plant of factory production control, or the initial type testing provided, and the continuous surveillance, assessment and evaluation of factory production control, and issued the certificate of conformity of the factory production control, or the test reports as described below:

Harmonised technical spec. EN	Notified body	Code	Certificate of conformity/ Test report
13707:2004+A2:2009	BUREAU VERITAS ITALIA	1370	1370 – CPR 0054
13969:2004	BUREAU VERITAS ITALIA	1370	1370 – CPR 0054
13970:2004/A1:2006	C.S.I. SPA	0497	---

8. Declared performance:

Essential characteristics	U.M.	Tolerances	Performances	Harmonised technical spec. EN
External fire performance (1)	Class	-	NPD	EN 13707:2004+A2:2009
Reaction to fire	Class	-	F	EN 13707:2004+A2:2009, EN 13969:2004, EN 13859-1:2010, EN 13970:2004/A1:2006
Water tightness	kPa	≥	60	EN 13707:2004+A2:2009, EN 13969:2004, EN 13859-1:2010, EN 13970:2004/A1:2006, EN 14695:2010+AC:2011
Tensile properties L/T	N/50 mm	≥	800/600	EN 13707:2004+A2:2009, EN 13969:2004, EN 13859-1:2010, EN 13970:2004/A1:2006, EN 14695:2010+AC:2011
Elongation L/T	%	≥	50/50	EN 13707:2004+A2:2009, EN 13969:2004, EN 13859-1:2010, EN 13970:2004/A1:2006, EN 14695:2010+AC:2011
Root resistance	-	-	NPD	EN 13707:2004+A2:2009
Resistance to static loading	Kg	≥	NPD	EN 13707:2004+A2:2009, EN 13969:2004
Resistance to impact	mm	≥	NPD	EN 13707:2004+A2:2009, EN 13969:2004 EN 13970:2004/A1:2006
Tear resistance L/T	N	≥	160/180	EN 13707:2004+A2:2009, EN 13969:2004, EN 13859-1:2010, EN 13970:2004/A1:2006
Joint resistance: - Peel joint - Joint strength	N/5 cm N/5 cm	≥ ≥	NPD NPD	EN 13707:2004+A2:2009, EN 13969:2004 EN 13707:2004+A2:2009, EN 13969:2004 EN 13970:2004/A1:2006
Cold flexibility	°C	≤	- 25	EN 13707:2004+A2:2009, EN 13969:2004, EN 13859-1:2010, EN 13970:2004/A1:2006
Water vapour properties	μ	≥	20.000	EN 13970:2004/A1:2006
Durability: - Cold flexibility - Flow resistance at elevated temperature - UV resistance - Tensile properties: maximum tensile force L/T - Tensile properties: elongation L/T - Water tightness	 °C °C - N/5 cm % kPa	 ±15 -10 - ≥ ≥ -	 - ≥100 NPD 700/500 45/45 60	 EN 13707:2004+A2:2009 EN 13707:2004+A2:2009, EN 14695:2010+AC:2011, EN 14695:2010+AC:2011 EN 13707:2004+A2:2009, EN 14695:2010+AC:2011, EN 14695:2010+AC:2011 EN 13859-1:2010 EN 13859-1:2010 EN 13707:2004+A2:2009, EN 13859-1:2010,
Chemical resistance	-	-	NPD	EN 14695:2010+AC:2011
Dangerous substance	Note (2)			

(1) Determination of external fire performance is a system test which can be influenced by system components, thus performance for each individual product cannot be given.
(2) In the absence of European harmonised test methods, verification and declaration on release /content has to be done taking into account National provisions in the place.

9. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 8. The declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Mappano,

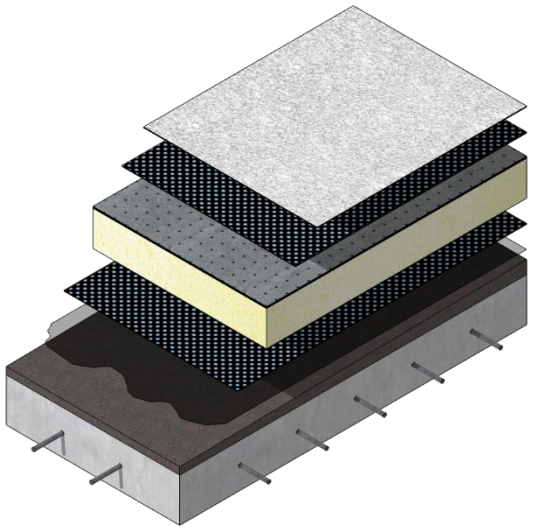
Legal representative:
Maurizio Alongi

Technical Data Sheet
Paraflex NT3

Product Description / Use:

Paraflex NT3 is a modified bitumen SBS polymer waterproofing membrane for use as a base layer or air and vapour control layer, under Paraflex waterproofing systems including; Flat Roofs, Green Roofs and Terraces, Podiums, Car Parks and Bridge Decks, Tunnels, Foundations and Underground Structures.

