



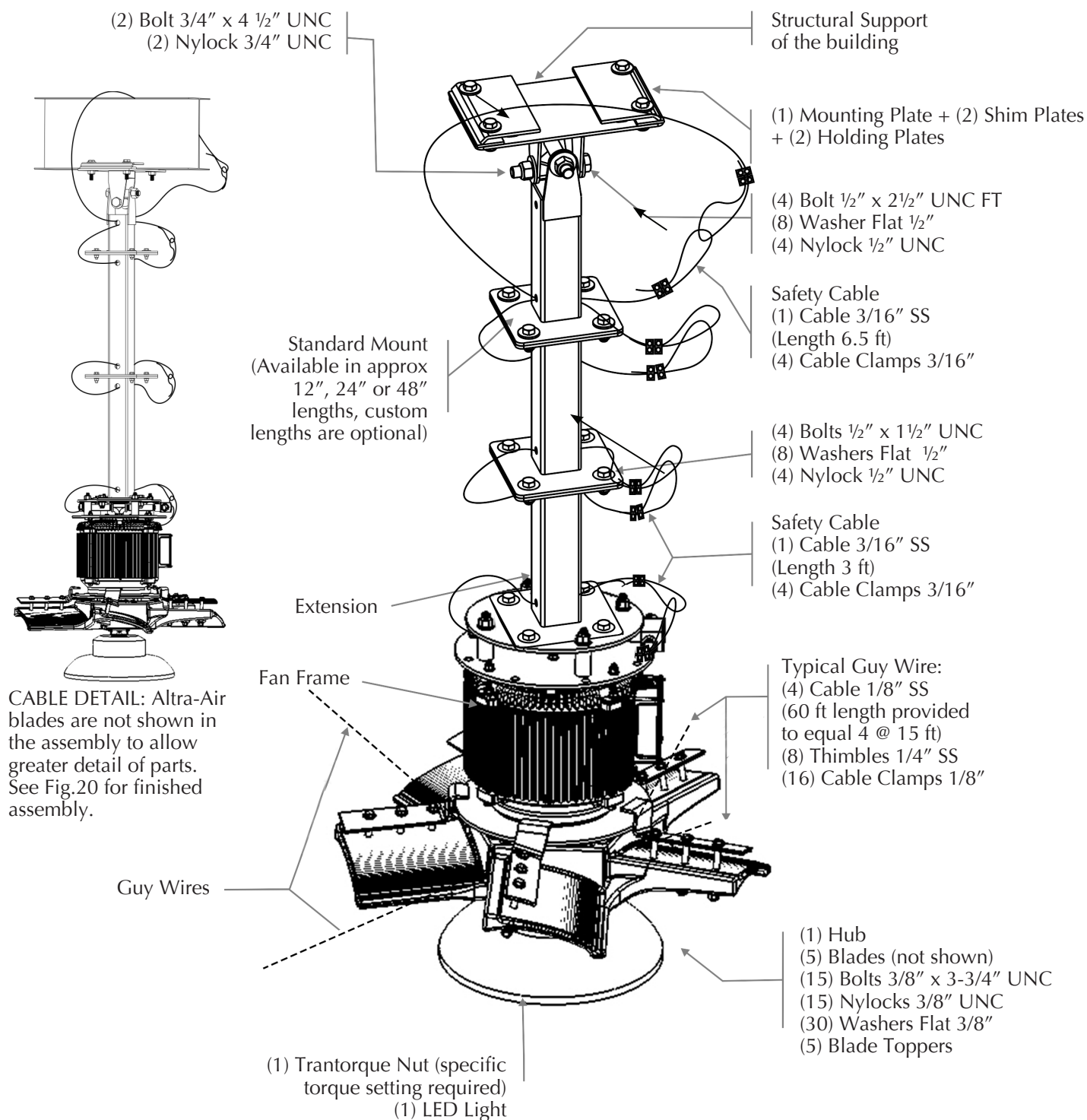
Altra-Air

GEARLESS |||| *Sailfin*

Imperial INSTALLATION GUIDE

ENVIRA-NORTH
SYSTEMS LIMITED
(519) 527-2198
www.enviranorth.com

FAN COMPONENTS DIAGRAM



Note: All bolts are "Grade 5 UNO"
FT = Fully Threaded
(#) = Quantity Supplied

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Engineers requiring AutoCAD or SolidWorks drawings can download them by accessing the Envira-North ‘Dealer Login’ page on our website at www.enviranorth.com/dealerlogin. Please note that an authorised username and password is required to access this secure area of our site. Please contact Envira-North at 1(519)527-2198 to receive a username and password.

1. TOOLS REQUIRED TO INSTALL PRODUCT

- Level
- Cable cutters (for stainless steel aircraft cable)
- Ratchet or impact gun
- Basic imperial socket set up to 3/4"
- Basic imperial wrench set
- Lifting devices or scaffolding

2. REQUIRED STEPS BEFORE INSTALLATION

- Check to see if you have all the tools required for the installation.
- Verify that all fan components were received.
- Check drawings and layouts provided to locate where the Altra-Air Fan is to be installed.
- Ensure work area is safe and that all security, policies and procedures for the facility are met.
- Inspect the lift device or mobile platform.
- Each person installing the Altra-Air Fan must use a safety harness at all times.
- Other safety requirements may be required for installation.
- All workspace safety requirements, lock out procedures and hoarding of construction zone for the assembly and installation must be met and followed.

CAUTION

THIS UNIT HAS AN UNGUARDED IMPELLER.
DO NOT USE IN LOCATIONS READILY
ACCESSIBLE TO PEOPLE OR ANIMALS.

TO REDUCE THE RISK OF INJURY TO
PERSONS, INSTALL FAN SO THAT THE
BLADE IS AT LEAST 3.05 METERS (10 FEET)
ABOVE THE FLOOR.

