BluRoof STORMWATER MANAGEMENT SYSTEMS

ALUMASC ROOFING SYSTEMS

ROOF NAME: Roof B1 - Level 8
Calculation No: 1

PROJECT DETAILS

Location:	Hayes	
Attenuation Area:	224 m²	x 100 %
Total Catchment:	224 m²	
Inflow from Other Roof/s:	0 l/s	

DESIGN STORM INPUT

Rainfall Method:	FEH
Return Period:	100 years
Climate Change Factor:	40 %
Intensity Profile:	50% Summer
Data File For Grid Point:	X = 509452
	Y = 180772

STORAGE DETAILS

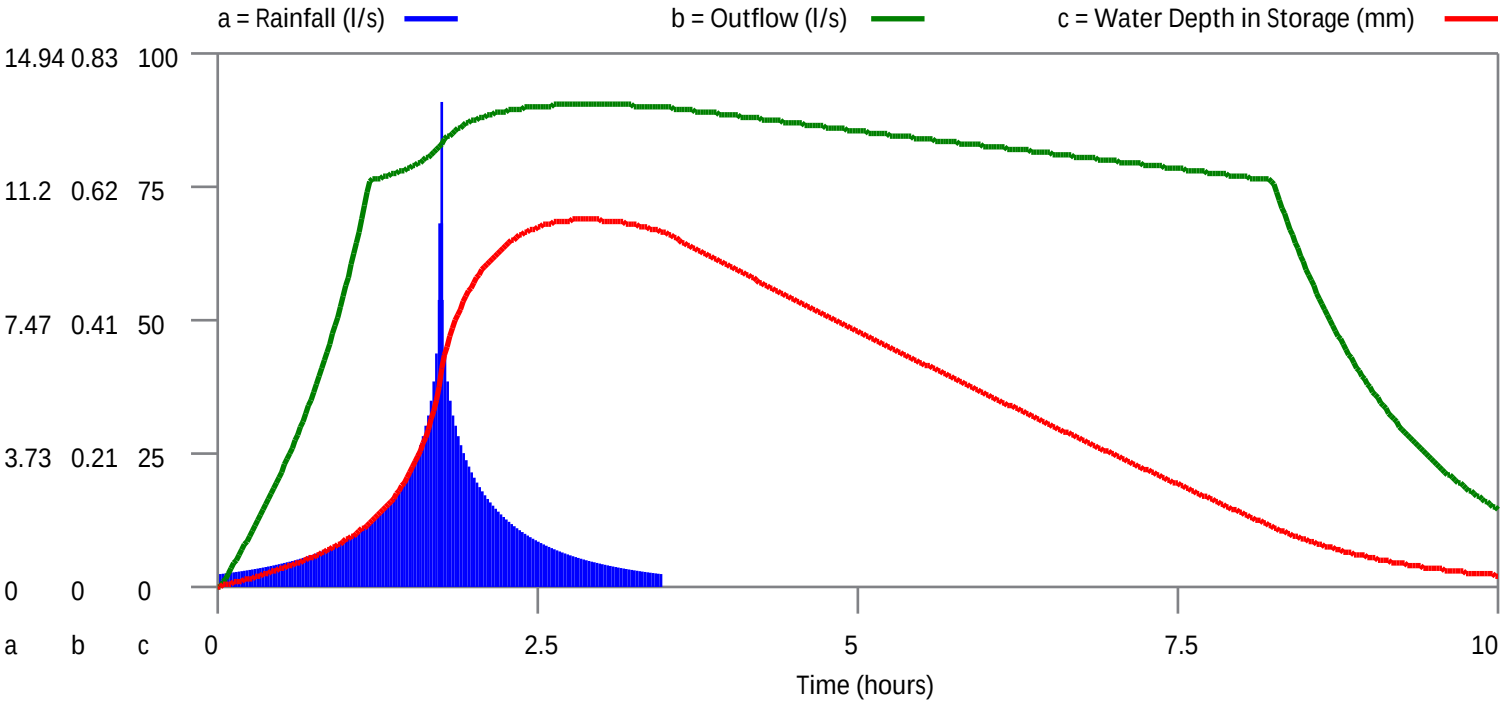
Length:	224 m
Width:	1 m
Depth:	100 mm
Porosity	95 %
Slope	0 %

RAINFALL PROFILE

Duration	Intensity mm	Intensity mm/h	Detention storage(m³)
5 min	22.5	269.9	4.91
10 min	32.4	194.7	7.00
15 min	40.2	160.8	8.57
30 min	52.3	104.6	10.80
45 min	59.6	79.4	11.93
60 min	64.8	64.8	12.60
2 hours	81.6	40.8	14.35
6 hours	107.0	17.8	13.78
24 hours	129.2	5.4	6.21
48 hours	139.4	2.9	3.12

BLUE ROOF RESPONSE

Design Outcome:	Pass	Attenuation Control:	Alumasc Orifice Restrictor
Critical Storm Duration:	3.48 hrs	Control Diameter:	15mm
Critical Rainfall:	27.2 mm/h	Discharge rate:	0.75 l/s
Detention Volume:	14.7 m³	No. of Outlets:	2
Maximum Stage Depth:	69 mm	Flow Per Outlet:	0.38 l/s
Time to Half Empty:	2.7 hrs		



BluRoof STORMWATER MANAGEMENT SYSTEMS

ALUMASC ROOFING SYSTEMS

ROOF NAME: Roof B1 - Level 9
Calculation No: 2

PROJECT DETAILS

Location:	Hayes	
Attenuation Area:	319 m²	x 100 %
Total Catchment:	319 m²	
Inflow from Other Roof/s:	0 l/s	

DESIGN STORM INPUT

Rainfall Method:	FEH
Return Period:	100 years
Climate Change Factor:	40 %
Intensity Profile:	50% Summer
Data File For Grid Point:	X = 509452
	Y = 180772

STORAGE DETAILS

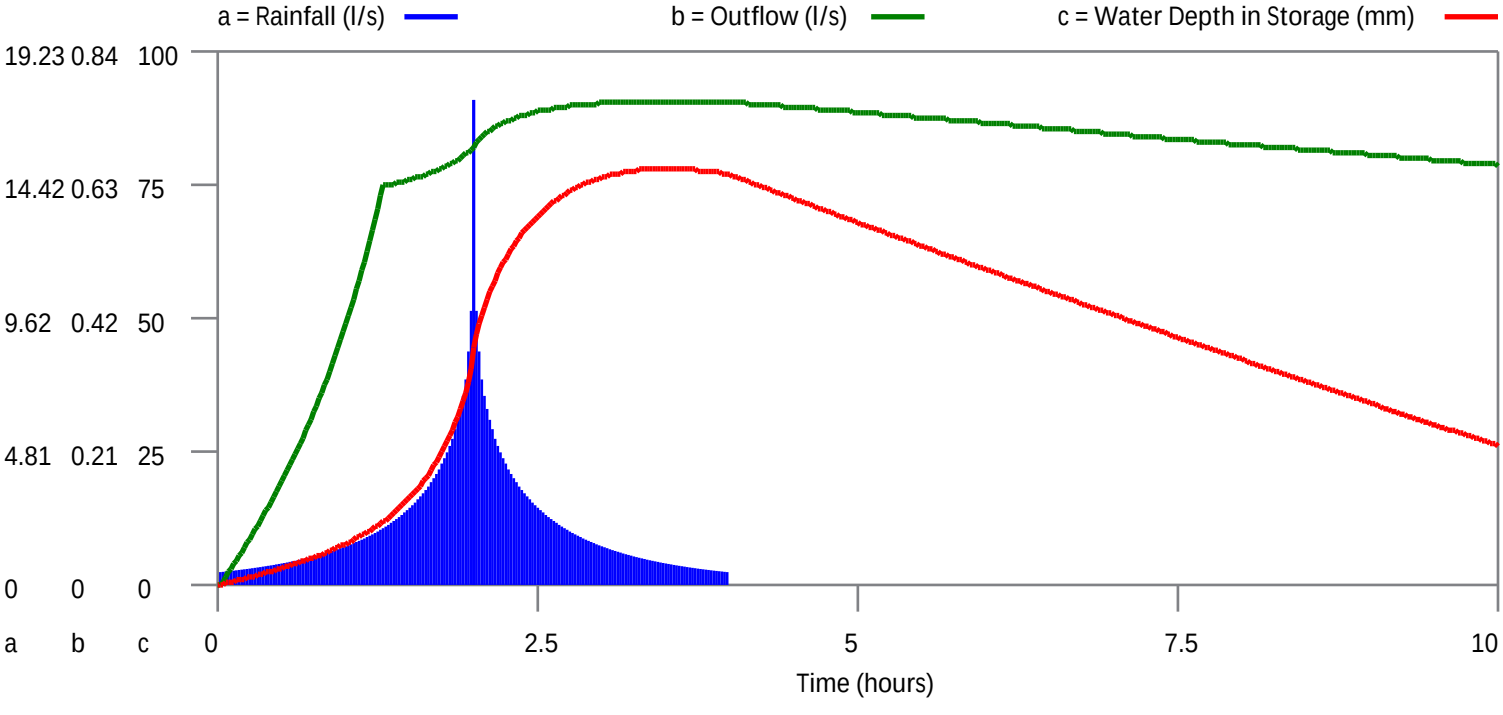
Length:	319 m
Width:	1 m
Depth:	100 mm
Porosity	95 %
Slope	0 %

RAINFALL PROFILE

Duration	Intensity mm	Intensity mm/h	Detention storage(m³)
5 min	22.5	269.9	7.05
10 min	32.4	194.7	10.08
15 min	40.2	160.8	12.39
30 min	52.3	104.6	15.77
45 min	59.6	79.4	17.58
60 min	64.8	64.8	18.74
2 hours	81.6	40.8	21.97
6 hours	107.0	17.8	22.81
24 hours	129.2	5.4	12.75
48 hours	139.4	2.9	6.78

BLUE ROOF RESPONSE

Design Outcome:	Pass	Attenuation Control:	Alumasc Orifice Restrictor
Critical Storm Duration:	4 hrs	Control Diameter:	15mm
Critical Rainfall:	24.6 mm/h	Discharge rate:	0.77 l/s
Detention Volume:	23.4 m³	No. of Outlets:	2
Maximum Stage Depth:	77 mm	Flow Per Outlet:	0.38 l/s
Time to Half Empty:	4.2 hrs		



BluRoof STORMWATER MANAGEMENT SYSTEMS

ALUMASC ROOFING SYSTEMS

ROOF NAME: Roof B2
Calculation No: 3

PROJECT DETAILS

Location:	Hayes	
Attenuation Area:	978 m²	x 100 %
Total Catchment:	978 m²	
Inflow from Other Roof/s:	0 l/s	

DESIGN STORM INPUT

Rainfall Method:	FEH
Return Period:	100 years
Climate Change Factor:	40 %
Intensity Profile:	50% Summer
Data File For Grid Point:	X = 509452
	Y = 180772

