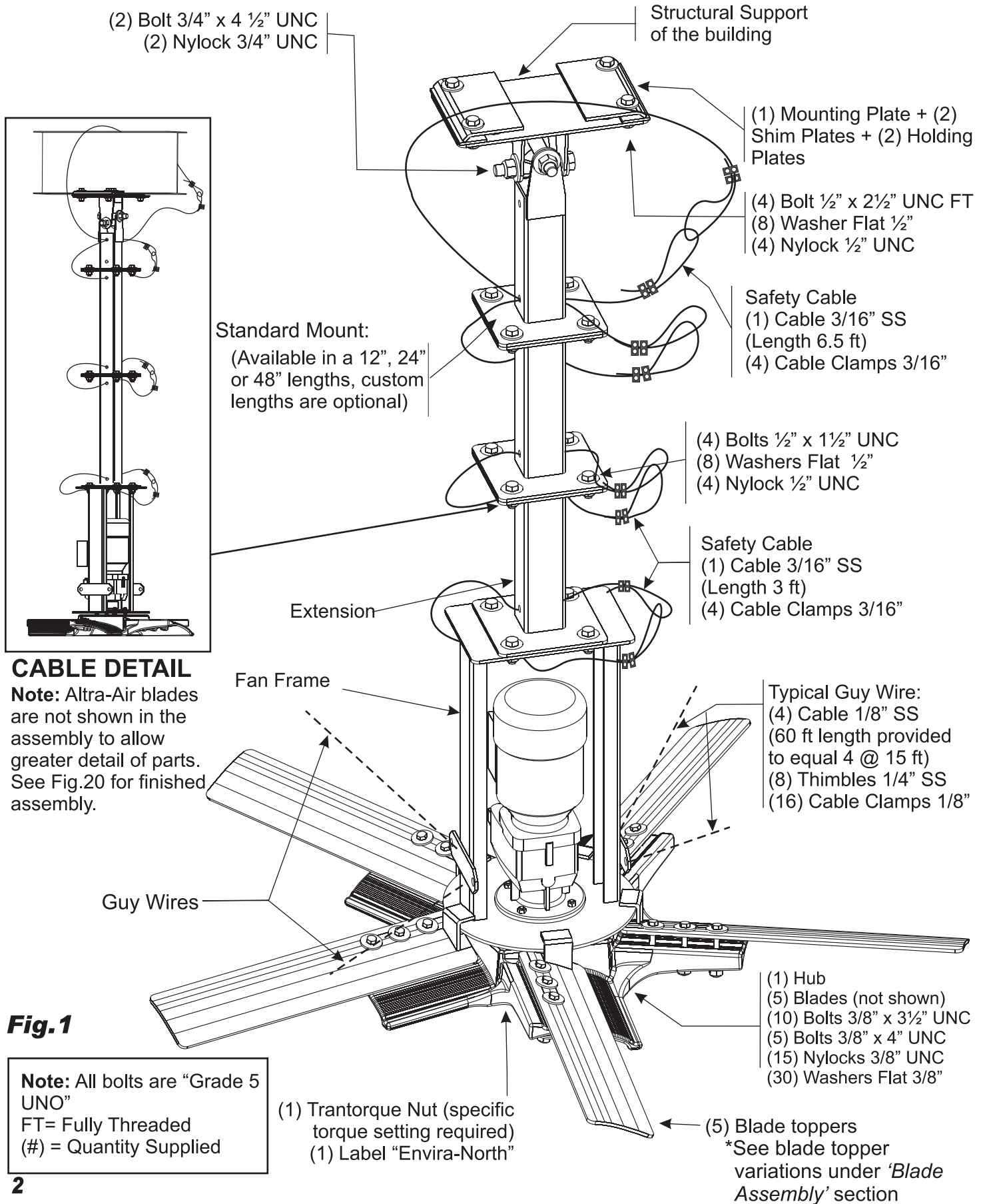


# Altra-Air Fan

## INSTALLATION MANUAL IMPERIAL HARDWARE



## Fan Components



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## 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 device or scaffolding

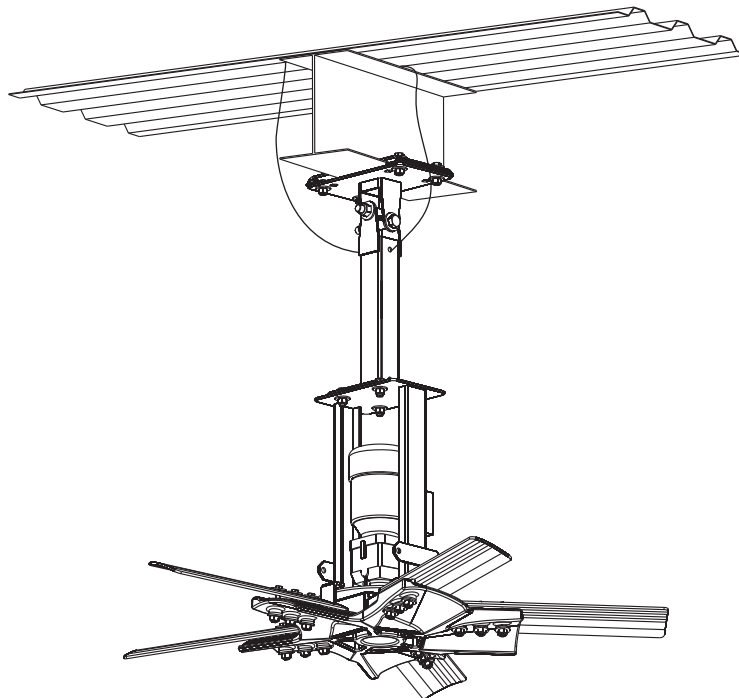
## 2/ Required Steps Before Installation

- 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.

