



Brooks Murray Architects
The Arts Building
Morris Place
London
Greater London
N4 3JG

Date: May 16 2019

For the attention of MS Alison Alexander

Re: Specification for The Prince Albert Pub
Project Number: 36377

We refer to our discussion on the 15.05.2019 and have pleasure in submitting our suggested specification for the waterproofing of this project.

The following specification would be covered by our Icopal Insured Product Plus & Workmanship Guarantee Scheme for a period of 10 years provided that the work is carried out by an approved Team Icopal or IMA Contractor and subject to the guarantee offer enclosed within the specification.

The roof areas indicated in this specification are approximate and should only be used as a guide. For accurate tendering purposes the client or contractor should confirm exact areas.

We trust this specification is of assistance to you. If we can be of further help on this, or any other project, please do not hesitate to contact me on 07860 273 033.

Yours Sincerely

Jon Bailey
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Client: Brooks Murray Architects
Project: The Prince Albert Pub
Project Ref:: 36377

ICOPAL ROOFING SPECIFICATION



Project Address

Project Name	The Prince Albert Pub
City	London
County	CENTRAL LONDON
Postcode	NW1 0SG
Date Prepared	16/05/2019

Client

Prepared on Behalf Of: Brooks Murray Architects



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1. INTRODUCTION / BACKGROUND

The specification provided below is not designed to be exhaustive and is given in good faith.

The purpose/extent of the enclosed model specification is to provide an indicative outline of the general processes required to complete a successful Icopal Built-up Roof. It is not the intent of this model specification to provide step by step guidance covering all aspects and issues that may be relevant to the installation of the specific project.

IMPORTANT NOTES:

This specification is based on current information available at the time of writing, if any aspects are revised prior to construction please contact Icopal Limited to review the specification and to amend or update the information provided.

For areas considered 'Safe2Torch' please refer to the accompanying Icopal Site Survey (where applicable). It is the roofing contractors responsibility however to assess all hazards and health and safety issues associated with work on combustible substrates to design out, or greatly reduce so far as is reasonably practicable, any risk involved in its implementation. For further guidance visit www.NFRC.co.uk/safe2torch

Installers must always follow Icopal's installation guidance (available at www.icopal.co.uk) or contact Icopal Limited's technical support team if in doubt.

The Specification is valid for a period of 12 months from the date of issue.

Client: Brooks Murray Architects
Project: The Prince Albert Pub
Project Ref:: 36377



2. CONTACT DETAILS

Client Details	
Client Company Name	Brooks Murray Architects
Client Address	The Arts Building Morris Place London Greater London N4 3JG
Contact Name	MS Alison Alexander
Tel	020 7739 9955
Email	alison@brooksmurray.com
Project Details	
Site Name	The Prince Albert Pub
Site Address	The Prince Albert Pub 163 Royal College Street London CENTRAL LONDON NW1 0SG
Icopal Contacts	
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Position	Technical Specification Manager
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Tel	0161 865 4444

3. SYSTEM BENEFITS



BENEFIT

The specifications which follow confer the following benefits:

SYSTEM

Icopal Universal

Icopal Universal[®] consists of a POCB (polyolefin copolymerisate binder) reinforced with glass fibre and polyester. The result is a strong, flexible, and extremely stable single layer roof covering that is UV resistant and tough. Icopal Universal is 3.2 mm thick, making it lightweight and ideal for detailed roofing features, whilst also requiring a minimum of raw materials in manufacture.

It can be applied rapidly to insulation materials, timber, concrete or to existing bituminous roofing systems. The three variations of Icopal Universal meet a wide range of applications:

- Icopal Universal - can be adhered, mechanically fixed, or loose laid then ballasted.
- Icopal Universal SA - is a self-adhesive detail sheet making detailing safe and easy.
- Icopal Universal WS - resistant to root penetration making it ideal for green roof applications.

Icopal Universal is fully recyclable and together with the product's low mass, long life cycle, and manufactured from clean raw materials, Icopal Universal demonstrates a highly favourable Life Cycle Assessment, and meets the strictest standards for sustainable construction. Therefore, it can be used to significantly reduce a building's environmental impact, making a significant contribution to any sustainable procurement policy.

APPROVALS



Icopal Universal membranes are independently tested and approved by the British Board of Agrément under certificate number 17/5437, Product Sheets 1 and 2. It is a mark of quality, safety and reliability that provides reassurance of the products' fitness-for-purpose.

TRADE ASSOCIATION

Icopal is a member of the Single Ply Roofing Association [SPRA]. As an association, SPRA's guiding principle is to ensure that clients obtain high quality polymer based single ply roofing, through a partnership of quality assured manufacturers and contractors. For more information about SPRA, please visit www.spra.co.uk

3. SYSTEM BENEFITS - CONTINUED

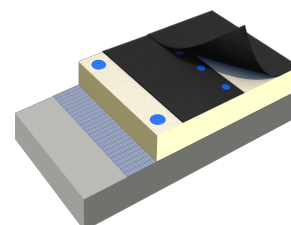
APPROVED CONTRACTOR

To ensure long term performance and to qualify for our range of roof waterproofing guarantees, all Icopal roofing products supplied in the UK must be installed by a system approved contractor, and in accordance with the relevant British Standard Codes of Practice and our recommended design details.