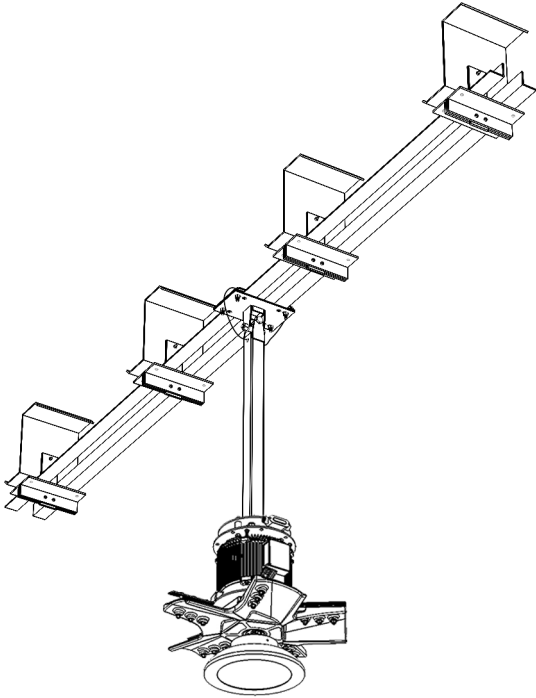
WARNING

SUPPORT DIRECTLY FROM
BUILDING STRUCTURE

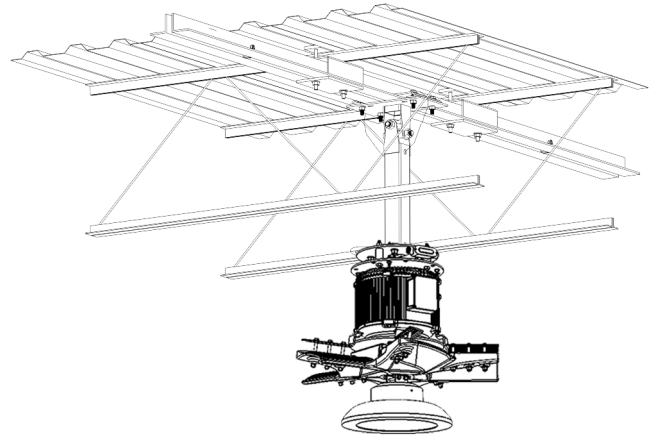
CAUTION

MOUNT WITH THE LOWEST MOVING PARTS
AT LEAST 3.05 METERS (10 FEET) ABOVE
FLOOR OR GRADE LEVEL.

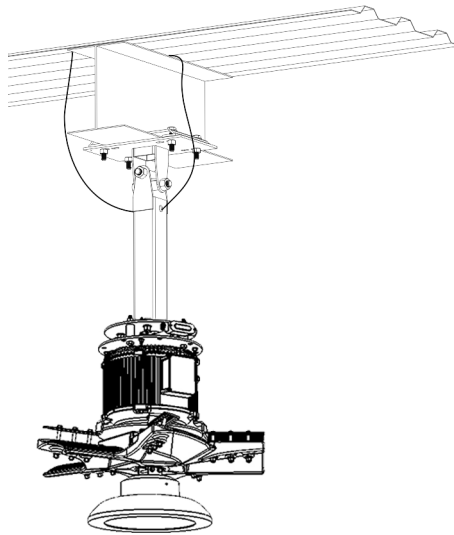
3. DIFFERENT MOUNTING APPLICATIONS



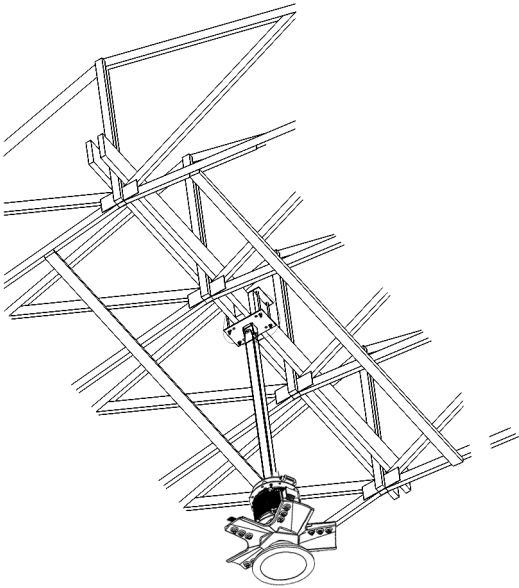
PURLIN Z MOUNT



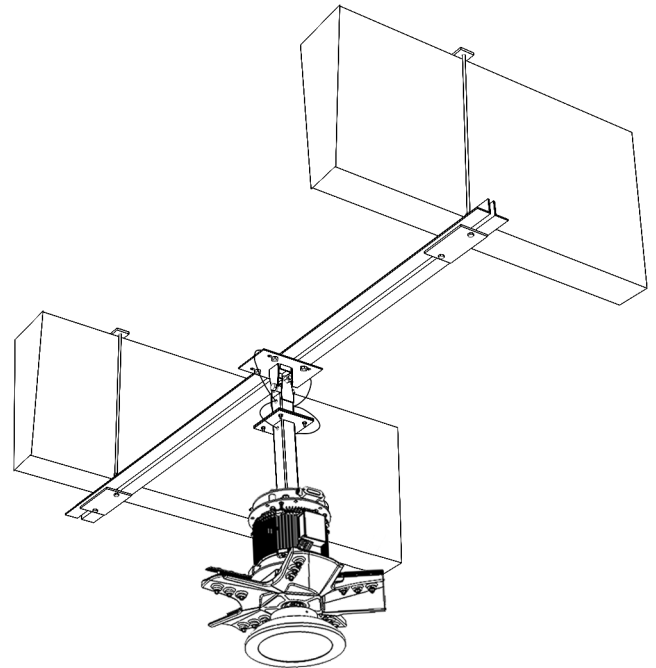
OWSJ MOUNT



I BEAM MOUNT



WOOD BEAM MOUNT



CONCRETE BEAM MOUNT

NOTE: The following mounting applications are representations only and are subject to change without notice. Contact your sales representative or the Envira-North office for complete mounting instructions.

4. STANDARD MOUNT

A Standard Mount package is used with all Altra-Air Assemblies (except “Wood” Beam Mounting). Standard drop mounts of 12”, 24” and 48” are available.

THE PACKAGE INCLUDES:

- (2) mfg “I” Beam clamps
- (2) mfg “I” Beam spacers (may or may not be required for assembly)
- (1) Upper Pivot Plate
- (1) Upper Pivot (pre-assembled)
- (1) Stem for 12”, 24” & 48” packages
- (4) Bolts, Nuts & Washers
- (1) Cable 3/16” SS (Length 6.5 ft)
- (4) Cable Clamps 3/16” (not shown)

NOTE: Spacer may or may not be required.
This is dependent upon the thickness of the support structure.

