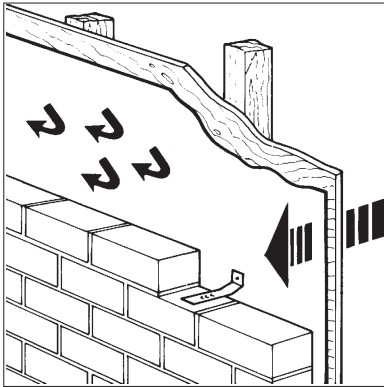


Product



• THIS DETAIL SHEET RELATES TO TYVEK HOUSEWRAP, A HIGH DENSITY POLYETHYLENE BREATHER MEMBRANE SHEET.

• Breather membranes are suitable for timber frame constructions, either factory or site applied.

This Detail Sheet must be used in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, general information relating to the product, and the Conditions of Certification.

Technical Specification

1 Description

1.1 TYVEK HOUSEWRAP is manufactured by spinning strands of high density polyethylene (PE-HD) and bonding them together with heat and pressure to form a flexible sheet.

1.2 The product has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristics (units)	TYVEK HOUSEWRAP
thickness (mm)	0.17
weight (gm ⁻²)	61
roll length (m)	100
roll width (m)	1.4, 2.7 or 2.8
colour	to order

1.3 Quality control includes visual inspection, measurement of physical properties, thickness and roll weight.

2 Delivery and site handling


2.1 The membrane is delivered to site in rolls with paper wrappings bearing the marketing company's name, the grade identification and the BBA identification mark incorporating the number of this Certificate.

2.2 Rolls should be stored on their side, on a smooth, clean surface, under cover and protected from sunlight.

Design Data


3 General

3.1 TYVEK HOUSEWRAP is suitable for timber frame constructions, either factory or site applied.

 3.2 In the absence of other guidance, suitable timber frame constructions are defined as those designed and built in accordance with NHBC Standards, Section 6.2.


3.3 The membrane may be damaged by high winds, careless handling or by vandalism and should not be left uncovered for longer than is absolutely necessary. Any damaged areas should be repaired or replaced before completion.

4 Condensation risk

 4.1 The risk of condensation occurring within the wall of a timber frame building will depend upon the properties and vapour resistance of other materials used in the construction, the internal and external conditions and the effectiveness of the internal vapour check.

4.2 The membrane has a vapour resistance of less than 0.2 MNsg⁻¹.

5 Durability

 TYVEK HOUSEWRAP will be unaffected by the normal conditions found in a timber frame wall and will have a life comparable with other elements of construction (such as vapour checks).

Installation

6 General

TYVEK HOUSEWRAP Breather Membrane must be installed in accordance with the marketing company's instructions and the recommendations given in NHBC Standards, Section 6.2, where appropriate.

7 Procedure

Lapping and jointing

7.1 The membrane should be fixed in such a way as to shed water away from the sheathing, and below the lowest timber. Upper layers should be lapped over lower layers.

7.2 Laps should be at least 100 mm and vertical laps 150 mm. Vertical laps should be staggered wherever possible (see Figure 1).

Fixing

7.3 The membrane must be secured at regular intervals with nails and staples to prevent damage by wind (see Figures 2, 3 and 4).

7.4 Nails should be of galvanized or sherardized mild steel, austenitic stainless steel, phosphor bronze or silicon bronze and staples should be of austenitic stainless steel.