Icopal gives approved status to roofing contractors who can demonstrate very high standards in working practice and professional integrity. This ensures that the quality chain is maintained from initial roof specification, through materials supplied and workmanship to the finished contract - and beyond if necessary.

4. SPECIFICATION SUMMARY

Roof Area Reference	Main roof
Roof Area(m2)	25
Deck	Profiled Metal
Substrate	New Profiled Metal
Primer	General preparation
Vapour Control Layer	Monarflex Monofilament 250 VCL
Adhesive	Icopal Screw Fasteners
Insulation	Thermazone Foilboard Insulation
Separation Layer	Not Required
Singleply Adhesive	Icopal Tube Washers & Screw Fasteners
Singleply Membrane	Icopal Universal WS (POCB)
Protection Layer	Icopal SLP300 Protection Fleece
Surfacing	Green Roof System
Type of System	(J42) (Optional System)



5. PRELIMINARIES

Health and Safety

The Work at Height Regulations 2005 apply to all work at height where there is a risk of a fall liable to cause personal injury. They place duties on employers, the self-employed and any person who controls work of others (e.g. facilities managers or building owners) to the extent that they control the work. The Construction (Design and Management) Regulations CDM states that it is the responsibility of the employer to ensure that any employee required to work at height must be suitably protected from any potential fall hazards. These regulations have been made to prevent the deaths and injuries caused each year by falls at work. A place is "at height" if (unless these regulations are followed) a person could be injured falling from it, even if it is at or below ground level. Therefore, in line with Health and Safety Executive codes of practice, adequate fall protection must be provided where access is required to a roof area. This could be for maintenance, inspection, repair work or retro-fitting of plant equipment.

In the preparation of this technical specification and subsequent advice, Icopal understands its responsibility as an additional designer under the requirements of the current issue of The Construction (Design & Management) Regulations. As a result, we have made every effort to obtain all relevant information by way of site survey and client consultation in preparing this document. It is assumed that the client has also carried out their legal duties with regard to the above regulations and other associated health and safety legislation. Further information may be obtained from <http://www.hse.gov.uk/construction/cdm.htm>

All work must comply with the requirements of the Health & Safety at Work Act and any additional requirements of the client. Method statements and appropriate risk assessments must be prepared in relation to the project.

All material safety data sheets relating to Icopal products are available on the company website or upon request from the technical services department. It is assumed that health and safety information for materials not supplied by Icopal will be obtained from the relevant manufacturer by the roofing contractor.

It is the contractors' responsibility to liaise with the client or building owner to identify any potential hazards that could affect safe working practices (eg. hazardous gases, noxious fumes, flammable fumes, transmitters and microwaves etc.).

Roofing products can be heavy. As a result, the correct control measures should be implemented to protect operatives and minimise risk when moving materials. Care should also be taken to avoid excessive point loading when storing and loading materials on a roof.

Adequate and appropriate fire fighting equipment must be provided and positioned adjacent to the work being carried out. All fire fighting equipment must be in good working order and have been inspected or approved by a competent person.

5. PRELIMINARIES - CONTINUED

Health and Safety

It is the client or building owner's responsibility to provide safe access and egress in line with Health and Safety Executive codes of practice, for personnel carrying out roof maintenance during its serviceable life. Provision of adequate fall protection must be provided for maintenance, inspection, repair work or retro-fitting of plant equipment. This should be considered at the design stage and our recommendations are contained within this specification. Further information regarding protection can be found in the NFRC Technical Bulletin 37: Edge Protection Guidance or from the Health & Safety Executive website <http://www.hse.gov.uk>.

Should the specification call for the removal and disposal of asbestos based roofing materials, all work must be carried out strictly in accordance with the guidelines provided by the Health and Safety Executive, Local Authority and any other official organisation concerned with the project. Guidance can also be found in the Flat Roofing Alliance Technical Bulletin 'Removal of Asbestos Based Roofing Felts'.

When using roofing torches, the contractor must take adequate precaution to eliminate all potential risk of fire hazard and ensure that no naked flames are left unattended at any time. Guidance on the use of torch applied roofing and equipment is available in 'Flat Roofing Alliance Information Sheet 12: Torch On Roofings'. Further information can be obtained at <http://www.fra.org.uk/technicalsheets.asp>.

Application

The roof waterproofing system is to be installed in accordance with the current recommendations of BS 6229 (Flat Roofs with Continuously Support Coverings: Code of Practice), BS 8217 (Reinforced Bitumen Membranes for Roofing), BS 8000 (Part 0: Workmanship on construction sites. Introduction and general principles), BS 8000 (Part 4: Workmanship on Building Sites. Code of Practice for Waterproofing), and Icopal's current application instructions.

Ensure that from completion of the waterproofing the roof is not used as a working platform unless fully protected to the satisfaction of the CA. No paint, solvents or other hydrocarbon volatile substances; or other substances which may be detrimental should come into contact with the waterproofing membrane.

