

TIA

Terminator Input Axial Fan Installation Manual



1.0 SAFETY INFORMATION

- The provision of the electrical supply and the connection of the unit to the electrical supply must be carried out by a qualified electrician.
- Isolate from power supply before removing any covers. During installation / maintenance ensure all covers are fitted before switching on the mains supply.
- All-pole disconnection from the mains as shown in the wiring diagram must be incorporated within the fixed wiring and shall have a minimum contact separation of 3mm in accordance with latest edition of the wiring regulations.
- This unit must be earthed.
- Ducting must be securely fixed with screws to the spigot to prevent access to live parts. Duct runs terminating close to the fan must be adequately protected by suitable guards.
- This appliance should not be used by children or persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning the safe use of the appliance by a person responsible for their safety. Children shall not play with the appliance. Cleaning and user maintenance shall not be carried out by children.

1.1 Symbols



GENERAL WARNING

Signifies a general warning regarding hazard specified by supplementary information.



ELECTRIC SHOCK

This unit must be completely electrically isolated before any panels are removed. Check mains supply and control connections.



ROTATING PARTS

This unit contains fast moving rotational parts which may start automatically. It is the sole responsibility of the installer to adequately guard these components.



REFER TO INSTRUCTION MANUAL

Read and understand the installation and maintenance manual before installing, operating or maintaining this product.

1.2 Important Information

This manual contains important information on the safe and appropriate assembly, transport, commissioning, operation, maintenance, disassembly and simple troubleshooting of the product.

While the product has been manufactured according to the accepted rules of current technology, there is still a danger of personal injury or damage to equipment if the following general safety instructions and the warnings contained in these instructions are not complied with.

- **Read these instructions completely and thoroughly before working with the product.**
- **Keep these instructions in a location where they are accessible to all users at all times.**
- **Always include the operating instructions when you pass the product on to third parties.**

1.3 Personal Protective Equipment

The following minimum Personal Protective Equipment (PPE) is recommended when interacting with Nuaire product:

- **Protective Steel Toed Shoes** - when handling heavy objects.
- **Full Finger Gloves (Marigold PU800 or equivalent)** - when handling sheet metal components.
- **Semi Fingerless Gloves (Marigold PU3000 3DO or equivalent)** - when conducting light work on the unit requiring tactile dexterity.
- **Safety Glasses** - when conducting any cleaning/cutting operation or exchanging filters.
- **Reusable Half Mask Respirators** - when replacing filters which have been in contact with normal room or environmental air.

Nuaire would always recommend a site specific risk assessment by a competent person to determine if any additional PPE is required.

2.0 INTRODUCTION

The units are manufactured in five fan sizes from 350mm dia to 630mm dia.

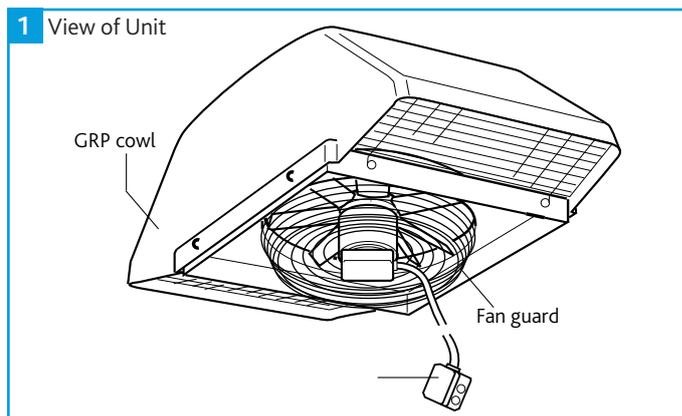
The unit is designed to be installed onto correctly prepared upstand openings on walls or flat and pitched roofs. Matching Nuaire Purlin Box Curbs are available for roof mounting and a range of matching wall kits is offered to speed wall installation.