***Start your installation.***

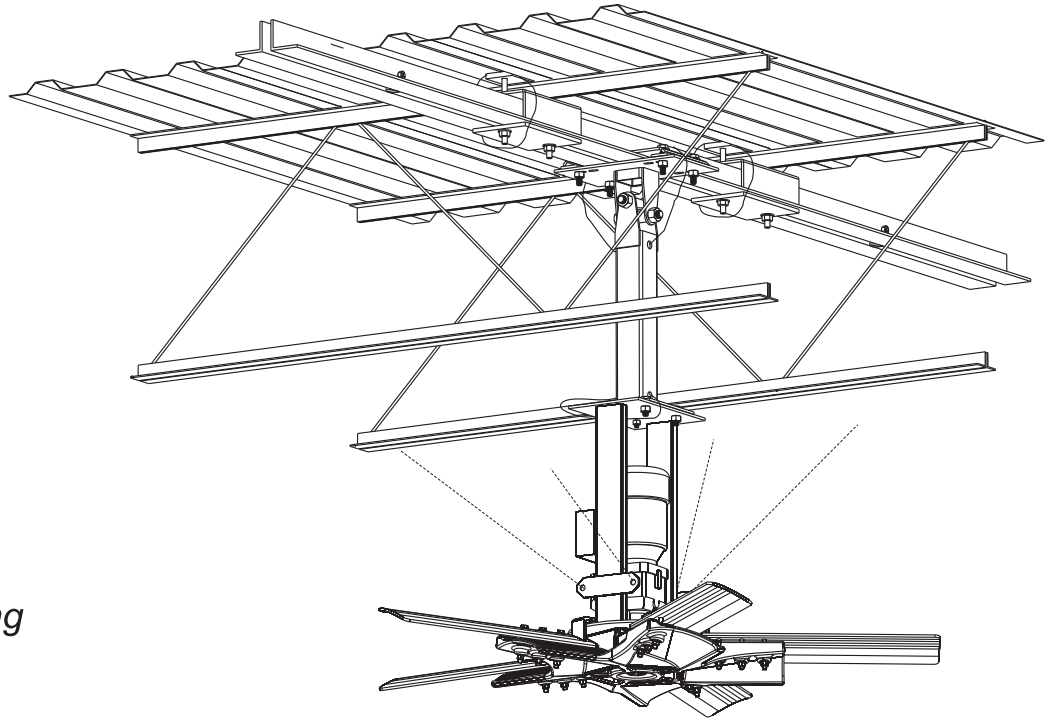
## 3/ Different Mounting Applications

**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.

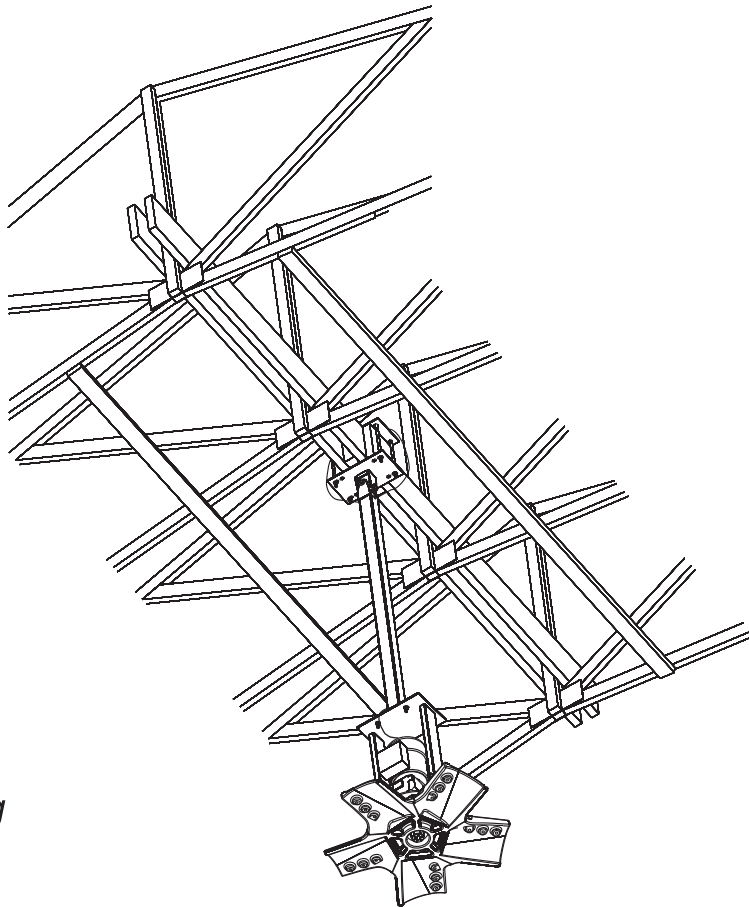


*"1" Beam Mounting*  
**Fig.2**

### 3/ Different Mounting Applications (continued)



*"OWSJ" Mounting*  
**Fig.3**

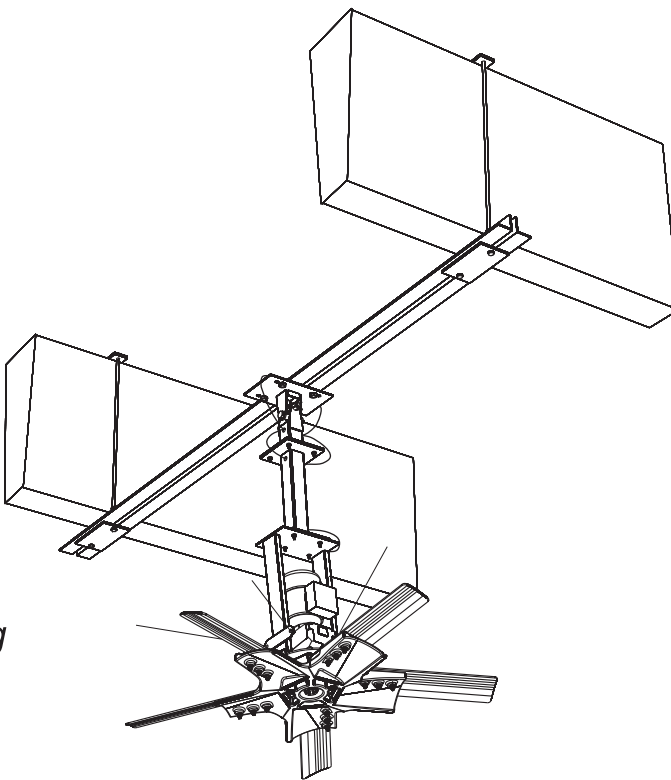


*"Wood" Beam Mounting*  
**Fig.4**

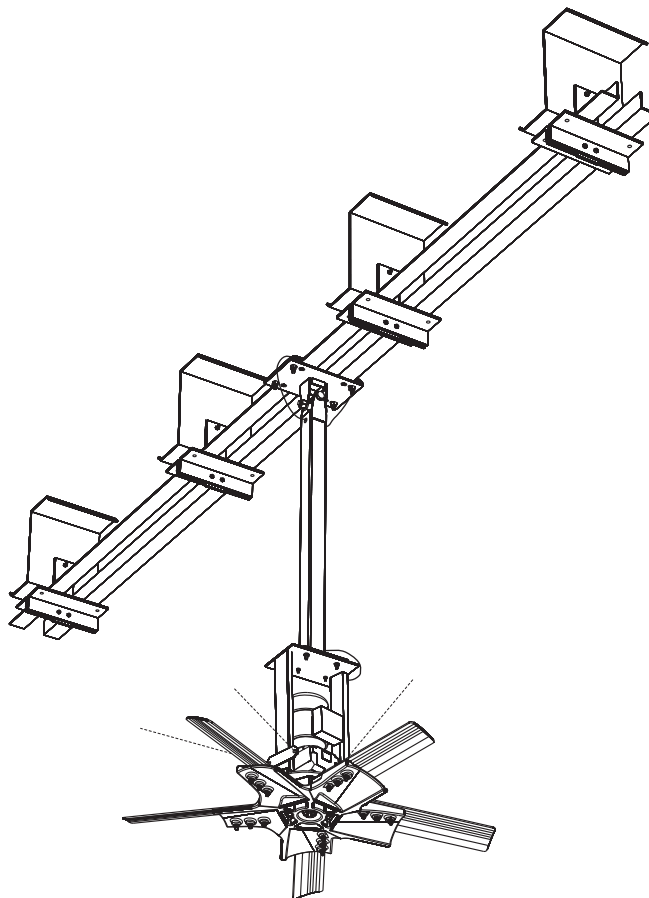