INSTALLING THE MOUNT

1. Sandwich the “I” Beam or OWSJ Beam between the mfg “I” Beam clamps and the upper pivot plate. Insert the mfg “I” Beam spacers if required.
2. Insert the bolts, washers and tighten the nylocks. (Fig.8)
3. Position the safety cable as per Fig.8, loop at both ends.
4. Fasten cable clamps as typical cable clamp installation (Fig.9) Cable should be relatively snug.

TYPICAL CABLE CLAMP INSTALLATION

When placing cable clamps on the wire, it is imperative that the U-bolt side of the clip is placed on the short turn back side and the saddle goes on the long side (the “live” end).

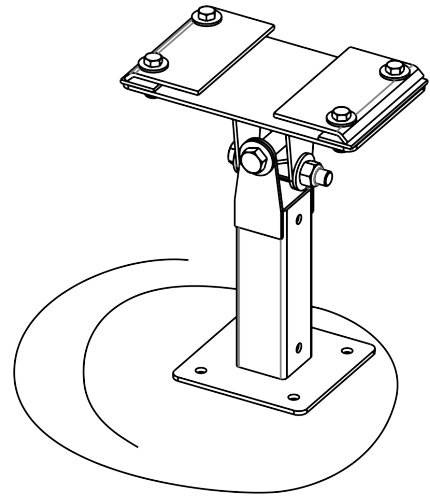


FIG.7

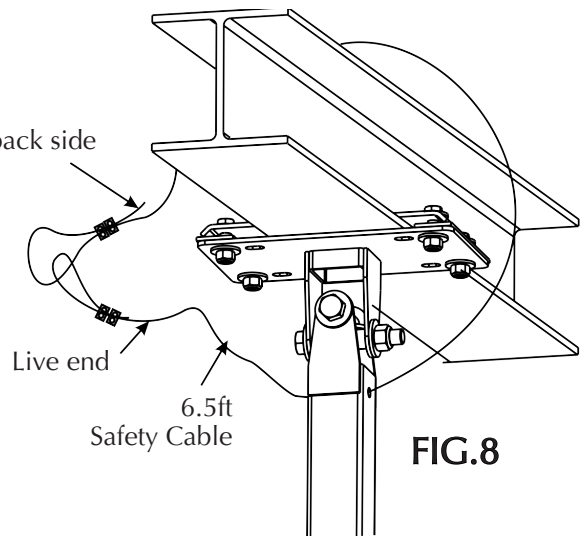


FIG.8

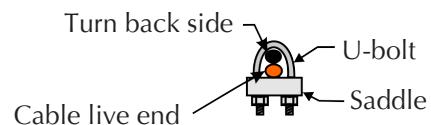


FIG.9

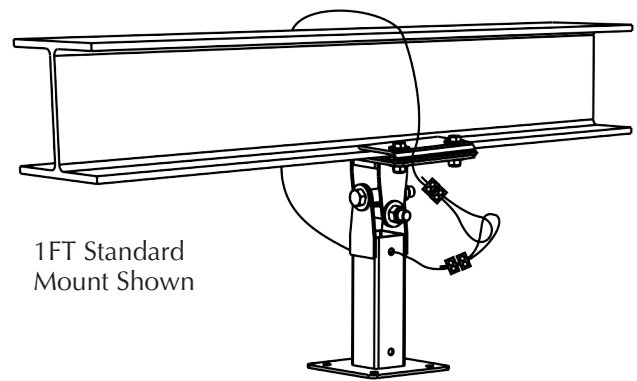
5. EXTENSIONS

THE PACKAGE INCLUDES:

- (1) Extension (standard 2 ft or 4 ft)
- (4) Bolts $\frac{1}{2}$ " x $1\frac{1}{2}$ " UNC
- (8) Washers Flat $\frac{1}{2}$ "
- (4) Nylocks $\frac{1}{2}$ " UNC
- (1) Cable $\frac{3}{16}$ " SS
(Length 3 ft)
- (4) Cable Clamps $\frac{3}{16}$ "

Depending on your assembly, your package may include an extension. The extension with the standard mount will make up the overall drop length.

If a specific drop distance is required, a custom extension may be an option and can be ordered.



24" or 48" Standard Extensions are Available

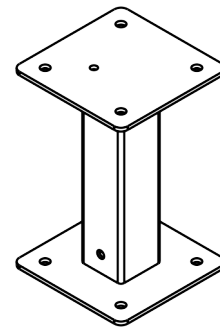


FIG.10

INSTALLING THE EXTENSION

1. Fasten top plate of extension to the bottom plate of the standard mount using $\frac{1}{2}$ " bolts, nuts and washers.
2. Position the safety cable as per Fig.11, loop at both ends.
3. Fasten cable clamps 2 per end and as per typical cable clamp installation (Fig.9). Cable should be relatively snug.

Every connection between components (mounts, extensions and fan frame) must include a safety cable as shown throughout this manual.

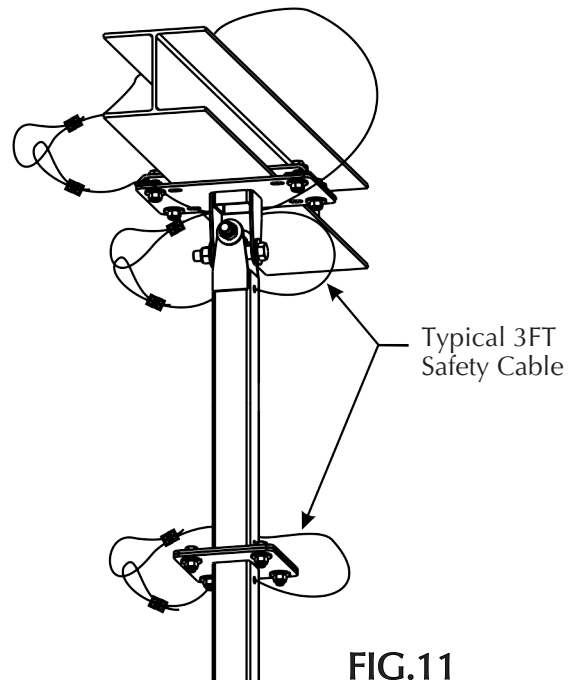


FIG.11

6. MAIN HUB & DRIVE ASSEMBLY

THE PACKAGE INCLUDES:

- (1) Hub
- (1) Fan frame
- (1) Trantor nut
- (1) Motor
- (1) LED Light

All These Items Are
Pre-Assembled

- (4) Bolts $\frac{1}{2}$ " x $1\frac{1}{2}$ " UNC
- (8) Washers Flat $\frac{1}{2}$ "
- (4) Nylock $\frac{1}{2}$ " UNC
- (1) Cable $\frac{3}{16}$ " SS (4 ft)
- (4) Cable clamp $\frac{3}{16}$ "

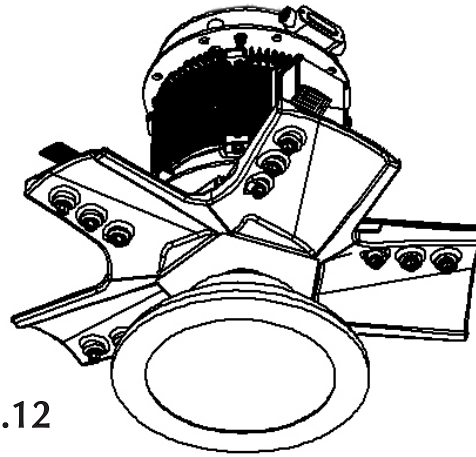


FIG.12

INSTALLING THE MAIN HUB & DRIVE ASSEMBLY

1. Fasten top plate of fan frame to the bottom plate of the standard mount using $\frac{1}{2}$ " bolts, nuts and washers.
2. Position the safety cable as per Fig.13, loop at both ends.
3. Install and fasten cable clamps 2 per end as per Fig.9.
Cable should be relatively snug.

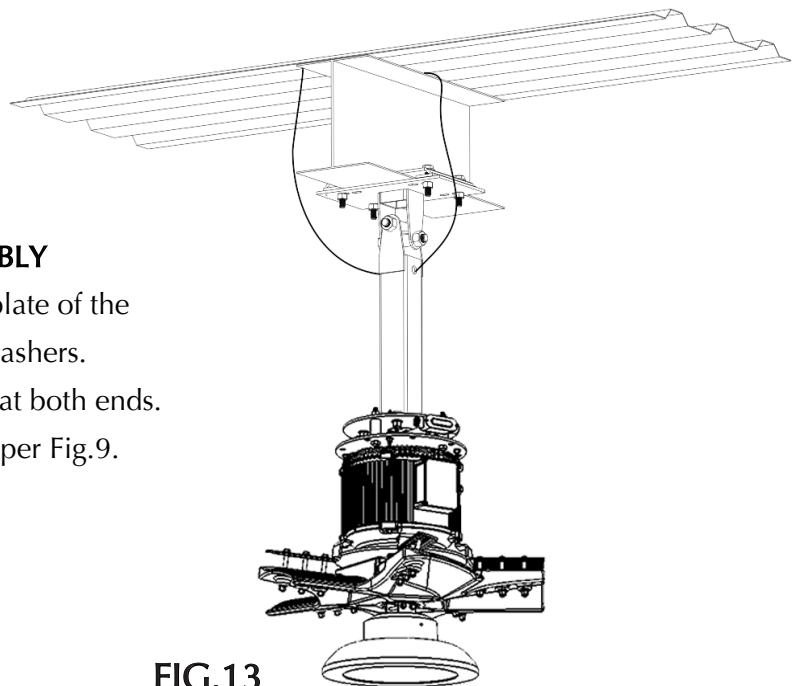


FIG.13

7. GUY WIRES

THE PACKAGE INCLUDES:

- (4) Cable 1/8" SS (60 ft)
- (8) Thimbles 1/4" SS
- (16) Cable Clamps 1/8"

EXTRA HARDWARE REQUIRED:

- (4) Forged Eye Bolts 1/4"
- (4) Nuts 1/4"
- (4) Nylocks 1/4"
- (8) Washers Flat 1/4"