When wall mounted the unit MUST be fitted with the longer cowl dimension running horizontally.

Each unit consists of a mounting base incorporating a spun venturi. The motor is fixed to a guard frame fitted to the underside of the venturi plate. An axial impeller is fitted and the unit is weathered using a GRP cowl.

Motors are manufactured to BS5000, have sealed for life bearings and have integral thermal protection which must be incorporated into the control wiring. Failure to use this device will invalidate the equipment warranty.

A 600mm long flexible conduit hangs from the motor terminating in a connection box. This is fixed to a suitable surface adjacent to the installation (Figure 1).



2.1 Code Description

1	2	3	-	4	5	6
TI	A	400	-	4	3	1

- 1. Range: **TI** = Terminator Input Fan
- 2. Impeller Type: **A** = Axial
- 3. Unit & Cowl Size: **315** = Cowl A
350 = Cowl A
400 = Cowl B
450 = Cowl B
500 = Cowl C
560 = Cowl C
630 = Cowl D
- 4. Motor Poles: **4** = 4 Pole Motor
6 = 6 Pole Motor
- 5. Blade Angle Reference: Contact Nuaire
- 6. Electrical Power: **1** = Single Phase
3 = 3 Phase

3.0 HANDLING

Units must at all times be handled carefully to avoid damage or distortion. The unit is delivered fully assembled and mounted on a pallet for ease of handling. When lifting or hoisting units, care must be taken to ensure that no pressure is applied to the cowl.

3.1 Purlin Box / Curb

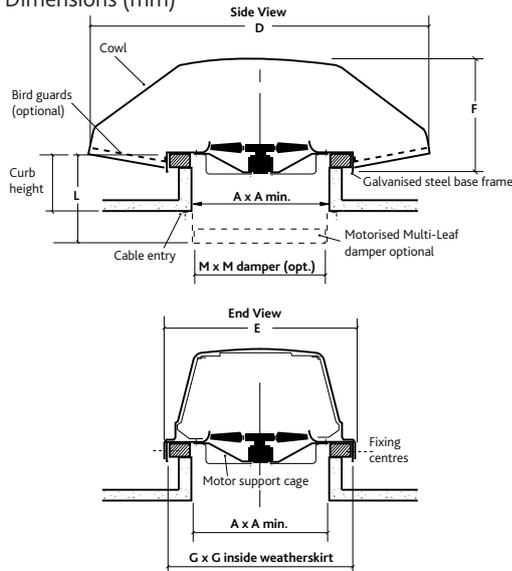
Purlin box / curbs are manufactured in galvanised mild steel. The upper face of the purlin box is fitted with a sealing strip. When installed, the curb must be securely attached to the trimmer angles.

3.2 Soaker Sheet

Soaker Sheets can be supplied by Nuaire. Manufactured in high quality GRP, each sheet is 19500 mm long and can be supplied to match most roof profiles. The soaker sheets are designed to be used over Nuaire Purlin Box Curbs.

