



Natural Ventilation e-stack Roof Termination Units Installation and Maintenance

Important Notes to Designers and Installers

The e-stack Roof Termination units are designed to work in conjunction with the e-stack R and S series natural ventilation systems. (see installation documents 671530 and 671529 for details).

The successful operation of the e-stack Roof Termination units depends entirely upon installation and ongoing maintenance being carried out strictly in accordance with these instructions.

Please read this guide in its entirety before installation and then repeat the exercise step by step to ensure satisfactory completion including any recommended maintenance activities .

Installation of the e-stack Roof Terminations must be carried out by suitably qualified persons taking account of The Working at Height Regulations 2005 and in accordance with CDM Regulations 2007.

- Manufactured from aluminium
- Powder coated to high quality finish
- Louvre blades designed for weatherproofing; double and triple bladed systems available

- Roof terminals sized to individual application and minimum free area requirements
- Colour: RAL7038 (Agate Grey) as standard. Other standard RAL colours on request (may incur an additional cost).

2.0 General Description

The e-stack natural ventilation system uses technology filed for patent by the University of Cambridge which is designed to ensure a minimum rate of air exchange between a building and the exterior in winter to comply with Part F of the building regulations, whilst minimizing the heating energy required. This is achieved by mixing the incoming cold fresh air in winter with hot interior air prior to it reaching the occupants. The system ensures that the air quality remains very high but also that the building is totally comfortable to avoid the risk of cold draughts which are often associated with natural ventilation systems.

In warmer weather the system typically operates with higher ventilation flow rates in order to minimize the risk of overheating, although it can be used in conjunction with thermally massive building types to exploit the benefits of passive night-cooling in which case lower ventilation rates are used as appropriate.

1.0 Roof Termination options

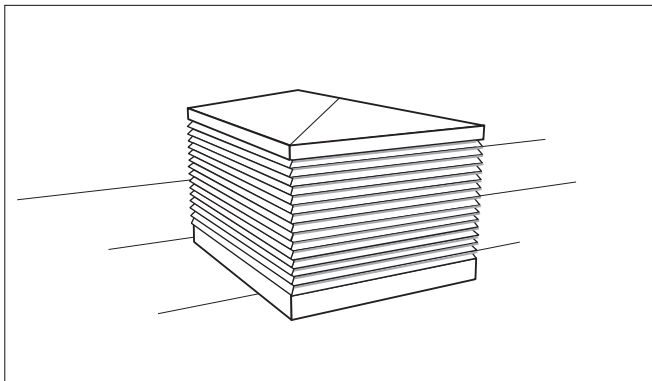


Figure 1a. Hipped Roof Terminal with mitred corners.

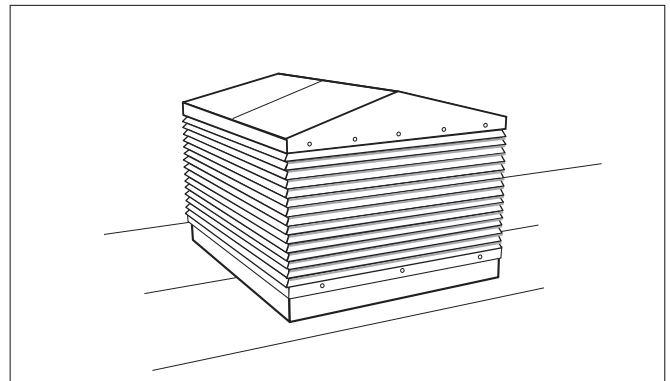


Figure 1b. Gabled Roof Terminal with mitred corners.

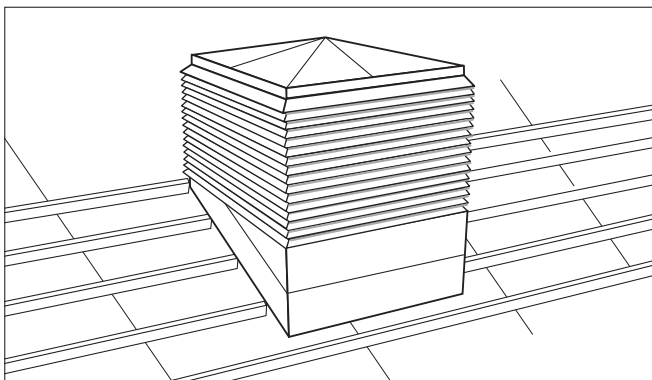


Figure 1c. Pyramidal Roof Terminal with mitred corners.

