GROUND GAS PROTECTION SUBMISSION

Use of Delta AT 800 above an already-cast ground-bearing concrete slab

Project	Proposed single-storey rear and side extension
Property	25 Brookburn Road, Chorlton
Client	Ms A. Patel
Related drawings	AR120580-001 Rev D and AR120580-002 Rev D
Document status	For planning / technical consultation
Prepared by	A.M. Design

Important submission note. Ground-gas protection is normally considered under Building Regulations and, where relevant, planning contamination conditions rather than ordinary planning design control. This document sets out the intended principle. Final acceptance remains subject to the Local Planning Authority, Building Control and any Contaminated Land Officer requirements, together with the manufacturer's written confirmation for this exact above-slab build-up.

1. Purpose and proposal

The proposal is to provide a continuous ground-gas resistant layer over the completed 150 mm C25/30 reinforced ground-bearing concrete slab shown on drawing AR120580-002 Rev D. The proposed product is Delta AT 800, a profiled Type C drainage membrane manufactured by Delta Membrane Systems Ltd. The membrane is to be installed above the slab, protected from following trades, and continued to sealed perimeter terminations at the inner face of the surrounding walls.

At the junction with the existing dwelling, the membrane will be dressed up against the existing inner leaf and sealed using compatible proprietary tapes, corner strip, sealants and termination components. The membrane will not be taken across the existing cavity and will not obstruct existing damp-proof courses, cavity drainage or sub-floor ventilation.

2. Existing sub-floor ventilation

Existing air bricks serving the suspended floor of the original dwelling are to remain effective. Where the new extension would otherwise obstruct them, proprietary rigid ventilation sleeves or ducts will be installed from the existing vent positions, through the existing external wall and beneath the new ground-bearing slab, to new external air bricks. The ducts are to remain wholly below the new slab and gas membrane so that the gas-resistant layer is not penetrated.

The number and equivalent free area of the replacement ventilation paths are to be confirmed against the existing arrangement before work is covered. Ducts are to be laid without low points that could retain water, protected against crushing, and sealed around their masonry interfaces. The existing cavity must remain clear and must not be treated as part of the gas-protection system.

3. Product suitability and limitations

- Delta AT 800 is described by the manufacturer as a gas-resistant Type C cavity drainage membrane suitable for new and existing buildings and as a barrier to methane, carbon dioxide and radon.
- The manufacturer states conformity with BS 8102:2022 and BS 8485:2015+A1:2019, Table 7. Published data identify an approximately 9 mm dimple height, approximately 650 kPa pressure resistance and methane permeability below 31 ml/m²/day/atm.

GENERAL

- The above-slab arrangement is acceptable in principle only where Delta Membrane Systems confirms the complete floor build-up, orientation, load-spreading/protection layer, jointing system, perimeter termination and compatibility with floor insulation, screed and finishes.
- Delta AT 800 is a profiled Type C membrane rather than a conventional flat sheet DPM. Any drainage function or discharge path required by the manufacturer must be expressly resolved. It must not be assumed that a sealed cavity-drain membrane can be substituted directly for a flat gas/DPM layer without the manufacturer's project-specific detail.
- The required ground-gas protection level must be based on the site investigation, gas screening value or radon assessment. This submission does not replace a site-specific ground-gas risk assessment.

4. Installation specification

1. Clean, dry and prepare the concrete slab. Remove laitance, projections, debris and sharp edges that could damage the membrane.

2. Install Delta AT 800 in the orientation stated in the current manufacturer's written instructions. Form all laps using the specified Delta tapes and corner strip, with surfaces primed where required.

3. At external and internal corners, use preformed or carefully formed proprietary details. Avoid fish-mouths, wrinkles and unsupported folds.

4. Turn the membrane up at all perimeter walls and gas-tight seal it to the prepared inner leaf or a compatible DPC/termination zone. Do not bridge the masonry cavity and do not obstruct cavity ventilation or weep paths.

5. Avoid membrane penetrations. Where unavoidable, use proprietary top-hats or preformed collars fully bonded to the membrane. Seal all fixing points with the manufacturer's approved plugs, grommets, rope or sealant as applicable.

6. Provide the manufacturer-approved protection/separation layer immediately after installation. Follow-on insulation, screed or floating floor work must not puncture or displace the membrane.

7. Installation is to be carried out by operatives experienced in ground-gas membrane work. All joints, corners, upstands and penetrations are to remain accessible for inspection before covering.

