REF No: B122592 **PROJECT NAME: MONTROSE HOUSE**

NBS SECTION J42 - DESCRIPTION OF WORKS

Section J42 deals with the installation of the Bauder Single Ply System, comprising single layer coverings of polymeric sheets either mechanically fixed or adhesive bonded and jointed using hot air equipment. It includes where required the vapour control layers, insulation (whether above or below the waterproofing) the waterproof membrane and additional surface finishes of paving slabs or gravel in specifications where this finish is required. We presume the deck substrate and falls to be as stated within the specification below. Accessories are included where relevant.

It is intended for use on projects where the detailed design is completed by the specifier (architect or landscape architect) with technical assistance from the manufacturer as required and should be read in conjunction with any project specific drawings provided.

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SCOPE OF WORKS

This section includes:

- The Bauder Single Ply waterproofing system.
- Thermal insulation to meet the clients required U value.
- Related Bauder system accessories.
- Internal rainwater outlets (but not the connected drainage/plumbing goods).

This section does not include:

- Construction of the structural deck.
- Lightning protection – refer NBS Engineering Services, Section W60.
- Proprietary rainwater drainage / plumbing – refer NBS section R10.
- Fall arrest /restraint systems – refer NBS Section N25.
- Green Roof landscaping – refer Section Q37.

J42 SINGLE LAYER POLYMERIC SHEET COVERINGS
To be read with preliminaries /general conditions

110 WARM ROOF COVERING: Rear Garden Extension

- **Substrate:** New Plywood deck (designed and constructed to provide a minimum finished slope of 1°).
  - **Preparation:** As clause 610B.
- **Roof covering system:** BAUDER SINGLE PLY THERMOFOL SYSTEM
- **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH. **Tel:** 01473 257 671. Fax: 01473 230 761. **Email:** technical@bauder.co.uk **Web:** www.bauder.co.uk
- **Vapour control layer:** BauderTHERM DS1 Duo, 3.5 mm thick aluminium lined, elastomeric bitumen self-adhesive vapour. Installation as clause 670B
- **Insulation:** BauderPIR flat board, fire resistant, zero ODP, highly efficient rigid urethane insulation thickness to achieve the required U-Value (refer Clause 230). Installation as clause 680B
- **Insulation to upstands:** N/A
- **Insulation to vertical upstands (abutment walls only):** N/A
- **Separating layer (loose laid):** N/A
- **Waterproof membrane:** Thermofol U20, 2.0mm thick polyester reinforced waterproofing membrane, colour Light Grey attached by cold applied adhesive. Installation as clauses 720A
- **Lap joints:** All joints to be hot air or solvent welded, as clause 730A.

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- **Details: -**
  Two dimensional detailing: formed using Thermofol pre-coated, pre-fabricated metal, or non-fleece backed membrane (U15 Anthracite), or used in combination where appropriate. Membrane to be either fully bonded using the appropriate Bauder contact adhesive or mechanically fixed according to the construction - refer to the Bauder Single Ply Installation Manual for further guidance.
  Three dimensional detailing: Complex three dimensional detailing to curves, pipes or awkward shapes to be formed using Thermofol un-reinforced D15 membrane. Otherwise Thermofol pre-formed corners must be used at intersections and returns.
  Detailing generally: to be carried out in accordance with clauses 760, 764A, 765A, 766A, 767A, 768A, 769, 770, 780A and the Bauder Single Ply Installation Manual.
- **Surface protection:** Extensive Green Landscaping – Refer Q37-130
- **Accessories:**
  - Use of Bauder Mastic Sealant. Application as clause 901A.
  - Internal Rainwater outlet (size as required to match drainage pipe work). Installation as clause 904A
- **Additional requirements:** 210, 310, 510A, 517, 520, 522, 523, 524, 530, 910A, 940, 950B

PERFORMANCE

210 ROOF PERFORMANCE
- **Roof covering:** Secure, free draining and weather-tight.

230 INSULATION
- **Thermal transmittance (U-Value) of roof:** 0.18 W/m²K
- **Finished Surface:** Suitably even, stable and robust to receive roof covering.
- **Insulation compliance:** To relevant British Standard or Agrément certified.