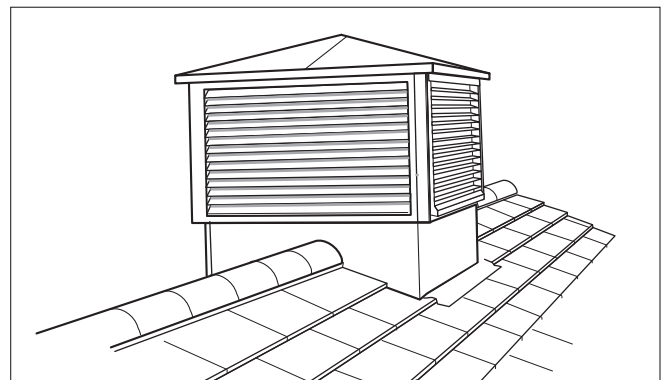


Figure 1d. Pyramidal Roof Terminal with corner post.

3.0 Handling

Each e-stack Roof Termination unit is delivered to site suitable for forklift handling. (Packaged individually - weight 00kg).

4.0 Weather Performance

Louvre blades' weather performance tested in simulated rainfall of 75 litres/hr (equivalent to around 3 inches rainfall in an hour) at a wind speed of 13m/s (about 30mph) towards the louvre blades.

The amount of rain which gets through the louvre is measured with no flow through the louvre, and then with various amounts of air inflow through the louvre blades (measured as design air inlet velocities.) The e-stack system operates with air inlet velocities typically under 1m/s when it acts as an air inflow pathway. Water repellent efficiency is described as a percentage of the incident rainfall.

Weather performance specifications are as follows for our double-bladed and triple-bladed louvre systems with bird screen fitted.

Weather Performance - Water Repellent Efficiency (to nearest 0.1%)						
Number of Blades	Design Air Inlet Velocity, v					
	v = 0 m/s	v = 0.5 m/s	v = 1.0 m/s	v = 1.5 m/s	v = 2.0 m/s	v = 2.5 m/s
2	99.9%	99.9%	98.9%	Class C (<95%)	Class C (<95%)	Class C (<95%)
3	100.0%	100.0%	100.0%	100.0%	100.0%	Class C (<95%)

5.0 Installation

5.1 Typical Curb Layout and Dimensions (see figure 2)

Total curb thickness: (dimension A + dimension B + dimension C) = 150mm. (see figure 2 for details).

Dimension A: Builder's curb – min 100mm or as required for structural considerations. Min 150mm height above roof to avoid rain splash or snow build-up.

Dimension B: lining e.g. exterior quality ply.

Dimension C: Roof flashing or membrane.

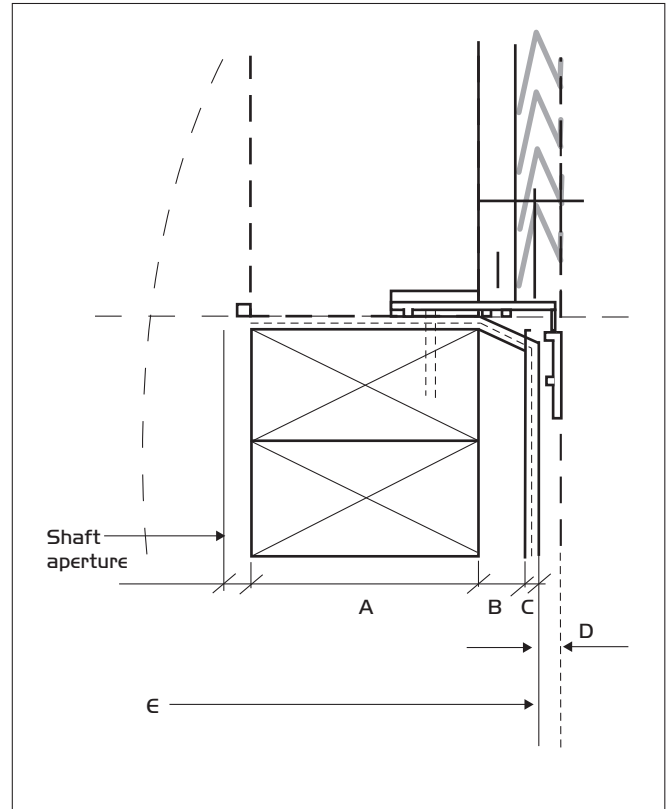
Dimension D: 15mm each side to outside edge of roof termination flange.