STORAGE DETAILS

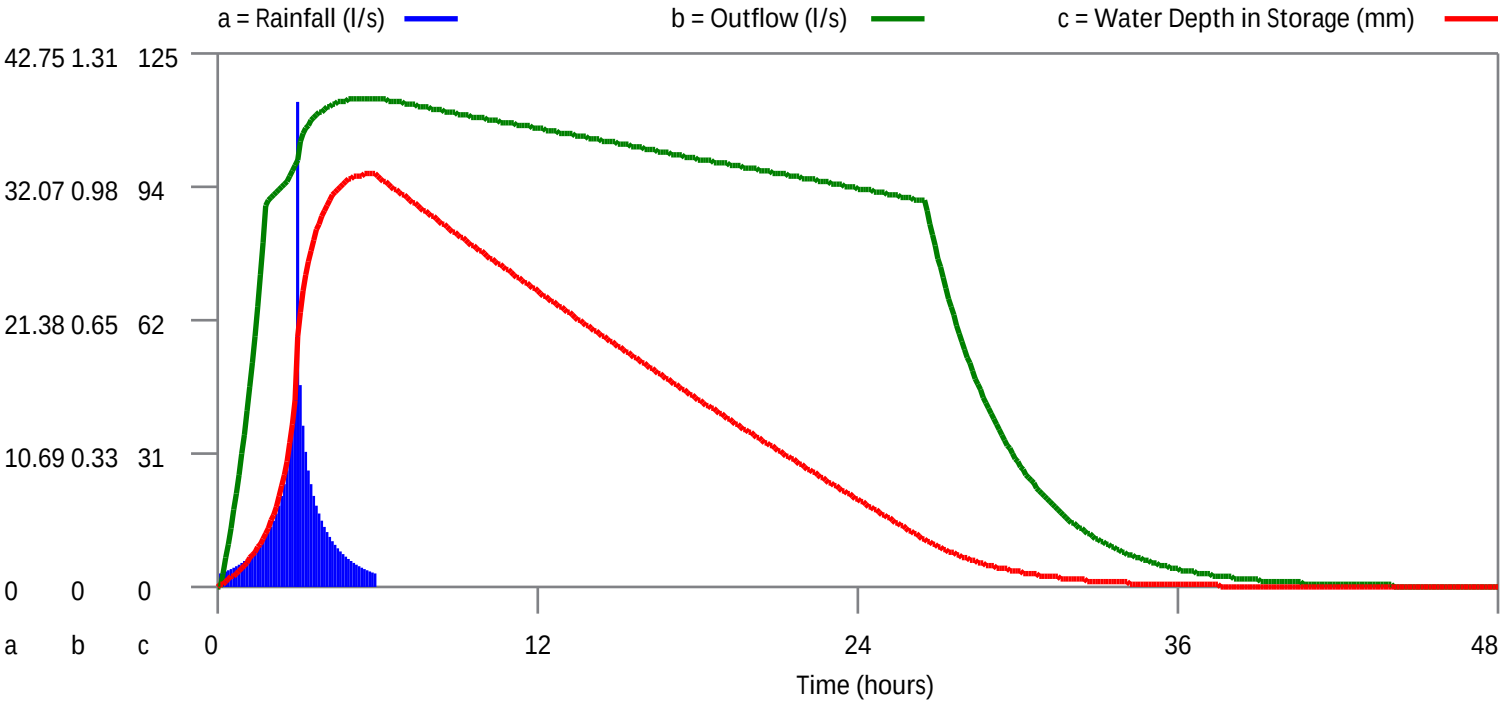
Length:	978 m
Width:	1 m
Depth:	125 mm
Porosity	95 %
Slope	0 %

RAINFALL PROFILE

Duration	Intensity mm	Intensity mm/h	Detention storage(m³)
5 min	22.5	269.9	21.81
10 min	32.4	194.7	31.32
15 min	40.2	160.8	38.66
30 min	52.3	104.6	49.77
45 min	59.6	79.4	56.11
60 min	64.8	64.8	60.44
2 hours	81.6	40.8	73.60
6 hours	107.0	17.8	85.39
24 hours	129.2	5.4	66.09
48 hours	139.4	2.9	45.27

BLUE ROOF RESPONSE

Design Outcome:	Pass	Attenuation Control:	Alumasc Orifice Restrictor
Critical Storm Duration:	6 hrs	Control Diameter:	15mm
Critical Rainfall:	17.8 mm/h	Discharge rate:	1.19 l/s
Detention Volume:	85.4 m³	No. of Outlets:	3
Maximum Stage Depth:	92 mm	Flow Per Outlet:	0.4 l/s
Time to Half Empty:	10 hrs		



BluRoof STORMWATER MANAGEMENT SYSTEMS

ALUMASC ROOFING SYSTEMS

ROOF NAME: Roof B3
Calculation No: 4

PROJECT DETAILS

Location:	Hayes	
Attenuation Area:	530 m²	x 100 %
Total Catchment:	530 m²	
Inflow from Other Roof/s:	0 l/s	

DESIGN STORM INPUT

Rainfall Method:	FEH
Return Period:	100 years
Climate Change Factor:	40 %
Intensity Profile:	50% Summer
Data File For Grid Point:	X = 509452
	Y = 180772

STORAGE DETAILS

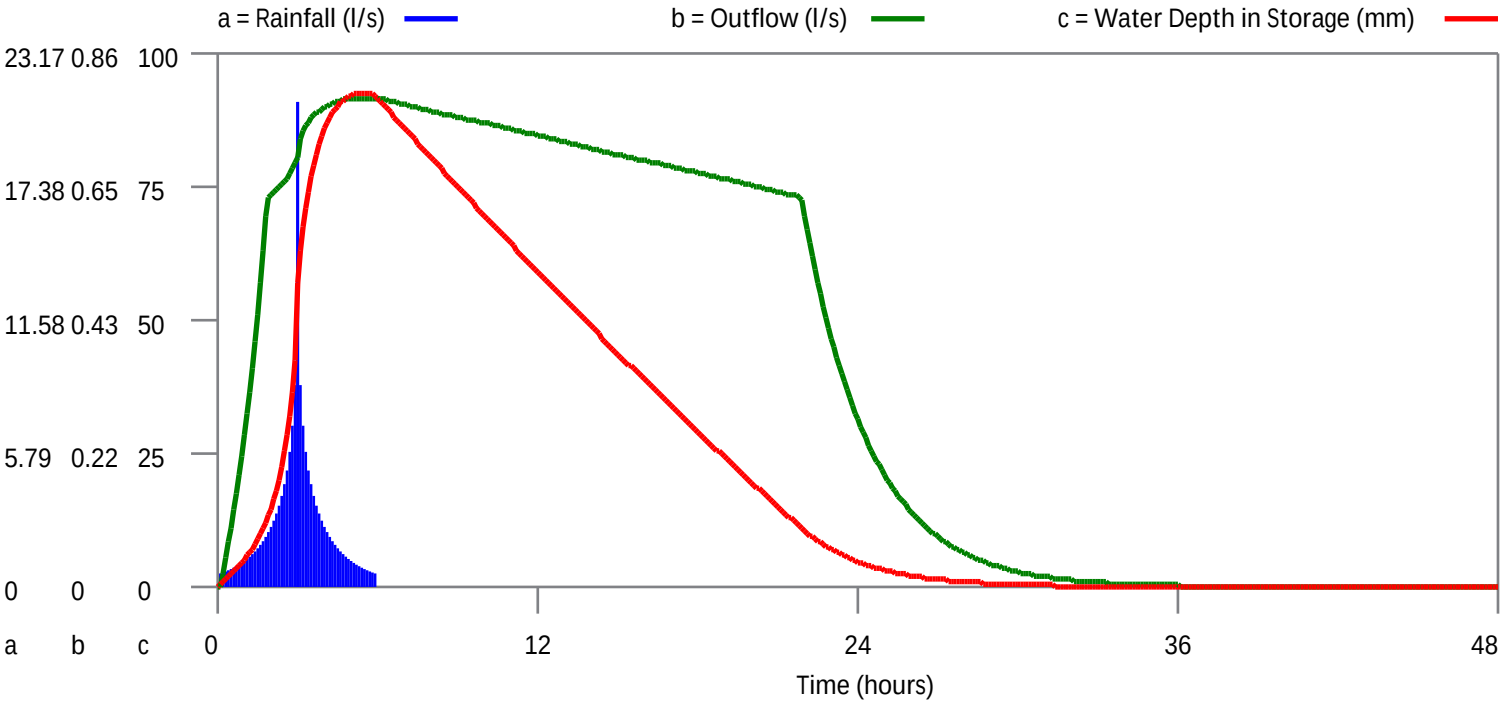
Length:	530 m
Width:	1 m
Depth:	100 mm
Porosity	95 %
Slope	0 %

RAINFALL PROFILE

Duration	Intensity mm	Intensity mm/h	Detention storage(m³)
5 min	22.5	269.9	11.80
10 min	32.4	194.7	16.92
15 min	40.2	160.8	20.87
30 min	52.3	104.6	26.80
45 min	59.6	79.4	30.14
60 min	64.8	64.8	32.39
2 hours	81.6	40.8	39.13
6 hours	107.0	17.8	44.17
24 hours	129.2	5.4	31.59
48 hours	139.4	2.9	20.15

BLUE ROOF RESPONSE

Design Outcome:	Pass	Attenuation Control:	Alumasc Orifice Restrictor
Critical Storm Duration:	6 hrs	Control Diameter:	15mm
Critical Rainfall:	17.8 mm/h	Discharge rate:	0.78 l/s
Detention Volume:	44.2 m³	No. of Outlets:	2
Maximum Stage Depth:	88 mm	Flow Per Outlet:	0.39 l/s
Time to Half Empty:	7.8 hrs		



BluRoof STORMWATER MANAGEMENT SYSTEMS

ALUMASC ROOFING SYSTEMS

ROOF NAME: Roof B4
Calculation No: 5

PROJECT DETAILS

Location:	Hayes	
Attenuation Area:	280 m²	x 100 %
Total Catchment:	280 m²	
Inflow from Other Roof/s:	0 l/s	

DESIGN STORM INPUT

Rainfall Method:	FEH
Return Period:	100 years
Climate Change Factor:	40 %
Intensity Profile:	50% Summer
Data File For Grid Point:	X = 509452
	Y = 180772

STORAGE DETAILS

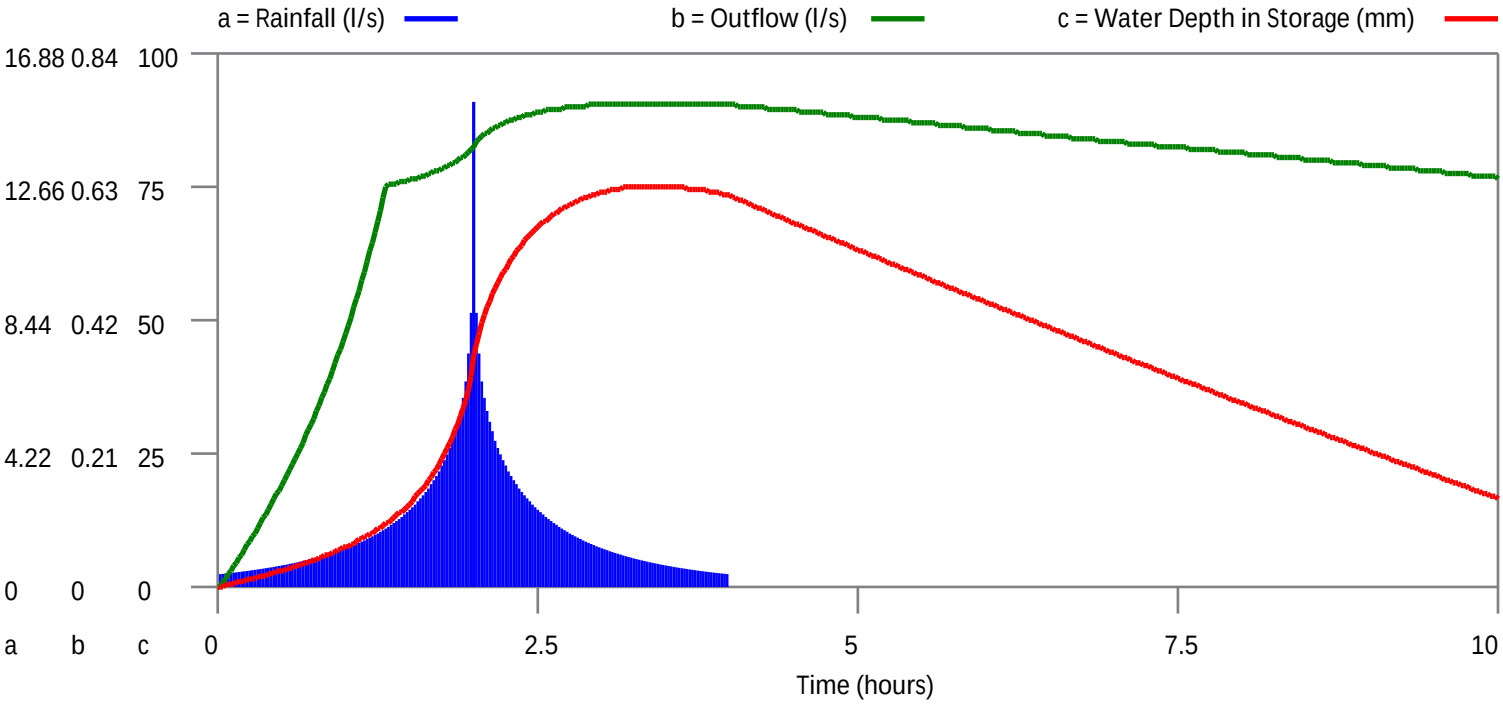
Length:	280 m
Width:	1 m
Depth:	100 mm
Porosity	95 %
Slope	0 %