PRODUCTS

310 ANCILLARY PRODUCTS AND ACCESSORIES
- Types: Recommended by coating manufacturer

320A FAST DRYING PRIMER
- **Type:** Any commercially available fast drying Bituminous Priming Solution meeting characteristics of BS 8217, clause 5.6.2., supplied by an approved installer.

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:** Please note organic solvent based timber preservatives are not permitted, as these attack bitumen based materials.

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EXECUTION GENERALLY

510A ADVERSE WEATHER

- **General:** Do not lay membrane at temperatures below 5°C or in wet or damp conditions.
- Provide temporary covers and drainage as required to keep finished areas of the roof dry.
- **Poor weather:** Suspend work in severe or continuously wet weather, unless an effective temporary roof is provided over the working area.
- If unavoidable wetting of the construction does occur, take prompt action to minimise and make good any damage.
- **Unfinished areas of roof:** Temporarily ballast incomplete areas of membrane as necessary to protect from wind action.

517 GENERAL WORKMANSHIP REQUIREMENTS

- Installation of the Bauder waterproofing system may only be carried out by approved Bauder contractors.
- Workmanship should comply with current Codes of Practice, BS6229 and Bauder Ltd installation instructions. All waterproofing materials and system components should be supplied by Bauder Ltd, unless otherwise stated, to be included within the guarantee. Non-compliant workmanship will not be permitted (even if the system is watertight). All such faults must be remedied, before the Guarantee can be issued.
- Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the Bauder System should be carried out by properly trained and qualified tradesmen.
- Any structural damage, peculiarities or defects discovered that might affect the performance of the Bauder waterproofing, should be reported immediately to the client and Bauder in order that they may make a decision in overcoming the problem prior to waterproofing.
- The contractor is to ensure water tightness of the roof at all times.
- Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new membranes. The final inspection will not be carried out by the independent surveyor until all associated trades are complete and the roof areas are clear from all debris and protection layers.
- All mechanical and electrical work to plant and equipment should be carried out by competent mechanical and electrical qualified tradesmen. All plant is to be reinstated and re-commissioned on completion of the roofing works in accordance with the client's detailed specification.
- Any lead work must be carried out by skilled tradesmen and in accordance with current codes of practice and the recommendations of the Lead Development Association.

520 INCOMPLETE WORK

- **End of working day:** Provide temporary seal to the deck to prevent water infiltration, ensuring that the insulation, if present, is protected.
- Ensure that the sequence of laying enables temporary sealing of loose membrane edges to be down on the slope and not against the flow of water.
- **On resumption of work:** Cut away tail of membrane from completed area and remove from roof.

522 PROTECTION AND STORAGE OF MATERIALS

- Store rolls of polymeric membrane and associated products in a clean, dry, well ventilated and cool conditions.
- Store materials designated by the manufacturers as temperature sensitive in facilities where temperature can be maintained at the recommended level.
- Insulation products must be kept dry and protected from wet weather during storage and installation.

523 PROTECTION OF WORK

- Ensure that from completion of the roof until practical completion:
- The roof is not used as a working platform, unless fully protected to the satisfaction of the CA.
- No paints, solvents or other volatile substances harmful to the membrane are allowed to come into contact with the roof surface.
- No building materials stored on the roof.
- Finished roof areas are adequately protected from damage by subsequent building operations.

524 HEALTH & SAFETY INFORMATION – ROOFING WORK

1. Suitable precautions must be taken to prevent accidents occurring when roofing systems are being installed.

2. The contractor must ensure that adequate measures are taken to effectively prevent injury to members of the public and other persons using the premises.

3. Whenever possible, access to the roof should be made via internal staircases rather than by temporary means. Where this is not available, it is the responsibility of the contractor to ensure a safe means of access and a safe working place is established though the risk assessment process.

4. Where microwave equipment is installed at roof level, care must be taken to prevent persons working on the roof from being exposed to large doses of microwave radiation.

5. Similarly, the contractor should liaise with the client to ensure that there are no extract outlets situated on the roof where noxious or harmful emissions could affect persons working. Suitable precautions will be necessary to prevent exposure where this situation arises.

6. The contractor is responsible for providing adequate fire fighting equipment in the form of extinguishers during work on the roof. These should be kept in easily accessible locations and be suitably signed.

7. The contractor must ensure that suitable written method statements and risk assessments are available for the work being undertaken. It is essential that working at height and manual handling methods be fully assessed as roofing materials are heavy and can cause serious injury.

