Delta Membrane Systems Ltd.
PROJECT**: 35 Great Queen Street, London WC2B**

J40/ 290 HIGH DENSITY POLYETHYLENE DAMP PROOF MEMBRANE

- **DELTA SYSTEM 500** – Cavity drain waterproofing system

- **Design criteria:** References: BBA certificate 00/3742 - Delta Membrane Systems. BS.8102:2009 Protection of below ground structures against water from the ground. Use of the system will upgrade the basement to a type 'C' structure, and to grade 3 as defined in 'Table2.- 'Grades of waterproofing protection'.

- **Manufacturer:**
  Delta House, Merlin Way, North Weald,
  Epping, Essex CM16 6HR
  Telephone: 01992 523 523 Fax: 01992 523 250 Mob 07796 955029
  Email: pc@deltamembranes.com or paul.callaghan70@ntlworld.com

- **Installation:** Installation should be carried out in strict accordance with the manufacturer's instructions by a **Delta Registered Contractor** so that you/your client can benefit from the installation and product guarantees on offer.

- **Preparation: Floor & Walls (If Required).**

  Apply Polysil TG500 to walls and floor as a silicfication treatment to reduce the risk of 'free lime'. It should be applied in one spray coat, at the rate of 0.15kg/m^2/coat. All other preparation should be in accordance with the manufacturer's installation manual and any other recommendations.

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- **Wall Areas (Under pavement vault)**

- Product reference: Delta – MS 500
- Dome height: 8mm
- Substrate: Brick/Block/Concrete.

- **Fixing:** The Delta-MS 500 membrane should be fixed using the Delta-Qwik Seal Plug. The holes should be drilled using a Ø10mm drill bit. The head of the Delta-Plug is designed to receive a size 10 screw, and can be used to anchor the dry lined finish. A gap of approx. 12 – 15mm should be left at the bottom of the membrane to allow continuity of the drainage cavity.

- **Fixing centres:** Delta-Qwik Seal Plugs should be fixed @ approx. 600mm centres, and should be suitably positioned to receive the chosen dry lined finish, on the apex & curved section of the vault the fixing's should be applied at 150-250mm centres to eliminate the risk of ponding or 'bagging'.

- **Sealing:** The Delta-Qwik Seal Plugs are sealed around the underside of the head by a pre-applied waterproof grommet forming a waterproof seal.

- **Jointing:** Joints are formed using the flat 70mm flange on one edge of each roll. This is positioned over the studded edge of the previous sheet, and sealed using Delta-Tape adhesive between the two. Should a stud to stud joint occur, this should be sealed with Delta-Rope or over sealed with Delta-Corner strip.

- Any services which protrude through the membrane can be sealed with the appropriate Delta adhesive product as described in the Delta Installation manual, and in accordance with the manufacturer's instructions.

  Laps (minimum): A flange to stud joint should not exceed 70mm. A stud to stud joint should overlap by a minimum of 3 rows of studs. Where any lap occurs, the sheets should be lapped to allow continuity of drainage on the reverse side, from one sheet to the next. All laps and joints should be applied in accordance with the manufacturers Installation manual, and instructions.

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- **Floor area**
- Product reference: Delta-MS 20
- Dome height: 20mm.
- Substrate: Concrete

- **Fixing:** Fixings should not be used in the application of Delta-MS 20.

- **Jointing:** Delta-MS 20 is loose laid onto the floor, and butt jointed up against the wall membrane. On the floor where sheet sections meet, they should be overlapped by 3 rows of studs and interlocked.

- **Sealing:** Where the MS 20 butts up to the wall membrane, the joint is formed and sealed using Delta-Corner strip (150mm wide). The corner strip should lap equally from the MS 20 to the MS 500, forming a neat joint at the floor/wall angle.

  Where sheet sections overlap, the studs should interlock and the sections are sealed either by using a pre applied Delta-Tape joint or by over sealing the laps using Delta-Corner strip.

Specialist Drainage:

Groundwater Incorporate 1 x 'Delta **Dual V3** Sump' into the floor design. The sump should be sited most conveniently to receive any excess groundwater ingress over the slab floor, into the sump top opening. The sump will incorporate two Delta V3 pumps, with all necessary pipe work and non-return valves. **The sump WILL be supplied with an audible alarm to act as a high water level warning.**

Power back-up: The groundwater sump WILL be connected to a **Delta Power Pack**, which will automatically manage and run one Delta V3 pump in the event of power failure.