The Paraflex range of waterproofing membranes, is FM approved and may be used in new build and refurbishment applications and is suitable for application in low temperature conditions. Paraflex remains flexible at low temperatures and exhibits high resistance to thermal stress.



The membrane compound is reinforced with a synthetic non-woven continuous filament polyester fabric, enabling plasticity, elastic behaviour and superior resistance to mechanical damage. The lower face is coated with Termotene® fusible film which aids unrolling and facilitates torch bonding to various substrates.

The Paraflex NT3 SBS bitumen compound's special formulation ensures high mechanical performance, cold flexibility at temperatures down to –25°C and excellent fatigue strength.

Paraflex membranes contain no asbestos, tar or other dangerous substances.

Whilst it's primarily used as a base layer, it can also be used as an air and vapour control layer (AVCL) within a built-up warm roof, subject to the building use below. Buildings with high humidity conditions will require a foil faced vapour barrier (Sticker Helast VB 500 or Elotene DSN), or one with a foil lining within the membrane, like Vapobar 1 torch applied or Sticker Sanded AL (Foilcore), self-adhesive AVCL.

Certification:

System Fire Testing:
Classification Standard BS EN 13501-5: 2016
Test Standard: CEN/TS 1187:2012

Determination of external fire performance is a system test which will be influenced by the components within the roofing system.

Whilst Paraflex NT3 can be included in compliant $B_{ROOF\ (t4)}$ systems, always check with MOY Technical Services for the very latest information on fire testing carried out.

Technical Data Sheet
Paraflex NT3

Technical Specification:

Specifications	EN Standards	Unit of Measure	Tolerances (1)	Paraflex NT3
Roll dimensions	1848-1	m	≥	10 x 1 (-1%)
Thickness	1849-1	mm	±5%	3
Mass per unit area	1849-1	kg/m²	±10%	-
Watertightness	1928-B	kPa	≥	60
Cold flexibility	1109	°C	≤	-25
Flow resistance at elevated temperature	1110	°C	≥	+100
L/T tensile strength	12311-1	N/5cm	±20%	800/600
L/T tensile elongation	12311-1	%	±15 (2)	50/50
L/T dimensional stability	1107-1	%	2	0.3
Static puncture	12730	kg	≥	NPD (3)
Dynamic puncture	12691-B	mm	≥	NPD (3)
L/T tear resistance	12310-1	N	±30%	160/180
Joint peel resistance	12316-1	N/5cm	±20 N	NPD (3)
Joint cut resistance	12317-1	N/5cm	±20%	NPD (3)
Durability after ageing:				
• Cold flexibility	1296-1109	°C	+15°C	-10
• Flow resistance at elevated temperature	1296-1110	°C	-10°C	+100
• UV Ageing	1297	-	-	NPD (3)
• Watertightness	1296-1928	kPa	≥	60
• Chemical resistance	-	-	-	NPD (3)
• L/T tensile strength	12311-1	N/5cm	±20%	700/500
• L/T tensile elongation	12311-1	%	±15 (3)	45/45
Moisture resistance factor	1931	μ	-	83,700
Vapour resistance	1931	MN.s/g	-	1,175
Water vapour diffusion – equivalent air layer thickness Sd	1931	m	-	235
Root resistance	13948		-	NPD (3)
External fire behaviour	13501-5	EC (4)	-	NPD (5)
Fire reaction	13501-1	EC (4)	-	F

Notes:

(1) In compliance with the applicable AISPEC/SITEB-MBP Guidelines.
(2) ±2 for Glass Mat reinforcements.
(3) Characteristic not determined because it is not relevant for use.
(4) Euroclass.
(5) Determination of external fire performance is a system test which can be influenced by system components, thus performance for each individual product cannot be given.

Delivery form:
Rolls.

Storage:
Rolls must be stored in their original package, in vertical position and under cool and dry conditions between temperatures of +5 °C and +35 °C. They must be protected from direct sunlight, rain, snow and ice.

Technical Data Sheet
Paraflex NT3

Shelf life:
They can be stored for up to 24 months in cool, dry conditions.