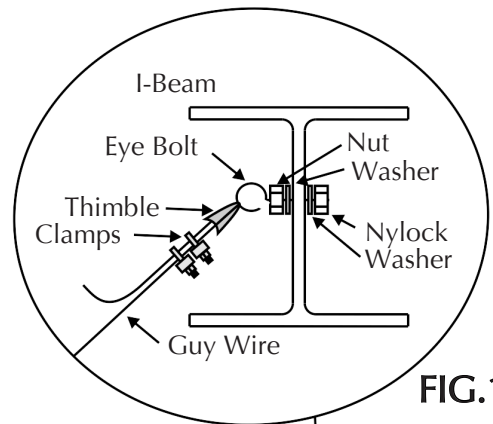


FIG.14

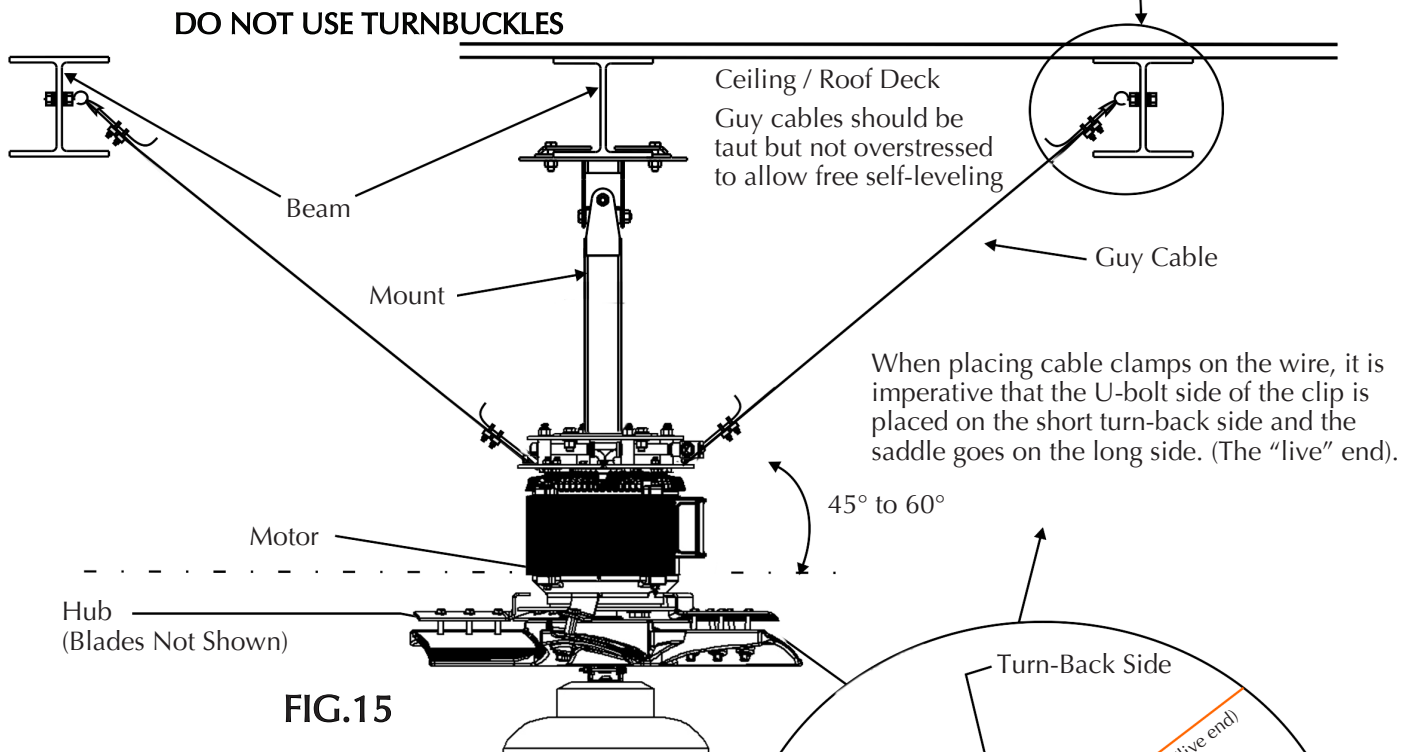


FIG.15

STRUCTURAL NOTE: Guy cables must be installed or fastened to a structural component of the building at the angle shown in Fig.15 and Fig.17.

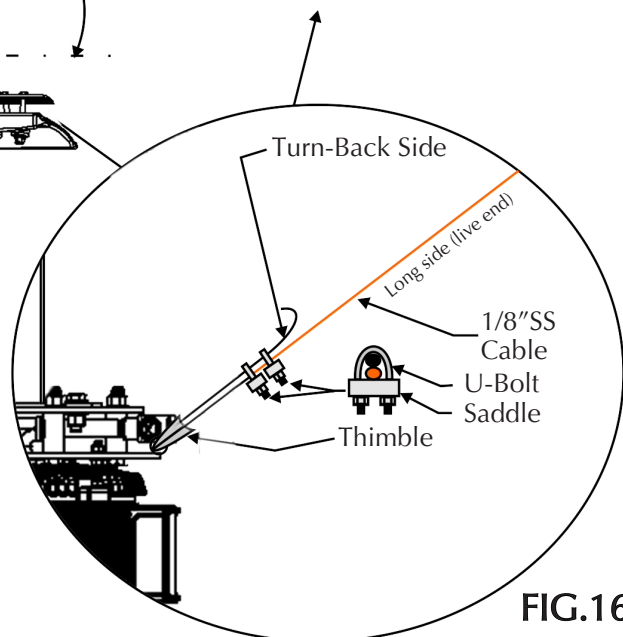


FIG.16

INSTALLING THE MAIN HUB & DRIVE ASSEMBLY

1. Determine mounting position on ceiling and establish the angle between 45o- 60o for the cable. Determine correct location on the I-Beam to drill 5/16" diameter hole for the eye bolt. For example, if fan is 4 ft down from ceiling, cables should be mounted approximately 4 ft away from fan.
2. Install eye bolt with nuts and washers in I-Beam as per Fig.15.
3. Measure the run of cable required and cut cable approximately 2 ft longer. NOTE: longer runs than 15 ft will require additional hardware.
4. Secure it with 1 thimble and 2 cable clamps (Fig.16). Repeat using the other 3 pieces of guy wire cables, thimbles and cable clamps (Fig.16).
5. Guy wires should be taut but not over-stressed to allow free self-levelling. They should also be approx. 90o apart (Fig.17).
6. Check to see if the fan is level by placing your level vertically on the side of the fan frame. If adjustment is needed, slightly tighten the guy wires on proper side.

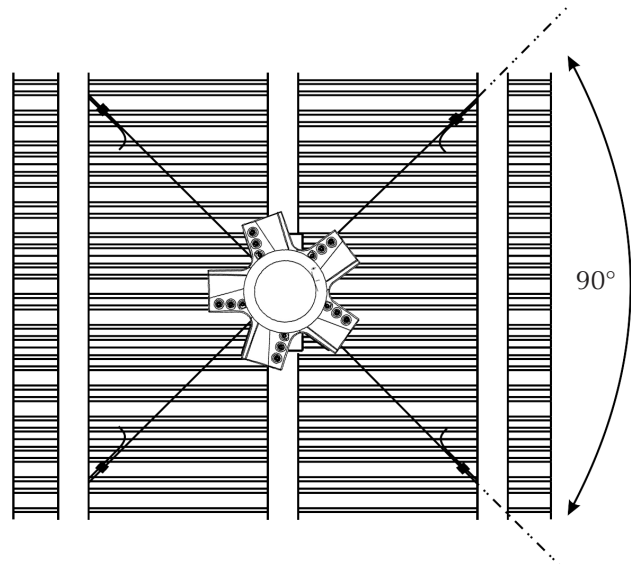


FIG.17

NOTE: Fans hanging lower than 10 ft from where the guy wires will mount will require additional cable.

8. BLADE ASSEMBLY

THE PACKAGE INCLUDES:

- (5) Blades
- (5) Blade toppers
- (15) Bolts 3/8" x 3 1/2" UNC
- (15) Nylocks 3/8" UNC
- (30) Washers Flat 3/8"

INSTALLING THE BLADE ASSEMBLY

1. Clamp a blade between blade topper and hub using 3/8" bolts, washers and nylocks (Fig.18).
2. Continue until all 5 blades have been fastened and tighten down.
3. Turn the fan by hand to ensure that there are no obstructions with the blades.

