RIW Limited
487/488 Ipswich Road
Slough
Berkshire SL1 4EP

Tel: +44 (0)1753 944200
e-mail: technical@riw.co.uk
website: www.riw.co.uk

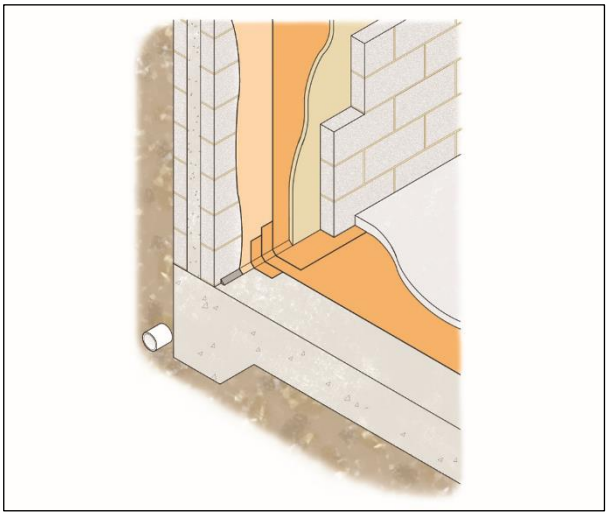
Agrément Certificate
92/2817
Product Sheet 1

RIW SHEET APPLIED WATERPROOFING SYSTEMS

RIW SHEETSEAL 226

This Agrément Certificate Product Sheet(1) relates to RIW Sheetseal 226, for use as a damp-proof and waterproof membrane for solid concrete floors, underground structures and reservoir roofs and for internally- and externally-applied tanking below ground.

(1) Hereinafter referred to as 'Certificate'.



CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Resistance to water and water vapour — the product will resist the passage of moisture into the structure (see section 6).

Resistance to mechanical damage — on smooth or blinded surfaces, the membrane will accept, without damage, the limited foot traffic and loads associated with installation (see section 7).

Adhesion — the adhesion of the product to the substrate and to itself is satisfactory (see section 8).

Durability — under normal service conditions, the membrane will provide an effective barrier to moisture for the life of the structure in which it is incorporated (see section 11).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Second issue: 18 February 2022

Originally certificated on 31 March 1992

Hardy Giesler
Chief Executive Officer

Regulations

In the opinion of the BBA, RIW Sheetseal 226, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):

The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**C2(a)**	**Resistance to moisture**
Comment:		The product, including joints, will enable a floor to satisfy this Requirement. See sections 6 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The product is acceptable. See section 11 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	Durability, workmanship and fitness of materials
Comment:		The product satisfies the requirements of this Regulation. See section 11 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	3.4	Moisture from the ground
Comment:		The product will enable a floor to satisfy the requirements of this Standard, with reference to clauses 3.4.2[(1)(2)], 3.4.4[(1)(2)] and 3.4.6[(1)(2)]. See section 6 of this Certificate.
Standard:	7.1(a)	**Statement of sustainability**
Comment:		The product can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		Comments made in relation to the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.1[(1)(2)] and Schedule 6[(1)(2)].

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).

The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	**23(a)(i)(iii)**	**Fitness of materials and workmanship**
Comment:	**(b)(i)**	The product is acceptable. See section 11 and the *Installation* part of this Certificate.
Regulation:	**28**	**Resistance to moisture and weather**
Comment:		The product will enable a structure to satisfy this Regulation. See section 6 of this Certificate.

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section: 1 *Description* (1.1 and 1.2) and 3 *Delivery and site handling* (3.3) of this Certificate.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, RIW Sheetseal 226, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 5.1 *Substructure and ground bearing floors*, clause 5.1.20 *Damp-proofing concrete floors* and 5.4 Waterproofing of basements and other below ground structures, for use internally and externally.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 13967 : 2012.

Technical Specification

1 Description

1.1 RIW Sheetseal 226 is a two-ply, self-adhesive, damp-proof membrane comprising a top layer of polyethylene film (0.1 mm thick) bonded to a layer of bitumen/polymer adhesive carried on a release paper, with a selvedge strip. The nominal characteristics for the product are given in Table 1.

