



# Altra-Air *Sailfin*

## DESIGN & ENGINEERING GUIDE

---

### METRIC & IMPERIAL

Subject to Changes Without Notification.

**ENVIRA-NORTH**  
SYSTEMS LIMITED

(519) 527-2198  
enviranorth.com



## ALTRA-AIR SAILFIN FANS

Thank you for incorporating Envira-North System's Altra-Air Sailfin Fans into your project. Envira-North Systems Ltd. recognizes that energy savings is a top priority in today's economic and social environment. Bringing over 50 years of ventilation expertise, we've established ourselves by providing quality products accompanied by the best after-sales service in the industry, while contributing to the effectiveness of heating / cooling and ventilation systems.

Our mission is to continually develop and provide quality, cost efficient ventilation solutions that improve energy consumption and increase comfort levels for the occupants of large structures.

Energy consumption has grown to be a critical factor in business worldwide. Envira-North will continue to develop and provide solutions to improve energy consumption while increasing occupant productivity inside structures around the globe. Ample research is available to show that adequate fresh air exchange is crucial for workers, students, animals and home occupants to perform at their best. A well designed ventilation scheme can:

- Lower temperatures in buildings by cooling roof spaces and removing trapped ceiling heat through ceiling grilles.
- Improve air quality by lowering impurity levels caused by human respiration and toxic chemical emissions.

Altra-Air Sailfin Fans are a green power breakthrough which allows our High Volume Low Speed (HVLS) fans to deliver previously impossible levels of performance. These HVLS fans are simply outstanding when compared to what was previously considered the state-of-the-art fan.

- 5 blades are 25% more aerodynamically efficient (they move more air more smoothly).
- Aerodynamic blade noise (the main source of fan noise) is less than 1/5 of conventional fans.
- Best of all, they consume 20% less power.

We are proud to acknowledge that no other blade can match a Sailfin blade when it comes to generating substantially greater lift while reducing drag.

This Engineering and Design Guide should give you everything you need to successfully include Altra-Air Sailfin fans into your project.

Thank you for giving Envira-North Systems Ltd. the opportunity to be incorporated into your project's design plans. If you have any questions, concerns or comments please do not hesitate to contact the Envira-North office at 1(519)527-2198 or visit our website at [www.enviranorth.com](http://www.enviranorth.com).

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\*\*Please note that all dimensions in this engineering and design guide are subject to change without notice. Envira-North Systems Ltd reserves the right to make changes accordingly.

## WHY CHOOSE ENVIRA-NORTH SYSTEMS LTD?

We are Canada's largest supplier of industrial/commercial big ceiling (HVLS - High Volume Low Speed) fans and claim 75% of the Canadian market for industrial/commercial destratification and ventilation fans. Applications include hangars, warehouses, hockey rinks, shopping malls, distribution centres, office buildings, dairy farms, or any other facility with high ceilings. Envira-North Systems has been featured on CBC, MSNBC, A Channel, and in Discover Magazine, Toronto Star, Christian Science Monitor and Material Handling Management.

Envira-North Systems Ltd. staff bring to you over 50 years of ventilation expertise. We pride ourselves in providing the best after sales service in the industry. We recognize that energy savings is a top priority in today's environment.

Envira-North Systems Ltd. has recognized a worldwide need to reduce energy consumption by contributing to the effectiveness of heating, cooling and ventilation systems. Our products and systems enable your building to perform better; save on heating, cooling, mechanical operating costs and provide a healthier environment for the occupants of the structure.

## THE SAILFIN BLADE ADVANTAGE

Salfin blades outperform all conventional airfoils. They accomplish this by:

- Offering an angle of attack up to 23°.
- Eliminating span-wise pumping; the primary cause of efficiency loss in all rotating systems.
- Eliminating tip stalling; the primary cause of blade noise and damaging vibration.
- Variablevariable pitch modulated trailing-edge airfoil removes the inefficiencies created by differentiating rotational HVLS Fan speeds.

## THE BENEFITS OF SAILFIN

- Quiet speed and efficient operation, no annoying high speed circulating and exhaust fans.
- Virtually maintenance free (recommended inspection every 20,000 hours).
- Inexpensive to operate. Costs approximately 6 cents per hour for one fan at 1 HP.
- Greatly reduces "recovery" time when overhead doors are open with a constant air flow throughout.
- Provides a constant, even temperature from floor to ceiling and wall to wall.
- Will minimize the need for expensive duct work in new construction for both heating and air conditioning systems.
- A comfortable workplace environment increases productivity and decreases absenteeism.

## INSTALLATION

Altra-Air Sailfin Fans come as a complete system including power unit, mounting hardware, wiring kit (optional) and low voltage controller (optional). Having everything included in this complete package streamlines installation and eliminates the costly search for components and hardware.

## WARRANTY

Altra-Air Sailfin fans are of industrial grade construction and should provide many years of virtually maintenance free use. Standard 3 Year Limited Warranty duration is as follows:

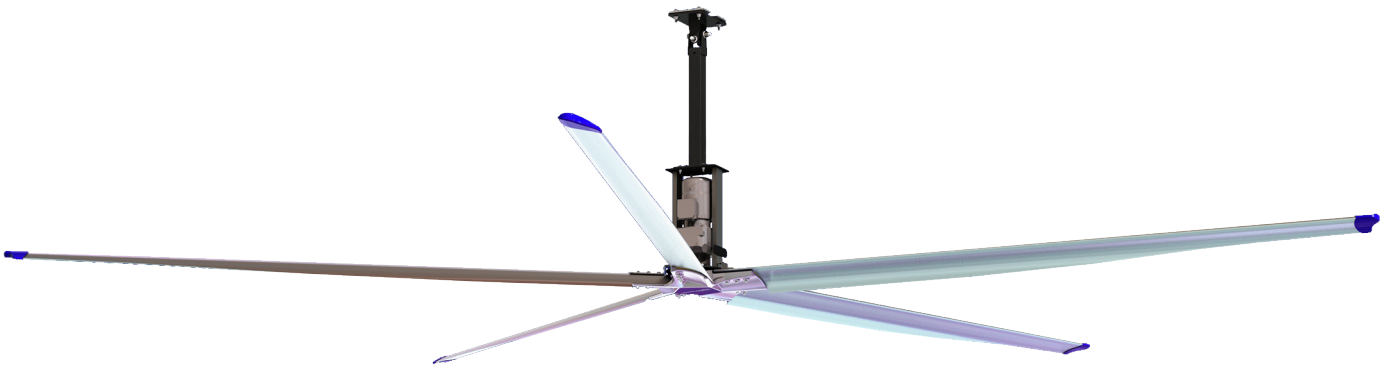
|                        |  |
|------------------------|--|
| Air Foil Shaped Blade  | Lifetime Warranty                      |
| Aluminum Alloy Hub     | Lifetime Warranty                      |
| Motor                  | 3 Year Limited Warranty                |
| Gear Reducer           | 3 Year Limited Warranty                |
| VFD Control Panel      | 3 Year Limited Warranty                |
| Labour                 | 1 Year Limited Warranty (pre-approved) |
| Custom fan wraps/paint | 1 Year Limited Warranty                |

Please see page 28 of this document for complete warranty information including specifics and warranty exclusions. Use the above warranty information as a general guideline only.