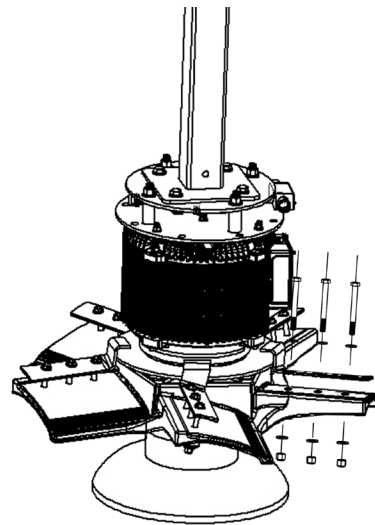


FIG.18

9. LEVELING ALTRA-AIR SAILFIN FANS

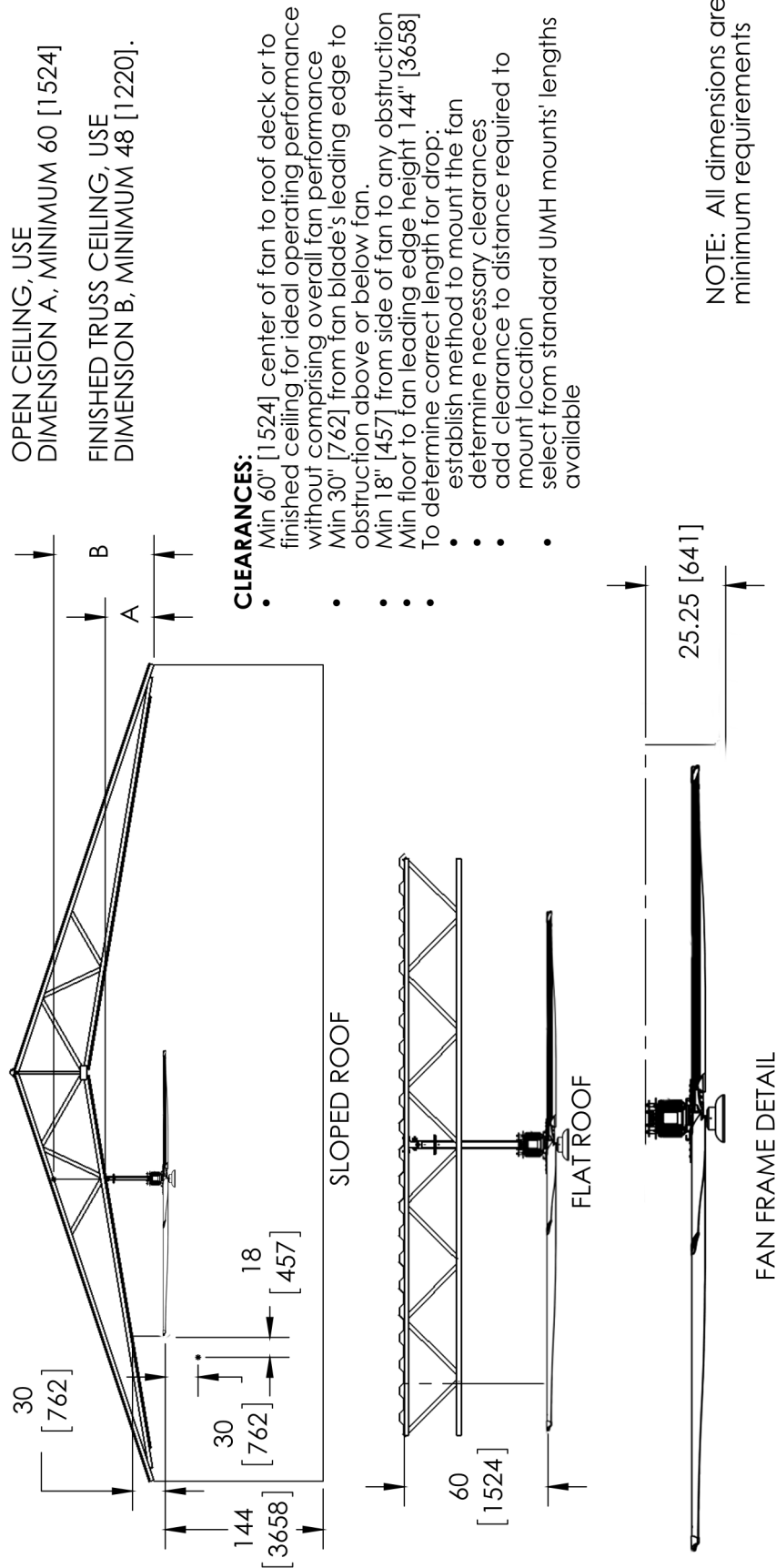
1. After your fan is installed, check the level again by placing your level vertically on the side of the fan frame. If adjustment is needed slightly tighten the guy wire on the appropriate side.
2. Once levelled your fan is installed and ready for electrical installation / connection.



FIG.19

For proper electrical connection please consult the Envira-North Electrical Installation Manual.

FAN BLADE CLEARANCE



NOTE: All dimensions are minimum requirements

[illegible]

RECOMMENDED MAINTENANCE SCHEDULE

1. No maintenance shall be done on the fan, mount or guy wires while it is in operation or powered.
2. No maintenance shall be done on the fan controller while powered unless the task involves reprogramming or troubleshooting the electrical system.
3. No maintenance shall be done within a 6m horizontal radius of the fan and 4 ft below and none above the blade level while it is in operation.
4. While doing maintenance on the fan, mount, or guy wires, a safety barrier shall be erected at a radius of 6m of the centre of the fan.
5. The fan controller shall be locked out while maintenance is ongoing on the fan, mount, or guy wires.
6. All personnel working on the fan, mount, or guy wires, shall wear the appropriate personal safety equipment as mandated by local, provincial, and national regulations.
7. A risk assessment shall be performed before any maintenance is done on the fan, mount, guy wires and fan controller.
8. A tailboard meeting shall be performed before any work is done. A checklist shall be completed and shall include any emergency contacts for the area.

BLADES

The airfoil blades are designed for maximum efficiency and quietness with a minimum air disruption directly below the fan. All our blade shapes are extruded from 6063-aluminum alloy and heat-treated to T-5 condition. They are anodized to .0004 10 Microns clear for corrosion resistance and ease of cleaning. The blades have a lifetime warranty.