Flange thickness is 5mm, allowing 10mm tolerance for dimensional variability in curb construction.

Dimension E: maximum side to side extent of builders curb and linings = shaft aperture size + 300mm (i.e. aperture + 150mm curb each side).

Please note, that the construction of a builder's curb is the responsibility of others and construction methods suggested here are indicative only.

Figure 2. Typical Builder's Curb.



4.2 Fixing Locations

Detail of blade profile (double-bladed louvre shown in figure 3). Triple bladed system used for added weather protection) and indicative fixings through the outside of the curb.

Figure 3. Fixing location.

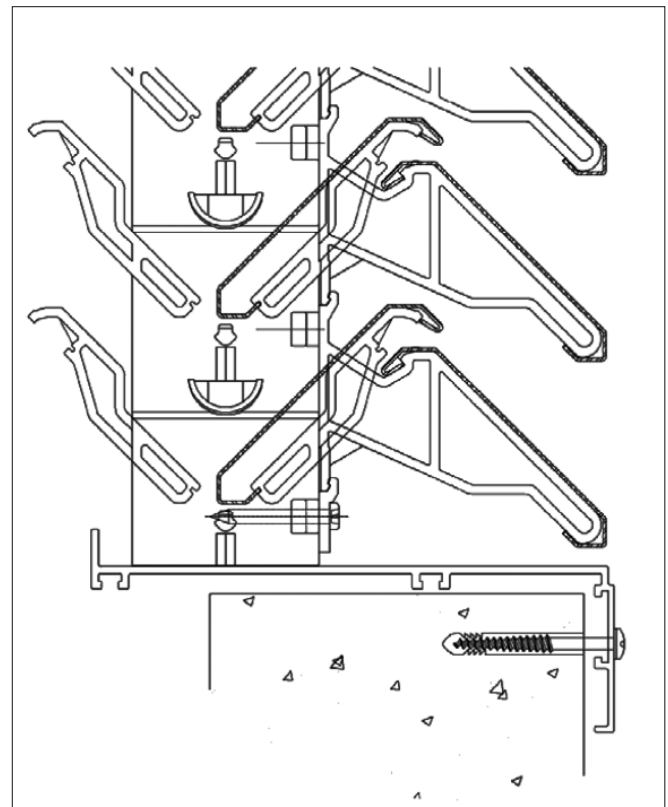
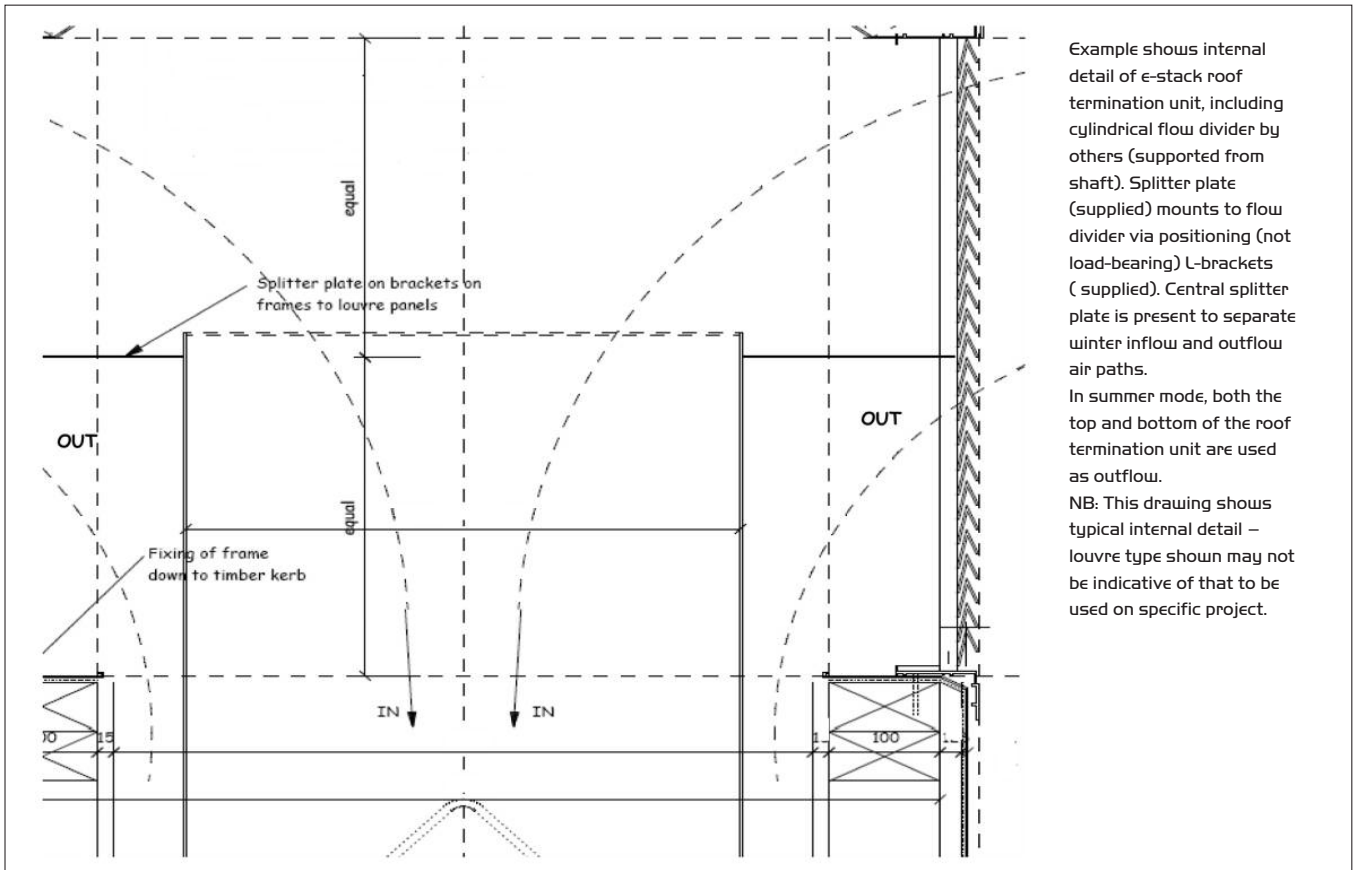
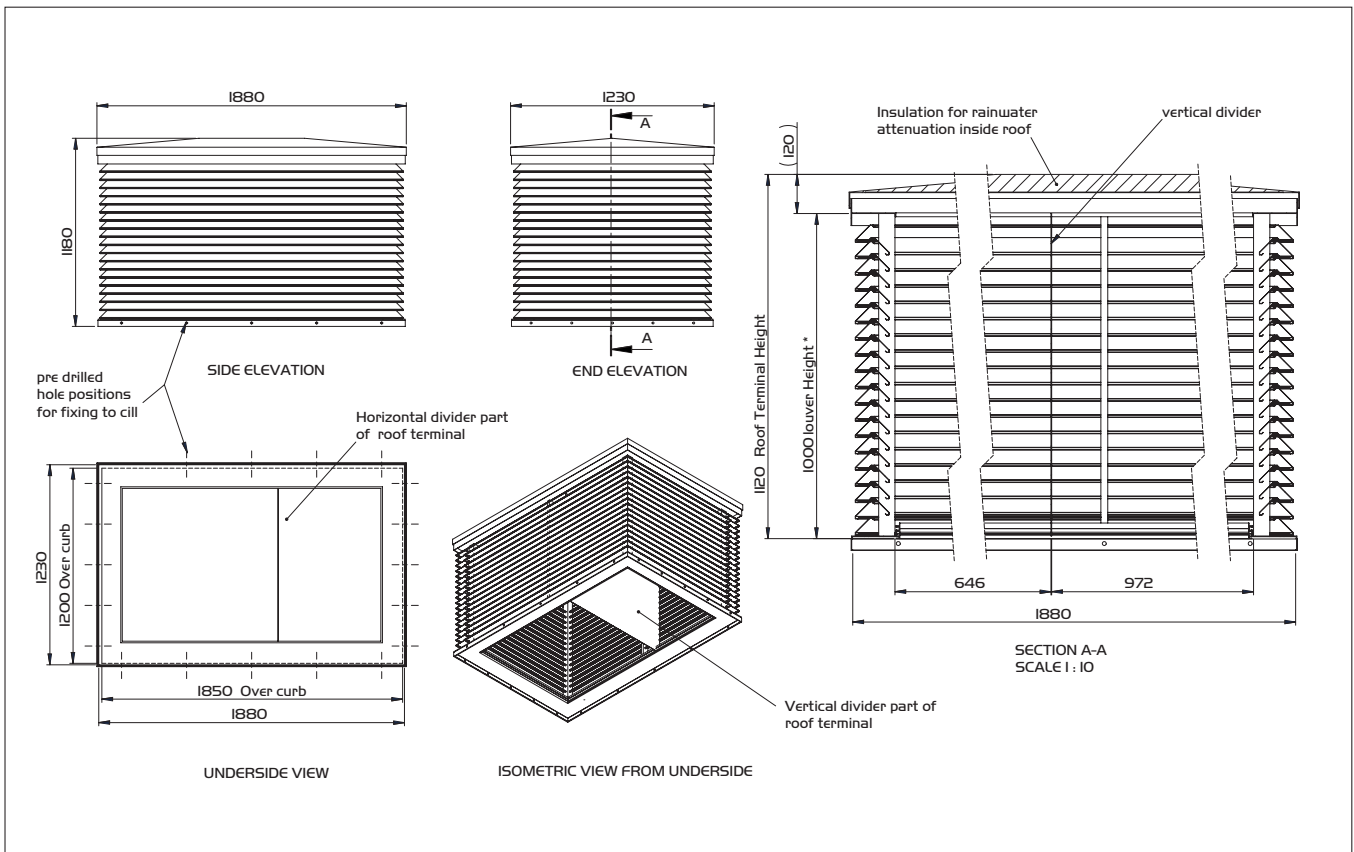