## ALTRA-AIR SAILFIN FANS

Altra-Air HVLS fans blanket a very large area with constantly moving air to create an expansive comfort zone. As a result, the big ceiling fan can create an evaporative cooling effect of three to four degrees Celsius throughout the facility.

During the heating season, the Altra-Air HVLS fan technology can de-stratify uneven temperatures that can be in excess of fifteen degrees Celsius from ceiling to floor. This results in significant energy savings since the heating system cycles less frequently.

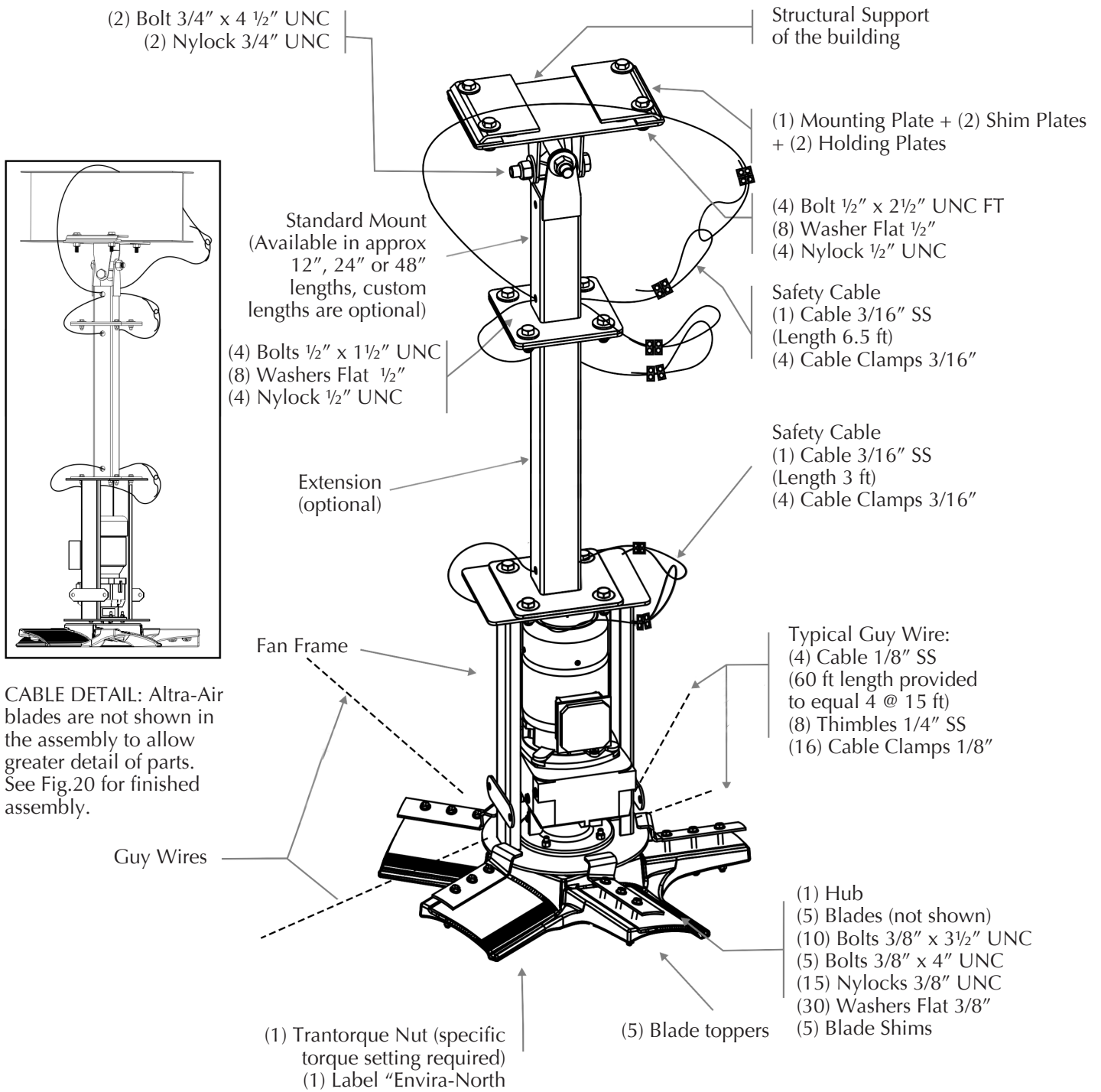


## SAFETY SYSTEMS

In regards to safety issues concerning Altra-Air fans we would like to point out the measure we took to ensure the safety of our fans.

- Safety Cable - This cable ties together the vertical drop and the motor/gear reducer frame to the physical structure of your building.
- Safety Clips - These clips prevent the hub from falling in case of failure of the Fenner drive (nut) that holds the hub to the shaft of the gear reducer.
- Guy Wires - The wires have two functions; first, to avoid unnecessary sway of the fan in case of unbalanced blade(s) and second, to avoid large movements due to wind or draft.
- Mount - The mounting hardware has been designed and engineered to support the weight of the fan and provide a secure connection to the structure.

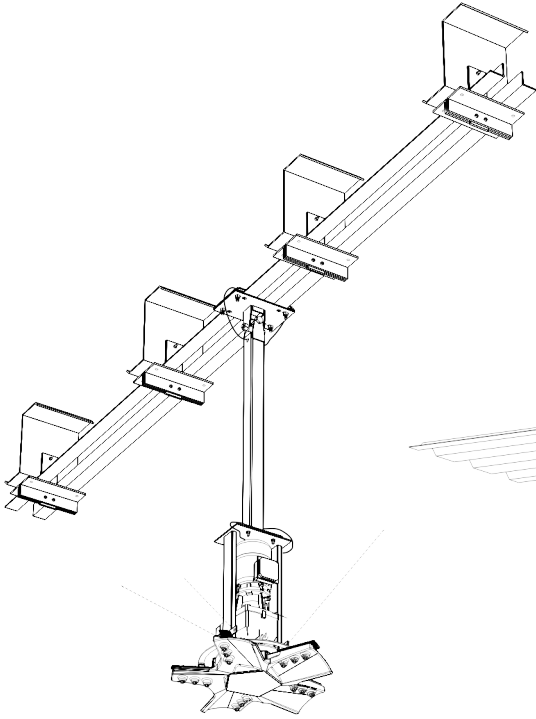
# FAN COMPONENTS DIAGRAM



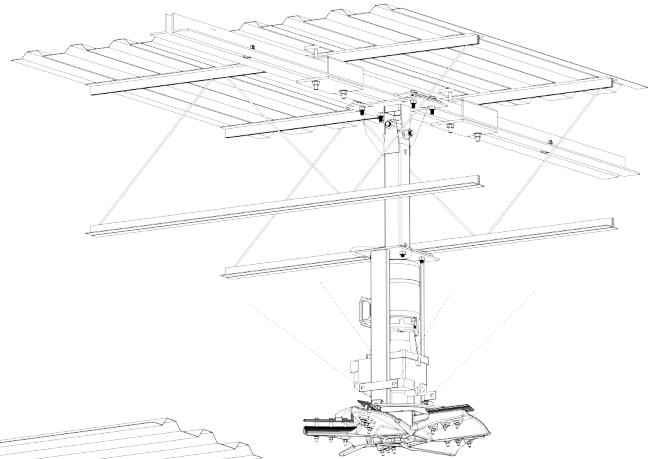
CABLE DETAIL: Ultra-Air blades are not shown in the assembly to allow greater detail of parts. See Fig.20 for finished assembly.