Timber should be naturally durable or pre-treated against infestation and decay using preservatives which are compatible with bitumen based products over prolonged periods as recommended in BS 5268-5.

The recommended minimum finished fall for a flat roof with continually supported coverings shall be 1:80. To achieve this a design fall of 1:40 / 1:60 should be considered.

Following completion of the specified roofing works, provision should be given to the protection of all finished surfaces from damage by subsequent building operations. Additional work will be required to return the membrane to a warrantable condition if the membrane is damaged due to inadequate protection.

5. PRELIMINARIES - CONTINUED

Application	<p>The building structure must be of sound condition and capable of accepting the imposed loading of the new roofing system and associated installation procedures. Third party assessments should be considered to ascertain its suitability.</p> <p>All surfaces to receive the specified waterproofing system must be kept free from irregularities or sharp protrusions that could puncture the membrane during application or service life.</p> <p>Any elements that may affect the future performance of the specified system shall be reported to the client and Icopal at the earliest possible opportunity.</p> <p>The roof should comply with the requirements of the current revision of Building Regulations Approved Document L1 or L2 (England & Wales), Technical Handbook - Section 6 Energy (Scotland), or Technical Standards F1 or F2 (Northern Ireland). It is recommended that confirmation of individual project requirements is sought from the local Building Control Office before commencement.</p> <p>Waterproofing membranes should be laid down the line of the fall and all membrane head and side laps to be offset to avoid excessive build up of thickness.</p> <p>Fastener withdrawal resistance tests are recommended on certain refurbishment projects to determine the suitability of the roof deck.</p> <p>The withdrawal resistance test may be conducted by an independent laboratory or the fastener manufacturer or their designated representative. The results of the pullout tests must be designated on a roof plan to indicate the areas at which the tests were conducted and forwarded to Icopal for review. On refurbishment projects, a core cutter should be used to remove existing roofing material prior to conducting the withdrawal resistance test (even if the existing roofing membrane is specified to remain). Existing roofing materials will contribute to a higher, misleading pullout value.</p>
Drainage	<p>All existing rainwater goods should be tested at the commencement and at completion of the work.</p>
Preparation	<p>Electrical or mechanical work to existing plant or equipment must be carried out by competent and qualified professionals.</p> <p>All preparatory works including alterations to all detail items must be complete and satisfactory.</p>
Roofing Contractor	<p>All dimensions given in the descriptions and on drawings are approximate and the contractor must examine the existing buildings on site to ascertain the full extent of the works and take all necessary dimensions before preparing a tender.</p>

5. PRELIMINARIES - CONTINUED

Roofing Contractor	<p>The Contractor must visit the site and fully acquaint himself with all aspects of the work whether explicitly referred to in the specification or not. He must also satisfy himself as to the facilities for access and storage of materials, plant, etc., and other site conditions.</p> <p>It is the responsibility of the roofing contractor to liaise with the client concerning the temporary disruption or suspension of existing services to the building during the works.</p> <p>It is the responsibility of the contractor to acquaint themselves with all relevant codes of practice referred to within the specification. Icopal take no responsibility for misinterpretation or lack of knowledge for third parties.</p> <p>The roofing contractor shall ensure the surfaces to receive the specified works are acceptable and conform to the requirements of the specification. If found to be different from the written specification, Icopal's technical department are to be notified at the earliest opportunity.</p> <p>The roofing contractor shall co-ordinate all works to ensure the integrity of the roofing system is not compromised during installation. Works conducted during adversely wet weather conditions shall be suspended unless suitable temporary protection can be provided.</p> <p>The roofing contractor shall ensure that all surfaces are free from solvents, hydrocarbons or any other incompatible materials.</p> <p>The roofing contractor shall ensure that the decking materials and sub layers are dry prior to the application of the waterproofing system to prevent blistering, moisture entrapment, excessive movement and adhesion failure.</p> <p>The Contractor is to ensure that the roofing work is left secure at the end of each working day and that equipment is left safe at the end of each work period.</p> <p>It is the responsibility of the roofing contractor to ensure that the building remains watertight at all times. Areas of existing waterproofing removed within a single day should be done so ensuring the provision of appropriate night joints.</p> <p>Suitable night joints should be formed at the end of each working day to provide a temporary waterproofing seal to the new installation. Materials used to create the joint which do not form part of the specified system shall be removed prior to continuation of the works.</p> <p>The contractor should make adequate provision for the safe removal and disposal of all associated waste, including the existing waterproofing system if the roof is to be stripped.</p>
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5. PRELIMINARIES - CONTINUED

Roofing Contractor	Where there is a requirement, it is the contractor's responsibility to provide an independent Electronic Leak Detection Test.
Materials	<p>Unless otherwise agreed with Icopal's Technical Department, all Icopal specified products within the specification must be used. Where alteration to the specification is required, Icopal's technical department are to be notified at the earliest opportunity.</p> <p>All materials used on site shall be new and shall be inspected for manufacturer's markings to ensure the quality of finished roof so as to not invalidate any warranties issued. They shall be handled, stored and fixed so as to ensure that the materials are not damaged when incorporated into the works.</p> <p>All reinforced bitumen membranes must be stored on end on a clean flat level surface, undercover and away from direct sources of heat.</p> <p>Containers should be stored in a dry and cool environment on a flat, level, and clean surface away from sources of ignition, including pilot lights and sparks. Protect the product against moisture, direct sunlight and extremes of temperature. Keep containers tightly closed when not in use. Always consult product health and safety datasheets.</p> <p>Bonding bitumen, if required, should be used in accordance with the current revision of BS 8000: Part 4, which states that the correct viscosity for bonding bitumen is at a temperature of 240°C and should not be heated above 260°C. The use of thermometers and / or thermostatically controlled boilers are also recommended.</p>