Drainage Channels: Drainage channels can be used to assist in the groundwater management. These can be installed around the perimeter walls into the floor slab to collect and drain water to the sump, in accordance with the manufacturer's instructions. Access ports can be included as necessary for maintenance purposes; they are normally installed at each change of direction

See technical details 123a-20 & 137-V3 attached as well as the information regarding the drainage Channel

Flood test: Once the drainage system is installed and operational but before the Delta-MS 20 is installed, a flood test should be carried out to confirm the efficiency of the drainage system, and that the correct hydraulic gradients have been formed, so that ponding does not occur.

- **Falls:** Subject to the outcome of the flood test, if required, nominal falls should be created in the floor slab, towards the drainage outlets to maximise drainage efficiency. Any depressions in the floor causing water to pond should be filled level.

- **Heating and Ventilation:** The environment in basements should be controlled by having balanced heating and ventilation to combat the small risk of condensation. All habitable rooms, kitchens, utility rooms, sanitary accommodation and bathrooms located within the basement, should follow the ventilation provisions of the Building Regulations 2000 part F1.

WORKMANSHIP

WORKMANSHIP GENERALLY

- Condition of substrate: Clean, dry, smooth, free from voids and sharp protrusions.
- Air and surface temperature: Do not apply sheets if below minimum recommended by sheet manufacturer.
- Condition of membrane at completion:
- Neat, smooth and fully supported, dressed well into abutments and around intrusions.
- Completely impervious and continuous.
- Undamaged. Prevent puncturing during/following work.
- Permanent overlying construction: Cover membrane as soon as possible.