Marking stud positions

7.5 It is essential that the positions of studs are marked to enable wall tie fixing.

Lowest timbers

7.6 It is essential that the lowest timbers in the wall are protected by the breather membrane.

Figure 1 Laps

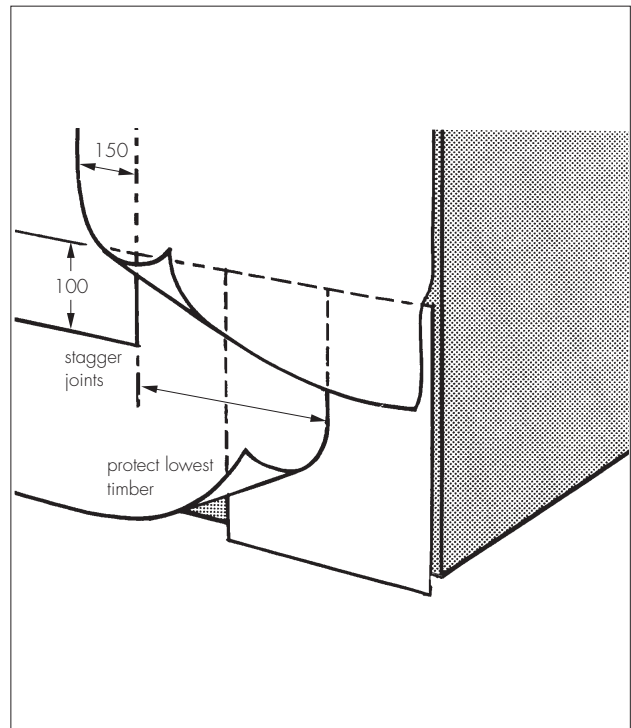


Figure 2 Factory method of installation on timber frame panel

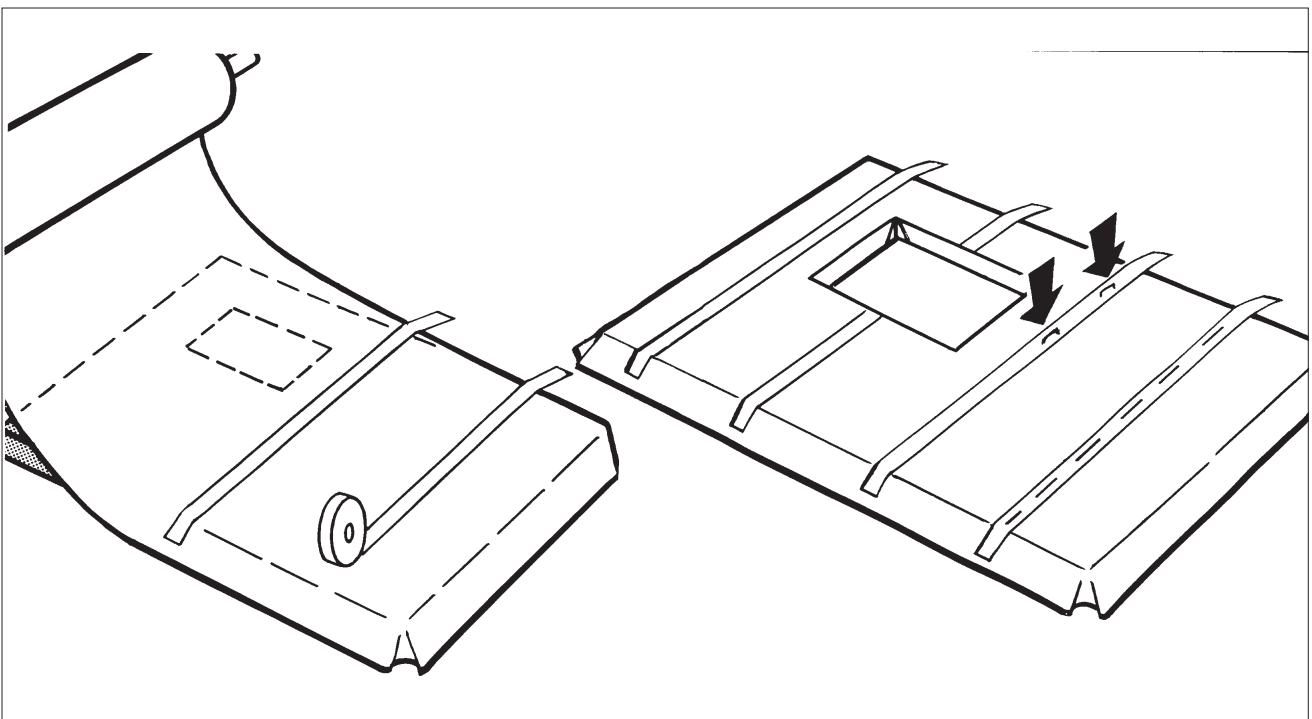


Figure 3 Site installation — external corner

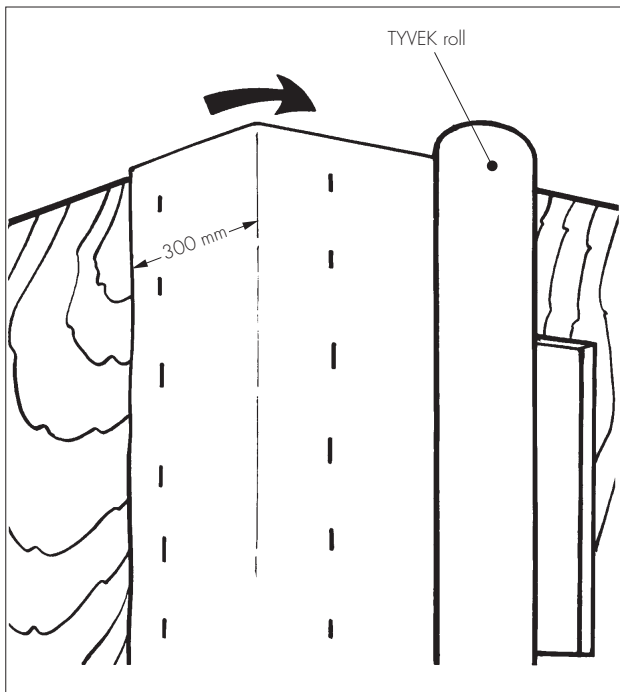
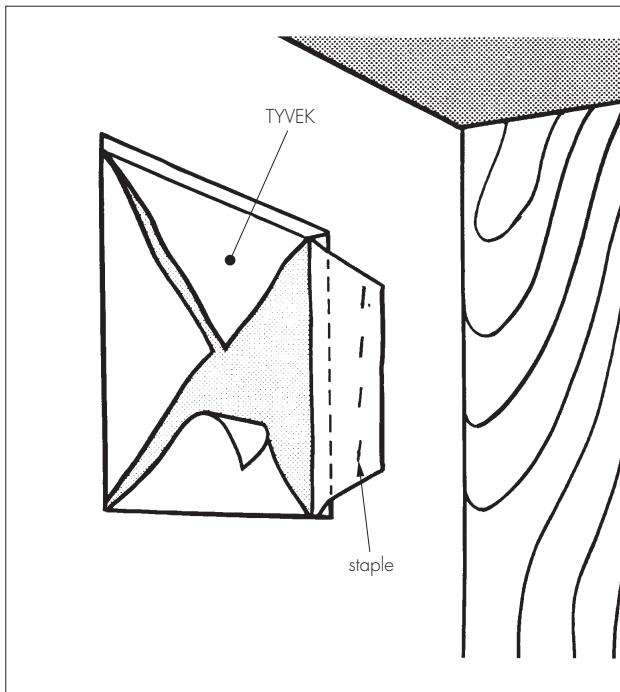