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

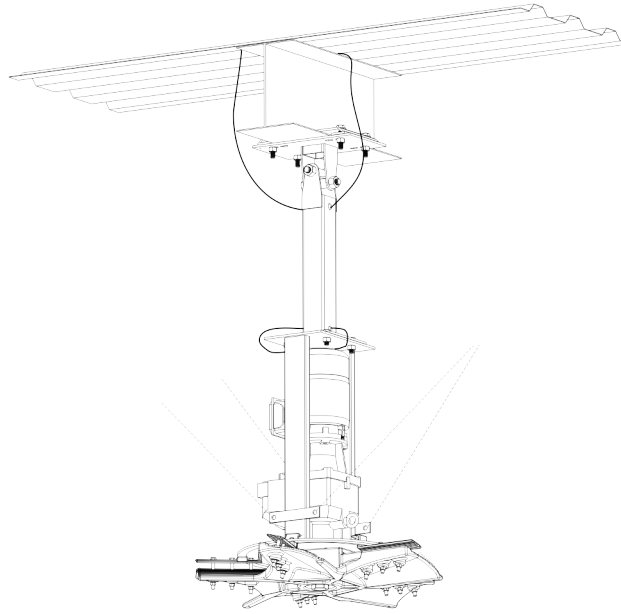
## DIFFERENT MOUNTING APPLICATIONS



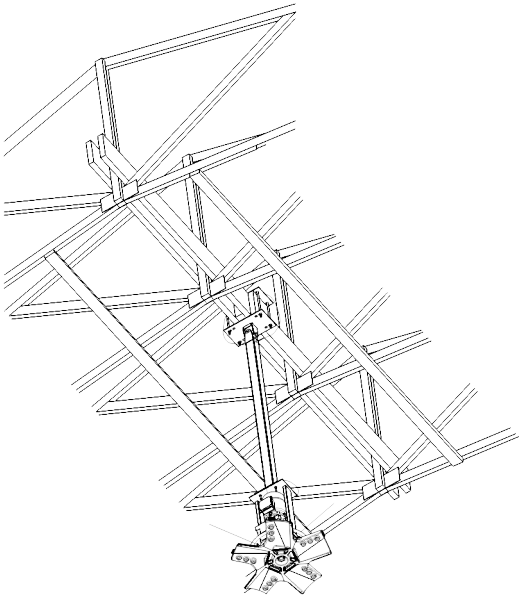
PURLIN Z MOUNT



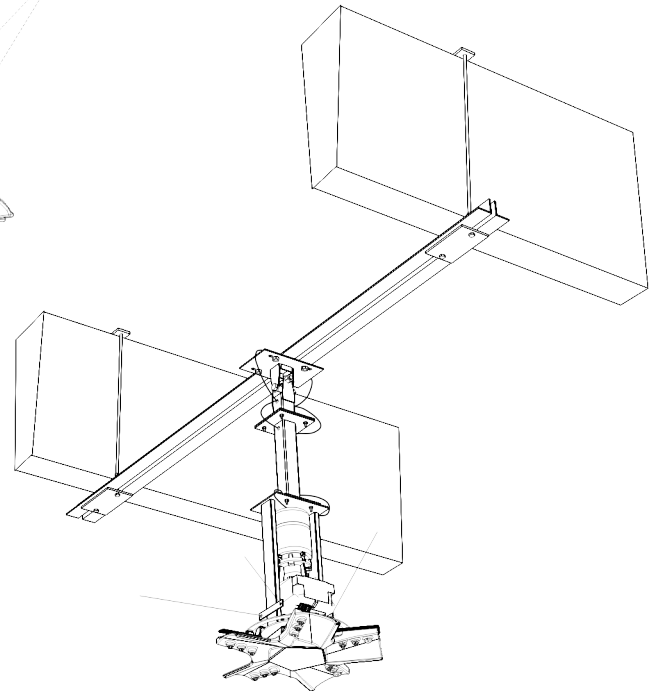
OWSJ MOUNT



I BEAM MOUNT



WOOD BEAM MOUNT

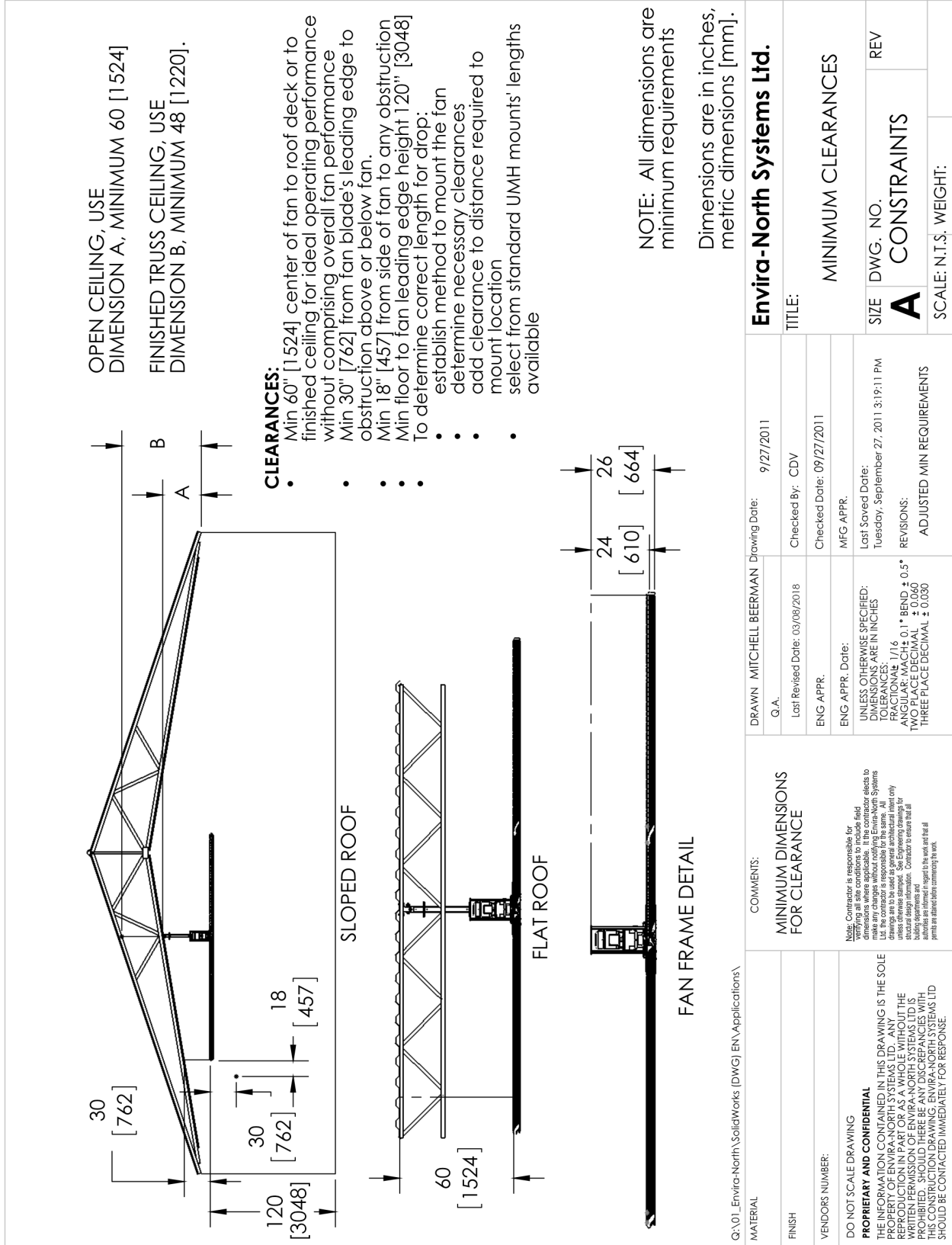


CONCRETE BEAM MOUNT

For a complete review of the mounting system and how it applies to your application, please reference the Altra-Air Sailfin Installation Guide.

To obtain a copy, please contact us by phone at 1-519-527-2198 or by email at [bigair@enviranorth.com](mailto:bigair@enviranorth.com).

# FAN BLADE CLEARANCE

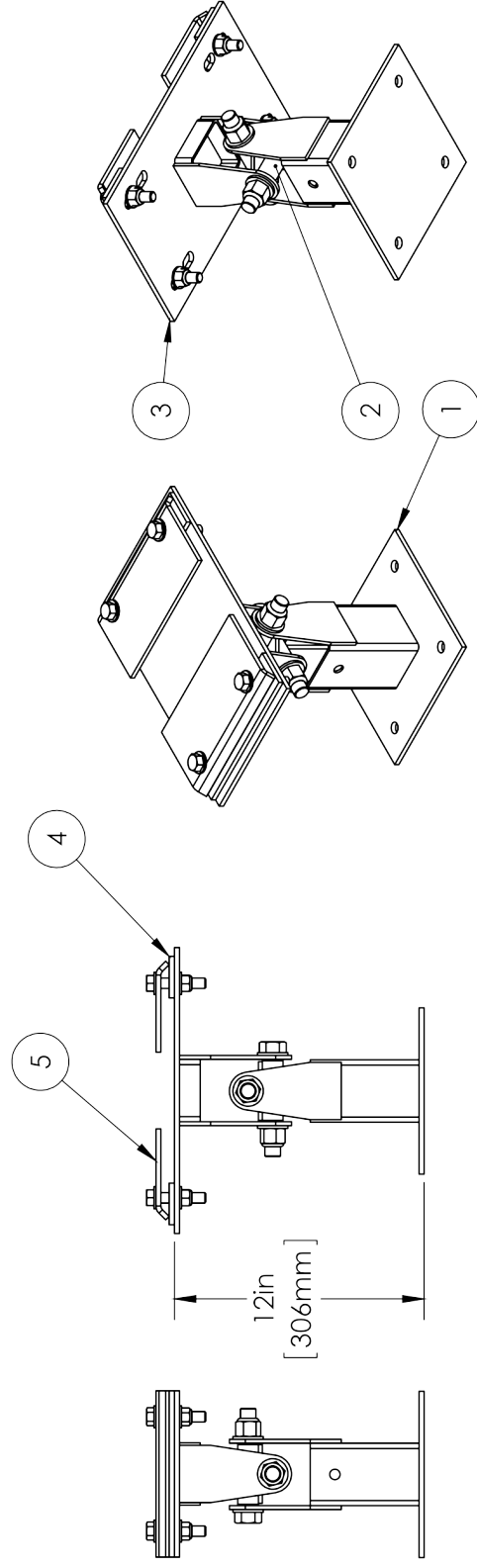


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| DRAWN: MITCHELL BEERMAN   |  | Drawing Date: 9/27/2011                                 | Envira-North Systems Ltd. |            |
| G.A.                      | Last Revised Date: 03/08/2018                        | Checked By: CDV   | TITLE: MINIMUM CLEARANCES |            |
| ENG APPR.                 | Checked Date: 09/27/2011                             | MFG APPR.   | MINIMUM CLEARANCES        |            |