### 3/ Different Mounting Applications (continued)

*“Concrete” Beam Mounting*  
**Fig.5**



*Purlin “Z” Mounting*  
**Fig.6**



## 4/ Standard Mount

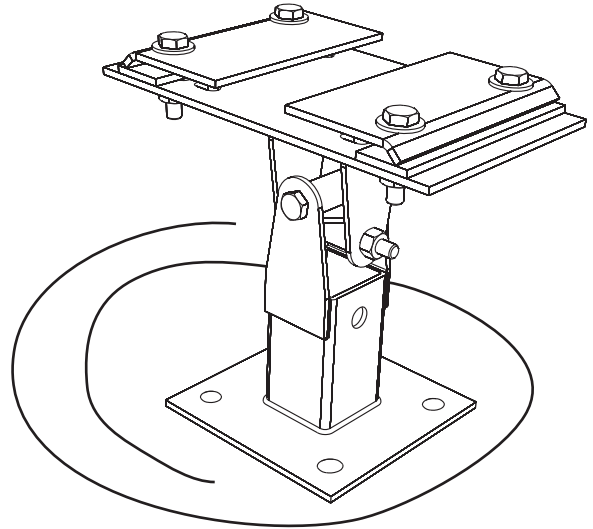
A Standard Mount package is used with all Altra-Air Assemblies (except "Wood" Beam Mounting).

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)

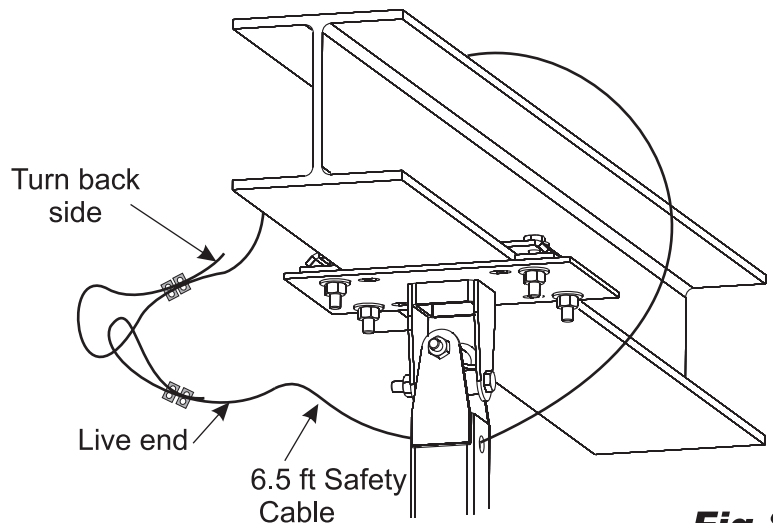
**NOTE:** Spacer may or may not be required. This is dependent upon the thickness of the support structure.