Table 1 Characteristics

Characteristic (unit)	RIW Sheetseal 226
	Value
Thickness(1) (mm)	1.5
Width(1) (m)	1.05
Roll length (m)	19.05
Roll weight (kg)	33
Mass per unit area (kg·m^{-2})	1.7
Tensile strength (N/mm^2)	
MD	≥2.5
CD	≥2.5
Elongation (%)	
MD	≥130
CD	≥130
Water vapour transmission g/(day·m^2)	0.09
Watertightness (60 kPa)	Pass
Resistance to impact (mm)	≥500
Resistance to static loading (kg)	≥20

(1) Excluding release paper.

1.2 Ancillary materials used with the membrane are:

- RIW Sheetseal Primer — a solution of bitumen in a petroleum aliphatic hydrocarbon supplied in 5 litre and 25 litre containers
- RIW Protection board — a 3 mm thick protection layer for use in reservoir roofs and, where required, in other specifications
- Reinforcing tape — for reinforcing at internal and external corners.

2 Manufacture

2.1 The product is manufactured by laminating layers of polyethylene film to a bottom layer of bitumen/polymer adhesive.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by BSI (Certificate Q 09303).

3 Delivery and site handling

3.1 The product is delivered to site in rolls packed in cardboard containers bearing the Certificate holder's name and the BBA logo incorporating the number of this Certificate.

3.2 The rolls should be stacked on end and stored under cover.

3.3 The Certificate holder has taken the responsibility of classifying and labelling the product under the CLP Regulation (EC) No 1272 / 2008 on the classification, labelling and packaging of substances and mixtures. Users must refer to the relevant Safety Data Sheet(s).

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on RIW Sheetseal 226.

Design Considerations

4 Use

4.1 RIW Sheetseal 226 is satisfactory for use in accordance with the relevant clauses of CP 102 : 1973 and BS 8102 : 2009 as a damp-proof and waterproof membrane for solid concrete floors, underground structures and for internally and externally applied tanking, provided they are fully supported and protected.

4.2 The membrane is satisfactory for use as waterproofing for reservoir roofs when protected using a suitable ballast.

4.3 The product is compatible with concrete, smooth brickwork and blockwork or screeded substrates and is resistant to those chemicals likely to be present in normal service conditions.

5 Practicability of installation

The product is designed to be installed by a competent installer or contractor experienced with this type of product.

6 Resistance to water and water vapour

The membrane, including joints, when completely sealed and consolidated, will adequately resist the passage of water under hydrostatic pressure and moisture from the ground and so satisfy the relevant requirements of the national Building Regulations.

7 Resistance to mechanical damage

7.1 On smooth or blinded surfaces, the membrane will accept, without damage, the limited foot traffic and loads associated with installation.

7.2 The membrane can be punctured by sharp objects and care should be taken to avoid damage during installation, particularly when handling building materials and equipment over the surface and when placing concrete or screeds.

7.3 Where damage does occur, the membrane must be repaired (see section 15).

8 Adhesion

The adhesion of RIW Sheetseal 226 to the substrate and to itself, jointed as described in this Certificate, is satisfactory.

9 Effects of temperature

9.1 The product will remain flexible and capable of being formed at the minimum recommended temperatures (see section 12.4).

9.2 When installed correctly and protected immediately after installation, the product should not achieve temperatures to which slippage due to softening of the adhesive layer can occur.

10 Maintenance

As the membrane is confined and has suitable durability (see section 11), maintenance is not required. However, damage occurring prior to installation of the concrete must be repaired (see section 15).

11 Durability

The membrane, when fully protected and subjected to normal service conditions, will provide an effective barrier to the transmission of liquid water and water vapour for the life of the structure in which it is incorporated.

Installation

12 General

12.1 Installation of RIW Sheetseal 226 must be in accordance with the Certificate holder's instructions, CP 102 : 1973 Clause 11, BS 8102 : 2009, the relevant clauses of BS 8000-4 : 1989 and this Certificate.

12.2 All surfaces to which RIW Sheetseal 226 is applied must have a smooth finish, ie they should be free from cavities, projections and mortar deposits. Surfaces should be dry and free from dust and frost. Concrete surfaces should be dense. Where necessary (ie for dusty or porous substrates), the surface is primed with RIW Sheetseal Primer at the recommended coverage rate, and allowed to dry. Vertical surfaces must always be primed.