Figure 4. Typical installation example of e-stack S-Series roof terminal.



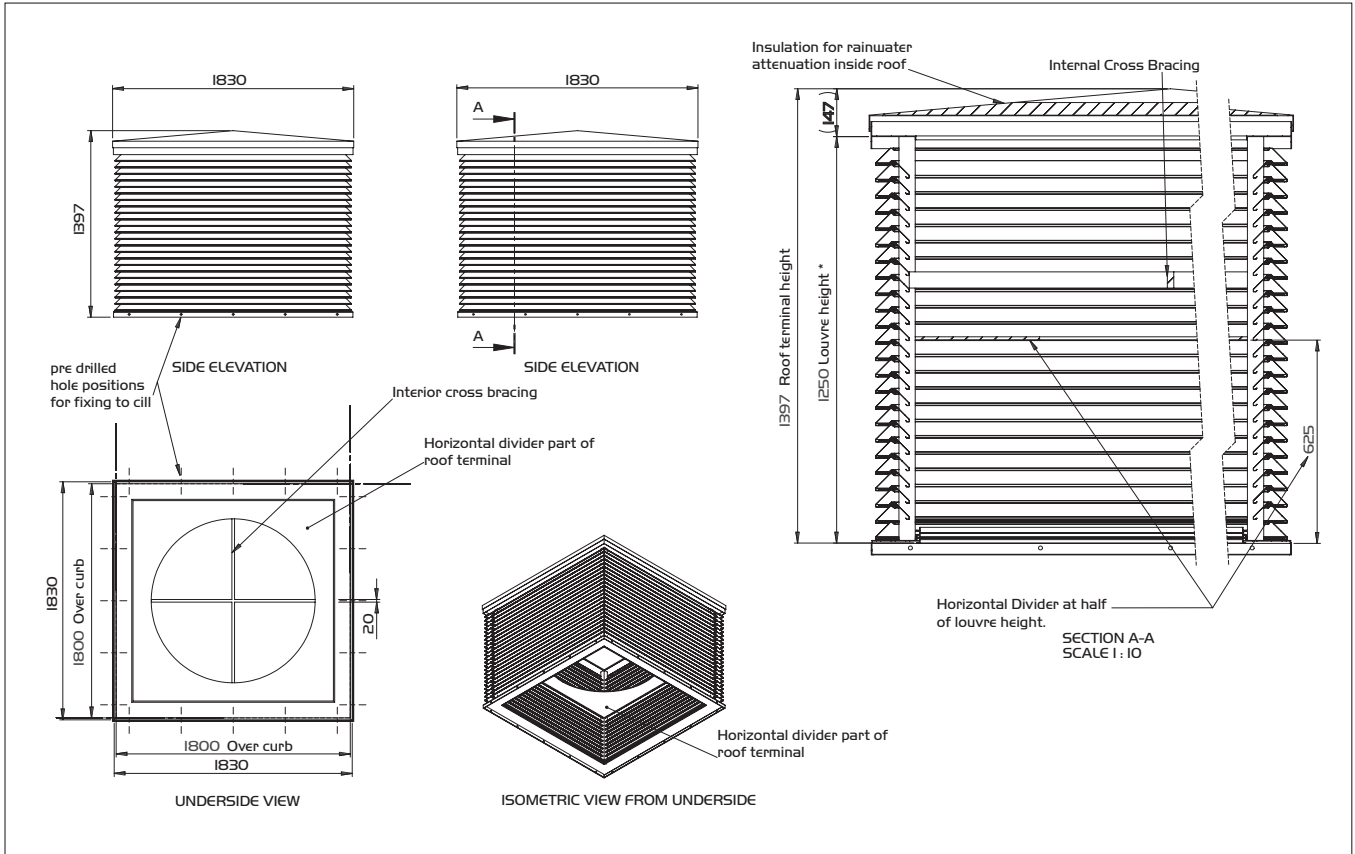
6.0 Dimensions of R - Series Roof terminals 1880 x 1230 x 1180 (mm)