RAINFALL PROFILE

Duration	Intensity mm	Intensity mm/h	Detention storage(m³)
5 min	22.5	269.9	6.17
10 min	32.4	194.7	8.81
15 min	40.2	160.8	10.82
30 min	52.3	104.6	13.73
45 min	59.6	79.4	15.26
60 min	64.8	64.8	16.22
2 hours	81.6	40.8	18.82
6 hours	107.0	17.8	19.03
24 hours	129.2	5.4	9.86
48 hours	139.4	2.9	5.07

BLUE ROOF RESPONSE

Design Outcome:	Pass	Attenuation Control:	Alumasc Orifice Restrictor
Critical Storm Duration:	4 hrs	Control Diameter:	15mm
Critical Rainfall:	24.6 mm/h	Discharge rate:	0.76 l/s
Detention Volume:	19.8 m³	No. of Outlets:	2
Maximum Stage Depth:	74 mm	Flow Per Outlet:	0.38 l/s
Time to Half Empty:	3.6 hrs		



BluRoof STORMWATER MANAGEMENT SYSTEMS

ALUMASC ROOFING SYSTEMS

ROOF NAME: Roof B6
Calculation No: 6

PROJECT DETAILS

Location:	Hayes	
Attenuation Area:	530 m²	x 100 %
Total Catchment:	530 m²	
Inflow from Other Roof/s:	0 l/s	

DESIGN STORM INPUT

Rainfall Method:	FEH
Return Period:	100 years
Climate Change Factor:	40 %
Intensity Profile:	50% Summer
Data File For Grid Point:	X = 509452
	Y = 180772

STORAGE DETAILS

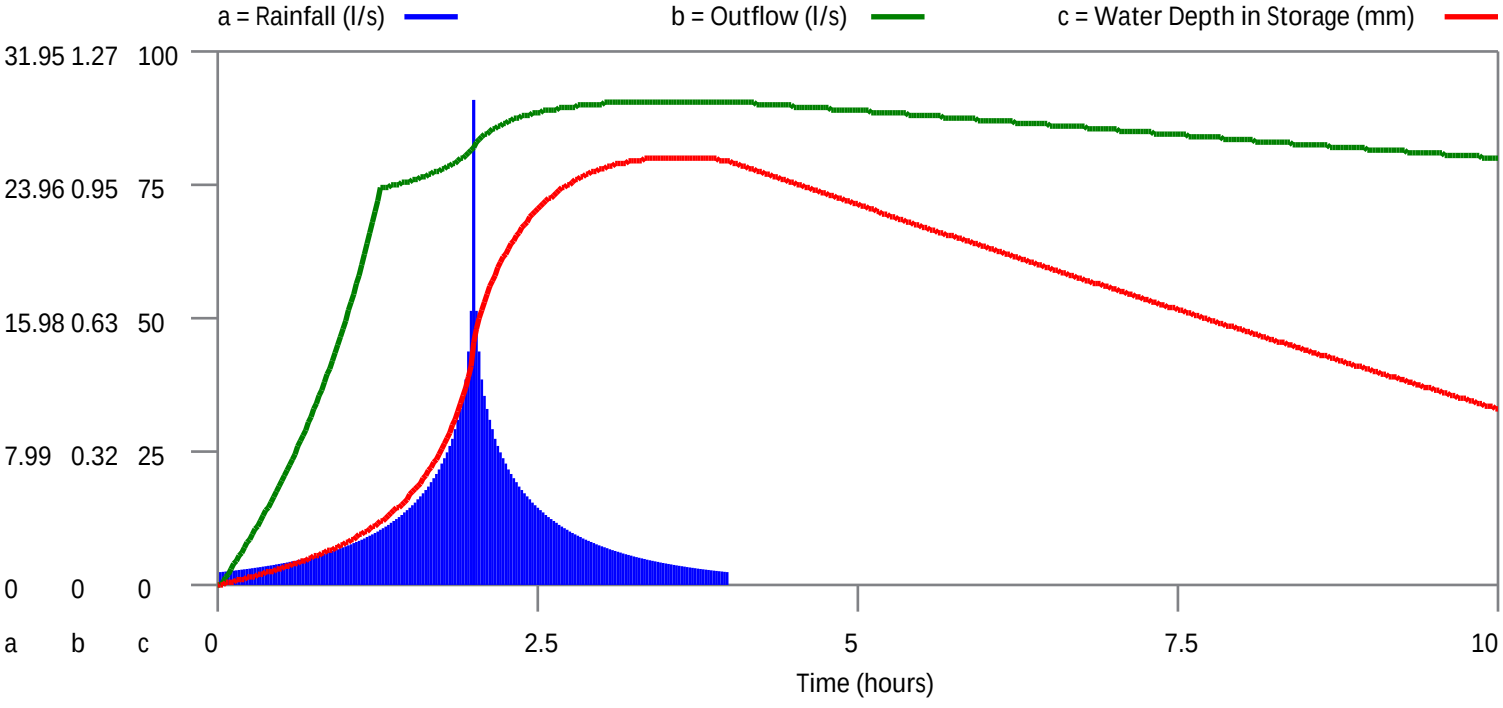
Length:	530 m
Width:	1 m
Depth:	100 mm
Porosity	95 %
Slope	0 %

RAINFALL PROFILE

Duration	Intensity mm	Intensity mm/h	Detention storage(m³)
5 min	22.5	269.9	11.73
10 min	32.4	194.7	16.79
15 min	40.2	160.8	20.66
30 min	52.3	104.6	26.34
45 min	59.6	79.4	29.44
60 min	64.8	64.8	31.44
2 hours	81.6	40.8	37.14
6 hours	107.0	17.8	39.29
24 hours	129.2	5.4	23.23
48 hours	139.4	2.9	12.76

BLUE ROOF RESPONSE

Design Outcome:	Pass	Attenuation Control:	Alumasc Orifice Restrictor
Critical Storm Duration:	4 hrs	Control Diameter:	15mm
Critical Rainfall:	24.6 mm/h	Discharge rate:	1.15 l/s
Detention Volume:	40 m³	No. of Outlets:	3
Maximum Stage Depth:	79 mm	Flow Per Outlet:	0.38 l/s
Time to Half Empty:	4.8 hrs		



BluRoof STORMWATER MANAGEMENT SYSTEMS

ALUMASC ROOFING SYSTEMS

ROOF NAME: Roof B6 - Level 9
Calculation No: 7

PROJECT DETAILS

Location:	Hayes	
Attenuation Area:	287 m²	x 100 %
Total Catchment:	287 m²	
Inflow from Other Roof/s:	0 l/s	

DESIGN STORM INPUT

Rainfall Method:	FEH
Return Period:	100 years
Climate Change Factor:	40 %
Intensity Profile:	50% Summer
Data File For Grid Point:	X = 509452
	Y = 180772

STORAGE DETAILS

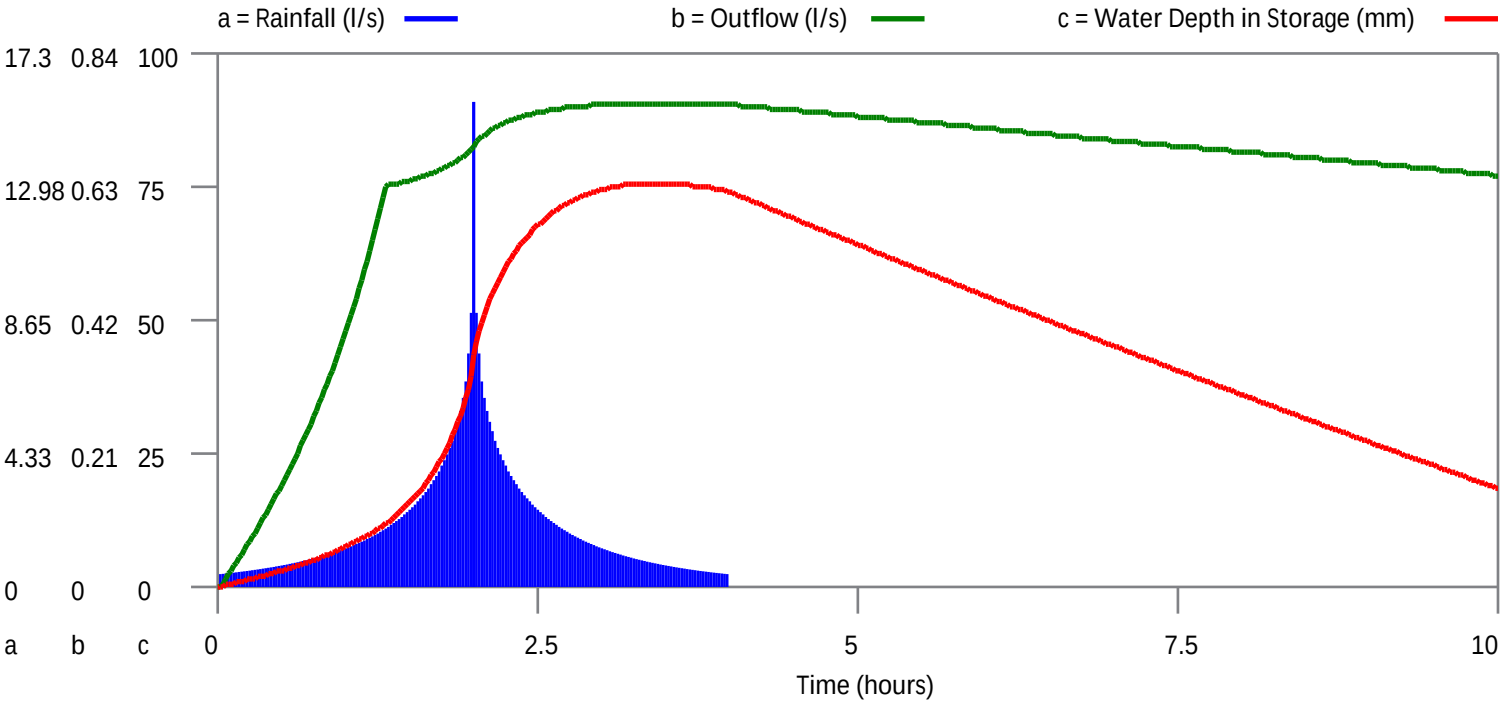
Length:	287 m
Width:	1 m
Depth:	100 mm
Porosity	95 %
Slope	0 %

RAINFALL PROFILE

Duration	Intensity mm	Intensity mm/h	Detention storage(m³)
5 min	22.5	269.9	6.33
10 min	32.4	194.7	9.04
15 min	40.2	160.8	11.11
30 min	52.3	104.6	14.09
45 min	59.6	79.4	15.68
60 min	64.8	64.8	16.67
2 hours	81.6	40.8	19.38
6 hours	107.0	17.8	19.71
24 hours	129.2	5.4	10.36
48 hours	139.4	2.9	5.35

BLUE ROOF RESPONSE

Design Outcome:	Pass	Attenuation Control:	Alumasc Orifice Restrictor
Critical Storm Duration:	4 hrs	Control Diameter:	15mm
Critical Rainfall:	24.6 mm/h	Discharge rate:	0.76 l/s
Detention Volume:	20.4 m³	No. of Outlets:	2
Maximum Stage Depth:	75 mm	Flow Per Outlet:	0.38 l/s
Time to Half Empty:	3.7 hrs		



BluRoof STORMWATER MANAGEMENT SYSTEMS

ALUMASC ROOFING SYSTEMS

ROOF NAME: Roof B6 - Level 8
Calculation No: 8

PROJECT DETAILS

Location:	Hayes	
Attenuation Area:	300 m²	x 100 %
Total Catchment:	300 m²	
Inflow from Other Roof/s:	0 l/s	