6.1.2 SPECIFICATION - Main roof

TYPES OF COVERING

10 PRELIMINARIES

To be read in conjunction with Preliminaries/General conditions, project drawings and contract conditions.

110 WARM ROOF COVERING

- Roof Reference: Main roof.
- Substrate: New Profiled Metal.
- Preparation: General preparation as clause 610.
- Vapour control layer: Monarflex Monofilament 250 VCL 2m x 50m, as clause 398B,670D.
- Insulation: T/Zone Foilboard (2400 x 1200 x 120mm), as clause 420E,506.
- System manufacturer: Icopal Limited. Barton Dock Road, Stretford, Manchester. M32 0YL.
- Waterproof membrane: Icopal Universal WS (Anti-root) 10m.
- Accessories: Icopal S.A. Primer, Thermazone Roofboard Fillet, Icopal Roofgard Universal POGB Outlet, Roofgard SP1 Clamping Ring Outlet, Icopal Roofgard Universal POGB Parapet Outlet, Roofgard Universal POGB Cowled Telescopic Vent, Icopal Roofgard Universal POGB Cable/Tube Duct, Universal POGB Lightning Conductor Clips,.

PERFORMANCE

210 ROOF PERFORMANCE

- General: Secure, free draining and weathertight.

221 GENERAL DESIGN AND INSTALLATION CRITERIA - CODE COMPLIANCE

- The roof waterproofing system is to be installed in accordance with the current recommendations of BS 6229 (Flat Roofs with Continuously Support Coverings: Code of Practice), BS 8217 (Reinforced Bitumen Membranes for Roofing), BS 8000 (Part 0: Workmanship on construction sites. Introduction and general principles), BS 8000 (Part 4: Workmanship on Building Sites. Code of Practice for Waterproofing), and Icopal's current application instructions.
- The roof should comply with the requirements of the current revision of Building Regulations Approved Document L1 or L2, Technical Handbook - Section 6 Energy, or Technical Standards F1 or F2. It is recommended that confirmation of individual project requirements is sought from the local Building Control Office before commencement.
- Wind loadings should be assessed in accordance with BS EN 1991-1-4: 2005 (National Annex to Eurocode 1 Actions on Structures. General Actions. Wind Actions) taking into account the dimensions and height, and orientation of the building; wind speed; aspect (e.g. on a hill side); and topographical value of the surrounding areas.

222 GENERAL DESIGN AND INSTALLATION CRITERIA

- The building structure must be of sound condition and capable of accepting the imposed loading of the new roofing system and associated installation procedures. Third party assessments should be considered to ascertain its suitability.
- Consideration must be given by the contractor at all times to the aesthetic appearance of the roof.
- Building work which is the responsibility of the roofing contractor and has a bearing on the durability and performance of the Icopal roof system should be carried out by properly trained and qualified tradespersons.

6.1.2 SPECIFICATION - CONTINUED - Main roof

- Ensure that from completion of the waterproofing the roof is not used as a working platform unless fully protected to the satisfaction of the Contract Administrator. No paint, solvents or other hydrocarbon volatile substances; or other substances which may be detrimental should come into contact with the waterproofing membrane.
- It is strictly the responsibility of the client and/or their appointed design professional to ensure compliance of the proposed specification with all relevant Building Regulations by consultation with Building Control. Clarification must be sought directly from 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.

PRODUCTS

322D PRIMER FOR THERMICALLY ACTIVATED MEMBRANES

- Type: As recommended by membrane manufacturer.
- Manufacturer: Icopal Limited. Barton Dock Rd. Manchester. M32 0YL.
- Product reference: Icopal S.A. Primer.

330 TIMBER, TRIMS, ETC

- Quality: Planed. Free from wane, pitch pockets, decay and insect attack (except ambrosia beetle damage).
- Moisture content at time of covering (maximum): 22%.
- Preservative treatment: [compatible with waterproofing system].

336 ANGLE FILLETS

- Material: Polyisocyanurate (PIR).
- Product: Thermazone Roofboard Insulation Fillet.
- Manufacturer: Icopal Limited. Barton Dock Road, Stretford, Manchester. M32 0YL.
- Size: 50 x 50 mm, triangular in section.
- Restriction: Not suitable for use with torch-on bitumen sheets - use alternative, non-combustible fillet.

339A HEAT-ACTIVATED/SELF ADHESIVE SINGLE LAYER DETAILING MEMBRANE

- To all detail areas, such as perimeters, upstands, gutters, etc
- Manufacturer: Icopal Limited. Barton Dock Road, Stretford, Manchester. M32 0YL.
- Product reference: [Icopal Universal SA].
- Attachment: Thermically-activated/Self-adhesive bonding, as clause 743.