12.3 Vertical surfaces of brickwork and blockwork should be dry and rendered to provide an even surface. Brickwork and blockwork not rendered must be flush pointed to give a smooth surface without sudden changes in level.

12.4 The membrane can be installed in all normal site conditions provided the air temperature is not below 5°C, to prevent the risk of surface condensation.

12.5 The membrane should be covered by a screed or other protective layer as soon as possible after installation. If blockwork protection is used, care must be taken to avoid damage to the membrane during construction.

13 Procedure

13.1 The release paper is removed prior to applying the membrane to the prepared substrate. As the sheet is laid the membrane must be pressed firmly from the middle to prevent trapping air.

13.2 The polyethylene strip on the selvedges must be removed to expose the bitumen/polymer adhesive to facilitate lapping of the membrane.

13.3 Overlaps should be at least 50 mm onto the backing film along the roll edges and at least 100 mm onto the backing film at the roll ends of the membrane. The membrane surface to be overlapped should be dust free and, to ensure a watertight bond, the upper membrane should be firmly pressed down onto the lower one.

14 Applications

Solid concrete floors

14.1 It is essential that the damp-proof membrane in the floor is continuous with the damp-proof course in the surrounding walls. This is achieved by continuing the membrane up internal wall surfaces to tie in with the damp-proof course. A sand/cement screed or rot-proof board should be laid immediately after the installation of the damp-proofing membrane to prevent damage.

External tanking

14.2 The membrane is applied to the site concrete and then applied to the external face of the structure and into the internal wall. A 300 mm wide strip of membrane should be placed at the angle (containing a 50 mm by 50 mm fillet) where the horizontal surface meets the vertical surface, and at the top where it is tucked into the internal wall. A protection wall of brickwork, blockwork or protection board should be used against the membrane to protect it against puncture during backfilling. Alternatively, when backfilling is to occur, the membrane can be protected by the use of a drainage composite or by a layer of rot-proof compressible board.

Internal tanking

14.3 The membrane is applied to the site concrete base as well as to the interior face of the external wall. It should be tucked into the dpc and applied down the wall and 300 mm onto the site concrete base. A minimum 300 mm wide strip of membrane should be placed at the angle (containing a 50 mm by 50 mm fillet) where the horizontal surface meets the vertical surface and the top where the membrane is lapped into the dpc. The product is applied to the walls to achieve the overlaps defined in section 13.3.

14.4 A wall, preferably concrete, must be constructed immediately after installation to protect the damp-proof membrane and to resist the action of external water pressure. Where brickwork or blockwork is used it should be set 40 mm away from the membrane to enable the space so formed to be thoroughly filled with a sand/cement mortar as the construction proceeds.