**Fig. 7**

## Installing the Mount

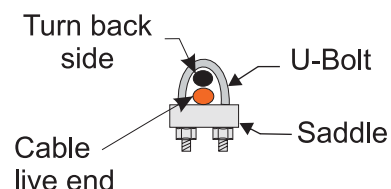
1. Sandwich the "I" Beam or OWSJ Beam between the mfg "I" Beam clamps and the upper pivot plate. Insert the mfg "I" Beam spacers if required.
2. Insert the bolts, washers and tighten the nylocks (Fig. 8).
3. Position the safety cable as per Fig. 8, loop at both ends.
4. Fasten cable clamps as typical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



**Fig. 8**

## 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. 9**

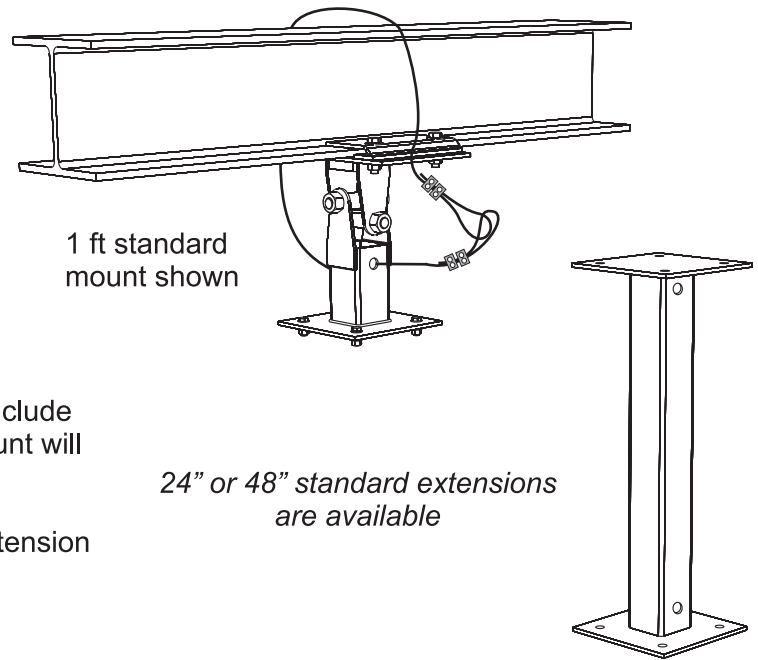
## 5/ Extensions

### 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.



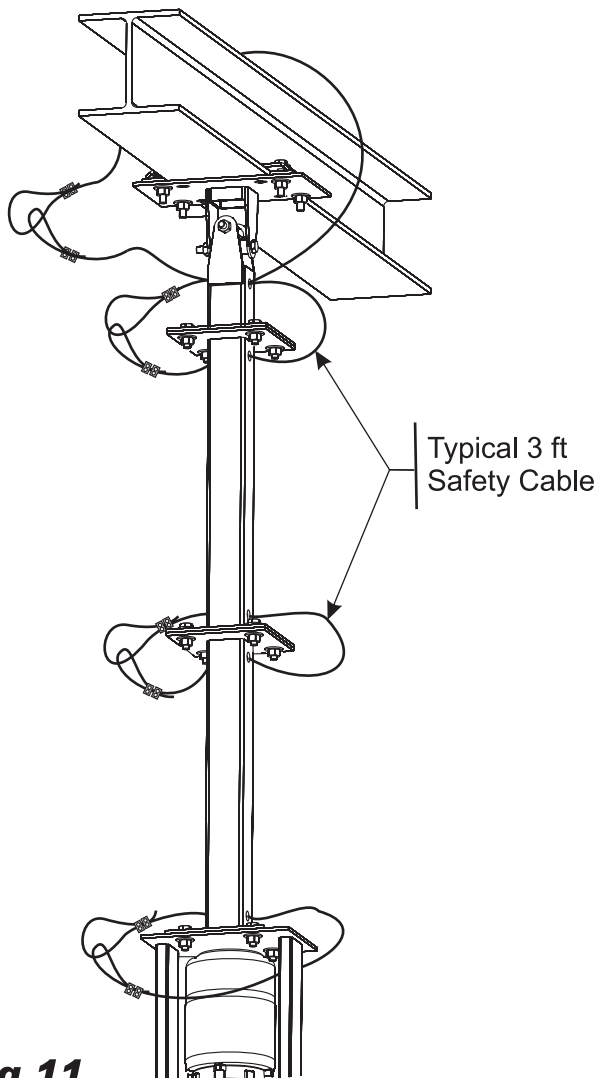
**Fig.10**

***You are only allowed to use a maximum of two extensions per assembly!***

### 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**



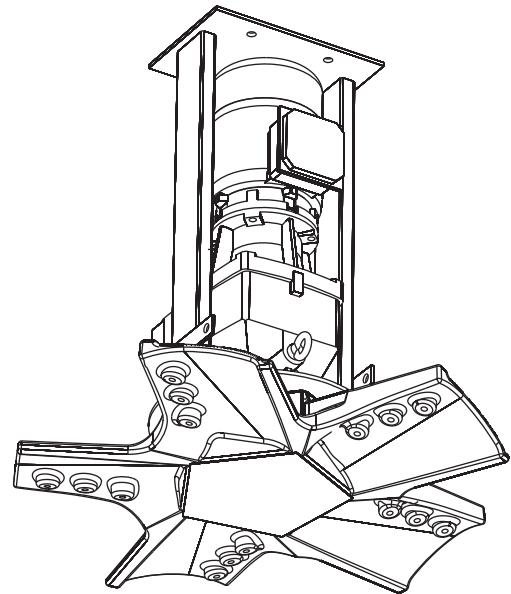
## 6/ Main Hub and Drive Assembly

### The package includes:

- (1) Hub
- (1) Fan frame
- (1) Trantorque nut
- (1) Motor
- (1) Gear Reducer
- (1) Envira-North sign