341C DRAINAGE COMPONENTS

- Manufacturer: Icopal Limited. Barton Dock Road, Stretford, Manchester. M32 0YL.
- Product reference: Icopal Roofgard Universal POGB Outlet.
- Install suitably sized outlet in accordance with the current instructions.
- The outlet has sponge rubber "O" rings fitted to its spigot. These "O" rings provides a seal to the internal diameter of the down pipe.
- The outlet has a high performance membrane flange that should be fully supported and bonded to the field sheet in accordance with current instructions.
- After the waterproofing is complete install the stainless steel outlet grate. The grate is fastened with an expanding clamp, which grips the outlet spigot internally.

6.1.2 SPECIFICATION - CONTINUED - Main roof

341E DRAINAGE COMPONENTS

- Manufacturer: Icopal Limited. Barton Dock Road, Stretford, Manchester. M32 0YL.
- Product reference: Roofgard SP1 Clamping Ring Outlet.
- > Connection Size: 82mm or 110mm.
- Install suitably sized marine grade aluminium Roofgard SP1 Clamping Ring Outlet in accordance with the current instructions.
- Warm Roofs: Install SP1 Insulation Box and shims, as necessary. Consult product sheet and guide for further information.
- After the waterproofing is complete install the Roofgard SP1 Dome or Flat leaf grate, as required, and secure with hex fixings supplied. A Terrace Grate and extension collar is also available.

342C DRAINAGE COMPONENTS AT PARAPET

- Manufacturer: Icopal Limited. Barton Dock Road, Stretford, Manchester. M32 0YL.
- Product reference: Icopal Roofgard Universal POCB Parapet Outlet.
- Install parapet outlet through the parapet.
- The flange should be hot-air welded to the field sheet, in accordance with current instructions.
- All angle fillets should be chamfered in accordance with the current fixing instructions, tapering towards and terminating at the flange perimeter.
- After the waterproofing is complete install parapet outlet grate.

343C TELESCOPIC VENT TO SOIL VENT PIPE

- Type: Preformed flanged sleeve.
- Manufacturer: Icopal Limited. Barton Dock Road, Stretford, Manchester. M32 0YL.
- Product reference: Roofgard Universal Cowled Telescopic Vent.
- Accessories: Telescopic Double Pipe / Vented Cowl.
- Install the Roofgard Universal Cowled Telescopic Vent where a soil vent pipe penetrates the waterproofing system.
- Ensure the high performance membrane flange on the upstand pipe is fully supported and bonded.
- The flange should be fully bonded to the field sheet in accordance with the current instructions.
- Compliance for the minimum height must be in accordance with the Building Regulations.

6.1.2 SPECIFICATION - CONTINUED - Main roof

344C CABLE/TUBE DUCT PENETRATIONS

- Manufacturer: Icopal Limited. Barton Dock Road, Stretford, Manchester. M32 0YL.
- Product reference: Icopal Roofgard Universal POGB Cable/Tube Duct.
- Install the Cable/Tube Duct where suitable cables and/or tubes penetrate the waterproofing system.
- The product has a high performance membrane flange that should be fully supported and bonded.
- The cables/tubes should be fed through the upstand pipe and the two 90° PVC socket end elbows.
- The second elbow should be positioned to shelter the cable/tube exit from the elements.
- The cable/tube exit point will then be protected from the ingress of insects etc. with a mesh/foam rubber bung.

348C LIGHTNING CONDUCTOR CLIPS

- Manufacturer: Icopal Limited. Barton Dock Road, Stretford, Manchester. M32 0YL.
- Product reference: Universal POGB Lightning Conductor Pad.
- Pad Size: 100mmx100mm.
- Conductor Clips are available to suit either a 25mm x 3mm bare, or 25mm x 5mm PVC-coated, conductor.
- The clip is attached to Universal POGB membrane which should be hot-air welded to the field sheet accurately fixed in straight lines with the aid of a chalkline.
- Centres should not be more than 1m on flat areas or described by the lightning conductor engineer. Closer centres may be required in areas of high wind up-lift. Some areas are more susceptible to wind up-lift i.e. corners and perimeters.

355C MECHANICAL FASTENERS, WASHERS, PRESSURE PLATES, ETC

- Fastenings, including washers, pressure plates, etc. must comply with the current edition of the British Board of Agreement MOAT 55, 'UEAtc Supplementary guide for the assessment of mechanically fastened roof waterproofing' for Class 2 fasteners.
- Install fastenings using manufacturer's recommended equipment, fitted with bit stop, etc. to ensure correct and consistent insertion.
- Manufacturer: Icopal Limited. Barton Dock Road, Stretford, Manchester. M32 0YL..
- Product reference: [Icopal Screw Fasteners].
- Type: Epoxy Electro coating / Butress Thread.
- Washer type:
- Soft faced insulation: [Icopal Tubular Washers].
- Rigid substrates: [Icopal Stress Plates].