Figure 5.



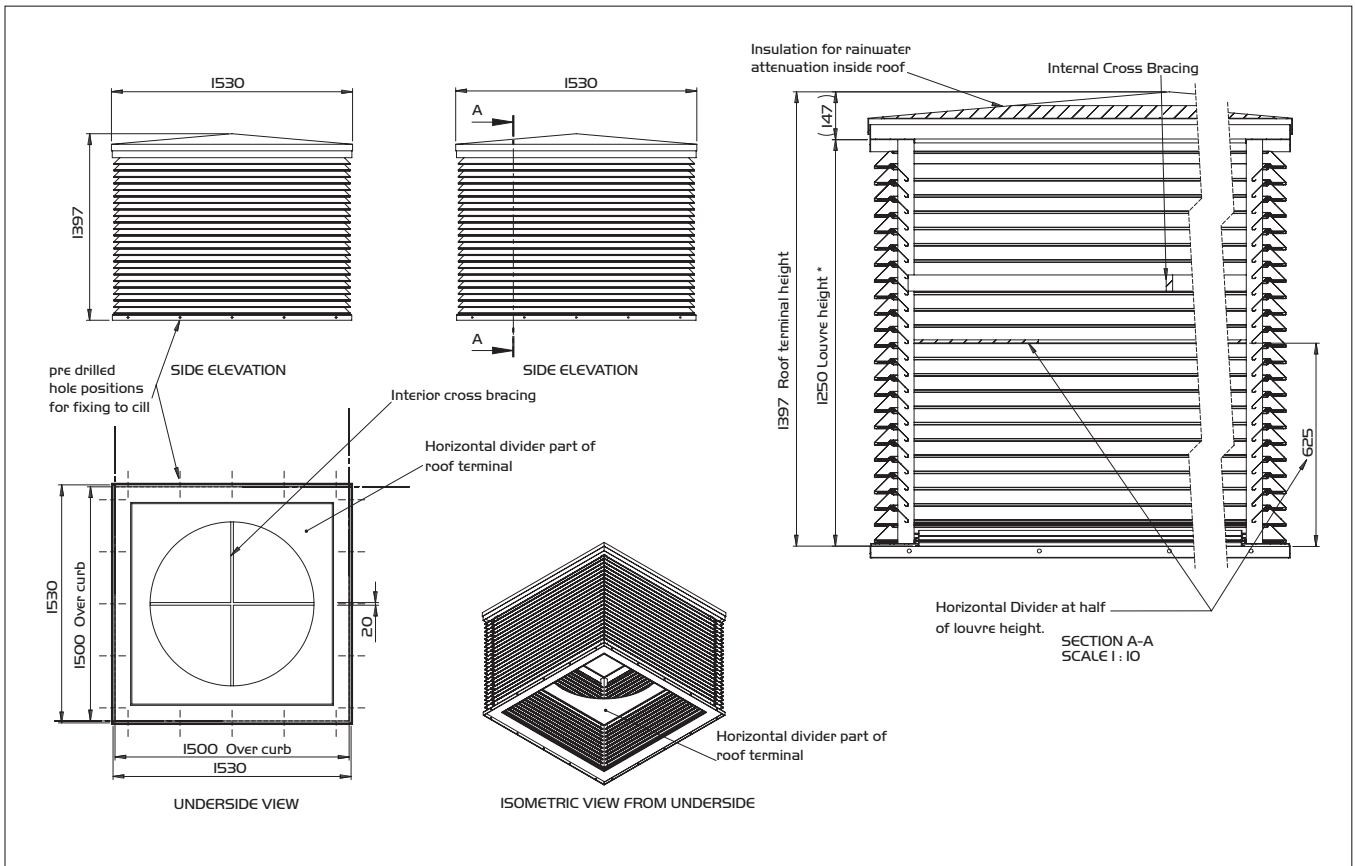
6.1 Dimensions of S - Series I500 Roof Terminals 1830 x 1830 x 1397 (mm)