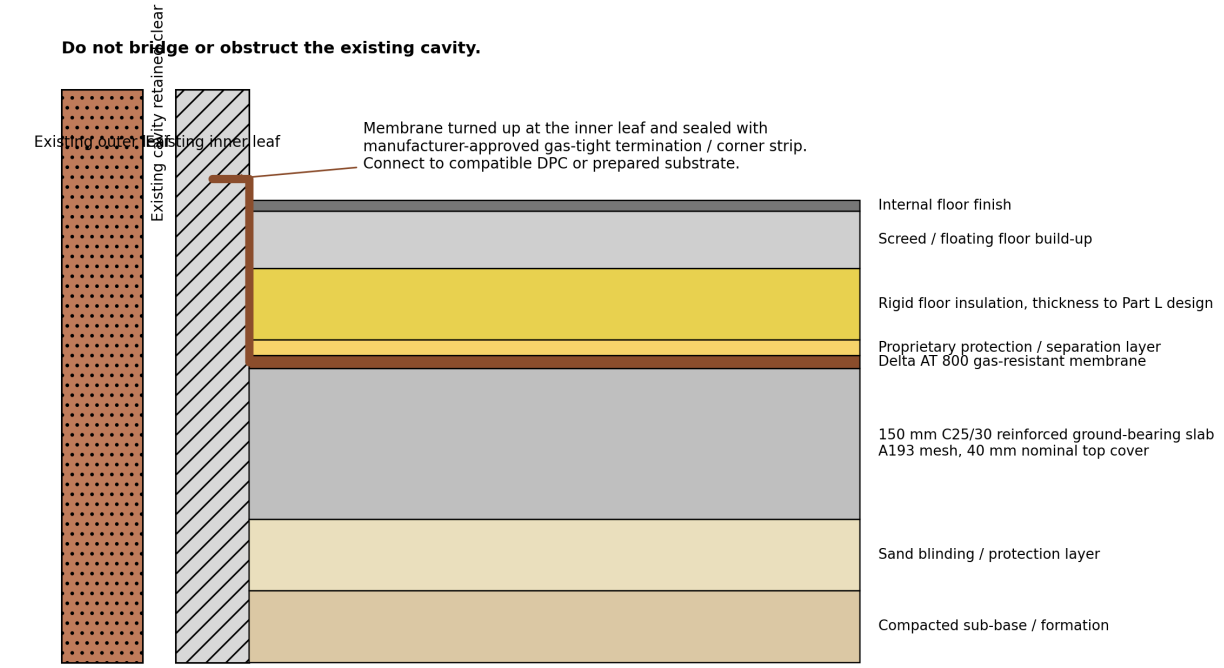
8. On completion, provide a marked-up membrane layout, photographic record, product batch details, installer declaration and verification report. Any integrity testing required by the approving authority or verifier is to be completed before floor finishes are installed.

5. Residual design matters requiring confirmation

Item	Required confirmation
Ground-gas hazard	Provide site-specific ground-gas / radon assessment and confirm the required protection score or measures.
Manufacturer approval	Obtain written confirmation from Delta Membrane Systems for use above this slab and beneath the proposed insulation/screed build-up.
Drainage	Confirm whether the Type C cavity requires a maintainable drainage route or whether the product is being used solely as a sealed gas barrier in this application.
Perimeter termination	Confirm the exact tape, primer, corner strip, sealant, fixing centres and connection to existing DPC / inner leaf.
Ventilation ducts	Survey existing air bricks and demonstrate equivalent free area is maintained through the new duct routes.
Verification	Agree inspection, photographic evidence and any integrity testing with Building Control / the Contaminated Land Officer before covering.