| ENG APPR. Date:           | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES | Last Saved Date: Tuesday, September 27, 2011 3:19:11 PM | SIZE DWG. NO.             | REV        |
| REVISIONS:                | ANGULAR: MACH ± 0.1 ° BEND ± 0.5 °                   | ADJUSTED MIN REQUIREMENTS                               | <b>A</b>                  | CONSTRANTS |
| TWO PLACE DECIMAL ± 0.060 | THREE PLACE DECIMAL ± 0.030                          | SCALE: N.T.S. WEIGHT:                                   |                           |            |
| 5                         | 4  | 3   | 2                         | 1          |

# 1 FT MOUNT

| ITEM NO. | PART NUMBER | DESCRIPTION                | QTY. |
|----------|-------------|----------------------------|------|
| 1        | EN823X8425  | DROP H TYPE 1 FT           | 1    |
| 2        | EN823X8418  | UMH COUPLER PC             | 1    |
| 3        | EN823X8417  | UMH UPPER PIVOT PLATE      | 1    |
| 4        | EN823X8401  | MANUFACTURED I-BEAM SPACER | 2    |
| 5        | EN823X8402  | MANUFACTURED I-BEAM CLAMP  | 2    |

DIMENSIONS SUBJECT TO CHANGE WITHOUT NOTICE.



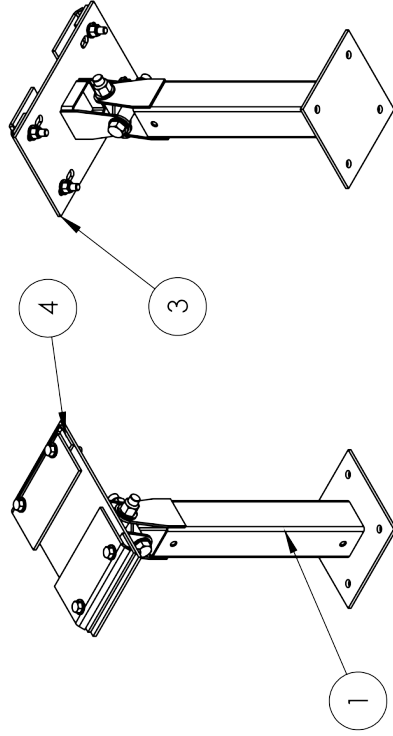
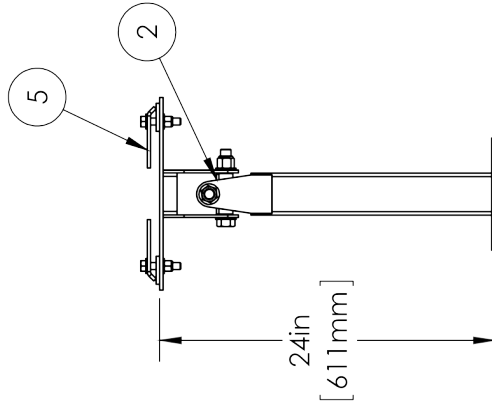
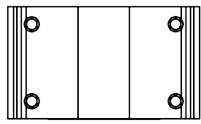
Q:\01\_Envira-North\SolidWorks (DWG) EN\EN400X2001