Safety:
Safety precautions to be taken when using this product are given in the Safety Data Sheet.

Disposal:
Information for this product is given in the Safety Data Sheet.

BITUMEN

Material Safety Data Sheet
Reinforced Bitumen Membranes

FOREWORD

In compliance with current legislation on substances and mixtures, especially Regulation REACH (EC) N° 1907/2006 and Regulation CLP (EC) N° 1272/2008, the product subject of this documentation is defined an "article".

Unlike suppliers of substances and mixtures, suppliers of articles are not required to provide its customers standardized information[1)].

The products covered by this document are not subject of issuance of Safety Data Sheet (SDS). However, it seems appropriate, in order to allow a correct use, to provide the following information.

[1)] with the exception of articles that contain SVHC (Substances of Very High Concern) in a concentration above 0.1% weight by weight (w/w), for which information must be provided in accordance with Article 33 of the REACH Regulation.

SECTION 1: PRODUCT AND PRODUCER IDENTIFICATION

1.1	PRODUCT IDENTIFIER: Waterproofing membrane
1.2	RELEVANT USE: Waterproofing applications (i.e. buildings, roof gardens, bridges, reservoirs, dams, canals, tunnels, transportation infrastructures)
1.3	PRODUCER IDENTIFICATION: Name: IMPER ITALIA SRL Address: Via Atria,8 – 10079 Mappano (TO), Italy E-mail: safety@imper.it

SECTION 2: HAZARD IDENTIFICATION

2.1	CLASSIFICATION: The product is not classified as hazardous in accordance with the national regulation (D.Lgs. n. 65/03 and subsequent modifications). When applied, rolls are extended on the surface to be protected; the application may be obtained with hot or cold bonding, with care to correct superimposing of side and top junction space for welding.
2.2	HEALTH RISK: Acute nose and throat irritation are possible during the heat treatment and application of the product, especially in indoor or poorly ventilated environments, due to the inhalation of potentially hazardous substances such as gas and condensed fumes.
2.3	SAFETY RISK: The molten product may adhere to the skin and may cause burns. The presence of inflammable materials (HC vapours, etc.) may cause fire events.
2.4	ENVIRONMENTAL RISKS: Membranes may cause long-term adverse effects because their components are not biodegradable.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1	COMPOSITION: The product consists in a mixture of penetration grade bitumen, polyolefin, and/or elastomer polymer, small aggregates and functional additives when required for product application.

3.2	INFORMATION ON INGREDIENTS: Bitumen: registration REACH 01-2119498290-34-xxxx and 01-2119480172-44-xxxx, 01-2119498291-32-xxxx; polymers: non-dangerous substances according to REACH definitions. The product does not contain any hazardous components in accordance with the national regulation (D.Lgs. n. 65/03 and subsequent modifications, including REACH 1907/2006 and following).

SECTION 4: FIRST AID MEASURES

4.1	INHALATION: In case of long-term inhalation of fumes, particularly in indoor or poorly ventilated environments, move person to fresh air and call for medical assistance.
4.2	SKIN CONTACT: In case of skin contact with molten product, immediately flush skin with plenty of fresh water. Do not pull solidified product away from the skin by using solvents. Remove contaminated clothing immediately and seek immediate medical advice.
4.3	EYE CONTACT: If melt substance has got into eyes, wash out with water for at least 15 minutes and seek immediate medical attention. Do not pull product away from the eye. In case of irritation by fumes wash out with cold water.
4.4	INGESTION: Seek immediate medical attention.

SECTION 5: FIREFIGHTING MEASURES

5.1	EXTINGUISHING MEDIA: CO2, nebulized water, foam, dry chemical. Do not use direct stream of water to extinguish.
5.2	PERSONAL PROTECTION: In the event of fire, use supplied air respirators with universal filter U.P. In the case of indoor or poorly ventilated environments the personnel involved must be equipped with the breathing apparatus

SECTION 6: ACCIDENTAL RELEASE MEASURES

Not applicable.

SECTION 7: HANDLING AND STORAGE

7.1	CONDITIONS FOR SAFE STORAGE: Protect material from heat and direct sunlight (temperature 0°- 40°C) and keep away from electrical equipment. Keep rolls in a vertical position and do not stack them. For safe storage follow the specific storage recommendations for this product. It is not necessary to take precautionary measures to prevent the formation of static electricity. Open flames are prohibited. Keep extinguish media available (Point 5).
7.2	PRECAUTIONS FOR SAFE HANDLING: Provide appropriate ventilation when the product is applied in indoor or poorly ventilated environments.
7.3	PRECAUTIONS FOR USE: Membrane applications should follow the “Technical instructions” provided by the manufacturer, according to the principles of good technique and Safety (Clause 8 and ANNEX 1).