All these items  
pre-assembled

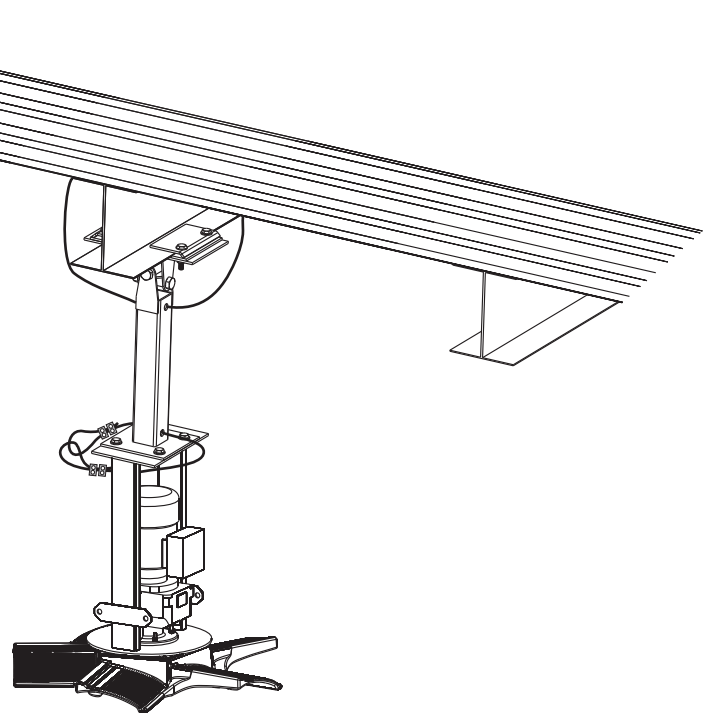
- (4) Bolts  $\frac{1}{2}$ " x  $1\frac{1}{2}$ " UNC
- (8) Washers Flat  $\frac{1}{2}$ "
- (4) Nylock  $\frac{1}{2}$ " UNC
- (1) Cable  $\frac{3}{16}$ " SS (4 ft)
- (4) Cable clamp  $\frac{3}{16}$ "



