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Agrément Certificate
03/4043
Product Sheet 2

ENVIROVENT POSITIVE INPUT VENTILATION SYSTEMS

ENVIROVENT WALL MOUNTED POSITIVE INPUT VENTILATION SYSTEM

This Agrément Certificate Product Sheet(1) relates to EnviroVent Wall Mounted Positive Input Ventilation System, for use as a continuously running, low-energy, positive input ventilation system (PIV) for use in flats or dwellings without a loft space.

(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

Ventilation — the system can provide up to 23 $l \cdot s^{-1}$ of whole-building ventilation in dwellings and can satisfy, or contribute to satisfying, the requirements of the national Building Regulations (see section 6).

Conservation of fuel and power — the specific fan power of the system is less than the design limits for energy efficiency (see section 8).

Self-generated noise — the outlet noise from the system should not be considered as intrusive (see section 9).

Durability — the system is constructed from durable materials (see section 12).

The BBA has awarded this Certificate to the company named above for the system described herein. This system 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 Third issue: 4 May 2017

Originally certificated on 1 September 2003

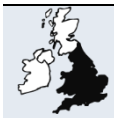
John Albon – Head of Approvals Construction Products

Claire Curtis-Thomas Chief Executive

The BBA is a UKAS accredited certification body – Number 113.
The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk
Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

Regulations

In the opinion of the BBA, EnviroVent Wall Mounted Positive Input Ventilation System, 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:	**B2(1)**	**Means of warning and escape**
Comment:		For the purpose of assessing the performance of the wall lining, the internal grille is not included. See section 7.1 of this Certificate.
Requirement:	**B4(1)**	**External fire spread**
Comment:		The external grille constitutes a small unprotected area. See section 7.2 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The system can contribute to satisfying this Requirement. See section 6.5 of this Certificate.
Requirement:	**F1(1)**	**Means of ventilation**
Comment:		The system can contribute to satisfying this Requirement. See section 6.1 of this Certificate.
Requirement:	**L1(b)(i)(ii)**	**Conservation of fuel and power**
Comment:		The system can contribute to satisfying this Requirement. See section 8 of this Certificate.
Regulation:	**7**	**Materials and workmanship**
		The system is acceptable. See section 12 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 system satisfies the requirements of this Regulation. See sections 11.1 and 12 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	2.3	Structural protection
Comment:		The penetration of an element of structure by the wall-mounted system must be considered in relation to clause 2.3.4(1) of this Standard. See section 7.2 of this Certificate.
Standard:	2.5	Internal linings
Comment:		The internal grille can satisfy this Standard, with reference to clauses 2.5.1(1) and 2.5.2(1). See section 7.1 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The external grille must be treated as an unprotected area with reference to clause 2.6.2(1). See section 7.2 of this Certificate.
Standard:	3.14	Ventilation
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 3.14.1(1), 3.14.8(1) and 3.14.10(1). See section 6.1 of this Certificate.
Standard:	3.15	Condensation

Comment:		The system can satisfy this Standard, with reference to clauses 3.15.1(1) and 3.15.2(1). See section 6.5 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Comment:		The design-specific fan power should be used in SAP calculations. See section 8.2 of this Certificate.
Standard:	6.6(b)	Mechanical ventilation and air conditioning
Comment:		The system can contribute to satisfying this Standard, with reference to clause 6.6.3(1). See section 8.1 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The system can contribute to satisfying 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. See section 8 of this Certificate.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		All comments given for this system under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1(1) and Schedule 6(1).

(1) Technical Handbook (Domestic).