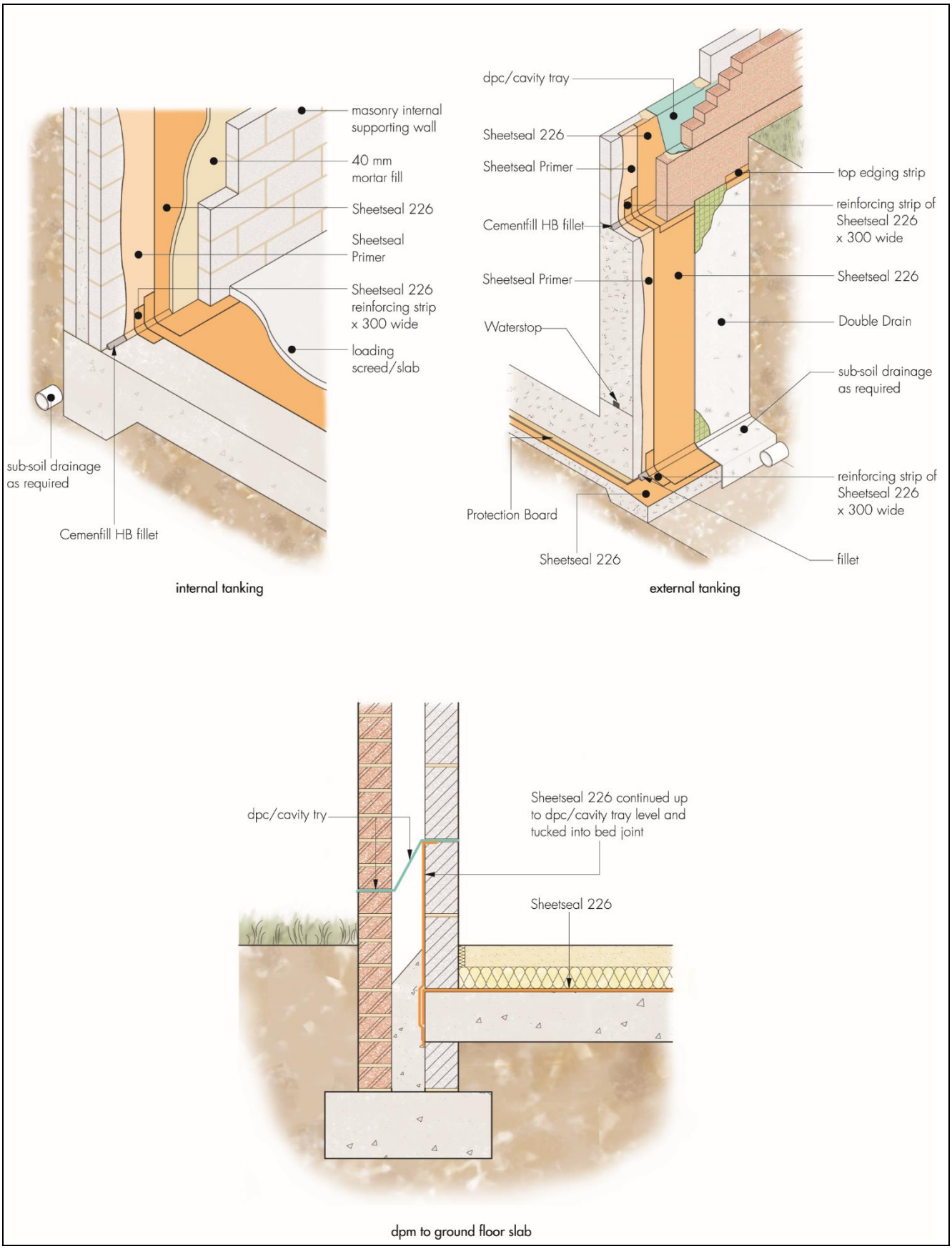
Reservoir roof

14.5 The membrane is applied to the substrate as defined in sections 13.1 to 13.3 and protected using 3 mm thick RIW Protection Board prior to application of protective ballast (such as paving slabs, pea gravel).

15 Repair

In the event of damage the product can be effectively repaired after cleaning by applying a patch of the material, bonded to the damaged area with suitable overlap, prior to the installation of any upper layers in accordance with the Certificate holder's instructions.

Figure 1 Installation details



Technical Investigations

16 Tests

Tests were conducted on samples of RIW Sheetseal 226 and the results assessed to determine:

- mass per unit area
- ring and ball softening point
- water vapour permeability
- tensile strength and elongation
- dimensional stability
- low temperature unrolling
- resistance to water pressure (6 metre head)
- resistance to cracking at 0°C and 20°C
- low temperature flexibility at 0°C and –5°C
- resistance to impact
- peel strength
- static indentation
- heat ageing for 56 days at 60°C followed by tensile strength and elongation
- heat ageing for 28 days at 60°C followed by peel strength

Tests on joints

- tensile strength of joints
- heat ageing for 28 days at 60°C followed by tensile strength of joints
- exposure to water for 7 days at 60°C followed by tensile strength of joints.

17 Investigations

The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for excavation and filling*

BS 8102 : 2009 *Code of practice for protection of structures against water from the ground*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

CP 102 : 1973 *Code of practice for protection of buildings against water from the ground*

BS EN 13967 : 2012 + A1 : 2017 *Flexible sheets for waterproofing – Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheet – Definitions and characteristics*

18 Conditions

18.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

18.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

18.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

18.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

18.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

18.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.