6.1.2 SPECIFICATION - CONTINUED - Main roof

398B VAPOUR CONTROL LAYER

- Type: reinforced polyethylene.
- Manufacturer: Icopal Limited. Barton Dock Road, Stretford, Manchester. M32 0YL.
- Product reference: Monarflex Monofilament 250 VCL.
- Application: Loose-laid with sealed laps, as clause 670D.

420E RIGID URETHANE FOAM WARM ROOF INSULATION

- Type: Polyisocyanurate (PIR) roofboard to BS EN 13165.
- Manufacturer: Icopal Limited. Barton Dock Road, Stretford, Manchester. M32 0YL.
- Product reference: Thermazone Foilboard Insulation.
- Density: 32 kg/m³.
- Thickness: 120mm.
- Facing: foil to both sides.

EXECUTION GENERALLY

505 STORAGE OF MATERIALS

- Materials should be delivered to site in the original packaging and bearing the appropriate labels.
- Store rolls of membrane in clean, dry conditions off the ground, away from exposure to the sun, heat sources and protect against mechanical damage.
- Bituminous membranes when removed from pallet must be stood on end on a flat level surface.
- Coatings, primers etc, should be stored under cover and protected from frost. They should be kept away from heat sources, and sources of ignition including pilot lights and sparks. Keep containers tightly closed when not in use.
- Care should be taken when loading roof areas to ensure that the material is positioned over structural supports and that adequate protection is taken to protect the deck and insulation from damage.

506 STORAGE OF WARM ROOF INSULATION

- Insulation should be stored inside a building. If outside storage is unavoidable, insulation should be off the ground and covered with a protective waterproof sheet.
- Packaging alone cannot under any circumstances be relied upon to provide protection from moisture.
- Do not stack more than 2.5 metres in height. Ensure stability of stack and provide adequate aisle space for access between stacks.
- Insulation should only be unwrapped immediately prior to use. Boards which have been allowed to become wet must not be used.

515 ADVERSE WEATHER

- General: Do not lay coverings in high winds, wet or damp conditions or in extremes of temperature unless effective temporary cover is provided over working area.
- Weather: Do not apply or lay materials on substrates which are frozen or have been affected by frost.
- Unfinished areas of roof: Keep dry. Protect edges of laid membrane from wind action.

6.1.2 SPECIFICATION - CONTINUED - Main roof

520 INCOMPLETE WORK

- End of working day: Provide temporary seal to prevent water infiltration.
- On resumption of work: Cut away tail of membrane from completed area and remove from roof.
- Ensure water and dirt are removed and damage repaired so as not to impair performance.

610 SUITABILITY OF SUBSTRATES

- Substrates generally: Secure, clean, dry, smooth, and free from frost, contaminants, voids and protrusions.
- Preliminary work: Complete including:
 - Grading to correct falls. Falls should be designed to 1:40 to achieve minimum finished falls of 1:80 to comply with requirements of BS 6229.
 - Formation of upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
 - Fixing of battens, fillets and anchoring plugs/strips.
- Moisture content and stability of substrate: Must not impair roof integrity.

SUBSTRATES

640 FIXING TIMBER TRIMS

- Fasteners: Fastener type and length appropriate and suitable to particular deck substrate.
- Fixing centres (maximum): 500 mm.

VAPOUR CONTROL LAYERS / WARM ROOF INSULATION

670D LAYING POLYETHYLENE VAPOUR CONTROL LAYER

- Attachment: Loose-laid.
- Side and end laps (minimum): 150 mm.
 - Laps and perimeters: Sealed with Monobond sealant tape. Provide seal between membrane and substrate to minimise air-leakage.
- Penetrations: Fully seal using bonding methods recommended by manufacturer.
- Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like:
 - Enclosed with vapour control layer:
 - Dressed up sufficiently, to provide 50 mm (minimum) upstand or
 - Turned back 150 mm (minimum) over the insulation and sealed down.

6.1.2 SPECIFICATION - CONTINUED - Main roof

680B LAYING WARM DECK ROOF INSULATION (MECHANICALLY FASTENED)

- Setting out:
 - Long edges: Fully supported and running at right angles to troughs in metal deck/structure.
 - End edges: Adequately supported.
 - Joints: Butted together.
 - End joints: Staggered.
- Protection to exposed edges of insulation: Reduced thickness treated timber batten, outer edge chamfered at changes in level.
- Attachment: Mechanical fixing:
 - Mechanically fix the insulation boards using appropriate type and length of fasteners in accordance with EN 1991-1-4, an Icopal wind uplift calculation or current BRUFMA guidelines, whichever is the greater.
 - In no circumstances less than a minimum of 11 fixings per 2400x1200mm board; or
 - In no circumstances less than a minimum of 5 fixings per 1200x600mm board.
 - All fixings and washers should be located within the individual board area and not overlap board joints. Fixings should be sited >50mm and <150mm from the edges and corners of the board. Fixings positioned along the centre line of the insulation board should be offset with those at the board edge.
 - The pitches / centres of the crown flats of metal decking sheets may influence the location of the fixings along the edges of the boards.
- Completion: Boards must be in good condition, well fitting and secure.