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

Regulation:	**23**	**Fitness of materials and workmanship**
Comment:		The system is acceptable. See section 12 and the *Installation* part of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		The system can contribute to satisfying the requirements of this Regulation. See section 6.5 of this Certificate.
Regulation:	**34**	**Internal fire spread — Linings**
Comment:		For the purpose of assessing the performance of the wall lining, the internal grille is not included. See section 7.1 of this Certificate.
Regulation:	**36**	**External fire spread**
Comment:		The external grille must be treated as an unprotected area. See section 7.2 of this Certificate.
Regulation:	**39(b)**	**Conservation measures**
Comment:		The system can contribute to satisfying this Regulation. See section 8 of this Certificate.
Regulation:	**40(2)**	**Target carbon dioxide emission rate**
Comment:		The design-specific fan power should be used in SAP calculations. See section 8.1 of this Certificate.
Regulation:	**65(1)**	**Means of ventilation**
Comment:		The system will contribute to satisfying this Regulation. See section 6.1 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 sections: 5 *Practicability of installation*, 10 *Provision of an electrical supply and electrical safety* (10.1 to 10.4), and 14 *Procedure* (14.5) of this Certificate.

Additional Information

The Electrical Equipment (Safety) Regulations 2016

These Regulations transpose Directive 2014/35/EU of the European Parliament relating to the making available on the market of electrical equipment designed for use within certain voltage limits. The Directive repeals and replaces Directive 2006/95/EC which was implemented in the United Kingdom by the Electrical Equipment (Safety) Regulations 1994 (S.I. 1994/3260). These Regulations revoke and replace those Regulations. The BBA has not assessed the system for compliance with these Directives.

The Electromagnetic Compatibility Regulations 2016

These Regulations transpose Directive 2014/30/EU of the European Parliament relating to electromagnetic compatibility. The Directive repeals and replaces Directive 2004/108/EC of the European Parliament which was implemented in the United Kingdom by the Electromagnetic Compatibility Regulations 2006. The BBA has not assessed the system for compliance with these Directives.