DESIGN STORM INPUT

Rainfall Method:	FEH
Return Period:	100 years
Climate Change Factor:	40 %
Intensity Profile:	50% Summer
Data File For Grid Point:	X = 509452
	Y = 180772

STORAGE DETAILS

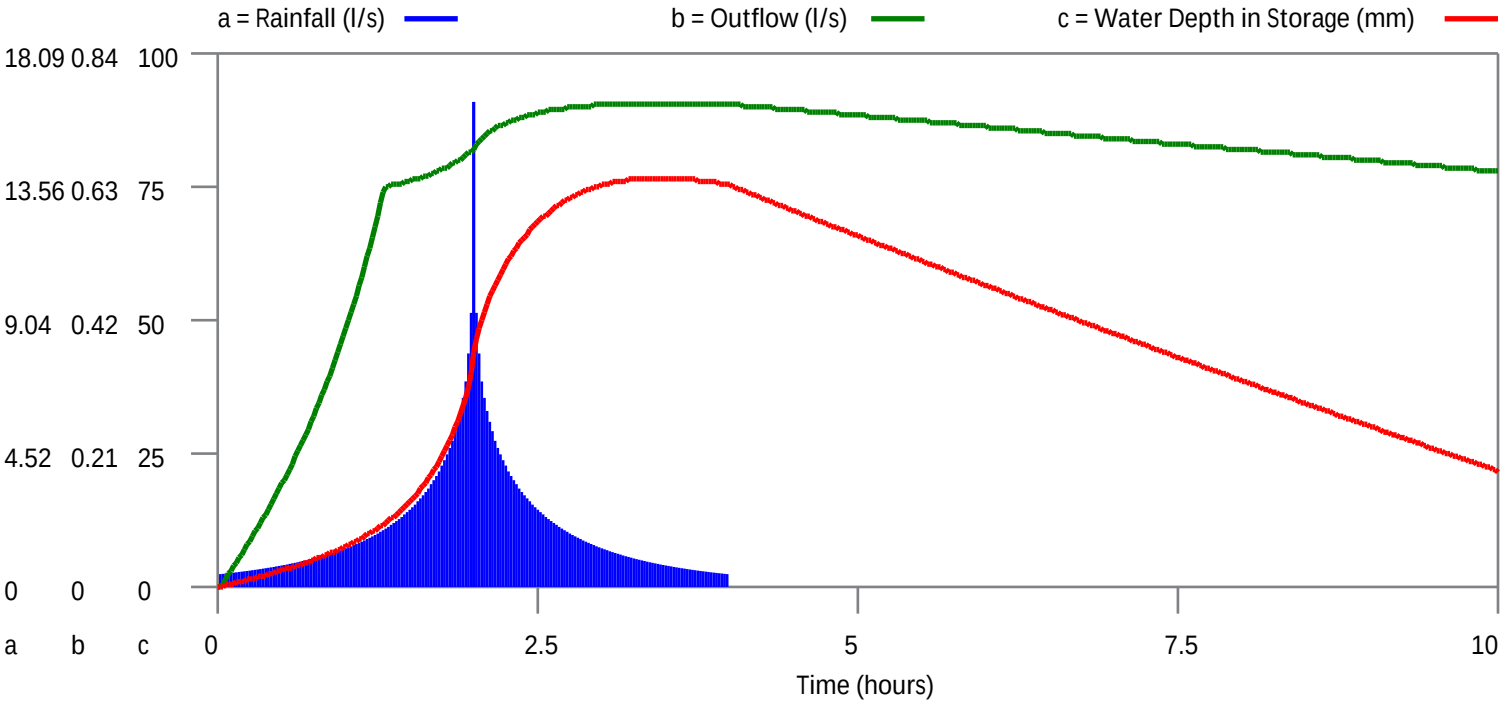
Length:	300 m
Width:	1 m
Depth:	100 mm
Porosity	95 %
Slope	0 %

RAINFALL PROFILE

Duration	Intensity mm	Intensity mm/h	Detention storage(m³)
5 min	22.5	269.9	6.62
10 min	32.4	194.7	9.46
15 min	40.2	160.8	11.63
30 min	52.3	104.6	14.77
45 min	59.6	79.4	16.45
60 min	64.8	64.8	17.51
2 hours	81.6	40.8	20.43
6 hours	107.0	17.8	20.96
24 hours	129.2	5.4	11.31
48 hours	139.4	2.9	5.91

BLUE ROOF RESPONSE

Design Outcome:	Pass	Attenuation Control:	Alumasc Orifice Restrictor
Critical Storm Duration:	4 hrs	Control Diameter:	15mm
Critical Rainfall:	24.6 mm/h	Discharge rate:	0.76 l/s
Detention Volume:	21.6 m³	No. of Outlets:	2
Maximum Stage Depth:	76 mm	Flow Per Outlet:	0.38 l/s
Time to Half Empty:	3.9 hrs		



BluRoof STORMWATER MANAGEMENT SYSTEMS

ALUMASC ROOFING SYSTEMS

ROOF NAME: Roof B7
Calculation No: 9

PROJECT DETAILS

Location:	Hayes	
Attenuation Area:	510 m²	x 100 %
Total Catchment:	510 m²	
Inflow from Other Roof/s:	0 l/s	

DESIGN STORM INPUT

Rainfall Method:	FEH
Return Period:	100 years
Climate Change Factor:	40 %
Intensity Profile:	50% Summer
Data File For Grid Point:	X = 509452
	Y = 180772

STORAGE DETAILS

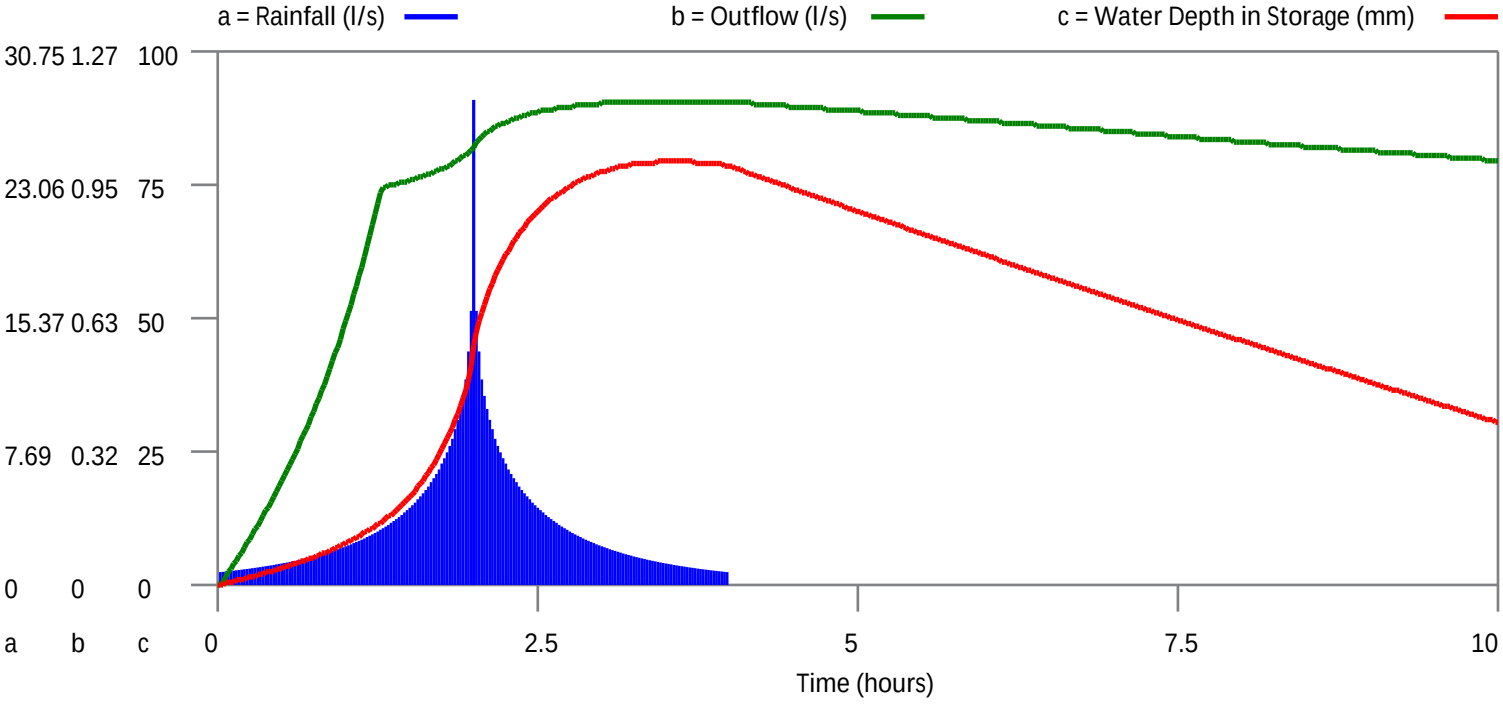
Length:	510 m
Width:	1 m
Depth:	100 mm
Porosity	95 %
Slope	0 %

RAINFALL PROFILE

Duration	Intensity mm	Intensity mm/h	Detention storage(m³)
5 min	22.5	269.9	11.28
10 min	32.4	194.7	16.14
15 min	40.2	160.8	19.85
30 min	52.3	104.6	25.30
45 min	59.6	79.4	28.25
60 min	64.8	64.8	30.14
2 hours	81.6	40.8	35.52
6 hours	107.0	17.8	37.31
24 hours	129.2	5.4	21.60
48 hours	139.4	2.9	11.72

BLUE ROOF RESPONSE

Design Outcome:	Pass	Attenuation Control:	Alumasc Orifice Restrictor
Critical Storm Duration:	4 hrs	Control Diameter:	15mm
Critical Rainfall:	24.6 mm/h	Discharge rate:	1.15 l/s
Detention Volume:	38.1 m³	No. of Outlets:	3
Maximum Stage Depth:	79 mm	Flow Per Outlet:	0.38 l/s
Time to Half Empty:	4.6 hrs		



BluRoof STORMWATER MANAGEMENT SYSTEMS

ALUMASC ROOFING SYSTEMS

ROOF NAME: Roof B8
Calculation No: 10

PROJECT DETAILS

Location:	Hayes	
Attenuation Area:	333 m²	x 100 %
Total Catchment:	333 m²	
Inflow from Other Roof/s:	0 l/s	

DESIGN STORM INPUT

Rainfall Method:	FEH
Return Period:	100 years
Climate Change Factor:	40 %
Intensity Profile:	50% Summer
Data File For Grid Point:	X = 509452
	Y = 180772