8. The contractor must ensure that suitable information about the roof covering is provided to the Client at the end of the work to ensure that work in future can be carried out safely. This information will form part of the Health and Safety File.

9. All persons working on the roof should be provided with, and wear, suitable personal protective equipment and wet weather gear as identified in the risk assessment. Training must be provided to all contract staff on the safe use of the equipment.

10. The installer must observe Product Safety Datasheets and complete COSHH assessments relevant to the materials being used.

11. No work must be carried out on fragile roofs or where there are skylights unless a suitable risk assessment has been completed and precautions taken to prevent persons falling through fragile roofs and openings.

12. HSE guidance must be followed when carrying out any work involving interference with asbestos.

13. Current CDM Regulations must be observed.

530 APPLYING PRIMERS

- **Coverage per coat (minimum):** As per manufacturer's recommendations.
- **Surface coverage:** Even and full.
- **Coats:** Fully bond. Allow volatiles to dry off thoroughly between coats.

SUBSTRATES/ VAPOUR CONTROL LAYERS/ WARM ROOF INSULATION

610B SUITABILITY OF SUBSTRATES (PLYWOOD)

- **Substrates generally:** Secure, clean, dry, smooth, free from frost, contaminants, voids and protrusions. The new WPB plywood, thickness as specified by client, should be BBA certified, conforming to BS EN 1995 & CPD/CE compliant, fixed directly to either the joists or firings using recommended fasteners.
- **Falls:** Where provided, the falls/cross-falls should be designed to 1:40 to achieve minimum finished falls of 1:80 to comply with drainage requirements of BS 6229:2003 and the SPRA design guide. No deflections or back-falls present if the deck is designed to achieve a 0° level finished surface.
- **Preliminary work:** Complete including:
  - 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.
- **Preparation:** All such items to be rectified as necessary to eliminate the possibility of puncturing the new waterproofing system. The joints in the plywood should be taped with 200mm wide strips of Bauder R333 taping strip. Lay centrally over substrate joints before laying vapour control layers or coverings. Adhere to substrate with bonding compound along edges only or intermittent strips of gaffer tape, prior to the self-adhesive vapour barrier being laid. Prime all areas receiving the vapour barrier with fast drying bitumen primer, as clause 320A, and allow it to dry.

640 FIXING TIMBER TRIMS

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

670B LAYING VAPOUR CONTROL LAYER

- **Attachment:** Cold applied and fully bonded to the deck. With metal decks the sheets should run in the direction of the crowns/troughs, with laps formed on the crowns of the deck to ensure that they are fully supported in accordance with manufacturers requirements.
- **Side and end laps:** minimum 100 mm, laid red over blue with all laps torch sealed to provide a 5-10 mm bitumen bead extrusion. Installation methods as recommended by manufacturer.
- **Penetrations:** Fully seal using bonding methods recommended by manufacturer.
- **Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like:** Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like: Enclose, with vapour control layer, dressed up level with the surface of insulation.
- Care should be taken to ensure adhesion when the temperature is below + 5º C.
- **Please note:** Should BauderTherm DS1 DUO Vapour barrier be specified and left exposed for longer than two weeks as a temporary waterproof layer, the burn off release foil and surface of the torch-activated adhesion stripes will be effected by the exposure to ultra violet. This minor

issue can be resolved by using more heat to activate the bitumen stripes, but the process will be slightly slower than when using newly laid material.

680B LAYING WARM ROOF INSULATION

- **Setting out:**
  - **Long edges:** Fully supported. (Where metal decking is specified, the long edges must be fully support and run at right angles to metal deck troughs).
  - **End edges:** Fully supported.
  - **Joints:** close butted together.
  - **End joints:** Stagger.
- **Bedding:** Fully bed into torch activated bonding stripes of vapour control layer surface.
- **Additional board layer (if applicable):** Where a second board layer is required to make up the total insulation thickness required, this should be off-set and staggered from the previous layer and bonded to the first layer of boards using Bauder insulation adhesive, applied in five equal strips across the board surface.
- **Protection to exposed edges of insulation:** A hard timber edge or similar protection should be incorporated at all exposed edges. See clauses 330 & 640.
- **Completion:** Boards must be in good condition, well-fitting and stable.