Technical Specification

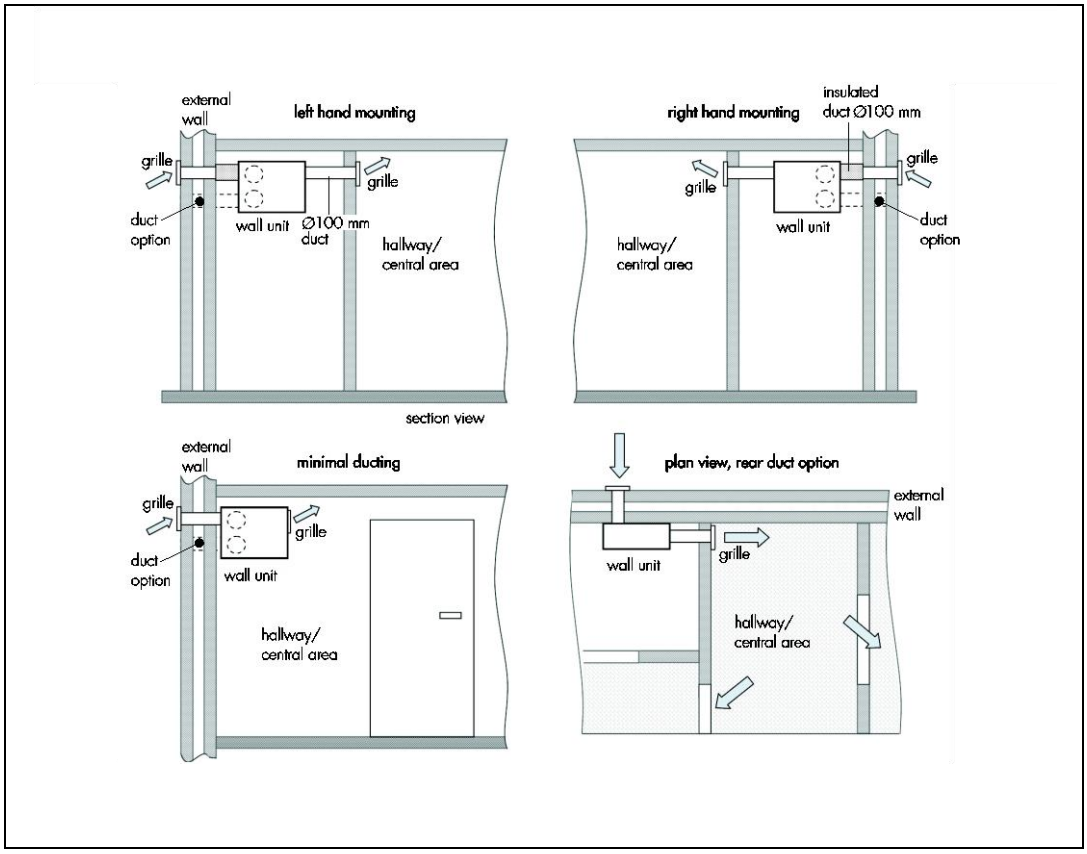
1 Description

1.1 The EnviroVent Wall Mounted Positive Input Ventilation System comprises a fan unit mounted on the wall, together with filter(s) and plastic ducting. The ducting draws air through a grille on an outside wall, through the unit and is ducted to the internal grille, which may be fitted directly to the unit or placed on an internal wall of a central area (hallway) (see Figure 2).

1.2 The system encased in a white cover and end panels is marketed under the name ECO_2 Wall (see Figure 1).

Figure 1 ECO_2 Wall Mounted Positive Input Ventilation System

Figure 2 Wall-mounted ventilation unit



1.3 The fan speed is set by pressing a button to control the airflow to suit the size and occupancy of the dwelling. The unit also incorporates a sensor that increases or decreases airflow to the dwelling, depending on the temperature outside (see Table 1). When the incoming temperature is above 25°C, the sensor can switch the unit off until a fall in temperature re-activates the fan. To enable this feature, the printed circuit board must be enabled by the installer or user.

Table 1 Indicative[1][2] performance levels

External air temperature[1] (°C)	**Fan speed setting**	**Airflow[2] ($l \cdot s^{-1}$)**	**Power (W)**	**Specific fan power ($W \cdot l^{-1} \cdot s^{-1}$)**
<19	trickle	9	3.4	0.39
	medium	11	4.8	0.33
	large	17	4.8	0.29
	boost	20	6.1	0.30
≥19[3]	trickle	10	3.6	0.37
	medium	14	4.4	0.33
	large	19	5.4	0.29
	boost	23	7.4	0.32

(1) Unit tested with internal and external grilles, straight ducting and transition fittings.
(2) Air flow rate automatically increases slightly when incoming air is above 19°C to contribute to space heating.

1.4 The system is normally supplied with a 500 watt internal heater, which can be omitted on request. The heater, when enabled by the user, ensures that air supplied to the dwelling does not fall below 10°C. This feature is intended to minimise discomfort caused by cold air and has not been assessed as a secondary heating system; however, indicative assessments suggest that the heater may be on for between 5% and 9% of the time, depending on fan speed setting, during a typical heating season.

1.5 The main components comprise:

- outer casing of the fan unit
- centrifugal impeller
- filter
- ducting
- internal grille
- external grille.

1.6 The system is supplied with fixing kits to enable the installer to fix the unit in position in accordance with the Certificate holder's instructions.

1.7 The control electronics of the system have not been assessed by the BBA.

2 Manufacture

2.1 The production process consists of the assembly and testing of printed circuit boards and the mechanical assembly of the fan unit.

2.2 All components and raw materials are subject to inspection. Items designated as critical to the operation or performance of the fan are sampled in accordance with the requirements of BS 6001-1 : 1999. All completed units are inspected to ensure correct assembly, operation and electrical safety.

2.3 As part of the assessment and ongoing surveillance of the 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.

2.4 The management system of EnviroVent Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by the British Assessment Bureau (Certificate 185037).

3 Delivery and site handling

3.1 The units are supplied in cardboard cartons and include the fan unit, fixing kit, installation and user guide. Each carton bears the BBA logo incorporating the number of this Certificate.

3.2 Boxes should be stored internally and kept dry.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on EnviroVent Wall Mounted Positive Input Ventilation System.

Design Considerations

4 Use

4.1 The EnviroVent Wall Mounted Positive Input Ventilation System is a continuously running, low-energy, positive input ventilation system and will contribute to eliminating or reducing surface condensation in dwellings as the unit supplies the building with air drawn from outside.

4.2 Before work commences, the installer must ensure familiarity and compliance with all national and local requirements.