Figure 6.



6.2 Dimensions of S - Series I200 Roof Terminals 1530 x 1530 x 1397 (mm)

Figure 7.



7.0 Maintenance

A 6 monthly inspection is required and any debris removed.

8.0 Warranty

The 3 year warranty starts from the day of delivery and includes parts and labour for the first year. The remaining 2 years covers parts only. This warranty is conditional on planned maintenance being undertaken.

9.0 Service Enquiries

Nuair can assist you in all aspects of service. Our service department will be happy to provide any assistance required initially by telephone and if necessary arrange for an engineer to call.

Telephone 029 2085 8400

DECLARATION OF INCORPORATION AND INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE

We declare that the machinery named below is intended to be assembled with other components to constitute a system of machinery. All parts except for moving parts requiring the correct installation of safety guards comply with the essential requirements of the Machinery Directive. The machinery shall not be put into service until the system has been declared to be in conformity with the provisions of the EC Machinery Directive.

Designation of machinery: e-stack Roof Termination Units
Machinery Types: Natural Ventilation System
Relevant EC Council Directives: 2006/42/EC (Machinery Directive)
Applied Harmonised Standards: BS EN ISO 12100-1, BS EN ISO 12100-2, EN60204-1, BS EN ISO 9001, BS EN ISO 13857
Applied National Standards: BS848 Parts 1, 2.2 and 5

Signature of manufacture representatives:

Name:	Position:	Date:
1) C. Biggs	Technical Director	29. 12. 10
2) A. Jones	Manufacturing Director	29. 12. 10

Note: All standards used were current and valid at the date of signature.

CE DECLARATION OF CONFORMITY

We declare that the machine named below conforms to the requirements of EC Council Directives relating to Electromagnetic Compatibility and Safety of Electrical Equipment.

Designation of machinery: e-stack Roof Termination Units
I & M Serial No.: 671533
Machinery Types: Natural Ventilation System
Relevant EC Council Directives: 2004/108/EC (EMC), 2006/95/EC (Low Voltage Directive)
Applied Harmonised Standards: EN55014-1, EN55014-2, EN61000-3-2, EN61000-3-3, EN60335-2-80
Basis of Self Attestation: Quality Assurance to BS EN ISO 9001 BSI Registered Firm Certificate No. FM 149

Signature of manufacture representatives:

Name:	Position:	Date:
1) C. Biggs	Technical Director	29. 12. 10
2) A. Jones	Manufacturing Director	29. 12. 10

Nuaire Ltd,
 Western Industrial Estate,
 Caerphilly CF83 1NA.

Note: All standards used were current and valid at the date of signature.

INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE OF NUAIRE VENTILATION EQUIPMENT

To comply with EC Council Directives 2006/42/EC Machinery Directive and 2004/108/EC (EMC).

To be read in conjunction with the relevant Product Documentation (see 2.1)

1.0 GENERAL

1.1 The equipment referred to in this Declaration of Incorporation is supplied by Nuaire to be assembled into a ventilation system which may or may not include additional components.

The entire system must be considered for safety purposes and it is the responsibility of the installer to ensure that all of the equipment is installed in compliance with the manufacturers recommendations and with due regard to current legislation and codes of practice.

2.0 INFORMATION SUPPLIED WITH THE EQUIPMENT

2.1 Each item of equipment is supplied with a set of documentation which provides the information required for the safe installation and maintenance of the equipment. This may be in the form of a Data sheet and/or Installation and Maintenance instruction.

2.2 Each unit has a rating plate attached to its outer casing. The rating plate provides essential data relating to the equipment such as serial number, unit code and electrical data. Any further data that may be required will be found in the documentation. If any item is unclear or more information is required, contact Nuaire.

2.3 Where warning labels or notices are attached to the unit the instructions given must be adhered to.

3.0 TRANSPORTATION, HANDLING AND STORAGE

3.1 Care must be taken at all times to prevent damage to the equipment. Note that shock to the unit may result in the balance of the impeller being affected.

3.2 When handling the equipment, care should be taken with corners and edges and that the weight distribution within the unit is considered. Lifting gear such as slings or ropes must be arranged so as not to bear on the casing.

3.3 Equipment stored on site prior to installation should be protected from the weather and steps taken to prevent ingress of contaminants.

4.0 OPERATIONAL LIMITS

4.1 It is important that the specified operational limits for the equipment are adhered to e.g. operational air temperature, air borne contaminants and unit orientation.

4.2 Where installation accessories are supplied with the specified equipment eg. wall mounting brackets. They are to be used to support the equipment only. Other system components must have separate provision for support.

4.3 Flanges and connection spigots are provided for the purpose of joining to duct work systems. They must not be used to support the ductwork.

4.4 In the event of RF interference the fan may change speed. This is normal and will have no adverse effect on the fan. The speed will return to normal once the interference has subsided.

5.0 INSTALLATION REQUIREMENTS

In addition to the particular requirements given for the individual product, the following general requirements should be noted.

5.1 Where access to any part of equipment which moves, or can become electrically live are not prevented by the equipment panels or by fixed installation detail (eg ducting), then guarding to the appropriate standard must be fitted.

5.2 The electrical installation of the equipment must comply with the requirements of the relevant local electrical safety regulations.

5.3 For EMC all control and sensor cables should not be placed within 50mm or on the same metal cable tray as 230V switched live, lighting or power cables and any cables not intended for use with this product.

6.0 COMMISSIONING REQUIREMENTS

6.1 General pre-commissioning checks relevant to safe operation consist of the following:

Ensure that no foreign bodies are present within the fan or casing.

Check electrical safety. e.g. Insulation and earthing.

Check guarding of system.

Check operation of Isolators/Controls.

Check fastenings for security.

6.2 Other commissioning requirements are given in the relevant product documentation.

7.0 OPERATIONAL REQUIREMENTS

7.1 Equipment access panels must be in place at all times during operation of the unit, and must be secured with the original fastenings.

7.2 If failure of the equipment occurs or is suspected then it should be taken out of service until a competent person can effect repair or examination. (Note that certain ranges of equipment are designed to detect and compensate for fan failure).

8.0 MAINTENANCE REQUIREMENTS

8.1 Specific maintenance requirements are given in the relevant product documentation.

8.2 It is important that the correct tools are used for the various tasks required.

8.3 If the access panels are to be removed for any reason the electrical supply to the unit must be isolated.

8.4 A minimum period of two minutes should be allowed after electrical disconnection before access panels are removed. This will allow the impeller to come to rest.

NB: Care should still be taken however since airflow generated at some other point in the system can cause the impeller to "windmill" even when power is not present.

8.5 Care should be taken when removing and storing access panels in windy conditions.

Notes

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Technical or commercial considerations may, from time to time, make it necessary to alter the design, performance and dimensions of equipment and the right is reserved to make such changes without prior notice.