

Piccadilly Warehouse Refurbishment Project NBS Specification

11 April 2021

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J

Waterproofing

J42

Single layer polymeric sheet roof coverings

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To be read with Preliminaries/ General conditions.

TYPES OF ROOF COVERING

110A WATERPROOF MEMBRANE TO THE ROOFTOP EXTENSION ON BLOOM STREET

- Manufacturer: Protan (UK) Ltd.
 - Web: www.protan.co.uk.
 - Email: sales@protan.co.uk.
 - Product reference: Protan Standard Overlap System - SE Membrane, Warm Roof Construction
- Air and Vapour Control Layer:
 - Type: Protan Self-Adhesive Air Vapour Control Layer.
- Insulation:
 - Type: The Facade / Roofing Sub-contractor is to submit a Technical Submission for the proposed insulation to demonstrate compliance with a U-value of 0.16 and compliance with the Hydrock Fire Strategy. As part of the Beech Design & Build Design Intent of the roof it is envisaged that tapered insulation will be utilised to ensure the center of the roof can collect the rainwater which can then be discharge through the build by means on the central core M&E riser.
- Separating layer: Protan F2B Protection Fleece.
- Waterproof Covering:
 - Type: As manufacturer's recommendations.
- System Accessories: As manufacturer's recommendations.
- Waterproof Covering Thickness:: 1.8 mm excluding protection fleece.
- Waterproof Covering Width:: As manufacturer's recommendations.
- Waterproof Covering Colour:: Light grey.

The waterproof membrane is to be laid on a plywood deck substrate to GM Structures Details & Specification.

The Facade / Roofing Sub-contractor as part of the detailed drawing submission is to take into account the thermal continuity between the glazed facade, roof upstand and the soffit based on the Design Intent provided by Beech Design & Build. The Facade / Roofing Sub-contractor is to also ensure their detailed design proposals include for compliance with Building Regulation Part B in relation to external fire spread and compartmentation.

Prior to formally placing the order the Main Contractor is to confirm via the Architectural Project Lead all discharge of conditions relating to the External Facade have been approved by Manchester City Council Planning and Conservation Officer

110B WATERPROOF MEMBRANE TO THE EXISTING PARAPET AND ABUTMENT WITH THE ROOFTOP FACADE EXTENSION ON BLOOM STREET

- Manufacturer: Protan (UK) Ltd.
 - Web: www.protan.co.uk.
 - Email: sales@protan.co.uk.
 - Product reference: Protan Standard Overlap System - SE Membrane, Warm Roof Construction
- Air and Vapour Control Layer:
 - Type: Protan Self-Adhesive Air Vapour Control Layer.
- Insulation:
 - Type: The Facade / Roofing Sub-contractor is to submit a Technical Submission for the proposed insulation to demonstrate compliance with a U-value of 0.16 and compliance with the Hydrock Fire Strategy. As part of the Beech Design & Build Design Intent of the roof it is envisaged that tapered insulation will be utilised to ensure the center of the roof can collect the rainwater which can then be discharge through the build by means on the central core M&E riser.
- Separating layer: Protan F2B Protection Fleece.
- Waterproof Covering:
 - Type: As manufacturer's recommendations.
- System Accessories: As manufacturer's recommendations.
- Waterproof Covering Thickness:: 1.8 mm excluding protection fleece.
- Waterproof Covering Width:: As manufacturer's recommendations.
- Waterproof Covering Colour:: Light grey.

The waterproof membrane is to be laid on a plywood deck substrate to GM Structures Details & Specification.

The Facade / Roofing Sub-contractor as part of the detailed drawing submission is to take into account the thermal continuity between the glazed facade, roof upstand and the soffit based on the Design Intent provided by Beech Design & Build. The Facade / Roofing Sub-contractor is to also ensure their detailed design proposals include for compliance with Building Regulation Part B in relation to external fire spread and compartmentation.