6. Technical details

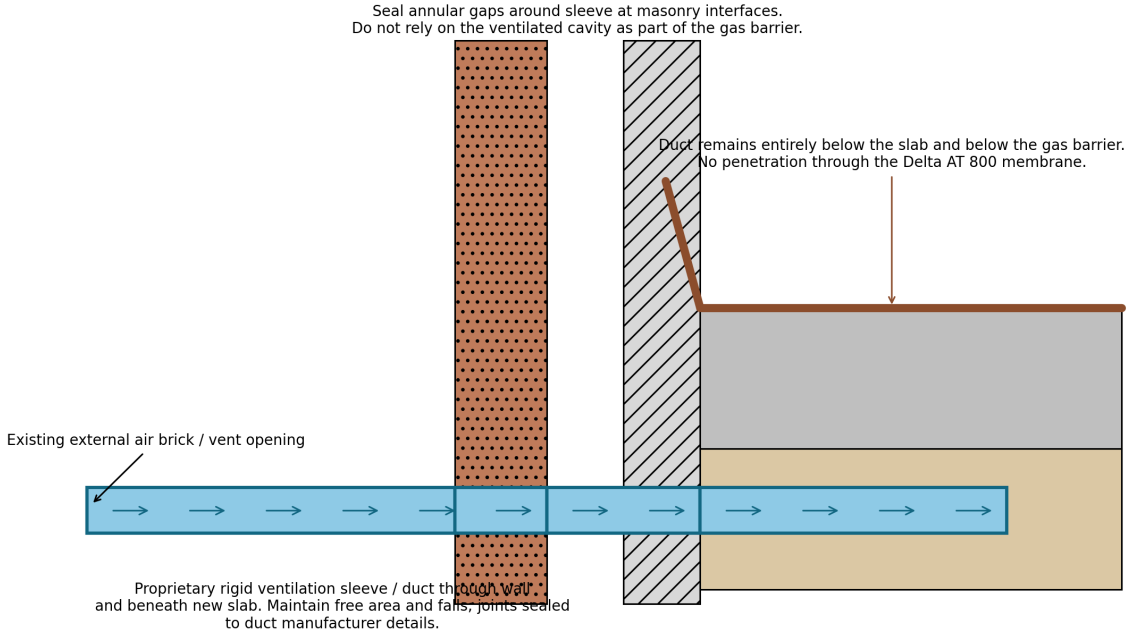
DETAIL GG-01 TYPICAL GROUND-BEARING SLAB AND EXISTING WALL ABUTMENT



NTS. Final floor build-up, laps, tapes, primers and terminations to Delta Membrane Systems written installation details.

Figure 1 - Typical above-slab membrane and existing wall abutment

DETAIL GG-02 EXISTING SUSPENDED-FLOOR VENTILATION MAINTAINED BELOW NEW SLAB



NTS. Confirm number and equivalent free area of ducts on site to avoid reducing existing sub-floor ventilation.

Figure 2 - Existing suspended-floor ventilation maintained beneath new slab

DETAIL GG-03 TYPICAL SERVICE PENETRATION THROUGH GAS MEMBRANE

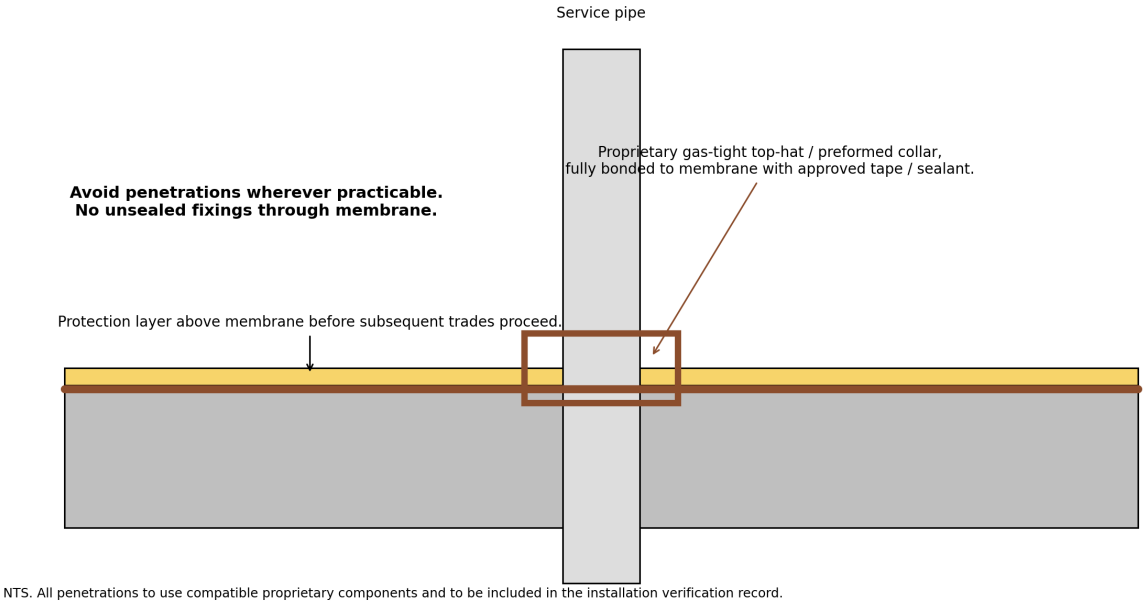


Figure 3 - Typical sealed service penetration

7. Conclusion

The proposed principle maintains a continuous ground-gas-resistant envelope above the new ground-bearing slab while preserving ventilation to the existing suspended timber floor through independent ducts below the slab. The critical approval points are the site-specific ground-gas risk, the manufacturer's written acceptance of the complete above-slab build-up, gas-tight perimeter and penetration details, and independent inspection before the membrane is concealed.

References

- Delta Membrane Systems Ltd, Delta AT 800 Type C Membrane product page and current product data sheet.
- BS 8485:2015+A1:2019, Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.
- BS 8102:2022, Protection of below ground structures against water ingress - Code of practice.
- Approved Document C: Site preparation and resistance to contaminants and moisture.
- Project drawings AR120580-001 Rev D and AR120580-002 Rev D.