Figure 4 Site installation — opening



Technical Investigations

The following is a summary of the technical investigations carried out on the TYVEK HOUSEWRAP.

8 Tests

Samples of TYVEK HOUSEWRAP and TYVEK 1056B (formerly marketed lighter grade of TYVEK HOUSEWRAP) were obtained from the company for testing. The results of the tests carried out by, or on behalf of, the BBA show typical results for the materials and are summarised in Tables 2 and 3.

Table 2 Physical properties of TYVEK 1056B—directional

Test (units)	Method ⁽¹⁾	Mean result
Tensile strength (Nmm ⁻²)	BS 2782 : 320A	
unaged		
long ⁽²⁾		39.79
trans ⁽³⁾		52.77
aged ⁽⁴⁾		
long ⁽²⁾		45.00
trans ⁽³⁾		46.74
water soak ⁽⁵⁾		
long ⁽²⁾		39.10
trans ⁽³⁾		47.56
UV ⁽⁶⁾		
long ⁽²⁾		32.64
trans ⁽³⁾		38.40
Elongation at break (%)	BS 2782 : 320A	
unaged		
long ⁽²⁾		14.38
trans ⁽³⁾		18.18
aged ⁽⁴⁾		
long ⁽²⁾		14.11
trans ⁽³⁾		16.07
water soak ⁽⁵⁾		
long ⁽²⁾		14.13
trans ⁽³⁾		16.90
UV ⁽⁶⁾		
long ⁽²⁾		9.58
trans ⁽³⁾		13.79
Resistance to tear (nail) (N)	MOAT 27 : 5.4.1	
long ⁽²⁾		38.8
trans ⁽³⁾		44.8
Resistance to tear (trouser) ⁽⁷⁾ (N)	BS 2782 : Part 3	
unaged		20.9
aged ⁽⁴⁾		21.1
water soak ⁽⁸⁾		18.0

(1) The test documents are detailed in the *Bibliography*. Numbers and letters in the table refer to the sections/parts of the document.

(2) Longitudinal direction.

(3) Transverse direction.

(4) Heat aged at 60°C for 36 days.

(5) Water soak at 20°C for 28 days.

(6) UV QUV for 100 light hours (4 hours at 45°C, 4 hours condensation at 40°C).

(7) Peak load results only.

(8) Water soak at 20°C for 56 days.

Table 3 Service performance

Tests (units)	Method ⁽¹⁾	Mean result
Water vapour permeability at 25°C (gm ⁻² day ⁻¹)	BS 3177	1195 ⁽²⁾
Vapour resistance (MNsg ⁻¹)	BS 3177	0.17 ⁽²⁾
Mullen Burst strength (kNm ⁻²)	BS 3137	978 ⁽³⁾
1 metre head of water	MOAT 27 : 5.1.4.2	pass ⁽³⁾
Resistance to water penetration (Eosin Test)	BS 4016	pass ⁽³⁾

(1) The test documents are detailed in the *Bibliography*. Numbers in the table refer to the sections/parts of the documents.

(2) TYVEK HOUSEWRAP.

(3) TYVEK 1056B.

9 Other investigations

9.1 The methods of quality control were examined and details obtained of the quality and composition of the materials used.

9.2 Visits were made to sites to assess the practicability of installation.

Bibliography

BS 2782-3 : Methods 320A to 320F : 1976
Methods of testing plastics — Mechanical properties — Tensile strength, elongation and elastic modulus

BS 3137 : 1972 *Methods for determining the bursting strength of paper and board*

BS 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*

BS 4016 : 1972 *Specification for building papers (breather type)*

MOAT No 27 : 1983 *General Directive for the Assessment of Roof Waterproofing Systems*



On behalf of the British Board of Agrément

Date of Third issue: 20th May 2002

Chief Executive

**Original Detail Sheet issued 13th November 1990. This revised version includes change of Certificate holder's name and product name.*