Prior to formally placing the order the Main Contractor is to confirm via the Architectural Project Lead all discharge of conditions relating to the External Facade have been approved by Manchester City Council Planning and Conservation Officer

PERFORMANCE

205 COMPLETION OF DESIGN OF ROOF COVERINGS

- Description: The Facade / Roofing Contractor is to fully detail the rooftop extension based on the Design Intent supplied by Beech Design & Build.
- Requirement: Complete the detailed design to satisfy specified performance criteria and coordinate with the detailed design of related and adjacent work.
- Structural requirements: As section B50.
- Additional requirements: The Facade / Roofing Sub-contractor has the responsibility and coordination at design interfaces, and location of movement joints.
- Design and production information: The Facade / Roofing Sub-contractor is to complete the design for each individual facade element and the co-ordinate all interfaces prior to issuing a completed detail design package of the facade for review by the Design Team.
- Timing of submissions: 4 Weeks prior to materials being procured.

210 ROOF PERFORMANCE

- Roof covering: Secure, free draining and weathertight.

- 225 AVOIDANCE OF INTERSTITIAL CONDENSATION: WARM AND INVERTED ROOFS
- Interstitial condensation within roof construction: Determine risk as recommended in BS 5250 and BS EN ISO 13788.
 - Air and vapour control layer: If necessary, provide a suitable membrane so that damage and nuisance from interstitial condensation do not occur.
- 230 INSULATION
- Requirement: Determine type and thickness of insulation and integral or separate overlay to satisfy the following criteria:
 - Thermal transmittance of the roof (maximum): 0.16 W/m²K.
 - Compressive strength of insulation (minimum) at 10% compression: As manufacturer's recommendations.
 - Finished surface: Suitably even, stable and robust to receive roof covering.
 - Insulation compliance: To a relevant European Standard, or Agrément certified.

PRODUCTS

- 320 PRIMER TO ALL AREAS
- Type: As manufacturer's recommendations.
 - Manufacturer: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
 - Product reference: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
- 325 ADHESIVE TO ALL AREAS
- Type: As manufacturer's recommendations for the proposed conditions and surface.
 - Manufacturer: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
 - Product reference: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
- 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: As recommended for purpose by the waterproof covering manufacturer.
- 340 PREFORMED SLEEVES
- Type: 0.6 mm galvanized steel flanged sleeve with 0.5 mm unreinforced membrane laminate.
 - Manufacturer: As manufacturer's recommendations.
 - Product reference: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
 - Colour: Light grey.
 - Size: To suit requirements and as manufacturer's recommendations.
- 345 PERIMETER TRIMS
- Type: 0.6 mm galvanized steel flanged sleeve with 0.5 mm unreinforced membrane laminate.
 - Manufacturer: As manufacturer's recommendations.
 - Product reference: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
 - Colour: Light grey.
 - Size: To suit locations.

- 355 MECHANICAL FASTENERS, WASHERS, PRESSURE PLATES, ETC
- Type: As manufacturer's recommendations.
 - Material: As manufacturer's recommendations.
 - Manufacturer: As manufacturer's recommendations.
 - Product reference: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
- 380 PROTECTION LAYER
- Type: As manufacturer's recommendations.
 - Manufacturer: Protan (UK) Ltd.
 - Product reference: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
 - Grade: As manufacturer's recommendations.
- 383 SEPARATING LAYER
- Type: As manufacturer's recommendations.
 - Manufacturer: Protan (UK) Ltd.
 - Product reference: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
 - Grade: As manufacturer's recommendations.
- 395 AIR AND VAPOUR CONTROL LAYER
- Type: As manufacturer's recommendations.
 - Manufacturer: Protan (UK) Ltd.
 - Product reference: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
 - Thickness: As manufacturer's recommendations.
 - Vapour resistance: As manufacturer's recommendations.
- 400 WATERPROOF MEMBRANE
- Type: As manufacturer's recommendations.
 - Manufacturer: Protan (UK) Ltd.
 - Product reference: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
 - Width: As manufacturer's recommendations.
 - Thickness: 1.8 mm, excluding fleece backing.
 - Colour: Light grey upper surface.
 - Guarantee: 15 years.

430 WARM DECK ROOF INSULATION

- Type: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product and the detail design for review by the Design Team.
- Manufacturer: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product and the detail design for review by the Design Team.
 - Product reference: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product and the detail design for review by the Design Team
- Reaction to fire: To BS EN 13501-1, class A1.
- Thermal conductivity (minimum): 0.016 W/mK.
- Thickness: Tapered, fall to be in accordance with manufacturer's recommendations.
- Compressive strength (minimum): The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product and the detail design for review by the Design Team.
- Other characteristics: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product and the detail design for review by the Design Team.
- Edges: Square.
- Facing: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product and the detail design for review by the Design Team.