STORAGE DETAILS

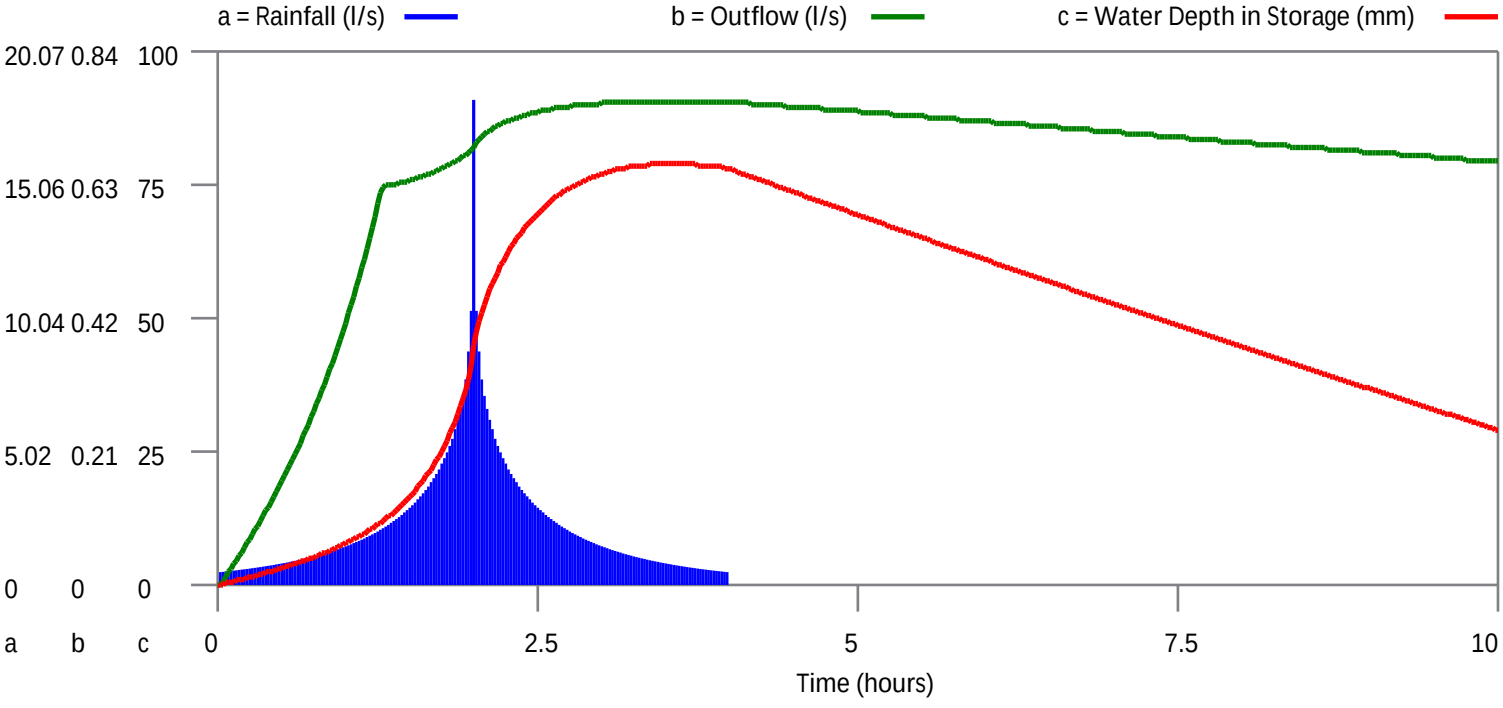
Length:	333 m
Width:	1 m
Depth:	100 mm
Porosity	95 %
Slope	0 %

RAINFALL PROFILE

Duration	Intensity mm	Intensity mm/h	Detention storage(m³)
5 min	22.5	269.9	7.37
10 min	32.4	194.7	10.53
15 min	40.2	160.8	12.95
30 min	52.3	104.6	16.50
45 min	59.6	79.4	18.41
60 min	64.8	64.8	19.64
2 hours	81.6	40.8	23.11
6 hours	107.0	17.8	24.18
24 hours	129.2	5.4	13.84
48 hours	139.4	2.9	7.46

BLUE ROOF RESPONSE

Design Outcome:	Pass	Attenuation Control:	Alumasc Orifice Restrictor
Critical Storm Duration:	4 hrs	Control Diameter:	15mm
Critical Rainfall:	24.6 mm/h	Discharge rate:	0.77 l/s
Detention Volume:	24.7 m³	No. of Outlets:	2
Maximum Stage Depth:	78 mm	Flow Per Outlet:	0.38 l/s
Time to Half Empty:	4.5 hrs		



BluRoof STORMWATER MANAGEMENT SYSTEMS

ALUMASC ROOFING SYSTEMS

ROOF NAME: Podium
Calculation No: 11

PROJECT DETAILS

Location:	Hayes	
Attenuation Area:	2626 m²	x 100 %
Total Catchment:	2626 m²	
Inflow from Other Roof/s:	0 l/s	

DESIGN STORM INPUT

Rainfall Method:	FEH
Return Period:	100 years
Climate Change Factor:	40 %
Intensity Profile:	50% Summer
Data File For Grid Point:	X = 509452
	Y = 180772

STORAGE DETAILS

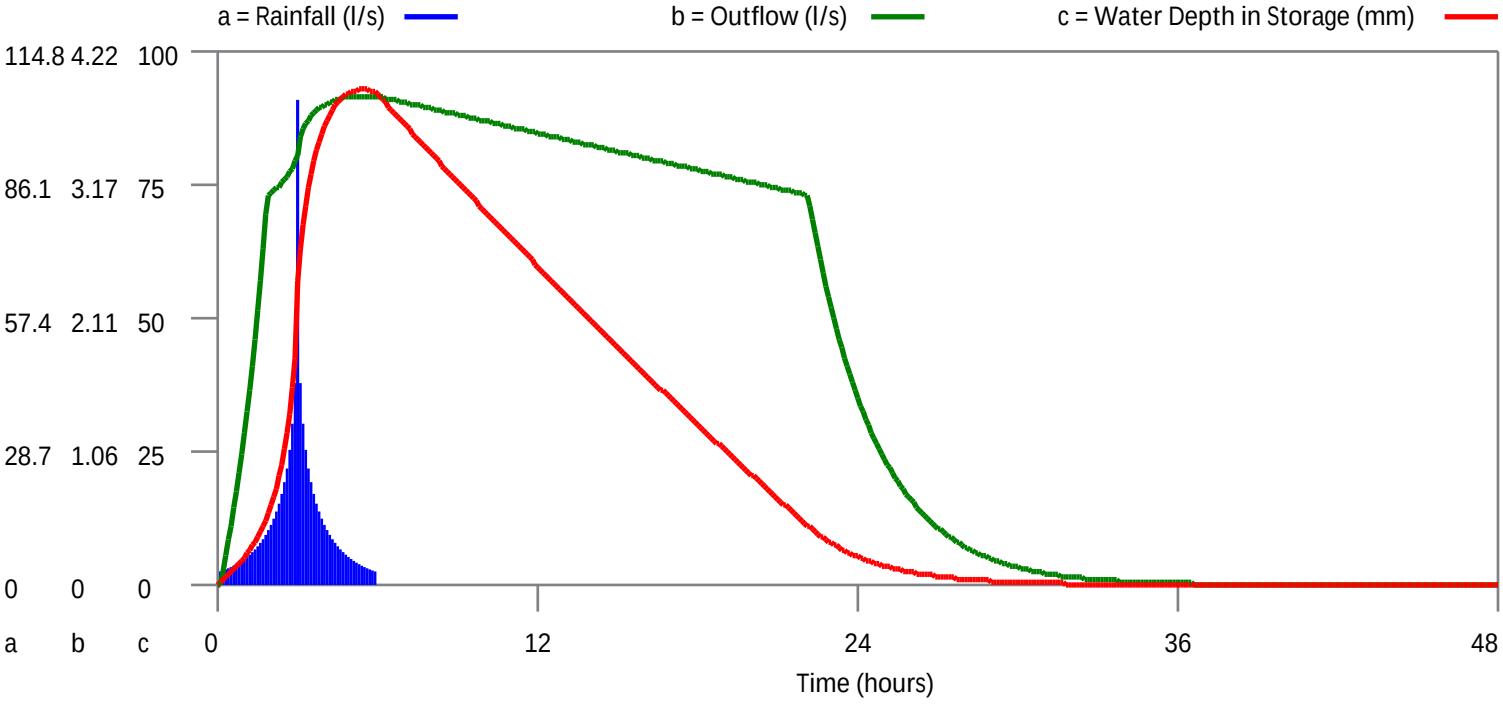
Length:	2626 m
Width:	1 m
Depth:	100 mm
Porosity	95 %
Slope	0 %

RAINFALL PROFILE

Duration	Intensity mm	Intensity mm/h	Detention storage(m³)
5 min	22.5	269.9	58.45
10 min	32.4	194.7	83.86
15 min	40.2	160.8	103.44
30 min	52.3	104.6	132.85
45 min	59.6	79.4	149.43
60 min	64.8	64.8	160.62
2 hours	81.6	40.8	194.14
6 hours	107.0	17.8	219.51
24 hours	129.2	5.4	157.81
48 hours	139.4	2.9	101.09

BLUE ROOF RESPONSE

Design Outcome:	Pass	Attenuation Control:	Alumasc Orifice Restrictor
Critical Storm Duration:	6 hrs	Control Diameter:	20mm
Critical Rainfall:	17.8 mm/h	Discharge rate:	3.84 l/s
Detention Volume:	219.5 m³	No. of Outlets:	7
Maximum Stage Depth:	88 mm	Flow Per Outlet:	0.55 l/s
Time to Half Empty:	7.9 hrs		



8. Appendix F – Blue Roof Specification

ALUMASC
ROOFING SYSTEMS

Proposed Roofing Specification

Project:
Former Nestle Factory – Block B

Project ID: SP103285-S2
Date: 22/10/2019

Tel: 03335 771 500
email: technical@alumascroofing.com
web: www.alumascroofing.co.uk

Project information

Project:	Former Nestle Factory – Block B
Location:	Hayes
Area 1:	Paved Area
Project ID:	SP103285-S2
Contact:	Geoff Davies – Makower Architects
E-mail:	gdavies@makowerarchitects.com
Issue Date:	22/10/2019

Project Contacts

Author:	Mark Fulton
Telephone:	07720 883 617
E-mail:	fultonm@alumasc-exteriors.co.uk

Technical Design Department

Address:	Head Office Alumasc Exterior Building Products Ltd White House Works, Bold Road Sutton, St Helens Merseyside WA9 4JG
Telephone:	01744 648400
E-mail:	technical@alumascroofing.com

Customer Services Advisor

Contact:	Emma Nuttall
Telephone:	01744 648434
E-mail:	sales@alumasc-exteriors.co.uk

All clauses with the suffix 'A' are either NBS Plus non-standard clauses and/or amended by Alumasc.

J31 LIQUID APPLIED WATERPROOF ROOF COATINGS

To be read in conjunction with related Architectural Sections, Preliminaries and Contract Conditions.

TYPES OF COVERING

102-A BUILD-UP OVERVIEW
- Alumasc Bitumen Primer.
- Hydrotech 6125 hot-applied rubberised bitumen waterproofing system.
- Hydrogard 30 Protection Sheet.
- Hydrodrain FC6 sub-surface drainage layer.
- Sub-base/Surface finishes as per the instructions of the appointed design professional.

110-A COLD DECK ROOF COATING

- Substrate: Concrete to structural engineer's/architect's specification.
  - Density: Minimum 1850 kg/m³.
  - Finish: Wood float, with a wood -trowelled finish. Steel trowelled or power floated are not suitable.
  - Hydration (cure): Recommended minimum 28 days, subject to concrete type, ambient temperature etc.
  - Falls: 0º.
- Preparation:
  - Surface is to be dry, clean, and free from all contaminants including oils, grease, laitance, dirt and debris.
  - Advance bond tests must be carried out (and recorded for future reference) on all areas, as clause 710-A.
- Waterproof coating: Hydrotech 6125 Structural Waterproofing System.
  - Manufacturer: Alumasc Exterior Building Products Ltd
    White House Works, Bold Road
    Sutton, St Helens, WA9 4JG
    Telephone: 01744 648400
    Email: technical@alumascroofing.com
  - Primer: Alumasc Bitumen Primer.
    Application: As clause 720-A.
  - It is recommended that a provisional sum (cost/per m²) is to be made for the application of Euroroof SB Primer, subject to adhesion test, as clause 710-A.
  - Coating: Hydrotech Monolithic Membrane 6125.
    Application: At a rate of 6.5kg/m² to a nominal 6mm (3+3mm) thick coat of Hydrotech 6125 combined with integral reinforcement/s, as clause 760-A.
  - Reinforcement/s: Flex-Flash F / Flex-Flash UN, where appropriate.
    Application: Laid into the first coat of Hydrotech 6125, as clause 760-A / 770-A.
  - Protection sheet: Hydrogard 30.
    Colour: Charcoal mineral.
    Application: Laid into the second coat of Hydrotech 6125, as clause 760-A.
- Sub-surface drainage layer: Hydrodrain FC6.
  Attachment: Loose laid, as clause 833-A.
- Surface: Sub-base/Surface finishes as per the instructions of the appointed design professional.
- Accessories: Alumasc Harmer outlet/s, see clause 392-A.
  Alumasc Standard Termination bar, see clause 393-A.
  Alumasc Derbitech Sealstick HD, see clause 394-A.