MAINTENANCE SCHEDULE

Initial Six Months

- Ensure blades are intact, level and clean as required

Every Eighteen to Thirty-Six Months Thereafter

DROP / MOUNTING

The drop and mounting system is designed to prevent vibration or horizontal movement from being transferred back into the building structure. The system is easily installed in almost any building and allows fans to hang level from beams.

MAINTENANCE SCHEDULE

Initial Six Months

- Physical check of fan guy wires, re-tightening of clamps if required
- Check all nuts/bolts/clamps (missing/loose/damaged)
- Physical check of safety cable, re-tightening of clamps if required

After Eighteen Months Thereafter

CONTROL PANEL

Altra-Air controls are variable frequency drives which provide soft start/stop, variable speed control and overload protection for the motors. The VFD also allows fan control to be automated and/or integrated with other systems. The controls come with a three year limited warranty.

MAINTENANCE SCHEDULE

Initial Twelve Months

- Check for loose/discoloured wires
- Check for hot spots
- Re-tighten all loose electrical connections

Every Eighteen Months Thereafter

NOTE: Maintenance schedule is based on running 5,000 hrs / year and is a guide line to ensure safe and continuous operation of the fan(s). In case of extreme operating (e.g. high humidity, aggressive environment or large temperature variations), shorter intervals between service is recommended.

RECOMMENDED MAINTENANCE CHECKLIST

FAN SIZE:

SERIAL #:

LOCATION:

FAN SIZE:

SERIAL #:

LOCATION:

FAN SIZE:

SERIAL #:

LOCATION:

DATE	INITIALS

DATE	INITIALS

DATE	INITIALS

LIMITATION OF WARRANTY & LIABILITY

Three Year Limited Warranty

The Altra-Air fans are of industrial grade construction and should provide many years of virtually maintenance-free use. Warranty duration is as follows:

a) Air foil shaped Blade	Lifetime Warranty
b) Aluminum alloy Hub	Lifetime Warranty
c) Motor	3 year Limited Warranty
d) VFD control panel	3 year Limited Warranty
e) Labour	1 year Limited Warranty (pre-approved)
f) Custom fan wraps/paint	1 year Limited Warranty

Envira-North warrants that this Product will under normal use and service as specified by Envira-North, operate properly and be free of defects in materials and workmanship for a period of three years from the date of purchase by customer. The term “operate properly” in this context applies to mechanical, electrical and structural functions only. No guarantee, unless and except by separate written agreement, is made regarding dimensions of air movement generated or the effectiveness of this Product for its intended purpose.

Labour Warranty will cover all reasonable costs paid by the customer to an independent contractor (including dealers) to remove, dismantle, reassemble or reinstall any of the warranted Products during the first year that the Product is in service. All receipts are to be submitted to Envira-North which will be paid upon completion of the installation of the Product and after the return of the failed unit. Envira-North will only issue a credit/cheque to the customer/dealer and will not be held responsible for paying the independent contractor.

WARRANTY EXCLUSIONS

Please note that the following may or could void any or all of the above listed Warranties.

- Please note that the following may or could void any or all of the above listed Warranties.
- Not following required installation procedures as in installation guide and all other documentation supplied with the fans and related equipment, supplied by manufacturers of individual fan and control components.
- Not following all relevant codes and ordinances, not limited to National Electrical Code, provincial or state and local building codes.
- Not following electrical engineering industry standards regarding approved method of installing solid-state electrical equipment having characteristics of fans and all components included in this product.
- Any modification to installation, product and or controls without written authorization from Envira-North, even if attempting to diagnose and or repair a problem.
- Misuse, abuse, accidents, unreasonable use or Acts of God.

- Incorrect electrical current, voltage or supply.
- Running fans at higher than recommended speeds.
- Re-setting parameters of any control without prior approval from Envira-North.
- Failure to use all installation and mounting hardware supplied by Envira-North.
- Failure to perform periodic maintenance as detailed in the Envira-North installation guide.

Envira-North reserves the right to make the final determination, based on its own evaluation of the components as to whether:

- The problem in question is the result of a defect in design, workmanship or materials and not the result of error, misuse or abuse on the part of the customer as stated above.
- Whether the problem or defect is material and requires action under this Warranty.
- Whether the remedy of repair or replacement is appropriate.

Envira-North will not be responsible for remedial work necessary to correct installation procedures that do not conform to those established by the instructions, codes and standards, regardless of when the installation occurred.

With regard to electrical and electronic components provided by Envira-North that comprise part of the Products, including motors, motor drives and variable frequency drives, Envira-North relies on the determination by the original manufacturer as to whether the failure of such component was the result of a defect. If the manufacturer of such component determines that there was no defect and therefore refuses to cover it under warranty, Envira-North likewise will not warranty such item unless Envira-North determines that the failure of such electrical or electronic component was the result of a defect of design, workmanship or material within some other part of the products.

WARRANTY DURATION

With respect to replacement or repair rendered, Envira-North warrants that the parts replaced or repaired will operate properly and be free from defects in materials and workmanship for a period of 90 days from the shipment date of the replacement products to the customer, or for the remainder of the original Warranty period, whichever is longer.

WARRANTY CLAIM INSTRUCTIONS

1. Contact your original dealer/salesman of the purchase when you first notice problem with the Product.
2. It will be the responsibility of the dealer or salesman to assist the customer in determining what Product is causing the problem.
3. If they cannot diagnose the problem, they are to contact Envira-North with all the necessary information.
4. The appropriate department will then be in contact with the customer to determine the cause of the

problem.

5. Once diagnosed, submit a Purchase Order for a replacement component complete with price.
6. Replacement component will be shipped out upon receipt of the PO. This PO allows for an order to be established in the Envira-North System.
7. Once the units have been changed over, submit all pre-approved costs to Envira-North for payment.
8. No credits or cheques will be issued until all original products are received back at Envira-North or unless Envira-North directs otherwise.

LIMITATION OF WARRANTY & LIABILITY

Fifteen Year Service Life Prorated Warranty

WARRANTOR

The warrantor for the limited warranties set forth herein is Envira-North Systems Ltd ("Company").

LIMITED WARRANTY

This prorated limited warranty (this "Warranty") applies only to the original End-User (the "End-User") of any Envira-North Systems' Altra-Air Fan(s) with WhalePower Technology (Individually and collectively, the "Product") and cannot be transferred. This Warranty applies even in the event that the Product is initially sold by Company for resale to End-User. This Warranty applies to U.S and Canada purchases only. Outside U.S and Canada; standard Three-Year Warranty applies.