WATERPROOF COVERINGS/ ACCESSORIES

720A ADHESIVE BONDING OF WATERPROOF MEMBRANE

- **Laying membrane:**
  - On a continuous even coating of adhesive.
  - Do not wrinkle or over-stretch.
- **Attachment:** Membrane to be bonded directly to the surface of the Insulation.
- **Adhesive:** Bauder Thermofol Full Bond Adhesive 4692.
- **Taping of board joints:** The insulation board joints must be taped with a suitable foil faced self adhesive tape, this to ensure adhesive is applied to the tissue facing only and cannot pass through the board joints. One supplier of foil tape is FRS, Tel: 01293 590970, who can supply and advise on suitable tape for this application.
- **Application:** The adhesive is to be applied to the upper surface of the insulation and the underside of the membrane in a full and continuous covering to both surfaces. The adhesive coverage rate is 2-3 m², per litre depending on substrate and temperature. It is essential that the surface of the insulation is clean, dry and free from dust etc., before applying the adhesive. Care should be taken to ensure that the adhesive does not come into contact with the areas of the membrane that will require welding. The membrane should be unrolled directly onto the adhesive and should be pressure rolled over its full surface area a minimum of three times during a thirty minute period after application. All side and end laps to be hot air welded.
- **Equipment:** A list of suitable Hot Air Welding machines and accessories specifically designed for this operation is contained in the Bauder Installation Guide. Installation of the Bauder Thermofol System shall only be carried out by Bauder trained installers and shall be carried out in accordance with the details given in the Bauder Installation Guide.
- **Additional information:** Installation of the Bauder Thermofol System shall be carried out in accordance with the details given in the Bauder Installation Guide.
- **Surface condition at completion:** Fully sealed, smooth, weatherproof and free draining.

730A WELDED JOINTING

- **Laying:** Loose lay, do not wrinkle or stretch.
  - **Side and end joints:** manufacturer's/ supplier's recommendation
  - **Laps (minimum):** manufacturer's/ supplier's recommendation

- **Preparation:** Clean and dry surfaces for full width of joint.
- **Sealing:** Weld together (Hot Air or Solvent welded).

- **Condition at completion:** Fully sealed, smooth, weatherproof and free draining.
- **Accessories:** None

760 PERIMETER OF MEMBRANE

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

764A PRE-FORMED PRE-COATED METAL FLASHINGS

- Thermofol Pre-Coated Metal sheet is available from Bauder for the formation of fabricated metal flashings, trims and terminations. A list of fabrication companies who already hold this material for bespoke flashing fabrication is available from Bauder Ltd. All detail designs if not in accordance with the design shown within our detail drawing attached must be submitted to Bauder for approval prior to fabrication.
- All Thermofol Coated Metal flashings must be mechanically attached using recommended fastenings installed at 250mm centres. The flashing must be sealed using Thermofol Tape 20 to the structure as shown in the attached detail drawing to ensure minimum air passage through or below the flashing. The chosen fastener supplier can give guidance as to the type of fastener required (fasteners must have counter sunk head style).

765A PERIMETER DETAILS FOR THERMOPLASTIC MEMBRANES

- **Upstands, edge trims, drips, kerbs, etc:** Secure Bauder Thermofol preformed pre-coated metal sections to roof structure with mechanical fasteners.
- Roof membrane: Dress over perimeter profile. Overlap beyond fasteners as per manufacturers recommendations
- Sealing: Weld together.

766A WATERPROOFING MEMBRANE (TWO DIMENSIONAL DETAILS)

- **Upstands, edge details, flashings etc:** Detail work requiring membrane is to be carried out with Bauder Thermofol membrane restrained beneath or welded directly to Thermofol Coated Metal as shown in the attached detail drawings. Thermofol Pre-Formed Corners must used for the formation of internal or external corner details.
- Special consideration must be given to the preparation required prior to hot air welding of the all laps within the Bauder Thermofol System.
- A list of suitable Hot Air Welding machines and accessories specifically designed for this operation is contained in the Bauder application manual/data sheets.