4.3 The unit transfers air from the outside to the inside via an arrangement of rigid plastic ducting and connectors to a grille or grilles, depending on the layout of the dwelling.

4.4 The system is suitable for use in one- and two-storey flats. The internal grille should be sited in a central area (hallway).

4.5 Reasonable provision should be made to ensure that the owner/occupier of the flat is provided with sufficient information about the system so that it can be operated and maintained effectively.

5 Practicability of installation

Although the system is designed to be installed by a competent general builder, or a contractor, experienced with this type of system, the provision of an electrical supply and the connection of the unit to the supply should be carried out only by a suitably qualified electrician. See section 10 and the *Installation* part of this Certificate.

6 Ventilation

6.1 Ventilation rates are given in Table 1.

6.2 Specifiers must ensure that in the overall design:

(a) all rooms have an appropriately-sized ventilation opening (for example, an opening window) for rapid (purge) ventilation
(b) any kitchen, bathroom, utility room or sanitary accommodation is directly accessible from the central hallway or landing into which the unit delivers air
(c) internal doors are not tight fitting; an undercut of 10 mm above the floor finish should be sufficient (standard methods of construction should provide sufficient leakage)
(d) flat volume is > 120 m^3 and airtightness is > 3 $m^3(hm^2)^{-1}$ at 50 Pa.

6.3 Where a design condition specified in section 6.2 is not met, additional measures should be considered, as appropriate. For example, wet rooms with no openable window must have continuous low-level-rate mechanical extract ventilation with boost facility. Remote wet rooms with openable windows must have air transfer grilles or continuous low-level-rate mechanical extract ventilation with boost or (for toilets only) trickle vents. Small and airtight flats [see section 6.2(d)] must include trickle ventilators.

6.4 Designers should refer to documents supporting the national Building Regulations for detailed guidance.

6.5 The system will contribute to eliminating or reducing condensation in flats when installed in accordance with the manufacturer's instructions and this Certificate. The system supplies the flat with air drawn from outside which, normally, will have a moisture content less than that in the flat.

7 Behaviour in relation to fire

7.1 The surface area covered by the internal grille is small enough not to have an adverse effect on the spread of fire in the internal lining of the wall in which it is installed and can be ignored.

7.2 The external grille constitutes an unprotected area which may be disregarded provided the appropriate minimum distances from other unprotected areas are maintained, as defined in the national Building Regulations:

England and Wales — the distances given in Approved Document B, Diagram 20

Scotland — Mandatory Standard 2.6, clause 2.6.2[(1)] — the grille should not be fitted to walls 500 mm or less from a boundary. Edge protection of the penetration is not normally required to meet Mandatory Standard 2.3, clause 2.3.4[(1)], but may be necessary where the proximity of other penetrations constitutes a potential weakness

(1) Technical Handbook (Domestic).

Northern Ireland — the distances given in Technical Booklet E, Diagram 4.4.

7.3 Where the system is installed in flats where regulations require the provision of a protected entrance hall or protected enclosure and the outlet of the system is within that enclosure, it is necessary to ensure that the safety of the enclosure is not compromised either in relation to its fire resistance or the entry of smoke. Smoke detectors must be connected to the fan unit so that it shuts down if smoke enters the ductwork. Ductwork must be of steel, with the point of penetration fire stopped, or if non fire-resistant ducting is used, it must be protected in fire-resisting construction up to the point where it penetrates the wall of the protected entrance hall or protected enclosure. Where the system is installed in flats where these regulatory provisions do not apply, good installation practice should be observed; for example, the use of smoke detectors to control the fan, to ensure that occupant safety levels are not reduced.

8 Conservation of fuel and power

8.1 The specific fan power of the system (see Table 1) does not exceed the maximum design limit of 0.5 $W \cdot l^{-1} \cdot s^{-1}$ specified in supporting documents to the national Building Regulations.

8.2 For the purposes of SAP calculations, the energy used by the fan in Standard mode may be taken as counterbalanced by the effect of using slightly warmer air from the loft space compared with outside. For other modes, the specific fan power of 0.5 $W \cdot l^{-1} \cdot s^{-1}$ should be used (see section 8.1 of this Certificate).