|   |   |                                     |  |                                     |                                  |
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| FINISH<br>AS SPECIFIED  |   | ENG APPR.                           |  | Checked By: CDV                     | TITLE:<br>1 FT UMH MOUNT         |
| VENDORS NUMBER:   |   | ENG APPR. Date:                     |  | Checked Date: 6/16/2011             |                                  |
| <b>DO NOT SCALE DRAWING</b><br><b>PROPRIETARY AND CONFIDENTIAL</b><br>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE<br>PROPERTY OF ENVIRA-NORTH SYSTEMS LTD. NO PART OF THIS<br>DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY<br>MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING,<br>OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE<br>WRITTEN PERMISSION OF ENVIRA-NORTH SYSTEMS LTD. THIS<br>PROHIBITED. SHOULD THERE BE ANY DISCREPANCIES WITH<br>THIS CONSTRUCTION DRAWING, ENVIRA-NORTH SYSTEMS LTD.<br>SHOULD BE CONTACTED IMMEDIATELY FOR RESPONSE. |   |                                     | MFG APPR.<br>Last Saved Date:<br>Wednesday, October 19, 2011 10:09:50 AM | SIZE DWG. NO<br><b>A</b> EN400X2001 |                                  |
|   |   |                                     |  |                                     | SCALE: 1:2 WEIGHT: 24.88         |

|   |   |   |   |   |
|---|---|---|---|---|
| 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|

# 2 FT MOUNT

| ITEM NO. | PART NUMBER | DESCRIPTION                | QTY. |
|----------|-------------|----------------------------|------|
| 1        | EN823X8426  | DROP H TYPE 2 FT           | 1    |
| 2        | EN823X8418  | UMH COUPLER PC             | 1    |
| 3        | EN823X8417  | UMH UPPER PIVOT PLATE      | 1    |
| 4        | EN823X8401  | MANUFACTURED I-BEAM SPACER | 2    |
| 5        | EN823X8402  | MANUFACTURED I-BEAM CLAMP  | 2    |



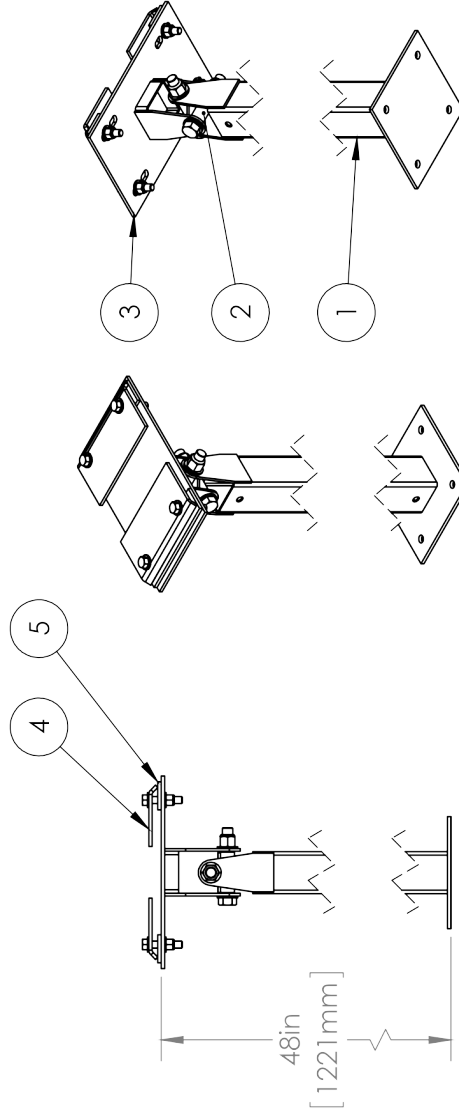
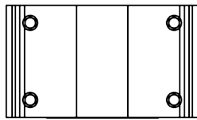
DIMENSIONS SUBJECT TO CHANGE WITHOUT NOTICE.

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| MATERIAL<br>AS SPECIFIED   | COMMENTS:<br>PART #'S MAY VARY DEPENDING ON METRIC OR IMPERIAL HARDWARE REQUIREMENTS | DRAWN<br>G.A.<br>CEO   | Drawing Date: 6/16/2011 | <b>Envira-North Systems Ltd.</b>                            |     |
| FINISH<br>AS SPECIFIED   |  | Last Revised Date:   | Checked By: CDV         | TITLE:<br>2 FT UMH MOUNT                                    |     |
| VENDORS NUMBER:  |  | ENG APPR:  | Checked Date: 6/16/2011 | SIZE DWG. NO.<br><b>A</b> EN400X2002                        |     |
| DO NOT SCALE DRAWING<br><b>PROPRIETARY AND CONFIDENTIAL</b><br>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ENVIRO-NORTH SYSTEMS LTD. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ENVIRO-NORTH SYSTEMS LTD IS PROHIBITED. SHOULD THERE BE ANY DISCREPANCIES WITH THIS CONSTRUCTION DRAWING, ENVIRO-NORTH SYSTEMS LTD SHOULD BE CONTACTED IMMEDIATELY FOR RESPONSE. |  | ENG APPR. Date:  | MFG APPR.               | SCALE: 1:2 WEIGHT: 29.65                                    |     |
|  |  | UNLESS OTHERWISE SPECIFIED:<br>DIMENSIONS ARE IN INCHES<br>TOLERANCES:<br>FRACTIONAL ±<br>ANGULAR: MACH ± BEND ±<br>TWO PLACE DECIMAL ±<br>THREE PLACE DECIMAL ± |                         | Last Saved Date:<br>Wednesday, October 19, 2011 12:33:24 PM |     |
|  |  |  |                         | 1   | REV |
|  |  |  |                         | 2   |     |
|  |  |  |                         | 3   |     |
|  |  |  |                         | 4   |     |
|  |  |  |                         | 5   |     |