767A WATERPROOFING MEMBRANE (THREE DIMENSIONAL DETAILS)

- **Pipes, Roof Penetrations etc.:** Detail work requiring the membrane to be used in irregular angles is to be carried out with Bauder Thermofol D non-reinforced or Thermofol Pre-Formed Accessory detailing items. Special consideration must be given to the preparation required prior to the hot air welding of all detailing joints within the Bauder Thermofol System.
- Special consideration must be given to the preparation required prior to hot air welding of the all laps within the Bauder Thermofol System.
- A list of suitable Hot Air Welding machines and accessories specifically designed for this operation is contained in the Bauder application manual/data sheets.

768A COVER STRAPS TO THERMOFOL METAL

- Provision should be made to allow a 4mm gap between abutting sections in the Thermofol metal edge trim, for expansion/contraction. Supply and install Thermofol reinforced cover straps, 200mm in width fixed over the joints in the Thermofol metal edge trim to provide a smooth neat finish. The membrane should be welded to the surface of the Thermofol metal

leaving the centre section of the cover strap un-welded. The cover strap should be cut to remove visible 90º corners.

769 DETAILS GENERALLY

- The minimum recommended height for constructing waterproofing details is 150mm from the top of the waterproofing. Special attention should be paid to all structures such as rooflights, counter-flashings, window and door cills etc. These may have to be raised to enable a 150mm waterproofing detail to be formed. We cannot take responsibility for water ingress over waterproofing details the do not meet the minimum required height.

770 PERIMETER DETAILS FOR THERMOPLASTIC

- **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, strictly in accordance with the manufacturer's recommendations.
- **Sealing:** Weld together.

780A ROOF PENETRATIONS THROUGH THERMOPLASTIC MEMBRANES

- **Roof membrane:** Cut around penetrations and secure to deck.
- **Flanged sleeve:**
  - **Type:** Form from Thermofol D 15 un-reinforced membrane, complete with base flange.
  - **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.

SURFACING

Extensive Green Landscaping – Refer Q37-130

ACCESSORIES

901A MASTIC SEALANT

- Provision should be made to allow for the use of Bauder Sealant in conjunction with Bauder Sealant Primer at all abutments with the Thermofol system, and any other instances where a mastic seal is required.
- It is imperative that the primer is used to prepare the surfaces effectively to enable a long lasting key with the sealant.

904A INTERNAL OUTLET

- Internal rainwater outlet/s (suitable for PVC membranes) of the correct size is to be installed through the system and deck after creation of a suitable size diameter opening. The outlet should be secured using suitable fasteners.
- All vapour barrier edges should be sealed to the deck using Tape 03. Connection to the rainwater waste pipe should be made by others, details for this connection can be found in the product data pages. The outlet is designed to be connected into the standard spigot end connector on the rainwater waste pipe. The outlet spigot is universal length to cope with differing insulation thickness's and will require cutting down to the correct length. The Thermofol waterproofing membrane should be welded on to the outlets pre-attached PVC membrane (if present) or to the body of the outlet. Install the clip-fix leaf grille.

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COMPLETION

910A INSPECTIONS

- Interim and final roof inspections - These are a requirement where workmanship is included within the Bauder Guarantee and must to be carried out in strict accordance with the manufacturer's requirements. It is the responsibility of the approved contractor to advise the appointed Bauder Site Technician when the roof is ready for 'Final Inspection'.
- A Final Inspection of the waterproofing should be carried out prior to any landscaping being installed i.e. where green roofs, paved or ballasted finishes are specified to ensure that any damage or defects are rectified.
- Any waterproofing covered by landscaping that has not been inspected and approved by Bauder Ltd will not be eligible for guarantee.
- Where a 'Product only' guarantee is offered, there may still be random inspections carried by Bauder Ltd for the purposes of monitoring general workmanship standards, but these do not form part of any warranty 'sign off' process.
- Please also refer to preliminaries / general conditions.

940 COMPLETION

- **Roof areas:** Clean.
  - **Outlets:** Clear.
- **Work necessary to provide a weather-tight finish:** Complete.
- **Storage of materials on finished surface:** Not permitted.
- **Completed membrane:** Do not damage. Protect from traffic and adjacent or high level working.

950B GUARANTEE

- A 15 year guarantee is to be provided upon completion following a Final Inspection by Bauder. Details regarding the full terms and conditions of this guarantee are available separately from Bauder Ltd upon request. This system must installed by a trained Bauder installer to be eligible for guarantee.