	In case of indoor or poorly ventilated applications, use the Personal Protective Equipment (Clause 8). Avoid open flames.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1	EXPOSURE CONTROLS: Open flame operations involved in installing bitumen-polymer waterproofing membranes may generate the dispersion of potentially hazardous substances. Provide appropriate ventilation when the product is applied indoor or at poorly ventilated environments (Point 2) in order to keep the exposure levels below the required limits (T.L.V.- ACGIH).
8.2	PERSONAL PROTECTIVE EQUIPMENT: During product applications, the following personal protective equipment is recommended: Skin protection: appropriate protective gloves; long sleeve shirt (cotton or flame retardant), trousers, safety shoes. Eye protection: safety glasses Foot protection: safety shoes In case of indoor or poorly ventilated indoor applications provide appropriate ventilation (Point 8.1). In case of inadequate ventilation system, use a respiratory protection equipment. The use of particulate filter respirators against solid & liquid particles is recommended (P3 protection).
8.3	HYGIENIST MEASURES: Wash hands before every break and after the work shift. Keep work clothes separate from the other clothing.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM	Membrane rolls
ODOUR	slight bitumen odour
pH	not applicable
BOILING POINT/RANGE	> +470°C ca. (bitumen)
MELTING POINT/RANGE	> +100°C
FLASH POINT	> +230°C ca. (bitumen)
INFLAMMABILITY (solid, gas)	Calorific value 9.000 kcal/kg ca.
AUTOIGNITION TEMPERATURE	> +485°C ca. (bitumen)
EXPLOSIVE PROPERTIES	NO
OXIDIZING PROPERTIES	NO
VAPOUR PRESSURE	not applicable
DENSITY	1÷1,5 kg/dm3
SOLUBILITY IN WATER	NO
LIPID SOLUBILITY	YES (organic solvents; oils)

SECTION 10: STABILITY AND REACTIVITY

10.1	STABILITY: The product is stable and is not considered to be reactive under normal temperature and pressure.
10.2	REACTIVITY: The product is chemically inert.

10.3	INCOMPATIBLE MATERIALS: Avoid contacts with oxidizing agents, especially under high temperatures, because the product may have exothermal reactions.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1	THE PRODUCT: The product consists in a mixture of distilled bitumen and polyolefin and/or elastomer polymers and reinforcement. The product does not contain coal tar and asbestos. The product is not classified as hazardous.
11.2	INFORMATION ON TOXICOLOGICAL EFFECTS: The product may be applied in adhesive cold or heat welded. Open flame operations involved in installing bitumen-polymer waterproofing membranes may generate the dispersion of potentially hazardous substances. The exposure levels to these substances are widely below the normative limits for fumes in metropolitan areas (Source: Bertazzi PA, FOA' V., Fustinoni S., see section 16) Acute health hazards: - eye irritation - skin irritation - nose and throat irritation Repeated long-term exposure needs regular medical examination, in accordance with national regulation (D.L. 25/2002 and DLgs 81/2008 and subsequent modifications) The product should be applied in accordance with the rules of hygiene, safety and good industrial practice, according to the technical instructions provided by the manufacturer.

SECTION 12: ECOLOGICAL INFORMATION

The product must be stored and used in accordance with the rules of hygiene, safety and good industrial practice, according to the technical guidance provided by the manufacturer (Point 7)
Dispose of this product according to national regulations, in order to avoid environmental pollution (Point 13).

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of this product according to national regulations, in order to avoid environmental pollution (Point 13).

The product is classified as non-hazardous special waste in accordance with national regulations (D.Lgs 152/2006 and subsequent modifications).

The waste must be managed according to local legislation. Manufacturers suggest following waste code:

EER 17 03 02: bituminous mixes different from those at EER 170301 or
EER 17 06 04: insulation materials different from EER 17 06 01 and 17 06 03
CER Code 17 09 04: "mixed waste from construction or demolition activities other than those mentioned in items 17 09 01, 17 09 02 and 17 09 03"

The coding of the waste is in any case always the responsibility of the manufacturer of the same, as well as the correct identification of the waste treatment plant to which the waste is to be sent (or authorized to receive).

The membranes do not contain tar, asbestos and oxidized bitumen.

SECTION 14: TRANSPORT INFORMATION

No special transportation or shipping requirements.