# 4 FT MOUNT

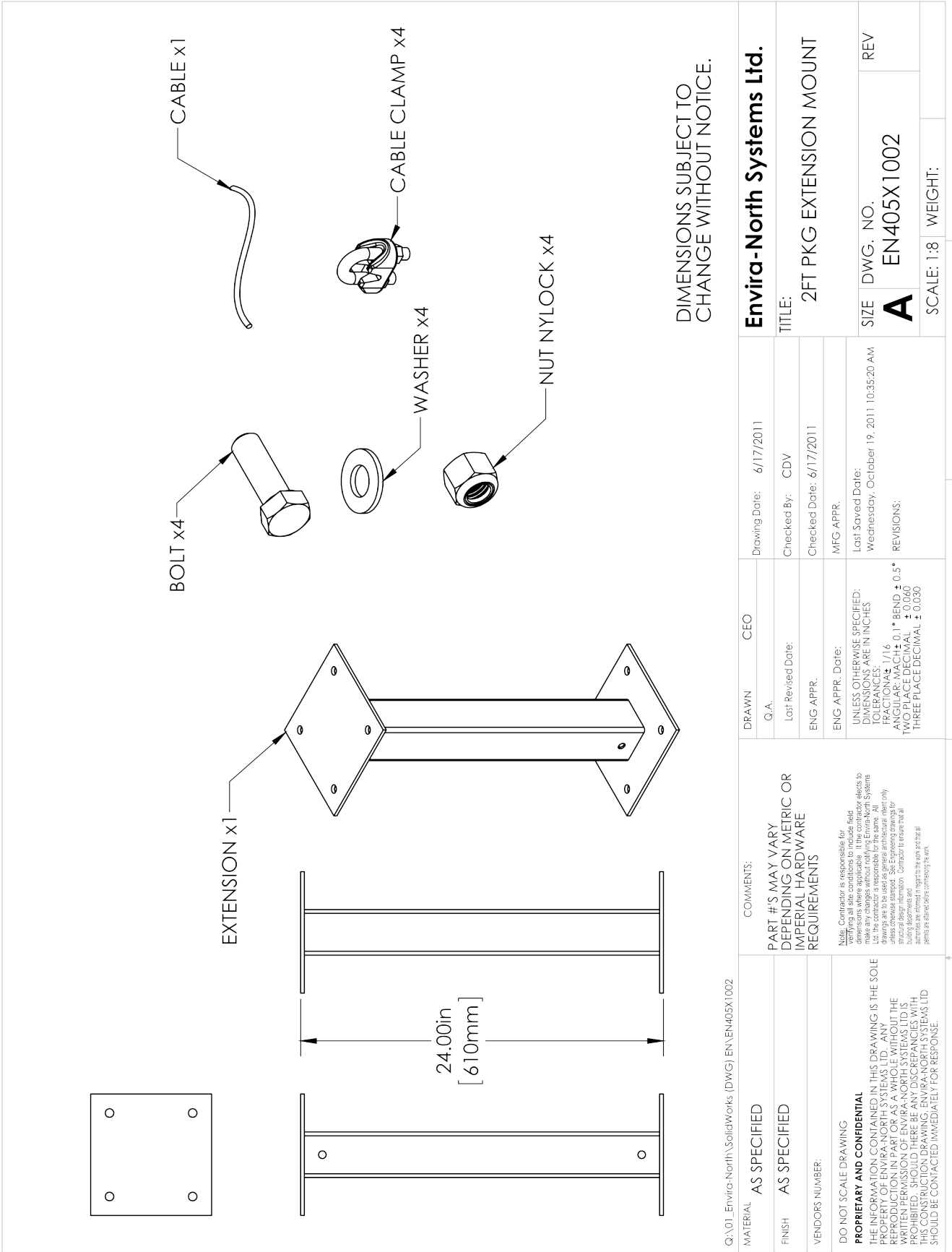
| ITEM NO. | PART NUMBER | DESCRIPTION                | QTY. |
|----------|-------------|----------------------------|------|
| 1        | EN823X8428  | DROP H TYPE 4 FT           | 1    |
| 2        | EN823X8418  | UMH COUPLER PC             | 1    |
| 3        | EN823X8417  | UMH UPPER PIVOT PLATE      | 1    |
| 4        | EN823X8402  | MANUFACTURED I-BEAM CLAMP  | 2    |
| 5        | EN823X8401  | MANUFACTURED I-BEAM SPACER | 2    |



DIMENSIONS SUBJECT TO CHANGE WITHOUT NOTICE.

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| Q:\01_Envira-North\SolidWorks (DWG) EN\EN400X2004<br>MATERIAL AS SPECIFIED  |  | DRAWN CEO<br>G.A.   | Drawing Date: 6/16/2011                                  | <b>Envira-North Systems Ltd.</b>     |  |
| FINISH AS SPECIFIED   |  | Last Revised Date:  | Checked By: CDV  | TITLE:<br>4 FT UMH MOUNT             |  |
| VENDORS NUMBER:   |  | ENG APPR.   | Checked Date: 6/16/2011                                  | SIZE DWG. NO.<br><b>A</b> EN400X2004 |  |
| DO NOT SCALE DRAWING<br>PROPRIETARY AND CONFIDENTIAL<br>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ENVIRA-NORTH SYSTEMS LTD. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ENVIRA-NORTH SYSTEMS LTD IS PROHIBITED. SHOULD THERE BE ANY DISCREPANCIES WITH THIS CONSTRUCTION DRAWING, ENVIRA-NORTH SYSTEMS LTD SHOULD BE CONTACTED IMMEDIATELY FOR RESPONSE. |  | REVISIONS:  | MFG APPR.  | SCALE: 1:2 WEIGHT: 39.22             |  |
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| TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±   |  | COMMENTS:   | ENG APPR. Date:  | 1                                    |  |
| REVISIONS:  |  | PART #'S MAY VARY DEPENDING ON METRIC OR IMPERIAL HARDWARE REQUIREMENTS | 4  | 2                                    |  |
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| REVISIONS:  |  | REVISIONS:  | 5  | 1                                    |  |

# 2 FT EXTENSION



DIMENSIONS SUBJECT TO CHANGE WITHOUT NOTICE.

|                                  |                   |                             |  |
|----------------------------------|-------------------|-----------------------------|--|
| <b>Envira-North Systems Ltd.</b> |                   | Drawing Date: 6/17/2011     | Drawing Date: 6/17/2011                                  |
| <b>2FT PKG EXTENSION MOUNT</b>   |                   | Checked By: CDV             | Checked Date: 6/17/2011                                  |
| TITLE:                           |                   | MFG APPR.                   | Last Saved Date: Wednesday, October 19, 2011 10:35:20 AM |
| SIZE                             | DWG. NO.          | REVISIONS:                  |  |
| <b>A</b>                         | <b>EN405X1002</b> | THREE PLACE DECIMAL ± 0.030 |  |
| SCALE: 1:8                       |                   | WEIGHT:                     |  |

Q:\01\_Envira-North\SolidWorks (DWG) EN\EN405X1002

COMMENTS:

PART #'S MAY VARY DEPENDING ON METRIC OR IMPERIAL HARDWARE REQUIREMENTS

Note: Contractor is responsible for 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 structural design information. Contractor to ensure that all dimensions are entered in accordance with the work and that all permits are obtained before commencing the work.

DRAWN: CEO

G.A.

Last Revised Date:

ENG APPR.

ENG APPR. DATE:

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 DECIMAL ± 0.1 BEND ± 0.5 TWO PLACE DECIMAL ± 0.040 THREE PLACE DECIMAL ± 0.030

Drawing Date: 6/17/2011

Checked By: CDV

Checked Date: 6/17/2011

MFG APPR.