WHAT THIS WARRANTY COVERS

In addition to the Lifetime Warranty on blades, hub and frame; and the standard Three-Year Limited Warranty covering all other components, the Warrantor warrants that the Product will have a service life (defined below) of Fifteen Years from the date of purchase (the "Fifteen Year Service Life") when used in accordance with the operation and maintenance procedures prescribed in the Envira-North Systems' Installation Manuals.

If Company finds, in its sole discretion, that any Product has not provided the Fifteen-Year Service Life, Company will, as its sole obligation and the End-User's sole remedy for Company's breach of this Warranty, repair or replace the Product, at its option, F.O.B Company's factory, for a charge, payable to Company prorated on the following basis:

The End-User will be allowed a credit against Company's list price of equivalent equipment at the time of return of the Product to Company, in proportion to the percentage of Fifteen-Year Service Life remaining at the time of return of the Product to the Company. The End-User will assume responsibility to pay the balance of the list price; and Company reserves the right to require payment prior to delivery of the repaired or replacement equipment.

For the avoidance of doubt, Company's responsibilities under this Warranty are as follows:

Year 1-3 - Product repaired or replaced pursuant to terms if Limited Warranty applies

Year 4-15 - Unit Credit (\$) = Current List Price X Years of Unexpired Life

15 Years of Warranted Life

WHAT THIS WARRANTY DOES NOT COVER:

- any defects or damages caused by:
 - (a) failure to properly store the Product before installation;
 - (b) shipping and delivery of the Product if shipping is FOB Factory;
 - (c) neglect, accident, abuse, misuse, misapplication, or incorrect installation;
 - (d) repair or alteration not authorized in writing by Company personnel;
 - (e) improper testing, operation, maintenance, adjustment, or modification of any kind not authorized in writing by Company personnel;
- OR
- (f) use the Product under other than normal operating conditions or in a manner inconsistent with the Product's label or Instructions.
 - controls and or any other external electronic controlling devices.
 - exclusions listed in the standard Three-Year Limited Warranty.
 - any products or components purchased prior to effective date of this Warranty.

THIS WARRANTY IS NOT VALID:

- (a) unless the End-User returns to Company the Warranty Registration Card within thirty (30) days of purchase; OR
- (b) if the Product's serial numbers have been removed or are illegible;
- OR
- (c) if any warranted items repaired or replaced pursuant to this Warranty will be warranted for the remaining portion of the original Warranty subject to all the terms thereof. Company shall not be responsible for any charges for testing, checking, removal or installation of warranted items unless authorized in writing by Company personnel;
- OR
- (d) if failed to submit records at time of performing Recommended Maintenance Schedule, minimum every 18 months.

LIMITATION OF LIABILITY

The remedies of the End-User set forth herein are exclusive and are the sole remedies for any failure of Company to comply with its obligations hereunder. In no event shall Company be liable in contract, in tort (including negligence or strict liability) or otherwise for damage to property or equipment other than the Products, including loss of profits or revenue, loss of use of Products, cost of capital, claims of customers of the End-User or any special, indirect, incidental or consequential damages whatsoever. The total cumulative liability of Company hereunder whether the claims are based in contract (including indemnity), in tort

(including negligence or strict liability) or otherwise, shall not exceed the price of the Product on which such liability is based. Company shall not be responsible for failure to provide service or parts due to causes beyond Company's reasonable control.

END-USER'S OBLIGATIONS

In order to receive the benefits of this Warranty, the End-User must use the Product in a normal way; follow the Product's Installation Manuals; and protect against further damage to the Product if there is a covered defect. Submit records at time of performing Recommended Maintenance Schedule, minimum every 18 months.

OTHER LIMITATIONS

Company's obligations under this Warranty are expressly conditioned upon receipt by Company of all payments due to it, including all applicable interest charges. During such time as Company has not received payment of any amount due to it for the Product, in accordance with the contract terms under which the Product is sold, Company shall have no obligation under this Warranty. Also during such time, the period of this Warranty shall continue to run and the expiration of this Warranty shall not be extended upon payment of any overdue or unpaid amounts.

COSTS NOT RELATED TO WARRANTY

The End-User shall be invoiced for, and shall pay for, all services not expressly provided for by the terms of Warranty, including without limitation, site calls involving an inspection that determines no corrective maintenance is required. Any costs for replacement equipment, installation, materials, freight charges, travel expenses or labor of Company representatives outside the terms of this Warranty will be borne by the End-User.

OBTAIN WARRANTY SERVICE

Call Envira-North Systems Ltd., Service 1-866-771-7766 or 1-519-527-2198. Company will not accept any product for return, credit or exchange unless expressly authorized by Company in writing and delivered FOB Company factory with proper Return Authorization Number attached to the product.

Tel: 1-519-527-2198 Fax: 1-519-527-2560
Toll Free: 1-886-771-7766

bigair@enviranorth.com

92 Railway St. P.O Box 668
Seaforth, Ontario
Canada N0K 1W0

enviranorth.com





FIFTEEN YEAR SERVICE LIFE PRORATED WARRANTY FORM

The Altra-Air Sailfin Fan is covered by our standard Three Year Limited Warranty. To register for our extended Fifteen Year Prorated Limited Warranty, you must complete and return this form within 30 days of purchase by fax to 1(519)527-2560 OR email bigair@enviranorth.com. See Envira-North Systems Ltd. Fifteen Year Prorated Limited Warranty for details and restrictions.

For further information on all Envira-North Systems Ltd. products check out our website at www.enviranorth.com or contact:

Envira-North Systems Ltd., 92 Railway Street, PO Box 668, Seaforth, Ontario N0K 1W0

Phone: 1(519)527-2198 or 1(866)771-7766

Fax: 1(519)527-2560

Email: bigair@enviranorth.com

Name of Customer: _____

Address: _____

Phone No: () _____ Fax No: () _____

Name of Facility Where Fans Installed: _____

Contact Name: _____ Phone No: () _____

Address: _____

Date of Purchase: _____

Quantity of Altra-Air Fans: _____ Size of Altra-Air Fans: _____

Fan Serial Number(s): _____

Controller Serial Number(s): _____

Special Declarations or Comments: _____

You must complete and return this form within 30 days of purchase by fax to 1(519)527-2560 OR email bigair@enviranorth.com.