PERFORMANCE

210 ROOF PERFORMANCE
- General: Firmly adhered, free draining and weathertight.

280-A GENERAL DESIGN REQUIREMENTS

- All works must comply with all current relevant standards, codes of practice, and the Building Regulations to provide a secure, free draining and completely weathertight roof, including but not limited to:
  - BS 6229 - Flat roofs with continuously supported coverings. Code of practice.
  - BS 5250 - Code of practice for control of condensation in buildings.
  - BS EN 1991-1-4 Eurocode 1 - Actions on structures. General actions. Wind actions.
  - BS EN 12056-3 - Gravity drainage systems inside buildings. Roof drainage, layout and calculation.
  - BS EN ISO 6946 - Building components and building elements. Thermal resistance and thermal transmittance. Calculation method.
  - The Building Regulations Approved Document Part L1 or Part L2. Conservation of fuel and power.
- The design must take account of all structural factors to ensure that the waterproof covering is able to accommodate the effect of movement in order to avoid stress or deformation under these conditions.
- The waterproofing components' resistance to dead and imposed loading must be assessed to avoid failure of the component/and or reduction in performance. Where resistance is deemed to be inadequate, suitable measures to mitigate load intensity will need to be considered.
- The design must ensure that the continuity of the waterproof covering is maintained for a vertical height of at least 150mm above the finished roof level at all abutments, parapets etc.
- The building owner or their appointed design professional must have satisfied themselves that the roof structure and deck are suitable to receive the dead load of the proposed specification.
- It is strictly the responsibility of the client and/or their design professional to ensure compliance of the proposed specification with all relevant Building Regulations by consultation with Building Control. In the event of any doubt about the interpretation or application of the Building Regulations in relation to any particular new build or refurbishment works, clarification must be sought directly from Building Control.

PRODUCTS

353-A WATERPROOF COATING

- Type: Hot melt liquid applied formulation combined with integral reinforcements, and protection sheet.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - System reference: Hydrotech 6125 Structural Waterproofing.
- Certification:
  - BBA Certificate No. 90/2431.
  - European Technical Approval ETA-05/0152 (CE marked).
  - CGSB 37-GP-50-M89 International hot melt quality standard.
  - FRA Hot Melt Rubberised Bitumen - Code of practice.
  - REACH Registered.
  - Historical data: Continuously used worldwide and manufactured to original formulation since 1963.

353-01 PRIMER

- Type: Solvent based low viscosity bitumen primer, black in colour.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Alumasc Bitumen Primer.
- Density: 0.89 kg/litre +/- 0.02.
- Packaging: 25 litre drums.

353-05 COATING

- Type: Hot melt rubberised bitumen comprising 100% solids and containing modified bitumens, synthetic rubbers, inert clay filler and anti-oxidants for chemical resistance (e.g. acid rain, building washes, fertiliser).
  - The compound must not contain calcium carbonate or other inferior substitute fillers in lieu of inert clay.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Hydrotech Monolithic Membrane 6125.
- Working temperature range 180-190°C (Do not heat above 205°C).
- Density: 1230 kg/m³.
- Recycled content: 30% (independently verified).
- Packaging: Polyethylene wrapped 18kg (nominal) cakes, individually packed in 250x200x460mm cardboard boxes. Note: All packaging must bear specific production batch data for traceability.
- Approx. coverage: 6.5 kg/m², subject to the nature of the surface.

353-06 REINFORCEMENT

- Type: Spunbonded polyester fabric.
  - Product reference: Flex-Flash F.
- Roll size: Width 1.02m x 200m Length, Thickness 0.5mm.

REINFORCEMENT

- Type: Thermoset uncured Neoprene rubber.
  - Product reference: Flex-Flash UN.
- Roll size: Width 150 / 300 / 450 / 600mm x 30.5m Length, Thickness 1.5mm.

353-08 PROTECTION SHEET

- Type: Polyester reinforced SBS modified bitumen membrane with mineral surface.
  - Product reference: Hydrogard 30.
    Colour: Charcoal.
- Roll size: Width 1m x 10m Length, Thickness 3mm.

391-A SUB-SURFACE DRAINAGE LAYER

- Type: Geo-composite unit, comprising a non-woven geotextile filtration layer that is bonded to a High-Density Polyethylene (HD-PE) cuspated core.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Hydrodrain FC6.
- Performance data: Compressive Strength: 700 kPa (Core), CBR puncture resistance 1.5 kN (Fabric).
- Roll size: Width 1m x 100m Length, Thickness 6mm.

392-A ROOF OUTLETS

- Type: Aluminium.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Harmer AV400.
- Size: 100mm.
- Accessories: N/A / Screw Thread Adaptor / Flat Grate / Terrace Grate / Extension Piece.
  - Product reference: 4ADP (100mm).

393-A TERMINATION BAR (Options)

- Type: Aluminium.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Termination bar.
- Size: 1500 lm.

- Type: GRP
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Termination bar.
- Size: 3000 lm.

394-A SEALANT

- Type: HD Polymer eco-friendly fast curing flexible UV resistant adhesive.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Alumasc Derbitech Sealstick HD.
- Application: To seal the connection between roofing membranes to all common building materials.
- Packaging: 290ml cartridge.
- Colour: Black.

EXECUTION GENERALLY

410 ADVERSE WEATHER

- Do not apply coatings:
  - In wet conditions or at temperatures below 5°C, unless otherwise permitted by coating manufacturer.
  - In high winds (speeds >7 m/s), unless adequate temporary windbreaks are erected adjacent to working area.
- Unfinished areas of roof: Keep dry.

420-A SUITABILITY OF SUBSTRATES

- Suitability of base: Ensure that the tolerances of the structure to which the works are being installed are within permissible deviation of a level surface and satisfactory to receive the proposed specification.
  - Standard construction tolerances are to be observed. Depressions and/or negative falls should be identified either pre-works or post installation of the waterproofing and brought to the attention of the Client, Principal Designer, Clients Representative, or Main Contractor accordingly. If deemed unsatisfactory, correction would be recommended to ensure that all design parameters are sustained throughout the lifecycle of the roof in accordance with the prevailing standards, regulations, and codes of practice.
  - A provisional sum (cost/per m2 = to a depth of 10mm) is to be made for the installation of Alumasc PMMA Monoscreed to make good levels. All repairs are deemed to be finished flat unless otherwise stated. The depth and area of concrete repair cannot be determined until such time the deck has been installed, or post installation of the waterproofing. The accuracy of the quantity required depends upon the degree of initial survey.
- Screed: Structural screed is susceptible to absorbing moisture which may compromise the integrity of the bond caused by the installation of Hydrotech 6125 at high temperature, and is to be avoided.
  Further guidance should be sought from Alumasc technical services, if applicable.
- Substrates generally: Secure, clean, dry, smooth, free from frost, contaminants, voids, and protrusions.
- Preliminary work: Complete including:
  - Formation of upstands, kerbs, box gutters, sumps, grooves, chases, and expansion joints.
  - Fixing of battens, anchoring plugs/strips.
- Moisture content and stability of substrate: Must not impair roof integrity.
- Acceptable methods of drying of roof areas, where required, must be agreed with the client prior to the commencement of works.

453-A APPLYING COATING

- Cut excess wrapping from block, with a sharp knife or scissors.
- Heat in purpose made oil or air jacketed melter in accordance with operating instructions and manufacturers' guidelines.
- Temperature of compound: Operating range 180°C to 190°C. Do not heat above 205°C.
- Application: Full over whole surface by squeegee.

462-A GENERAL NOTES / REQUIREMENTS

- Prior to installation, the Alumasc project specification, associated drawings, and manufacturer's installation instructions for all materials should have been studied and understood, and must be followed.
- These proposals relate to the roof waterproofing area only. They do not include associated work to be carried out by other trades, which may be required to complete a satisfactory refurbishment.
- All preliminary work including alterations to detailing, where applicable, is complete and satisfactory.
- The installing contractor must attend a pre-start meeting in conjunction with Alumasc and the main contractor at which the scope and programme of the roofing works project will be determined. Any relevant issues and details must be discussed and the methodology for dealing with any such matters agreed. Confirmation of the availability of trained operatives and contract management must be established.
- All installers must be Alumasc Registered Operatives, who must be able to produce their individual card upon demand, whilst installing the system for which they are approved. A minimum of two operatives out of every three must be fully trained operatives.
- The works must be overseen by the contractor's Hydrotech Trained Contract Manager.
- Contractors are advised to visit site when deemed necessary and make themselves fully acquainted with the extent of the works and the conditions under which they are to be executed, and it also their responsibility to acquire all relevant tender documentation to enable accurate estimation.
- It is the sole responsibility of the contractor to ensure that all roofing works shall be installed in accordance with the appropriate sections of all current relevant codes of practice, Building Regulations, and manufacturer's installation instructions for product supplied by the company.
- Outlet/s shall be set at a level to compensate for the thickness of the outlet flange and avoid any check against the flow of water. All outlets are to include a clamping ring to secure the waterproof covering.
- Outlets and apertures must be protected from ingress of debris to prevent blockage of downpipe/s; protection should be removed during non-operating periods.
- Where applicable, all roof services and plant, access walkways, platforms, pipes etc. must be mounted on appropriate support systems providing at least 500mm clearance above the roof membrane, in order to facilitate access for future inspection/maintenance or repair.

- The contractor must ensure that satisfactory aesthetic appearance of the completed works is achieved.

463-A SITE INSPECTIONS

- Site inspections will be made by Alumasc during the works to ensure that the installation is executed in accordance with the Alumasc warranty requirements and current codes of practice. A site visit report form, incorporating supporting photographs will be issued to the client/contractor following each inspection. The reports will identify and monitor the works observed during the inspections and will, where applicable, make recommendations for appropriate rectification which the contractor is to undertake in order to satisfy the warranty requirements.

464-A HEALTH & SAFETY

- It is strictly the contractor's responsibility to ensure that all works are executed in accordance with current health and safety legislation. Guidance may be taken from HSE publication reference: HSG33 - Health and Safety in Roof Work.
- Safety scaffolding, the location of rubbish skips, access ladders etc. should be agreed with the client/principal contractor and be in accordance with current Health and Safety regulations.
- Wherever a gas torch is employed, the contractor must observe the greater of a minimum one-hour fire watch, or the period dictated by their own insurers, after cessation of torching. Fire extinguishing equipment must be readily available, in accordance with Health and Safety legislation.
- Sure-Foot Guardrail System or other suitable temporary or permanent fall arrest or fall protection measures will be necessary for the inspection and maintenance of the warranted Alumasc Roofing System throughout its life cycle.
- Product data and MSDS documents are available for all relevant products supplied by Alumasc; available for download from http://www.alumascroofing.co.uk.

466-A STORING OF MATERIALS

- Materials must be stored carefully on a clean dry surface, under cover and raised clear of the ground.
- Roll materials must be stored on end.
- The load-bearing capacity of the structure must be checked if material is to be stored at roof level.
- Only sufficient material for the day's schedule should be taken out of store, or uncovered, and placed close to the area being worked.

ROOF COATING SYSTEM

710-A ADHESION TESTS

- Requirement: Carry out advance bond tests to determine system suitability.
- Execution of test: Apply a small amount of membrane by squeegee onto the test area and allowing it to cool completely. Cut a triangular shaped incision through the membrane in the centre of the test area. If this triangular area of membrane can be peeled from the substrate easily, then the substrate is not ready. If it is not possible to pull the membrane away without distorting it, then the bond is deemed to be satisfactory. Temporarily apply a piece of protection sheet over the test area to keep dust off, removing it only when the main material application takes place. The test material will reactivate and blend in with the subsequent application.
- Test results: Proceed with membrane installation if satisfactory.
  - If adhesion tests using Alumasc Bitumen Primer are not satisfactory, or poor preparation of the surface has occurred, and provided a minimum of 14 days have passed (subject to adhesion tests, following consistently warm temperatures and no rainfall), prime the surface with undiluted Euroroof SB Primer at an application rate of 7-10m²/litre.