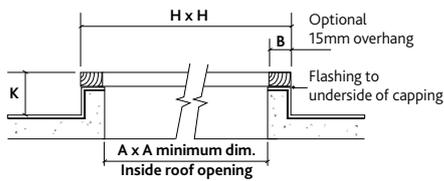
4.0 DIMENSIONS & FIXING DETAILS

2 Unit Dimensions (mm)

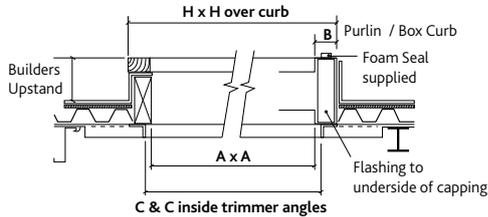


3 Roof Curb Dimensions (mm)

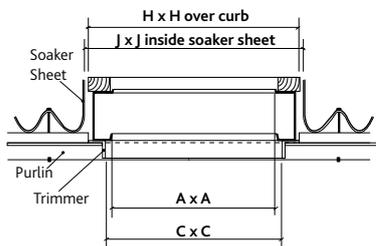
CONCRETE ROOF



DECKING ROOF

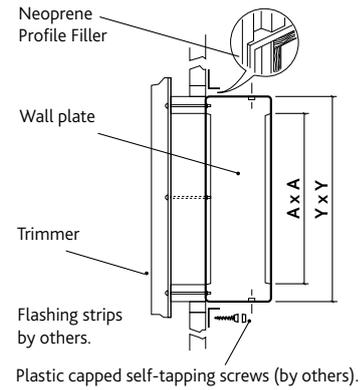


PROFILE ROOF



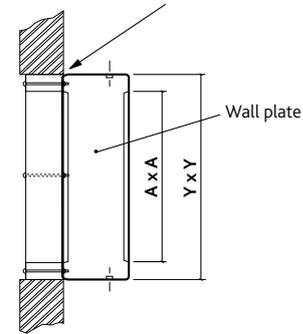
Note: Wooden curb and caps to be hardwood or treated softwood of minimum 50mm thickness.

4 Wall Plate Secured To A Profile Sheet Dimensions (mm)

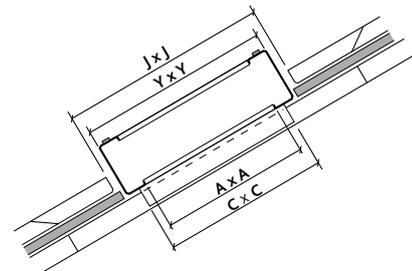


5 Brick Wall Prepared To Accept Wall Plate Dimensions (mm)

Important that timber is flush with outside of wall and secured with coach bolts (by others). Useflexible silicone sealant filler on all joint surfaces to form a fillet for complete weatherseal.

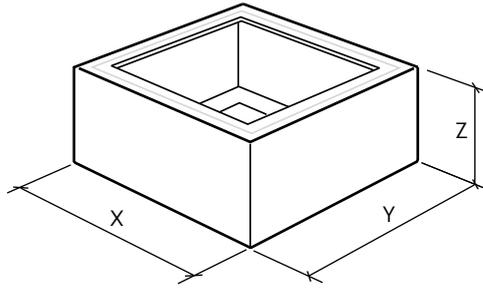


6 Roof Profile Prepared To Accept Purlin Box Curb Dimensions (mm)

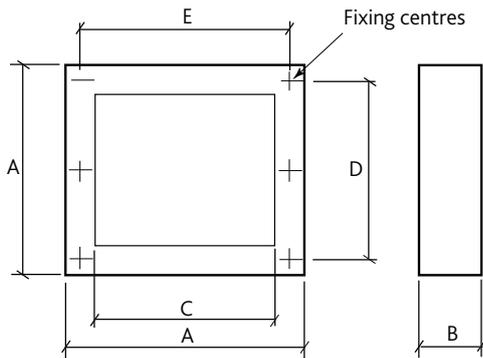


Unit Size	Cowl Size	Dimensions (mm)												Cowl Weight (Kg)
		A	B	C	D	E	F	G	H	J	K	L	M	
315 350	A	460	45	475	900	620	340	600	550	560	150	450	390	12.3
400 450	B	560	45	575	1080	740	375	695	650	660	150	450	490	14.7
500 560	C	700	100	775	1320	964	475	945	900	910	150	450	690	25.4
630	D	800	100	900	1470	1076	490	1050	1000	1010	200	500	800	28.2