SECTION 15: REGULATORY INFORMATION

15.1	LABEL: no labelling required H - Phrases: not applicable (or hazard statements) P - Phrases: not applicable (or precautionary statements)
15.2	EUROPEAN REGULATION: Directive 67/548/CEE, Directive 1999/45/CE, Directive 91/155/CEE and subsequent modifications and integrations) Directive 92/32/CEE, Directive 93/67/CEE Regulation 793/93, Regulation1488/94, Directive 98/24/CE, Directive 2001/60/CE, Directive 2004/73/CEE, Regulation (CE) n. 1907/2006 (REACH), Directive 2008/98/CE, Regulation EU 830/2015, May 20th, 2015. Regulation EU 997/2018.
15.3	ITALIAN REGULATION: D.Lgs. 14 marzo 2003, n. 65; DPR 9 giugno 1975 n. 482, DPR 13 aprile 1994, n. 336, D.Lgs. 2 febbraio 2002 n. 25, D.Lgs. 3 febbraio 1997 n. 52; D.Lgs n° 285/98; D.lgs 152/2006, D.Lgs. n. 81/2008; D.lgs. n. 106/2009 and subsequent modifications.
This safety Information data sheet includes the following 16 headings in accordance with Annex II of COMMISSION REGULATION (EU) No 830/2015, May 20th, 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).	

SECTION 16: OTHER INFORMATION

Main References:

- Istituto Superiore di Sanità – Prot. 30189/TOA6 del 10 ottobre 1997 “Classificazione di pericolosità del bitume e del catrame””
- NIOSH Registry of toxic effects of chemical substances SAX Dangerous Properties of industrial materials.
- Bertazzi P.A., Foà V., Fustinoni S., “Esposizione professionale a idrocarburi policlinici aromatici durante la stesura bituminosa”, Università degli Studi di Milano, Dipartimento di Medicina del Lavoro, Milano, 2005.
- ACGIH: Threshold Limit Values (TLV) for chemical substances (2008).
- Atti del Convegno su Salute e sicurezza nelle opere di impermeabilizzazione con membrane bituminose, Albino 18 dicembre 2009)

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Moy Materials Ltd version prepared by	Martin Bidewell

The data contained in this document is correct on date of issue and complete to the best of our knowledge as it applies to this product. However, it does not constitute a guarantee for any specific product features and does not establish a legally valid contractual relationship. The information given does not represent an assurance and it is the user’s responsibility to ensure that the information is suitable and complete for the respective use.

ANNEX I

TECHNICAL SPECIFICATION CONCERNING MODIFIED BITUMINOUS MEMBRANES APPLICATION

Membrane's application must be performed according to the technical indications in this document and aimed at carrying out the operation according to the principles of good technique and safety criteria. The application of the membrane must be carried out, considering specific principles referred to the following areas:

1. EXPOSURE CONTROL

- PROTECTION OF RESPIRATORY EQUIPMENT: avoid working in closed rooms and / or without adequate ventilation: the application of this product indoors must take place in premises equipped with adequate systems for extraction of the vapors generated during the heating operations with the use of the flame.

  In case of spaces with insufficient ventilation, use individual respiratory protection consisting of a mask with an AP type filter (for protection against organic vapors, dusts and fumes, spray painting, protection level P3).

- HAND PROTECTION: use special protective gloves.
- EYE PROTECTION: safety glasses and face shields.
- SKIN PROTECTION: wear suitable protective clothing.
- FOOT PROTECTION: safety shoes

Implement the health and safety workers standards provided by current legislation.

2. INSTALLATION TEMPERATURE CONTROL

- TEMPERATURE CHECKING: in case of flame or hot air laying for membranes with face/s covered with hot melt film, the correct heating temperature is highlighted by the complete shrinkage of the same; in case of talc or sanded surfaces, the blackening and the appearance of a shiny surface indicates a sufficient heating for the adhesion of the surfaces.
  The correct laying procedure is indicated by the width of a stream of molten mixture along the overlap line. The width of molten mixture must not exceed 1 ÷ 2 cm.

- COLOR OF THE FLAME: During the laying, the colour of the flame must remain blue, any reddish colorations are indication of excessive heating that must be avoided. Further rework should be avoided as they are harmful for the mixture and for the reinforcement and produce vapors emissions in vain.
- USE OF THE THERMOMETER: In the case of melted bitumen laying the use of thermometer allows to control the temperature of the boiler where the bitumen is melted.
- CHECKING THE FREE FLAMES: The use of the free flame, if unattended, can constitute a fire hazard. Keep available adequate firefighting systems.