**Fig.12**

### Installing the Main Hub & Drive Assy

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**

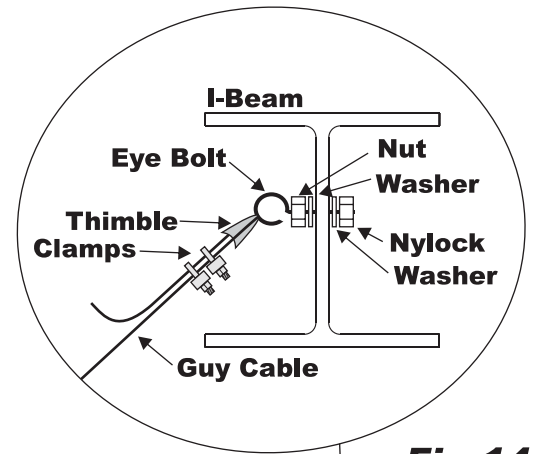
## 7/ Guy Wires

### The package includes:

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

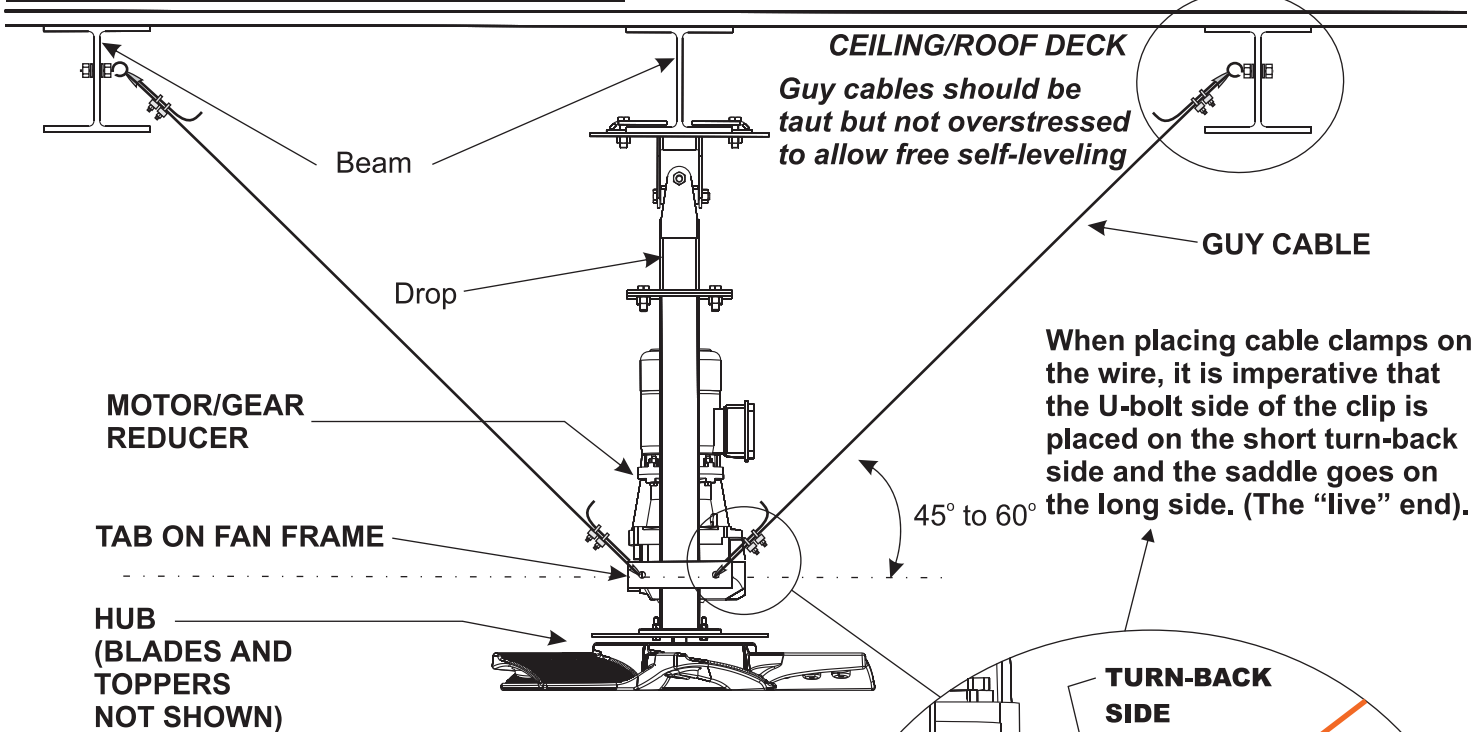
### Extra hardware required:

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



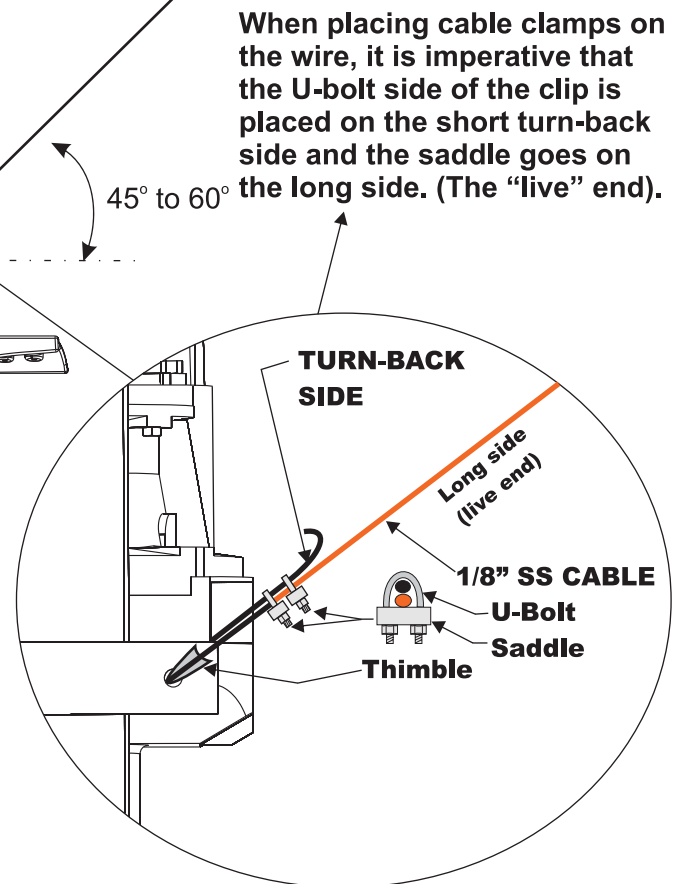
**Fig. 14**

### **\*DO NOT USE TURNBUCKLES\***



**Fig. 15**

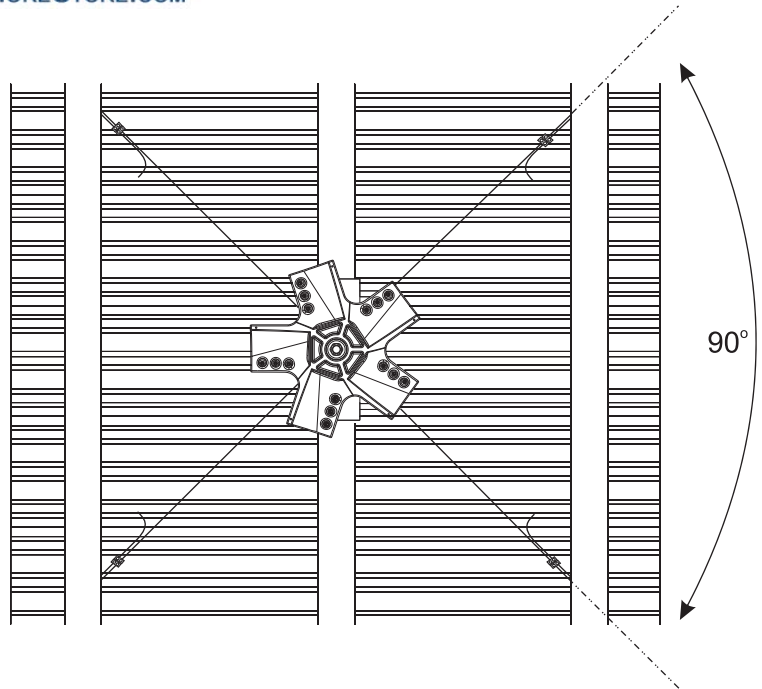
**STRUCTURAL NOTE:** Guy cables must be installed or fastened to a structural component of the building at the angle shown in Fig. 15 and Fig. 17.