9 Self-generated noise

Outlet noise depends on fan setting but measurements indicate that they should not be considered intrusive.

10 Provision of an electrical supply and electrical safety

10.1 For electrical safety, provision of an electrical supply and the connection of the unit to the supply should be carried out by a qualified electrician.

10.2 The system should be connected to a suitable mains electrical supply through an isolating spur. A fuse rated at a maximum of 3A should be used. The provision of the electrical supply should be in accordance with the IEE Wiring Regulations.

10.3 In England and Wales, all installations must meet the requirements of the Building Regulations 2010 (England and Wales) (as amended), Part P *Electrical Safety*. Notification should be made to the Local Authority Building Control in advance of installation. As an alternative to this procedure, electrical connections can be carried out by a person registered with a government-approved competent persons' scheme for electrical work using materials suitable for the purpose.

10.4 In Scotland, to meet the requirements of Mandatory Standard 4.5, with reference to clause 4.5.1[(1)] of the Building (Scotland) Regulations 2004 (as amended), all installations should be designed, constructed and tested such that they are in accordance with the requirements of BS 7671 : 2008.

(1) Technical Handbook (Domestic).

11 Maintenance

11.1 The unit should be serviced at five-yearly intervals with filters replaced or cleaned at three-yearly intervals under normal operating conditions.

11.2 The ducting should not require maintenance unless it is subject to impact damage.

11.3 The motor is fitted with a sealed-for-life bearing that should not require maintenance or lubrication.

12 Durability

12.1 The fan unit case and internal and external grilles are constructed of durable materials and, under normal operating conditions, will have a life equal to that of the dwelling in which they are installed.

12.2 The ducting, fan motor and other electrical components may require replacing during the lifetime of the unit.

Installation

13 General

13.1 Installation of the unit should be in accordance with the manufacturer's instructions provided with each unit (see also section 10).

13.2 The unit can be installed in different configurations on the wall or ceiling and in a left or right hand orientation. Supply air is connected to the unit through one of four spigots (100 mm diameter) with a single spigot (100 mm diameter) for delivering air into the property, ensuring that ridged ducting is used with the minimum number of bends.

13.3 The louvres of the external grille must slant downwards and those of the internal grille must slant upwards.

13.4 The internal grille must not be placed within 1.5 m of a smoke alarm.

13.5 When it is not possible to fit the unit directly to an outside wall, the ducting which delivers air from the external grille to the unit (cold side ducting) must be insulated to prevent condensation from forming on the surface in extreme conditions.

14 Procedure

14.1 A hole is cored (at least 107 mm diameter) in the external wall and the external grille is positioned and sealed. The unit is installed on the inside wall to meet the external grille and, when connected, will transfer air from the outside to the inside — either directly or via an arrangement of rigid plastic ducting and connectors to a grille or grilles, depending on the layout of the dwelling.

14.2 The unit must be connected to a suitable electrical supply through an isolating spur.

14.3 The power supply to the unit should be switched on.

14.4 The selector button on the fan unit should be set to the required setting dependent on the size, occupancy and layout of the property and the level of moisture being produced in the property.

14.5 In England and Wales, the unit should be checked for correct operation in accordance with the relevant requirements of the *Domestic Ventilation Compliance Guide.*

Technical Investigations

15 Tests

Test data were examined relating to:

- outlet noise
- fan performance.

16 Investigations

16.1 The performance in use was examined by a survey of users of the system as part of the original assessment.

16.2 The procedures and equipment of the manufacturer were examined and found to be satisfactory.

16.3 The unit's behaviour in relation to fire was assessed.

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

Bibliography

BS 6001-1 : 1999 + A1 : 2011, ISO 2859-1 : 1999 *Sampling procedures for inspection by attributes — Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

BS 7671 : 2008 + A3 : 2015 *Requirements for electrical installations — IEE Wiring Regulations — Seventeenth Edition*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

17 Conditions

17.1 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 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.

17.2 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.

17.3 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.

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

17.5 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.

17.6 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.

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