720-A APPLYING PRIMERS/CONDITIONERS

- Coverage per coat (minimum):
  - Concrete (Wood float, or similar) 8-16 m²/litre - diluted 50/50 with Alumasc Thinners.
  - Timber 6-8 m²/litre.
  - Metal surfaces 6-12 m²/litre.
- Surface coverage: Even and full.
- Application: Apply by brush, roller or spray and allow to dry completely. Surfaces must be clean and free from all oil, grease, dirt, dust and loose debris. On metal surfaces all loose rust should be removed using a wire bristled brush, and where advanced signs of corrosion are evident, these areas should initially be treated with a rust inhibitor.

760-A APPLICATION OF ROOF COATINGS

- Apply product to suitably prepared substrate by squeegee, at a rate of 6.5kg/m² in two layers of total (nominal) thickness of 6mm (not including protection sheet), reinforced with Flex-Flash F (or Flex-Flash UN, where appropriate).
  - Flex-Flash F reinforcement is to be fully bonded into the first 3mm coat of membrane and brushed in with a soft broom or brush. Side and end laps 75mm (also sealed with Hydrotech).
  - Apply Hydrogard protection sheet immediately into second 3mm coat of membrane, with 75mm side and end laps sealed with Hydrotech.
- Reinforcement/s: Ensure reinforcement is firmly embedded before the second coat of membrane is applied to ensure positive adhesion and free of trapped air pockets.
- Thickness: Monitor by taking regular thickness tests using a depth gauge, to ensure consistent and correct thickness and coverage of membrane. Seal pinhole after removal of gauge by applying direct pressure.
- Continuity: Maintain full thickness of coatings around angles, junctions and features.
- Rainwater outlets: Form with watertight joints.
- Drainage systems: Do not allow liquid coatings to enter piped rainwater or foul systems.

770-A SKIRTINGS AND UPSTANDS / GENERAL DETAILING

- Preparation: Prepare the substrate to provide an acceptable base for waterproofing.
  - Prime substrate with the specified primer, as clause 530-A.
- Reinforcement strip: Where minor movement or changes in level, direction or dissimilar materials occur, the reinforcement is to be Flex Flash UN uncured neoprene, overlap to Flex Flash F, 75mm.
  - Bedding: Bonded into the first 3mm coat of membrane and gently smoothed in by gloved hand.
  - Side and end laps: 75mm (also sealed with Hydrotech).
- Flashings and detail work:
  - The design should ensure that the continuity of the waterproof covering is maintained for a vertical height of 150mm above the finished roof level at all abutments, parapets etc. Alumasc cannot take responsibility in the event of water ingress over and above the termination of our waterproofing.
  - Additional fixing of membranes: Where applicable, mechanically fix termination bar at 300mm (max.) centres placed at the top edge of the flashing detail, sealed with Alumasc Derbitech Sealstick HD.
- Install 75mm deep metal framework around groups of pipes and/or other penetrations as necessary, and fill with Hydrotech Monolithic Membrane 6125 to form a permanent waterproof pitch pocket. Apply protection sheet to pitch pocket upon completion.
- In any situation where a structural expansion detail is to be incorporated into the Hydrotech waterproofing and the percentage movement is less than 50%, the contractor is to install the detail as per the relevant nominal width of joint as shown in the Hydrotech Installation manual. Should any expansion joint detail require a degree of movement in excess of 50%, consult with the coating manufacturer for guidance.
- Leadwork: Where applicable, code 4 or 5 lead is required for flashing of details. Maximum lengths and girth should be established and carried out in accordance with the Lead Sheet Association recommendations.
- Seal the connection between roofing membranes to all common building materials: Apply Alumasc Derbitech Sealstick HD polymer sealant to all exposed edges, termination bars, flashings, connections with roof penetrations etc. Surfaces must be dry, clean and free from contaminants.
- Additional requirements: The contractor is to install all details in a manner to comply with current quality assessment recommendations for the installation of the specified system. Should any detail arise where it is not clear how this can be achieved, the contractor is to seek advice and approval for all proposals from Alumasc before completing the works.

SURFACING

833-A LAYING SUB-SURFACE DRAINAGE LAYER

- Condition of substrate: Clean.
- Setting out:
  - Loose lay ensuring that the filter fabric is uppermost and facing the backfill. Adjacent rolls are to be positioned so that the cuspated cores are butt-jointed.
  - The filter fabric has a 100mm wide lap for lapping over the fabric of the adjoining unit prior to backfilling.
- Completion:
  - Must be in good condition, well fitting and stable.

COMPLETION

910-A INTERIM/FINAL INSPECTION

- Interim and final roof inspections: Strictly in accordance with Alumasc's requirements to satisfy the warranty requirements.
- The contractor is to submit reports to Alumasc clearly recording all depth test and bond test data.
- Rainwater goods must be tested by the contractor upon completion of the works prior to handover.
- The contractor must contact Alumasc to arrange a final inspection upon completion of each stage of the works. It is strictly the responsibility of the contractor to notify Alumasc that a final inspection is required, and also to ensure that the inspection takes place prior to the application of any surfacing above the waterproof covering. Failure on either or both counts will jeopardise approval and/or warranty release.
- Once the final inspection has been carried out, the warranty will be issued via the roofing contractor upon acceptable rectification of any snags as identified by Alumasc, or without undue delay should all be satisfactory.
  - The contractor must apply to Alumasc for the warranty within three months of completion.

920-A ELECTRONIC ROOF INTEGRITY TEST

- Test Authority: The contractor must arrange final documented leak testing for each waterproofed area, which must be conducted by the Alumasc in-house leak detection service, who will provide the following:
  - A method statement explaining the test methods employed.
  - Up-to-date instrument calibration documentation.
  - Confirmation of correct voltage setting according to the dielectric value of the material to be tested.
  - Numbered and dated reports including annotated roof plan in .pdf format.
  - Confirmation of testing of all waterproofed areas, including upstands.
- Timing of Tests:
  - Primary test must take place within seven days of completion of each roof area.
  - Final test must take place within 24 hours prior to applying finishes to the waterproofing. A minimum of three days notification of the final test must be given to Alumasc who will be in attendance during the test.
- Condition of roof covering prior to testing: Complete to stage where integrity can be tested.
- Surface: Clean and free of site debris.
- Breaches detected: Re-test immediately following repair and confirm watertight.
- Test Results: Submit on completion, to include annotated plan of area tested.
- Waterproofing Integrity Certificate: Submit on completion of a single test or series of tests to the nominated roof or section thereof.
- The issue of the warranty is conditional upon the provision of satisfactory leak test certification covering all areas.

921-A PROTECTION

- As soon as an area of waterproofing has been completed, it should be inspected and tested upon notification of completion by the contractor. Completed areas should not be used as a building platform or as an access route by other trades. If unavoidable, appropriate protection must be provided for the duration of the construction period. Care should be taken not to mark or dent the works while laying any additional protection. Inspection and/or leak testing must always take place after removal of such protection.
- Roofs accessed for regular maintenance of plant, or parts of the building, should be given consideration in providing a predetermined route to and from the entry point to minimise potential hazards.

940-A COMPLETION

- Roof areas: Clean.
- Outlets: Clear.
- Flashings: Dressed into place.
- Work necessary to provide a weathertight finish: Complete.
- Storage of materials on finished surface: Not permitted.
- Completed membrane: Do not damage. Protect from chemicals, traffic and adjacent or high-level working.

941-A MANUFACTURER'S WARRANTY

- The works shall be installed by an Alumasc Registered Contractor, and, as agreed in the contract, the Hydrotech Warranty shall be issued to the Building Owner from the date of final completion.
  - The warranty offered is subject to the ruling terms and conditions.
- The warranty is conditional upon the full system being purchased from Alumasc and installed in accordance with the specification outlined. Substitution of any products, or installation by means other than those described, will invalidate the warranty offered.

942-A MAINTENANCE

- It is recommended that all flat roofs be inspected at a minimum frequency of twice a year. Ideally, inspections should be carried out in spring and autumn accounting for the effects of annual extremes of weather to be checked. Inspection should also be carried out following works on the roof by other trades, or following installation of new roof equipment.
- All inspections/and or maintenance actions carried out at roof level must be in full compliance with the appropriate health and safety regulations, and particularly those specifically dealing with working at height.

ALUMASC
ROOFING SYSTEMS

Proposed Roofing Specification

Project:
Former Nestle Factory – Block B

Project ID: SP103285-S2
Date: 22/10/2019

Tel: 03335 771 500
email: technical@alumascroofing.com
web: www.alumascroofing.co.uk

Project information

Project:	Former Nestle Factory – Block B
Location:	Hayes
Area 1:	Paved Area
Project ID:	SP103285-S2
Contact:	Geoff Davies – Makower Architects
E-mail:	gdavies@makowerarchitects.com
Issue Date:	22/10/2019

Project Contacts

Author:	Mark Fulton
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Technical Design Department

Address:	Head Office Alumasc Exterior Building Products Ltd White House Works, Bold Road Sutton, St Helens Merseyside WA9 4JG
Telephone:	01744 648400
E-mail:	technical@alumascroofing.com

Customer Services Advisor

Contact:	Emma Nuttall
Telephone:	01744 648434
E-mail:	sales@alumasc-exteriors.co.uk

All clauses with the suffix 'A' are either NBS Plus non-standard clauses and/or amended by Alumasc.

J31 LIQUID APPLIED WATERPROOF ROOF COATINGS

To be read in conjunction with related Architectural Sections, Preliminaries and Contract Conditions.

TYPES OF COVERING

102-A BUILD-UP OVERVIEW
- Alumasc Bitumen Primer.
- Hydrotech 6125 hot-applied rubberised bitumen waterproofing system.
- Hydrogard 30 Protection Sheet.
- Hydrodrain FC6 sub-surface drainage layer.
- Sub-base/Surface finishes as per the instructions of the appointed design professional.

110-A COLD DECK ROOF COATING

- Substrate: Concrete to structural engineer's/architect's specification.
  - Density: Minimum 1850 kg/m³.
  - Finish: Wood float, with a wood -trowelled finish. Steel trowelled or power floated are not suitable.
  - Hydration (cure): Recommended minimum 28 days, subject to concrete type, ambient temperature etc.
  - Falls: 0º.
- Preparation:
  - Surface is to be dry, clean, and free from all contaminants including oils, grease, laitance, dirt and debris.
  - Advance bond tests must be carried out (and recorded for future reference) on all areas, as clause 710-A.
- Waterproof coating: Hydrotech 6125 Structural Waterproofing System.
  - Manufacturer: Alumasc Exterior Building Products Ltd
    White House Works, Bold Road
    Sutton, St Helens, WA9 4JG
    Telephone: 01744 648400
    Email: technical@alumascroofing.com
  - Primer: Alumasc Bitumen Primer.
    Application: As clause 720-A.
  - It is recommended that a provisional sum (cost/per m²) is to be made for the application of Euroroof SB Primer, subject to adhesion test, as clause 710-A.
  - Coating: Hydrotech Monolithic Membrane 6125.
    Application: At a rate of 6.5kg/m² to a nominal 6mm (3+3mm) thick coat of Hydrotech 6125 combined with integral reinforcement/s, as clause 760-A.
  - Reinforcement/s: Flex-Flash F / Flex-Flash UN, where appropriate.
    Application: Laid into the first coat of Hydrotech 6125, as clause 760-A / 770-A.
  - Protection sheet: Hydrogard 30.
    Colour: Charcoal mineral.
    Application: Laid into the second coat of Hydrotech 6125, as clause 760-A.
- Sub-surface drainage layer: Hydrodrain FC6.
  Attachment: Loose laid, as clause 833-A.
- Surface: Sub-base/Surface finishes as per the instructions of the appointed design professional.
- Accessories: Alumasc Harmer outlet/s, see clause 392-A.
  Alumasc Standard Termination bar, see clause 393-A.
  Alumasc Derbitech Sealstick HD, see clause 394-A.