WATERPROOF COVERINGS / ACCESSORIES

711 MECHANICAL FIXING OF WATERPROOF MEMBRANE

- Setting out: as per Icopal Limited's recommended fixing design.
- Laying:
 - Loose, do not wrinkle or stretch.
 - Ensure water will drain over, and not into, the laps.
- Installing fasteners:
 - Use manufacturer's/ supplier's recommended methods and equipment.
 - Insertion: Correct and consistent.
- Washers/ Pressure plates/ Bars:
 - Distance from fixed edge (minimum): 10 mm.
 - Fixing: Flush with membrane.
- Sheet overlaps: Extend beyond washers/ pressure plates by minimum 50 mm.
- Surface condition at completion: Fully sealed, smooth, weatherproof and free draining.

6.1.2 SPECIFICATION - CONTINUED - Main roof

730C WELDED JOINTING OF ICOPAL UNIVERSAL MEMBRANE

- Laying: Do not wrinkle or stretch.
- Side and end joints:
 - Laps (minimum): 130mm.
 - Preparation: Clean and dry surfaces for full width of joint.
 - Sealing: Hot-air weld together. Ensure water will drain over, and not into, the lap.
- Condition at completion: Fully sealed, smooth, weatherproof and free draining.
- Continuous 5mm bead of bitumen must extrude at all laps.
- All laps must be checked for security during and after completion.

743 WATERPROOF SELF-ADHESIVE DETAILING MEMBRANE

- To all detail areas, such as perimeters, upstands, gutters, etc:
 - Install heat-activated self-adhesive detailing sheet to the prepared substrate by removing the peel-off backing and activating the self-adhesive underside using hot-air welding equipment.
 - Product reference: [Icopal Universal SA].
 - Side laps (minimum): 80 mm.
 - End laps (minimum): 150 mm.
 - All laps onto the field sheet area must be 150mm.
 - All laps to be fully sealed with a continuous 5mm bead of bitumen extruding at the lap.
- Surface condition at completion: Fully sealed, smooth, weatherproof and free draining.

776 SKIRTINGS AND UPSTANDS

- Angle fillets: Where required, fix by bonding/adhesive or mechanically fasten.
- Type: Appropriate to application method of membranes.
- Upstands: As separate items. Do not carry up in one sheet.
- Continuity of waterproofing to be maintained vertically for not less than 150 mm from finished roof level in accordance with BS 6229.
- Align and cut to length. Ensure sufficient length to terminate at the base of the detail and lap onto the main roof area.
- Additional fixing of membranes: As membrane manufacturer's recommendations, and in accordance with codes of practice.
- Top edges of membranes: To be protected by flashings, or similar weatherproofing methods, in accordance with codes of practice, providing minimum 75mm cover over waterproofing.

780 WELTED DRIPS

- Material: Detailing topsheet/capsheet.
- Length: Form using maximum length strips.
- Height at external gutters (minimum): 75 mm.
- Welt tail: Nail to face of drip batten. Fold neatly. Reinforce with 6mm hardboard.
- Welt: Bond together, carry minimum 100 mm onto roof. Overlap onto field area membrane.

6.1.2 SPECIFICATION - CONTINUED - Main roof

786 FIXING PERIMETER TRIMS

- Detailing membrane: Lay over roof edge upstand. Project free edge 25 mm from wall or fascia.
- Trim:
 - Setting out (minimum): 3 mm clear from wall or fascia.
 - Fasteners: 50 mm stainless steel countersunk wood screws to BS 1210.
 - Fixing: 30 mm from ends and at 300 mm (maximum) centres.
 - Jointing sleeves: Fix one side only.
 - Corner pieces: Purpose made.
- Completion:
 - Contact surfaces: Prime.
 - Joints: Cover with 150 mm long pads of bitumen membrane, bonded to trim.
- Completion of cover strip:
 - Butt joint to rear edge of trim.
 - Fully bond to trim and lap 150mm mm onto detailing sheet.

COMPLETION

910 INSPECTION

- For 'Icopal Insured System Plus', and 'Icopal Insured Product Plus & Workmanship' warranties:
- Interim and Final inspections to be carried out in accordance with Icopal's requirements for the guarantee offer.
- Access to the roof area should be maintained in place until the Icopal Quality Inspector has inspected the roof works and completed final sign-off.
- Notification:
 - Upon completion, Icopal Limited should be notified in advance to make a final inspection of the work.
 - Roof area should be clean with all outlets clear and running free.
 - All work by third parties necessary to provide a watertight finish should be completed.
- The approved applicator should ensure attendance at the final inspection.
- Any defects, where possible, should be completed whilst the Icopal Quality Inspector is on site. Other defects will require a return visit on completion to enable final sign-off of the works.
- Warranties will only be issued when the completed roofing system has been deemed to be in compliance with the specification and working details applicable to the waterproofing system.
- Other requirements: Refer to preliminaries/general conditions of guarantee offer.