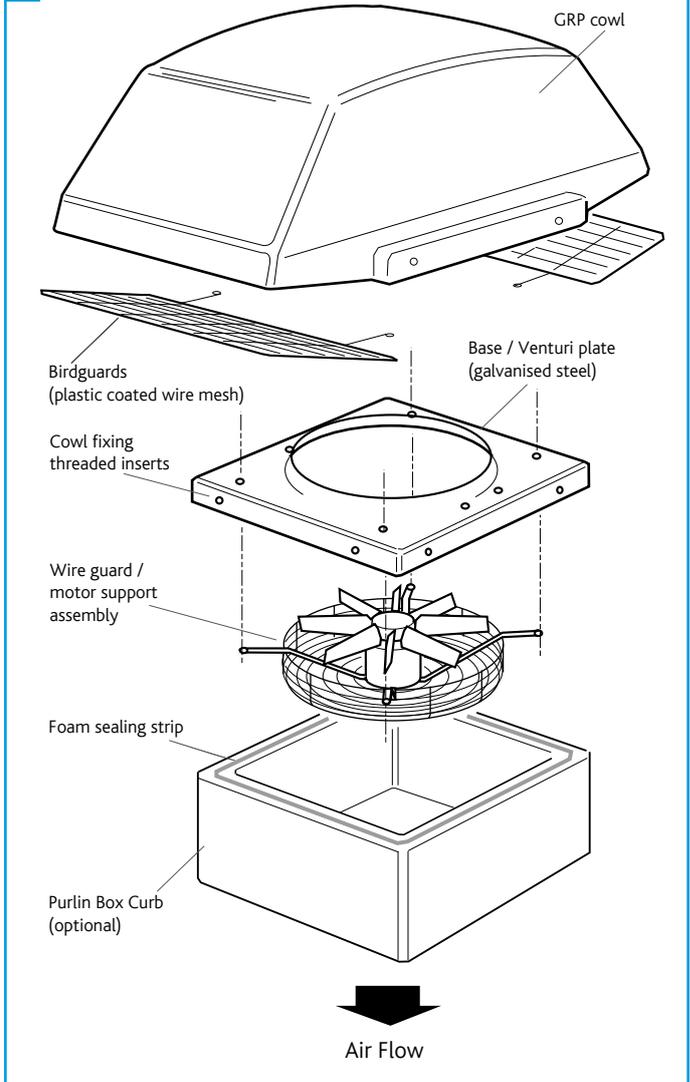
7 Purlin Box Curb Dimensions (mm)



8 Wall Frame Kit Dimensions (mm)



9 Exploded View Of Unit



Unit Size	Cowl Size	Purlin Box Curb Code*	Wall Plate Code	Dimensions (mm)							
				A	B	C	D	E	X	Y	Z
315 350	A	PBC-A	TRWP-A	550	250	460	369 [†]	475	550	550	250
400 450	B	PBC-B	TRWP-B	650	250	560	470 [†]	575	650	650	250
500 560	C	PBC-C	TRWP-C	900	250	700	610 [†]	825	900	900	250
630	D	PBC-D	TRWP-D	1000	250	800	690 [†]	900	1000	1000	250

* For thermally insulated curb add T to the Purlin Box Curb code e.g. PBCT-A, PBCT-B etc.

[†] Three holes equally spaced.

* Four holes equally spaced.

5.0 MECHANICAL INSTALLATION

Installation must be completed by competent persons, in accordance with good industry practice and should conform to all governing and statutory bodies i.e. IEE, CIBSE, etc.

The unit is delivered completely assembled and a protective skin prevents damage to the unit.

It is strongly recommended that this protective skin is allowed to remain in position for as long as possible.

When necessary, the skin should be removed using a sharp knife, taking care not to score the unit surface.

The unit can now be inspected for damage. Any accumulation of dirt should be removed (see cleaning, page 6).

5.1 Roof installation

Check that the curb mounting surface is flat and that the sealing strip is in position. (A suitable mastic may be used as an alternative).

Curbs other than Nuaire purlin box curbs should be fitted with timber capping. On timber capped curbs the units may be attached using coachbolts or similar. When attaching to Nuaire purlin box curbs the use of TEK self drilling screws (type SF 46516) or self tapping screws is recommended. Holes are provided in the skirt of the units base/venturi plate, see page 3.