**Fig. 16**

## Installing Guy Wires

1. Determine mounting position on ceiling and establish the angle between 45°-60° 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 overstressed to allow free self-levelling. They should also be approx. 90° 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.**



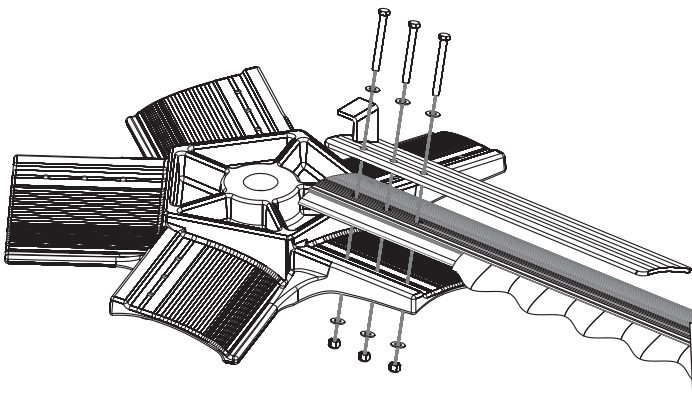
**Fig.17**

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

## 8/ Blade Assembly

### The assembly includes:

- (5) Blades
- (5) Blade toppers
- (10) Bolts 3/8" x 3½" UNC
- (5) Bolts 3/8" x 4" UNC
- (15) Nylocks 3/8" UNC
- (30) Washers Flat 3/8"






**Fig.18**

## Installing the Blade Assembly

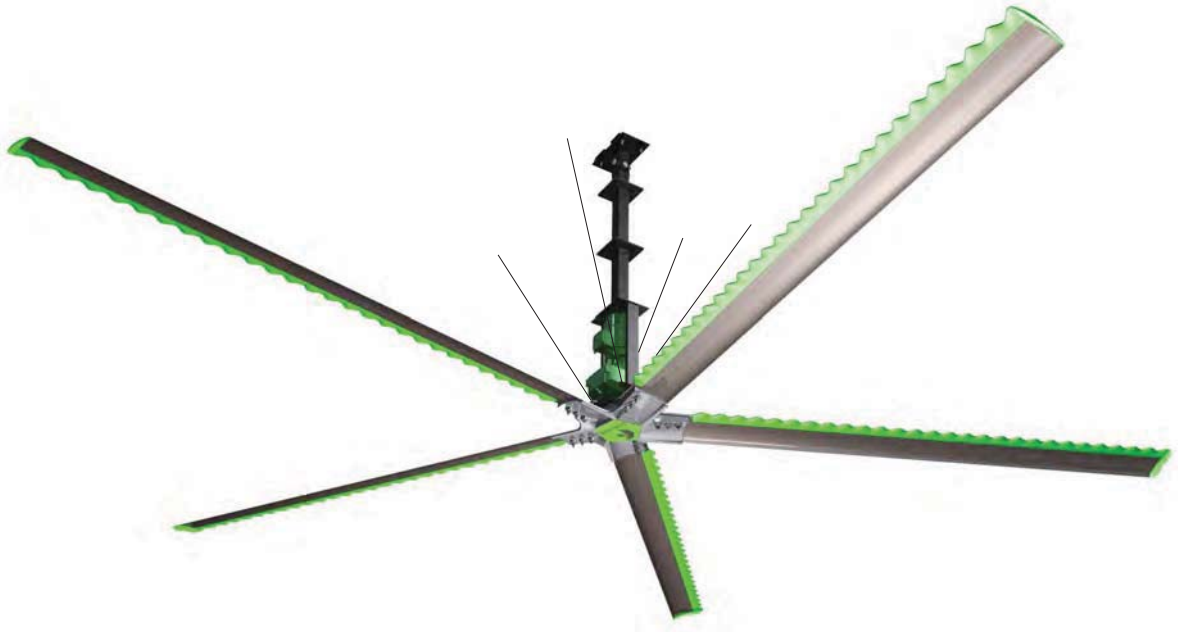
1. Clamp a blade between blade topper and hub using 3/8" bolts, washers and nylocks (Fig.18). Fasten 4" long bolts through the boss closest to the hub. All other bolts will be 3½" long.
2. Continue until all 5 blades have been fastened and tighten down.
3. Turn the fan by hand to ensure that there are no obstructions with the blades.

## Blade Topper Variations

1. 
2. 
3. 

## Leveling the fan

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.

## ATTENTION!

1. Remove rubber plug prior to start up.
2. Discard rubber plug after removal.
3. **Discard pink tag if attached to unit.**
3. If yellow sticker is attached to unit, it can remain in place.