467A SUPPORT SYSTEM AND COMPOSITE DECKING TO THE BALCONY AREAS AROUND THE PARAPET ROOF

- Manufacturer: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
 - Product reference: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
- Size: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
- Accessories: Levelling pads.

The Facade / Roofing Sub-contractor is to ensure the composite decking they are proposed for the external balconies achieves a fire rating of A1, which is to be confirmed by the Facade / Roofing Sub-contractor by issuing the the Fire Test Report of the product being proposed.

The Facade / Roofing Sub-contractor as part of the detailed drawing submission is to take into account the adjacent interfaces based on the Design Intent provided by Beech Design & Build. The Facade / Roofing Sub-contractor is to also ensure their detailed design proposals include for compliance with Building Regulation Part B in relation to external fire spread and compartmentation.

480 PIPE COLLARS

- Manufacturer/ Supplier: As roof membrane.
 - Product reference: The Facade / Roofing Sub-contractor is to provide a Technical Submission of the proposed product for review by the Design Team.
- Size: To suit the proposed opening.

EXECUTION GENERALLY

510 ADVERSE WEATHER

- General: Do not lay membrane at temperatures below 5°C or in wet or damp conditions unless effective temporary cover is provided over working area.
- Unfinished areas of roof: Keep dry and protect edges of laid membrane from wind action.

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.

530 APPLYING PRIMERS

- Coverage per coat (minimum): As manufacturers recommendations.
- Surface coverage: Even and full.
- Coats: Fully bonded. Allow volatiles to dry off thoroughly between coats.

550 CONTROL SAMPLES

- Type of covering: As NBS Clause J42/110A.
- Sample area (minimum): It will be required to be circa 3.5m long as the mock up must include 3 No. bays of the concealed top hung window, fixed glazed units, partition abutment and the vertical glass fins, coping, roof membrane and associated upstand detail. The purpose of the sample is to finalize the facade detail and agree standard of workmanship along with formal discharge of the Planning Condition relating to the external facade .
 - Location: To be confirmed by the Main Contractor .
 - Features: Movement joints and upstand detail.
- Approval of appearance: Obtain before proceeding with remaining work.

SUBSTRATES/ AIR AND VAPOUR CONTROL LAYERS/ WARM DECK ROOF INSULATION

610 SUITABILITY OF SUBSTRATES

- Surfaces to be covered: Secure, clean, dry, smooth, free from frost, contaminants, voids and protrusions.
- Preliminary work: Complete, including
 - Grading to correct falls.
 - 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 integrity of roof.

640 FIXING TIMBER TRIMS

- Fasteners: Sherardized steel screws.
- Fixing centres (maximum): 400 mm.

660 JOINTS IN RIGID BOARD SUBSTRATES

- Cover strip: Lay centrally over substrate joints before laying air and vapour control layers or coverings. Adhere to substrate with bonding compound along edges only.

670 LAYING AIR AND VAPOUR CONTROL LAYER

- Laying: Fully bonded, flat and smooth.
- Side and head laps: 100 mm and 100 mm respectively. Seal using materials and method as membrane manufacturer's/ supplier's recommendations.
- Upstands, kerbs and other penetrations: Enclose edges of insulation. Fully seal at abutment by bonding or taping.

680 LAYING WARM DECK ROOF INSULATION

- Setting out:
 - Long edges: Fully supported and running at right angles to direction of span.
 - End edges: Adequately supported.
 - Joints: Butted together.
 - End joints: Staggered.
- Attachment: Not required.
- Mechanical fixing: To be confirmed by the Facade / Roofing Sub-contractor as part of their detail design submission.
- Completion: Boards must be in good condition, well fitting and secure.

WATERPROOF MEMBRANES/ ACCESSORIES

710 MECHANICAL FIXING OF WATERPROOF MEMBRANE

- Setting out: Perpendicular to the deck direction.
- Laying: Loose, do not wrinkle or stretch.
- 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.

730 WELDED JOINTING OF WATERPROOF MEMBRANE

- Side and end joints:
 - Laps (minimum): As manufacturers recommendations.
 - Preparation: Clean and dry surfaces beyond full width of joint.
 - Sealing: Weld together.
- Seam sealant: Even bead of liquid PVC to each joint.
- Condition at completion: Fully sealed, smooth, weatherproof and free draining.