A 600mm long flexible conduit hangs from the motor terminating in a connection box. This is fixed to a suitable surface adjacent to the installation. Refer to the wiring diagrams (page 5) and connect the unit to the supply.

(Longer dimension of cowl running DOWN roof slope). Units can be fitted with the cowl so aligned on a roof slope of 0° - 60° from the horizontal.

(Longer dimension of cowl running ACROSS roof slope). Units can be fitted with the cowl so aligned on a roof slope of 0° - 85° from the horizontal.

5.2 Wall Installation

Unit MUST be installed using the appropriate wall mounting plate (see Fig. 4b) and with the longer cowl dimension running horizontally.

If still assembled, separate the unit and wall plate by removing the screws and washers from around the unit skirt. Retain the fixings. Depending on the type of wall, prepare a hole to the dimensions shown on page 3. For a solid wall, fit the hole with a timber frame as shown. Drill and fit appropriate wall plugs and secure the timber frame. On completion, the frame must be flush with the outside surface of the wall. For installation to a profile sheet wall, fit a suitable timber frame supported by means of angle-iron sections. The timber frame should, on completion, be flush with the outside sheet profile (Fig. 4).

Apply a flexible silicone sealer e.g. Flowseal 32 to the timber frame and secure the wall plate using suitable coach bolts, nuts and washers. On a solid wall installation, apply a fillet of sealant between the wallplate and wall.

On profile walls it will be necessary to 'flash' the wall plate. Flashing strips should extend sufficiently to allow fixing to a high portion of the profile section. Ensure that the flashing strips overlap at the four corners. Fill between the top and bottom flashing strips with Neoprene profile filler and seal all external joints and seams with a suitable flexible silicone sealer such as Flowsil 32. (See Wallplate dimensions fig. 4b).

6.0 ELECTRICAL INSTALLATION

Isolation - Before commencing work make sure that the unit and Nuaire control if fitted are electrically isolated from the mains supply.

Do not operate the unit with the cowl removed.

The impeller will continue to rotate after the supply has been disconnected - allow sufficient time for the impeller to come to rest.

6.1 Electrical Information

This equipment incorporates rotating and moving parts as well as electrical components and conductors.

It is the responsibility of the installer to ensure that any such items remaining externally accessible once the equipment is installed are adequately guarded. This precaution is necessary to avoid the possibility of accidental injury or death. Particular attention must be paid to the outlet side of the rotating impellers if the cowl is removed.

The unit must be provided with a means of isolation (by others) for maintenance purposes etc. A suitable isolator can be supplied by Nuaire on request as a separate item.

6.2 Connecting the Supply

Refer to the unit rating label attached to the motor venturi plate.

Check that the electrical voltage and frequencies correspond to those marked on the rating label.

The unit has a 600mm flexible conduit direct from the motor terminated in a connector box. This should be mounted in a convenient position next to the fan. Refer to the wiring diagrams and connect the supply to the terminal box.

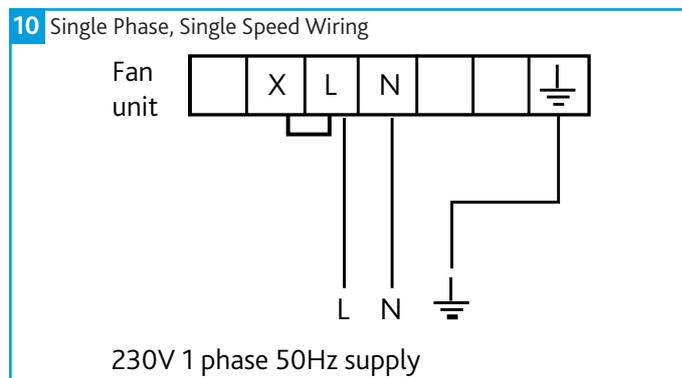
The unit is not weather tight when cowl is removed.