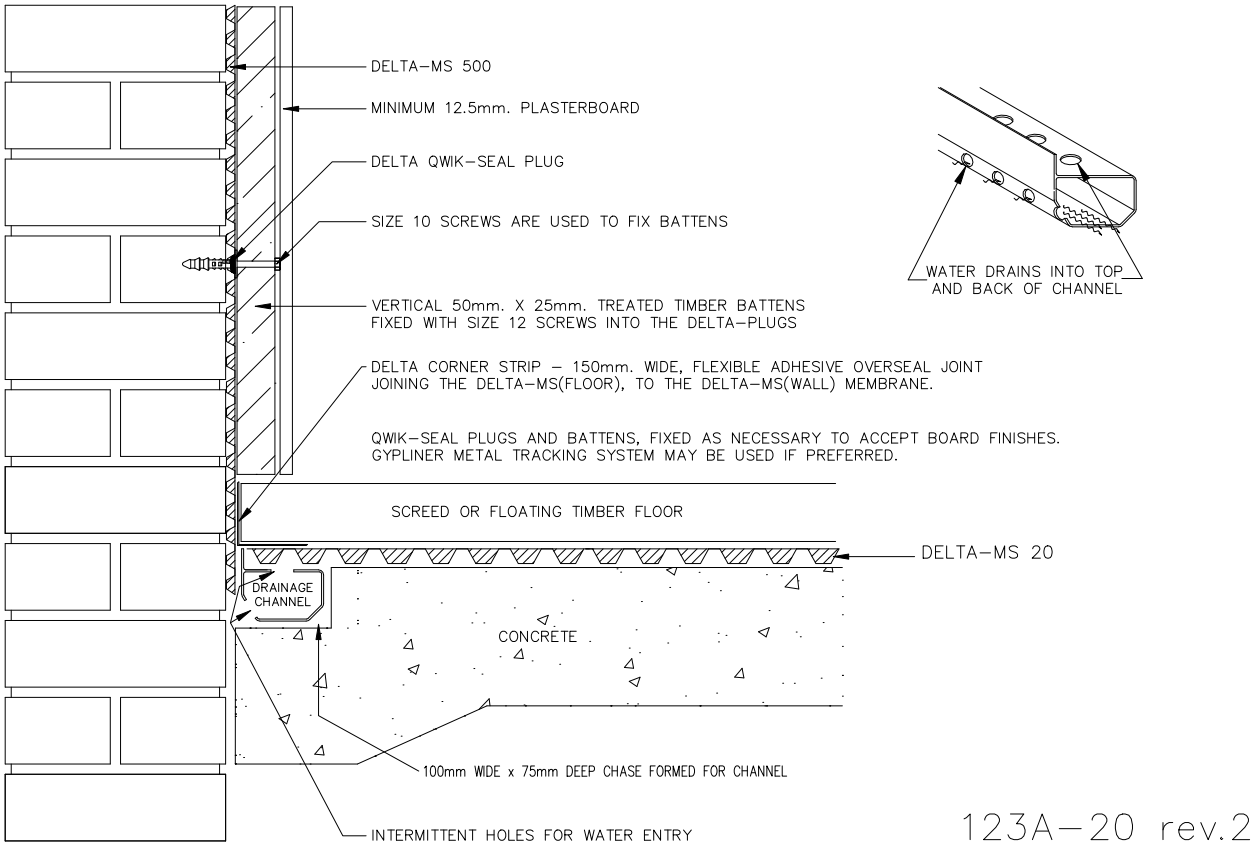
Specification by

Paul Callaghan
CRDS CSSW

Date: 16th October 2015

DO NOT SCALE

DELTA SYSTEM 500
WITH DELTA DRAINAGE CHANNEL



123A–20 rev.2

TYPE C, DRAINED PROTECTION, WALL AND FLOOR APPLICATION

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Title
DELTA SYSTEM 500 WITH DELTA DRAINAGE CHANNEL

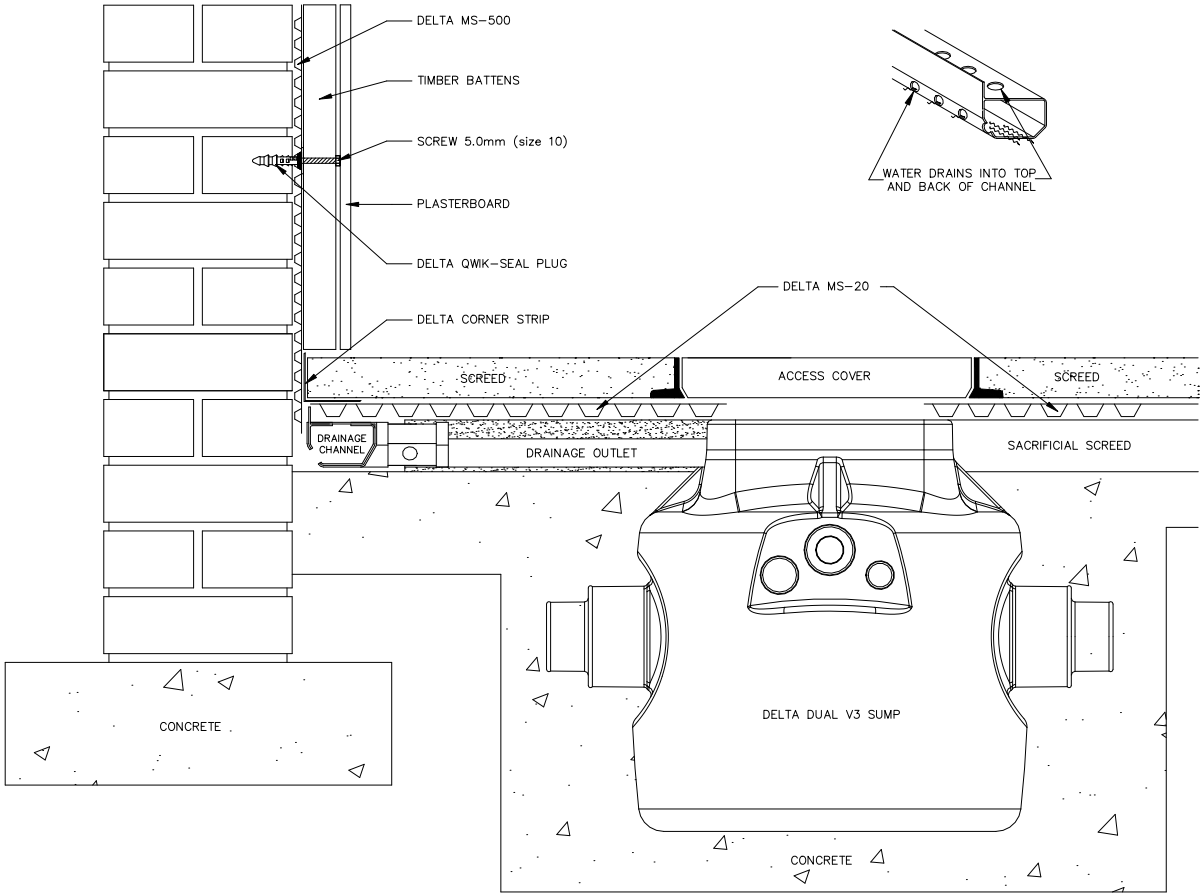
Drawing No. 123A-20

Rev 2

Drawn

DO NOT SCALE

Drainage Channel into Sump/Pump(V3) 137A–V3 rev.2



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Title
DRAINAGE CHANNEL INTO SUMP/PUMP(V3)

Drawing No. 137A-V3

Rev 2

Drawn