740 ADHESIVE JOINTING OF WATERPROOF MEMBRANE

- Side and end joints:
 - Laps (minimum): As manufacturers recommendations.
 - Preparation: Prime, clean and dry surfaces beyond full width of joint and lap.
 - Sealing: Apply continuous even coverage of adhesive to both surfaces. Mate and roll together. Do not wrinkle or stretch membrane.
- Seam sealant: Even bead of liquid PVC to each joint.
- Condition at completion: Fully sealed, smooth, weatherproof and free draining.

750 TAPE JOINTING OF WATERPROOF MEMBRANE

- Side and end joints:
 - Laps (minimum): As manufacturers recommendations.
 - Preparation: Prime, clean and dry surfaces beyond full width of joint.
 - Sealing: Apply self-adhesive tape. Mate and roll together. Do not wrinkle or stretch membrane.
- Condition at completion: Fully sealed, smooth, weatherproof and free draining.

760 PERIMETER OF MEMBRANE

- General: Secure membrane at roof edge conditions, changes of plane, curb flashings, upstands to roof lights, etc. with mechanical fasteners.

765 PERIMETER DETAILS FOR THERMOPLASTIC MEMBRANES

- Upstands, edge trims, drips, kerbs, etc.: Secure preformed metal sections to roof structure with mechanical fasteners.
- Roof membrane: Dress over perimeter profile. Overlap beyond fasteners by minimum As manufacturers recommendations.
 - Sealing: Weld together.

770 PERIMETER DETAILS FOR THERMOPLASTIC MEMBRANES

- Upstands, edge trims, drips, kerbs, etc.: Form flashings from waterproof membrane material.
- Roof membrane: Terminate in horizontal plane immediately adjacent to change in direction and secure with mechanical fasteners.
- Flashings: Dress over perimeter profile. Overlap horizontal roof membrane beyond perimeter securement by minimum As manufacturers recommendations.
- Sealing: As manufacturers recommendations.

775 PERIMETER DETAILS FOR ELASTOMERIC MEMBRANES

- Upstands, edge trims, drips, kerbs, etc.: Preformed from waterproof membrane material.
- Reinforcing strip: Lay at edge of horizontal roof plane.
 - Securing: Mechanically fasten.
- Roof membrane: Dress over perimeter profiles.
 - Sealing: Bond to substrate and to secured perimeter reinforcing strip.

780 ROOF PENETRATIONS THROUGH THERMOPLASTIC MEMBRANES

- Roof membrane: Cut around penetrations and secure to deck.
- Flanged sleeve:
 - Type: Preformed flanged sleeve.
 - Installation: Dress over and around penetration.
 - Roof membrane overlap to flange (minimum): 50 mm beyond fasteners.
 - Sealing: Weld flange to roof membrane.
 - Protection to top edge of sleeve: Flashing or weathering cravat.

785 ROOF PENETRATIONS THROUGH ELASTOMERIC MEMBRANES

- Roof membrane: Cut around penetrations.
- Flanged sleeve:
 - Type: Preformed flanged sleeve.
 - Installation: Dress over and around penetration.
 - Sealing: Flush to roof membrane.
 - Roof membrane overlap to flange (minimum): 75 mm beyond fasteners.
 - Sealing: Bond top edge to pipe with mastic sealant and secure with clamping ring.

COMPLETION

910 INSPECTION

- Interim and final roof inspections: Submit reports.

920 ELECTRONIC ROOF INTEGRITY TEST

- Testing authority: The facade / roofing sub-contractor.
- Timing of test: Prior to, and on completion of access by other trades.
- Condition of roof prior to testing:
 - Waterproof membrane complete to a stage where integrity can be tested.
 - Surface: Clean.
- Test results and warranty: Submit on completion of testing.

930 FLOOD TEST OF THE ROOFTOP EXTENSION ROOF

- Condition of roof prior to testing:
 - Waterproof membrane complete to a stage where integrity can be tested.
- Outlets: Externally cover and seal. Protect against damage from water pressure using temporary kerbs. Do not use plugs to seal outlets.
- Flood levels: Submit proposals. In no case higher than kerbs.
- Flood duration: Three days.
- Inspection: Regular, to detect leaks.
- Completion of test: Slowly drain roof. Do not overload or flood outlets.
- 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 traffic and adjacent or high level working.