6.3 Wiring

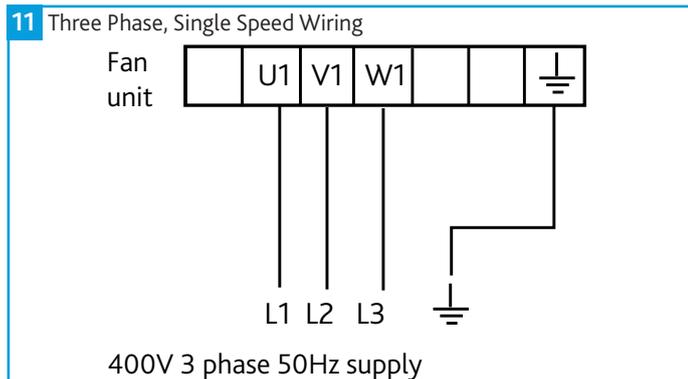
The units are pre-wired from the motor to an enclosed terminal box. This box is located at the end of a 600mm long flexible conduit which hangs underneath and is fixed to a convenient surface by the installer. These units will require bottom access to complete wiring.

6.4 Wiring Diagrams

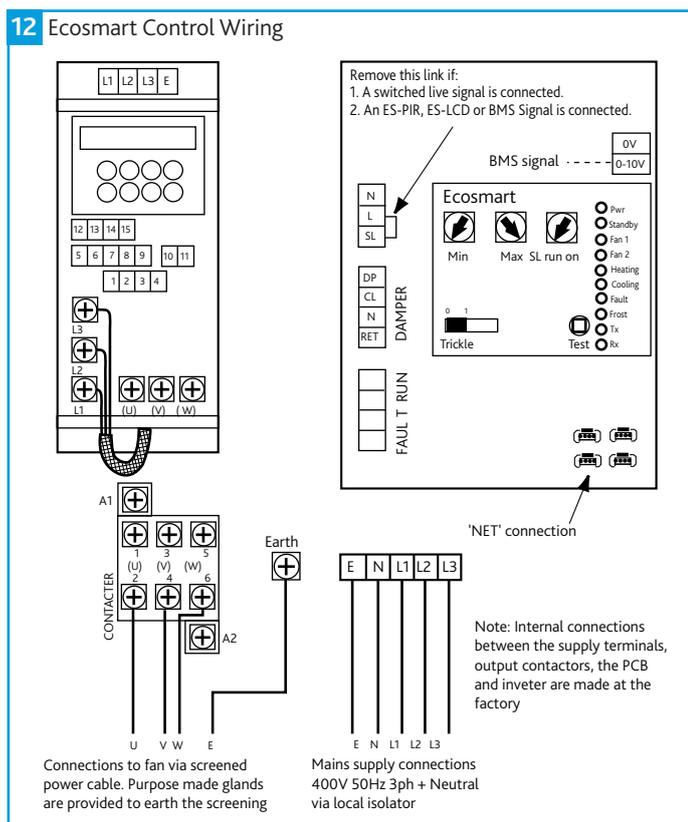
6.4.1 Single Phase, Single Speed



6.4.2 Three Phase, Single Speed



6.4.3 Ecosmart Control



6.5 Connection details

Check that the electrical supply is compatible with the unit (see unit rating plate). Connection details are supplied with speed controls.

All wiring must be carried out in accordance with regulations for electrical installations and comply with the requirements of the local supply authority.

Ensure that the direction of rotation is correct. Single phase units are checked during manufacture for correct rotation. Three phase units must be tested on site and, if incorrect, interchange any two supply leads to reverse impeller direction.

The Ecosmart control box is a separate item packed individually. See installation leaflet 671193 for details of Ecosmart Control (ES-ISC).

7.0 MAINTENANCE

It is important that maintenance checks are recorded and that the schedule is always adhered to, in all cases, the previous report should be referred to.