PERFORMANCE

210 ROOF PERFORMANCE
- General: Firmly adhered, free draining and weathertight.

280-A GENERAL DESIGN REQUIREMENTS

- All works must comply with all current relevant standards, codes of practice, and the Building Regulations to provide a secure, free draining and completely weathertight roof, including but not limited to:
  - BS 6229 - Flat roofs with continuously supported coverings. Code of practice.
  - BS 5250 - Code of practice for control of condensation in buildings.
  - BS EN 1991-1-4 Eurocode 1 - Actions on structures. General actions. Wind actions.
  - BS EN 12056-3 - Gravity drainage systems inside buildings. Roof drainage, layout and calculation.
  - BS EN ISO 6946 - Building components and building elements. Thermal resistance and thermal transmittance. Calculation method.
  - The Building Regulations Approved Document Part L1 or Part L2. Conservation of fuel and power.
- The design must take account of all structural factors to ensure that the waterproof covering is able to accommodate the effect of movement in order to avoid stress or deformation under these conditions.
- The waterproofing components' resistance to dead and imposed loading must be assessed to avoid failure of the component/and or reduction in performance. Where resistance is deemed to be inadequate, suitable measures to mitigate load intensity will need to be considered.
- The design must ensure that the continuity of the waterproof covering is maintained for a vertical height of at least 150mm above the finished roof level at all abutments, parapets etc.
- The building owner or their appointed design professional must have satisfied themselves that the roof structure and deck are suitable to receive the dead load of the proposed specification.
- It is strictly the responsibility of the client and/or their design professional to ensure compliance of the proposed specification with all relevant Building Regulations by consultation with Building Control. In the event of any doubt about the interpretation or application of the Building Regulations in relation to any particular new build or refurbishment works, clarification must be sought directly from Building Control.

PRODUCTS

353-A WATERPROOF COATING

- Type: Hot melt liquid applied formulation combined with integral reinforcements, and protection sheet.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - System reference: Hydrotech 6125 Structural Waterproofing.
- Certification:
  - BBA Certificate No. 90/2431.
  - European Technical Approval ETA-05/0152 (CE marked).
  - CGSB 37-GP-50-M89 International hot melt quality standard.
  - FRA Hot Melt Rubberised Bitumen - Code of practice.
  - REACH Registered.
  - Historical data: Continuously used worldwide and manufactured to original formulation since 1963.

353-01 PRIMER

- Type: Solvent based low viscosity bitumen primer, black in colour.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Alumasc Bitumen Primer.
- Density: 0.89 kg/litre +/- 0.02.
- Packaging: 25 litre drums.

353-05 COATING

- Type: Hot melt rubberised bitumen comprising 100% solids and containing modified bitumens, synthetic rubbers, inert clay filler and anti-oxidants for chemical resistance (e.g. acid rain, building washes, fertiliser).
  - The compound must not contain calcium carbonate or other inferior substitute fillers in lieu of inert clay.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Hydrotech Monolithic Membrane 6125.
- Working temperature range 180-190°C (Do not heat above 205°C).
- Density: 1230 kg/m³.
- Recycled content: 30% (independently verified).
- Packaging: Polyethylene wrapped 18kg (nominal) cakes, individually packed in 250x200x460mm cardboard boxes. Note: All packaging must bear specific production batch data for traceability.
- Approx. coverage: 6.5 kg/m², subject to the nature of the surface.

353-06 REINFORCEMENT

- Type: Spunbonded polyester fabric.
  - Product reference: Flex-Flash F.
- Roll size: Width 1.02m x 200m Length, Thickness 0.5mm.

REINFORCEMENT

- Type: Thermoset uncured Neoprene rubber.
  - Product reference: Flex-Flash UN.
- Roll size: Width 150 / 300 / 450 / 600mm x 30.5m Length, Thickness 1.5mm.

353-08 PROTECTION SHEET

- Type: Polyester reinforced SBS modified bitumen membrane with mineral surface.
  - Product reference: Hydrogard 30.
    Colour: Charcoal.
- Roll size: Width 1m x 10m Length, Thickness 3mm.

391-A SUB-SURFACE DRAINAGE LAYER

- Type: Geo-composite unit, comprising a non-woven geotextile filtration layer that is bonded to a High-Density Polyethylene (HD-PE) cuspated core.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Hydrodrain FC6.
- Performance data: Compressive Strength: 700 kPa (Core), CBR puncture resistance 1.5 kN (Fabric).
- Roll size: Width 1m x 100m Length, Thickness 6mm.

392-A ROOF OUTLETS

- Type: Aluminium.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Harmer AV400.
- Size: 100mm.
- Accessories: N/A / Screw Thread Adaptor / Flat Grate / Terrace Grate / Extension Piece.
  - Product reference: 4ADP (100mm).

393-A TERMINATION BAR (Options)

- Type: Aluminium.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Termination bar.
- Size: 1500 lm.

- Type: GRP
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Termination bar.
- Size: 3000 lm.

394-A SEALANT

- Type: HD Polymer eco-friendly fast curing flexible UV resistant adhesive.
- Manufacturer: Alumasc Exterior Building Products Ltd.
  - Product reference: Alumasc Derbitech Sealstick HD.
- Application: To seal the connection between roofing membranes to all common building materials.
- Packaging: 290ml cartridge.
- Colour: Black.

EXECUTION GENERALLY

410 ADVERSE WEATHER

- Do not apply coatings:
  - In wet conditions or at temperatures below 5°C, unless otherwise permitted by coating manufacturer.
  - In high winds (speeds >7 m/s), unless adequate temporary windbreaks are erected adjacent to working area.
- Unfinished areas of roof: Keep dry.

420-A SUITABILITY OF SUBSTRATES

- Suitability of base: Ensure that the tolerances of the structure to which the works are being installed are within permissible deviation of a level surface and satisfactory to receive the proposed specification.
  - Standard construction tolerances are to be observed. Depressions and/or negative falls should be identified either pre-works or post installation of the waterproofing and brought to the attention of the Client, Principal Designer, Clients Representative, or Main Contractor accordingly. If deemed unsatisfactory, correction would be recommended to ensure that all design parameters are sustained throughout the lifecycle of the roof in accordance with the prevailing standards, regulations, and codes of practice.
  - A provisional sum (cost/per m2 = to a depth of 10mm) is to be made for the installation of Alumasc PMMA Monoscreed to make good levels. All repairs are deemed to be finished flat unless otherwise stated. The depth and area of concrete repair cannot be determined until such time the deck has been installed, or post installation of the waterproofing. The accuracy of the quantity required depends upon the degree of initial survey.
- Screed: Structural screed is susceptible to absorbing moisture which may compromise the integrity of the bond caused by the installation of Hydrotech 6125 at high temperature, and is to be avoided.
  Further guidance should be sought from Alumasc technical services, if applicable.
- Substrates generally: Secure, clean, dry, smooth, free from frost, contaminants, voids, and protrusions.
- Preliminary work: Complete including:
  - Formation of upstands, kerbs, box gutters, sumps, grooves, chases, and expansion joints.
  - Fixing of battens, anchoring plugs/strips.
- Moisture content and stability of substrate: Must not impair roof integrity.
- Acceptable methods of drying of roof areas, where required, must be agreed with the client prior to the commencement of works.

453-A APPLYING COATING

- Cut excess wrapping from block, with a sharp knife or scissors.
- Heat in purpose made oil or air jacketed melter in accordance with operating instructions and manufacturers' guidelines.
- Temperature of compound: Operating range 180°C to 190°C. Do not heat above 205°C.
- Application: Full over whole surface by squeegee.

462-A GENERAL NOTES / REQUIREMENTS

- Prior to installation, the Alumasc project specification, associated drawings, and manufacturer's installation instructions for all materials should have been studied and understood, and must be followed.
- These proposals relate to the roof waterproofing area only. They do not include associated work to be carried out by other trades, which may be required to complete a satisfactory refurbishment.
- All preliminary work including alterations to detailing, where applicable, is complete and satisfactory.
- The installing contractor must attend a pre-start meeting in conjunction with Alumasc and the main contractor at which the scope and programme of the roofing works project will be determined. Any relevant issues and details must be discussed and the methodology for dealing with any such matters agreed. Confirmation of the availability of trained operatives and contract management must be established.
- All installers must be Alumasc Registered Operatives, who must be able to produce their individual card upon demand, whilst installing the system for which they are approved. A minimum of two operatives out of every three must be fully trained operatives.
- The works must be overseen by the contractor's Hydrotech Trained Contract Manager.
- Contractors are advised to visit site when deemed necessary and make themselves fully acquainted with the extent of the works and the conditions under which they are to be executed, and it also their responsibility to acquire all relevant tender documentation to enable accurate estimation.
- It is the sole responsibility of the contractor to ensure that all roofing works shall be installed in accordance with the appropriate sections of all current relevant codes of practice, Building Regulations, and manufacturer's installation instructions for product supplied by the company.
- Outlet/s shall be set at a level to compensate for the thickness of the outlet flange and avoid any check against the flow of water. All outlets are to include a clamping ring to secure the waterproof covering.
- Outlets and apertures must be protected from ingress of debris to prevent blockage of downpipe/s; protection should be removed during non-operating periods.
- Where applicable, all roof services and plant, access walkways, platforms, pipes etc. must be mounted on appropriate support systems providing at least 500mm clearance above the roof membrane, in order to facilitate access for future inspection/maintenance or repair.

- The contractor must ensure that satisfactory aesthetic appearance of the completed works is achieved.

463-A SITE INSPECTIONS

- Site inspections will be made by Alumasc during the works to ensure that the installation is executed in accordance with the Alumasc warranty requirements and current codes of practice. A site visit report form, incorporating supporting photographs will be issued to the client/contractor following each inspection. The reports will identify and monitor the works observed during the inspections and will, where applicable, make recommendations for appropriate rectification which the contractor is to undertake in order to satisfy the warranty requirements.

464-A HEALTH & SAFETY

- It is strictly the contractor's responsibility to ensure that all works are executed in accordance with current health and safety legislation. Guidance may be taken from HSE publication reference: HSG33 - Health and Safety in Roof Work.
- Safety scaffolding, the location of rubbish skips, access ladders etc. should be agreed with the client/principal contractor and be in accordance with current Health and Safety regulations.
- Wherever a gas torch is employed, the contractor must observe the greater of a minimum one-hour fire watch, or the period dictated by their own insurers, after cessation of torching. Fire extinguishing equipment must be readily available, in accordance with Health and Safety legislation.
- Sure-Foot Guardrail System or other suitable temporary or permanent fall arrest or fall protection measures will be necessary for the inspection and maintenance of the warranted Alumasc Roofing System throughout its life cycle.
- Product data and MSDS documents are available for all relevant products supplied by Alumasc; available for download from http://www.alumascroofing.co.uk.

466-A STORING OF MATERIALS

- Materials must be stored carefully on a clean dry surface, under cover and raised clear of the ground.
- Roll materials must be stored on end.
- The load-bearing capacity of the structure must be checked if material is to be stored at roof level.
- Only sufficient material for the day's schedule should be taken out of store, or uncovered, and placed close to the area being worked.

ROOF COATING SYSTEM

710-A ADHESION TESTS

- Requirement: Carry out advance bond tests to determine system suitability.
- Execution of test: Apply a small amount of membrane by squeegee onto the test area and allowing it to cool completely. Cut a triangular shaped incision through the membrane in the centre of the test area. If this triangular area of membrane can be peeled from the substrate easily, then the substrate is not ready. If it is not possible to pull the membrane away without distorting it, then the bond is deemed to be satisfactory. Temporarily apply a piece of protection sheet over the test area to keep dust off, removing it only when the main material application takes place. The test material will reactivate and blend in with the subsequent application.
- Test results: Proceed with membrane installation if satisfactory.
  - If adhesion tests using Alumasc Bitumen Primer are not satisfactory, or poor preparation of the surface has occurred, and provided a minimum of 14 days have passed (subject to adhesion tests, following consistently warm temperatures and no rainfall), prime the surface with undiluted Euroroof SB Primer at an application rate of 7-10m²/litre.

720-A APPLYING PRIMERS/CONDITIONERS

- Coverage per coat (minimum):
  - Concrete (Wood float, or similar) 8-16 m²/litre - diluted 50/50 with Alumasc Thinners.
  - Timber 6-8 m²/litre.
  - Metal surfaces 6-12 m²/litre.
- Surface coverage: Even and full.
- Application: Apply by brush, roller or spray and allow to dry completely. Surfaces must be clean and free from all oil, grease, dirt, dust and loose debris. On metal surfaces all loose rust should be removed using a wire bristled brush, and where advanced signs of corrosion are evident, these areas should initially be treated with a rust inhibitor.