920A ELECTRONIC ROOF INTEGRITY TEST

- This may be a requirement under the terms of the Icopal 'Insured System Plus' Guarantee, or/and where the waterproofing system is to be buried, eg beneath a green roof or ballast.
- Testing authority: UKAS approved laboratory.
- Timing of test: Prior to covering over or/and on completion of waterproofing system. Ideally, testing should be not be carried until all associated follow-on trades are complete and the roof areas are clear from all debris and temporary protection layers.
- Condition of roof prior to testing:
 - Complete to a stage where integrity can be tested.
 - Surface: Clean.

6.1.2 SPECIFICATION - CONTINUED - Main roof

- Test results and warranty: Submit on completion of testing.

940 COMPLETION

- Roof areas: Clean.
- Outlets: Clear.
- 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.

950 MAINTENANCE

- All roofs should have an annual maintenance schedule, with visits twice a year; in late autumn to assure that the roof is ready for the upcoming winter, and in spring to detect winter related roof damage.
- If regular roof access for plant maintenance etc. is required then the waterproofing should be protected with either walkway tiles or temporary protection boards as necessary.
- An inspection should also be carried out following works on the roof by other trades, or following installation of new roof equipment, etc.
- Consideration must also be made in relation to enabling regular safe access for maintenance staff, and it is important that adequate fall protection measures are put in place to allow for safe inspection and maintenance of the roof.
- Failure to adequately maintain the roof system may affect the validity of any guarantee in place.

7. MATERIAL SCHEDULE

PRIMER

General preparation

The roofing contractor shall ensure the surfaces to receive the specified works are acceptable and conform to the requirements of the specification and must be kept free from irregularities or sharp protrusions that could puncture the membrane during application or service life.

VAPOUR CONTROL LAYER

Monarflex Monofilament 250 VCL

A high performance reinforced virgin low density polyethylene vapour control layer.

Thickness: 0.25mm.

Weight / Unit Area: 250gm-2.

Water Vapour Resistance: 530MNsg-1.

Equivalent Air Thickness: Sd: 120 m.

Colour: Clear.

Product Code:

3002779 Monofilament 250 VCL 2m x 50m.

3002780 Monofilament 250 VCL 4m x 50m.

ADHESIVE

Icopal Screw Fasteners

Icopal supply a range of specialist fasteners for securing thermal insulation and Icopal single-ply roof waterproofing membranes to a variety of structural roof decks including steel, concrete and timber.

Icopal Tubular Washers are precision moulded from high grade polypropylene and extensively tested to ensure resistance to the extreme temperatures and mechanical stresses encountered within the roofing system. They are blue in colour and are available with two washer diameters: A 45 mm diameter for fixing membranes and a 75 mm diameter for fixing rigid insulation boards.

Icopal Stress Plates are manufactured from high quality carbon steel. Icopal Stress Plates are for use where tube washers cannot be utilised or where the membrane is being fastened without insulation present, eg cold roof situations.

For full details consult the technical literature.

INSULATION

Thermazone Foilboard Insulation

High performance rigid urethane CFC/HCFC free insulation board used typically in high performance mechanically fastened waterproofing system applications.

Thermal conductivity: Core: 0.022 W/m²K

Upper Face: Metal foil.

Lower Face: Metal foil.

Board Size: 2400mm x 1200mm.

Thickness (mm): 30,35,40,50,60,70,80,90,100,110,120,130,140,150,160.

7. MATERIAL SCHEDULE

SINGLEPLY ADHESIVE

Icopal Tube Washers & Screw Fasteners

Icopal supply a range of specialist fasteners for securing thermal insulation and Icopal single-ply roof waterproofing membranes to a variety of structural roof decks including steel, concrete and timber.

Icopal Tubular Washers are precision moulded from high grade polypropylene and extensively tested to ensure resistance to the extreme temperatures and mechanical stresses encountered within the roofing system. They are blue in colour and are available with two washer diameters: A 45 mm diameter for fixing membranes and a 75 mm diameter for fixing rigid insulation boards.

Icopal Stress Plates are manufactured from high quality carbon steel. Icopal Stress Plates are for use where tube washers cannot be utilised or where the membrane is being fastened without insulation present, eg cold roof situations.

For full details consult the technical literature.

SINGLEPLY MEMBRANE

Icopal Universal WS (POCB)

Icopal Universal® WS consists of a PO CB (polyolefin copolymerisate binder) reinforced with polyester and glass fibre. The result is a strong, flexible, and extremely stable single layer roof covering that is UV resistant and tough. Icopal Universal WS is resistant to root penetration making it ideal for green roof applications.

Roll Size: 10m x 1m.

Roll Weight: 32kg.

Product Code: 3007146.

Icopal Universal SA Detail Sheet

Icopal Universal® SA consists of a PO CB (polyolefin copolymerisate binder) reinforced with polyester and glass fibre. It has a thermally activated self-adhesive underside and is used as a detailing sheet.

Roll Size: 10m x 1m.

Roll Weight: 32kg.

Product Code: 3007124.

PROTECTION LAYER

Icopal SLP300 Protection Fleece

Icopal SLP 300 Protection Fleece is a needle punched polyester fabric for use with Icopal roofing systems where there is a requirement to separate the membrane from incompatible substrates or protect it from damage.

Roll Size: 75m x 2m.

Roll Weight: 45kg.

Rolls Per Pallet: 25.

Product Code: 3001777.