Do not operate the unit with the cowl removed. The impeller will continue to rotate after the supply has been disconnected - allow sufficient time for the impeller to come to rest.

Before attempting to carry out any work; ensure the unit and speed control, if fitted, are electrically isolated.

Before commencing work, ensure the unit is isolated from the electrical supply. Also, see notes on safety precautions above.

7.1 Routine Maintenance

Before proceeding, check that:

- Bird Guards (if fitted) are not distorted or obstructed in any way.
- Impeller rotates freely and does not foul the fan plate.
- The impeller is clean and free from wear.
- The condition of all components is suitable for further service. Also check condition and tightness of all fixings.
- **The unit is not weather tight when cowl is removed.**

7.1.1 Cowl Removal

TIA (Axial) the impeller is accessible immediately and can be removed if required.

7.1.2 Impeller Removal (AXIAL) Ref: TIA

- Knock up the tab washer and remove the retaining screw.
- Remove the impeller from the motor shaft.
- Retain the motor shaft key.
- Replacement is the reversal of the above procedure.

7.1.3 Impeller Cleaning

A build-up of dust/dirt may be removed by brushing carefully with a stiff brush. Take care not to damage or distort the impeller blades. If the impeller is too badly fouled to allow cleaning in situ, proceed as follows:

- Remove the impeller.
- Remove all loose dirt using a stiff brush.
- Sponge the impeller with warm soapy water.
- Rinse thoroughly with clean water and wipe dry. Do not use solvents or caustic fluids.

8.0 WARRANTY

Terminator units have a 3 year warranty, Ecosmart Terminator has a 5 year warranty. The warranty starts from the day of delivery and includes parts and labour for the first year. The remaining period covers replacement parts only.

This warranty is void if the equipment is modified without authorisation, is incorrectly applied, misused, disassembled, or not installed, commissioned and maintained in accordance with the details contained in this manual and general good practice.

The product warranty applies to the UK mainland and in accordance with Clause 14 of our Conditions of Sale. Customers purchasing from outside of the UK should contact Nuair International Sales office for further details.

Failure to maintain the unit as recommended will invalidate the warranty.

9.0 END-OF-LIFE AND RECYCLING

Where possible Nuaire use components which can be largely recycled when the product reaches its end-of-life:

- Fans, motors, controls, actuators, cabling and other electrical components can be segregated into WEEE recycling streams.
- Sheet metal parts, aluminium extrusion, heating/cooling coils and other metallic items can be segregated and fully recycled.
- EPP, plastic ducting, nylon corner pieces, plastic heat exchangers, packaging material and other plastic components can be segregated into mixed plastic and widely recycled.
- Cardboard packaging, wood, used filters and other paper components can be largely recycled or fully processed in energy from waste centres.
- Remaining Items can be further segregated and processed in accordance with the zero waste hierarchy. Please call After Sales Support for further information on items not listed above.

Ensure that Nuaire product is made safe from any electrical / water / refrigerant supplies before dismantling commences. This work should only be undertaken by a qualified person in accordance with local authority regulations and guidelines, taking into account all site based risks.

10.0 AFTER SALES AND REPLACEMENT PARTS

For technical assistance or further product information, including spare parts and replacement components, please contact the After Sales Department.

If ordering spares please quote the serial number of the unit together with the part number, if the part number is not known please give a full description of the part required. The serial number will be found on the identification plate attached to the unit casing.

Telephone 02920 858 400
aftersales@nuaire.co.uk

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.

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: Terminator Roof Input/Supply Fans
 Machinery Types: TIA
 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
 Note: All standards used were current and valid at the date of signature.

Signature of manufacture representatives:
 Name: Position: Date:
 1) C. Biggs  Technical Director 1. 05. 12
 2) A. Jones  Manufacturing Director 1. 05. 12

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

To comply with EC Council Directives 2006/42/EC Machinery Directive and 2014/30/EU (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 Nuairé 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 Nuairé.
 - 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.

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.