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

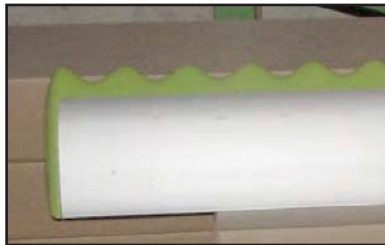
## Itemized Checklist



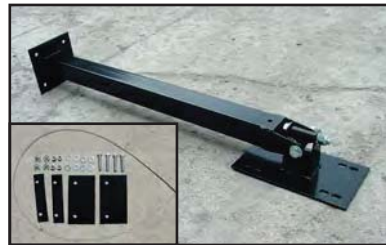
and



WP Fan Package  
8ft, 12ft, 16ft, 20ft, 24ft  
EN600x5052-5066



WP Blade Set  
20ft, 24ft  
EN600x5914-5916



Packaged UMH Mount  
1ft, 2ft, 4ft  
EN400x2001-2004

### Control Options



Fan Control AC Tech VFD  
EN300x1085-1097  
Pre-wired add #EN300x5010



Temperature Control  
EN300x2001



Low Voltage Control  
EN300x5001

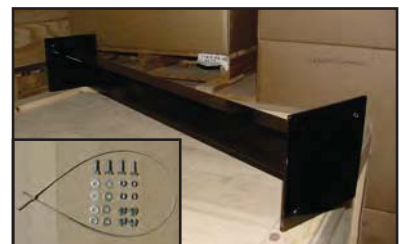
### Mounting Options



Web Truss Beam  
EN400x1159-1161



Web Truss Beam  
Bracket Kit  
EN400x1162-1163



Packaged Extension Mount  
2ft, 4ft  
EN405x1002-1004



## 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.

## Power Unit

### Motor

Our motor or gearmotor manufacturers supply Envira-North with motors/gearmotors built for our application. Designed for use with variable frequency drives; they are wound with 200°C moisture resistant Inverter Spike Resistant (ISR) magnetic wire which dramatically extends the life of the motor compared to motors with non-ISR wire. They have a three year limited warranty.

#### Maintenance Schedule

Initial Six Months

- Check for hot spots
- Re-tighten all loose electrical connections

Repeat Every Eighteen Months Thereafter

### Gear Reducer/Gearmotor

Altra-Air Fans are driven through Nord Helical Gear Reducers/Gearmotors. Nord is the best gear reducer for our particular application in terms of precision, durability, efficiency, reliability and quiet operation. They have a three year limited warranty.

#### Maintenance Schedule

Initial Eighteen Months

- Check oil level

Recommend Changing Oil Every 20,000 Hours of Normal Use

## 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.



## Recommended Maintenance Schedule Continued

### 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/dicoloured 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.

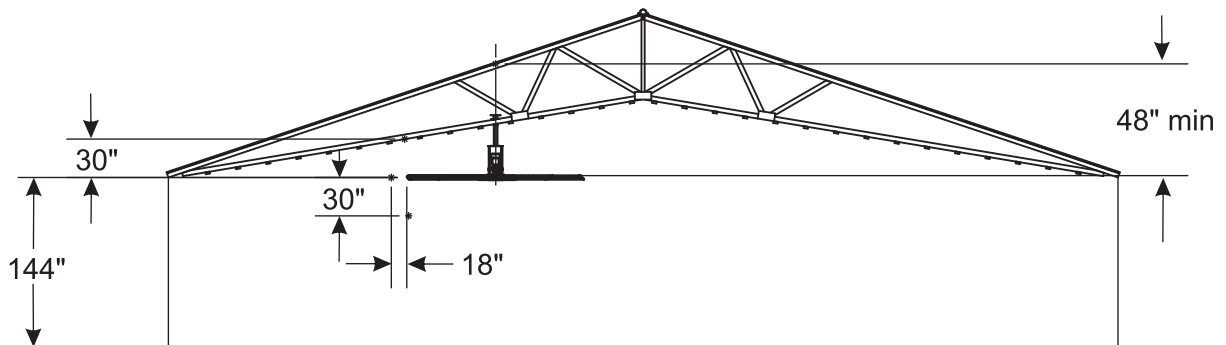
## Safety Precautions

1. Safety cable installed as per Fig.11 in the *Altra-Air Fan Installation Guide*.
2. Guy wire installed as per Fig.15, Fig.16 and Fig.17 in the *Altra-Air Fan Installation Guide*.
3. Blade toppers installed as per Fig.18 in the *Altra-Air Fan Installation Guide*.
4. See next page for required clearances.
5. If installed in storage facility between racks, signs must be installed identifying fan locations.
6. The motor has thermal protection in case of overheating.
7. The variable frequency drive has several safety devices such as current limit, motor overload, minimum and maximum speed control. The controller also features a Stop button for emergency stoppage.

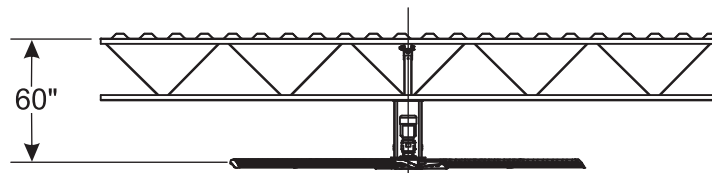
## Altra-Air Fan Clearance Requirements



**Fan Frame Detail**



**Sloped Roof**



**Flat Roof**

### Clearances

- Min 60" center of fan to roof deck for ideal operating performance without compromising overall fan performance
- Min 30" from fan blade's leading edge to obstruction above or below fan
- Min 18" from side of fan to any obstruction
- Min floor to fan leading edge height

Contractor is responsible for verifying all site conditions to include field dimensions where applicable. If the contractor elects to make any changes without notifying Envira-North Systems Ltd the contractor is responsible for the same. All drawings are to be used as general architectural intent unless otherwise stamped. See Engineer drawings for structural design information. Contractor to ensure that all building departments and authorities are informed in regard to the work and that all permits are attained before commencing work.

## Recommended Maintenance Checklist

Fan Size:

Fan Size:

Fan Size:

Serial #:

Serial #:

Serial #:

Location:

Location:

Location:

Date	Initials

Date	Initials

Date	Initials