Last Saved Date: Wednesday, October 19, 2011 10:35:20 AM REVISIONS:

Envira-North Systems Ltd.

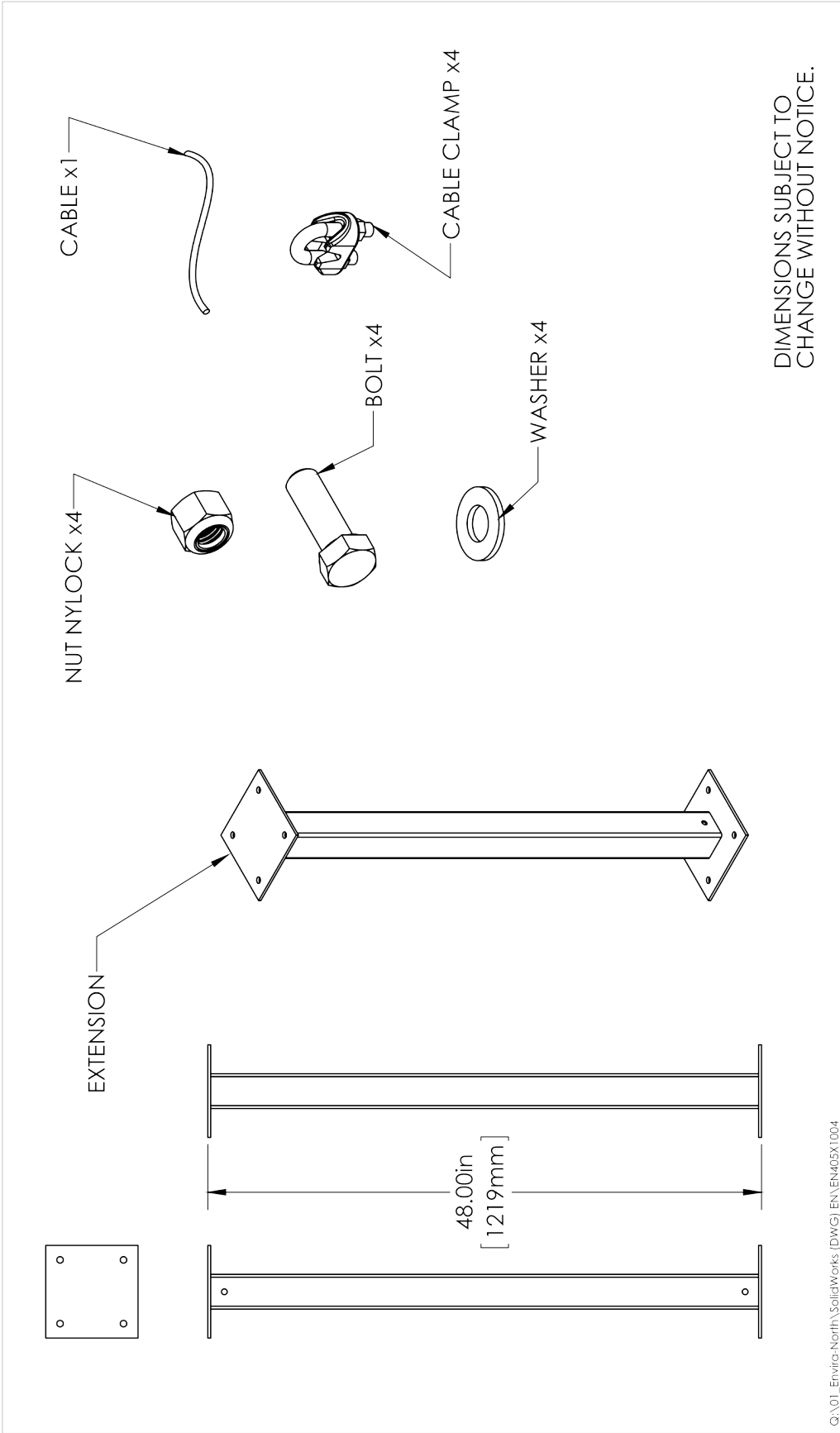
2FT PKG EXTENSION MOUNT

SIZE DWG. NO. REV  
**A** EN405X1002

SCALE: 1:8 WEIGHT:

5 4 3 2 1

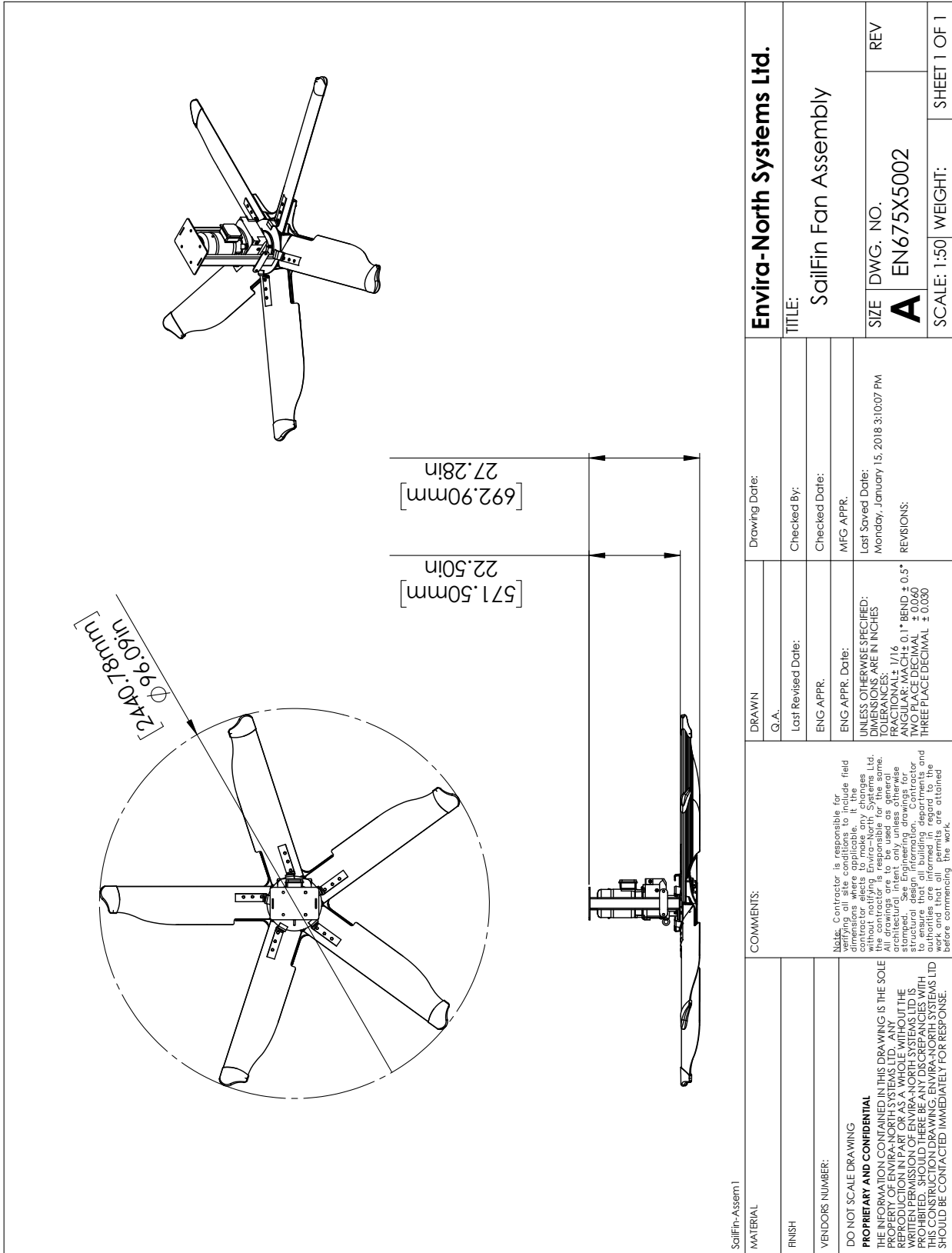
# 4 FT EXTENSION



DIMENSIONS SUBJECT TO CHANGE WITHOUT NOTICE.

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| MATERIAL AS SPECIFIED   |  | G.A.  |  | Checked By: CDV  |  | TITLE: 4FT PKG EXTENSION MOUNT   |  |
| FINISH AS SPECIFIED   |  | Last Revised Date:  |  | Checked Date: 6/17/2011                                  |  | SIZE DWG. NO. REV                |  |
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| DO NOT SCALE DRAWING  |  | ENG APPR. DATE:   |  | Last Saved Date: Wednesday, October 19, 2011 12:13:28 PM |  | SCALE: 1:12 WEIGHT:              |  |
| THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ENVIRO-NORTH SYSTEMS LTD. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ENVIRO-NORTH SYSTEMS LTD IS PROHIBITED. SHOULD THERE BE ANY DISCREPANCIES WITH THIS CONSTRUCTION DRAWING, ENVIRO-NORTH SYSTEMS LTD SHOULD BE CONTACTED IMMEDIATELY FOR RESPONSE.                               |  | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONS: 1/16 DECIMALS: ±0.010 ±0.030 THREE PLACE DECIMAL ±0.030 |  | REVISIONS:   |  | REV                              |  |
| Note: Contractor is responsible for 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 structural design information. Contractor to ensure that all dimensions are entered in respect to the work point and all permits are addressed concerning the work. |  | COMMENTS: PART #'S MAY VARY DEPENDING ON METRIC OR IMPERIAL HARDWARE REQUIREMENTS   |  | Last Saved Date: Wednesday, October 19, 2011 12:13:28 PM |  | 1                                |  |
|   |  |   |  |  |  | 2                                |  |
|   |  |   |  |  |  | 3                                |  |
|   |  |   |  |  |  | 4                                |  |
|   |  |   |  |  |  | 5                                |  |

# 2.4 M (8 FT) ALTRA-AIR SAILFIN FAN SPEC DRAWING



SailFin-Assem 1

MATERIAL

FINISH

VENDORS NUMBER:

DO NOT SCALE DRAWING

**PROPRIETARY AND CONFIDENTIAL**  
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COMMENTS:

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DRAWN

G.A.

Last Revised Date:

ENG APPR.

ENG APPR. Date:

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES FRACTIONAL ± 1/16 ANGULAR: MACH ± 0.1° BEND ± 0.5° THREE PLACE DECIMAL ± 0.030

Drawing Date:

Checked By:

Checked Date:

MFG APPR.

Last Saved Date: Monday, January 15, 2018 3:10:07 PM

REVISIONS:

Envira-North Systems Ltd.

TITLE: SailFin Fan Assembly

SIZE DWG. NO. REV  
**A** EN675X5002

SCALE: 1:50 WEIGHT: SHEET 1 OF 1

## 2.4 M (8 FT) ALTRA-AIR SAILFIN FAN SPECIFICATIONS

### General

|  |                      |
|--|----------------------|
| Model Number.....                      | EN675X5002           |
| Diameter.....                          | 2.4 m (8 ft)         |
| Number of Blades.....                  | 5                    |
| Motor Power.....                       | 0.75 kW (1 HP)       |
| Noise Level.....                       | 62.5 dBA             |
| Weight (no mount).....                 | 99 kgs (220 lbs)     |
| Packaged Fan (30" x 31" x 32").....    | 128.8 kgs (284 lbs*) |
| Packaged Blades (11" x 11" x 48")..... | 39 kgs (86 lbs)      |

\* Mounts, extensions & controls packages separately. Weights may vary.



### Performance

|                                 |                         |
|---------------------------------|-------------------------|
| Maximum Velocity.....           | 1.96 m/s (386 ft/min)   |
| Airflow.....                    | 28,078 l/s (59,494 CFM) |
| Maximum Speed.....              | 105 RPM                 |
| Power Usage.....                | 782 W                   |
| Maximum Effective Diameter..... | 18 m (60 ft)            |

### Construction

|                     |                                 |
|---------------------|---------------------------------|
| Frame.....          | Galvanized Steel Frame          |
| Hub.....            | 713 Cast Aluminum Alloy         |
| Blades.....         | 6063 Extruded Anodized Aluminum |
| Blade End Caps..... | High Impact Polystyrene         |

### Safety Components

|                    |                       |
|--------------------|-----------------------|
| Safety Cables..... | 3/16" Stainless Steel |
| Guy Wires.....     | 1/8" Stainless Steel  |
| Safety Clips.....  | Zinc Plated Steel     |

### Mounting Hardware

|                                 |                                  |
|---------------------------------|----------------------------------|
| Standard Mount.....             | Universal I-Beam Clamp w/ Swivel |
| Standard Drop.....              | 1 ft / 2 ft / 4 ft               |
| Drop Extensions (Optional)..... | 1 ft / 2 ft / 4 ft               |

### Mounting

|  |                                       |
|--|---------------------------------------|
| Open Web Steel Joist (Optional).....               | Steel Beam With Brackets              |
| Wood Beam Mount (Optional).....                    | Steel Machined Mount Plates           |
| Concrete Beam Mount (Optional).....                | Steel Beam with Matching Mount Plates |
| Purlin "Z" Mount (Optional).....                   | Steel Beam Brackets                   |
| Steel Thickness Varies Depending on Beam Span..... | Consult Factory for Specifics         |

\*Please see Altra-Air Installation Guide for more information regarding mounting hardware.

### Gear Motor

|                       |                               |
|-----------------------|-------------------------------|
| Type.....             | Helical Inline Reducer        |
| HP.....               | 1 HP (50 Hz / 60 Hz)          |
| Ratio.....            | 13.39                         |
| Volts.....            | 230 V / 400 V / 460 V / 575 V |
| Amps Consumed.....    | 3 A @ 230 V                   |
| Insulation Class..... | F                             |
| Torque.....           | 53 Nm (39 ft-lbs)             |
| Thrust.....           | 125 N (28 lbs)                |

### Fan Control

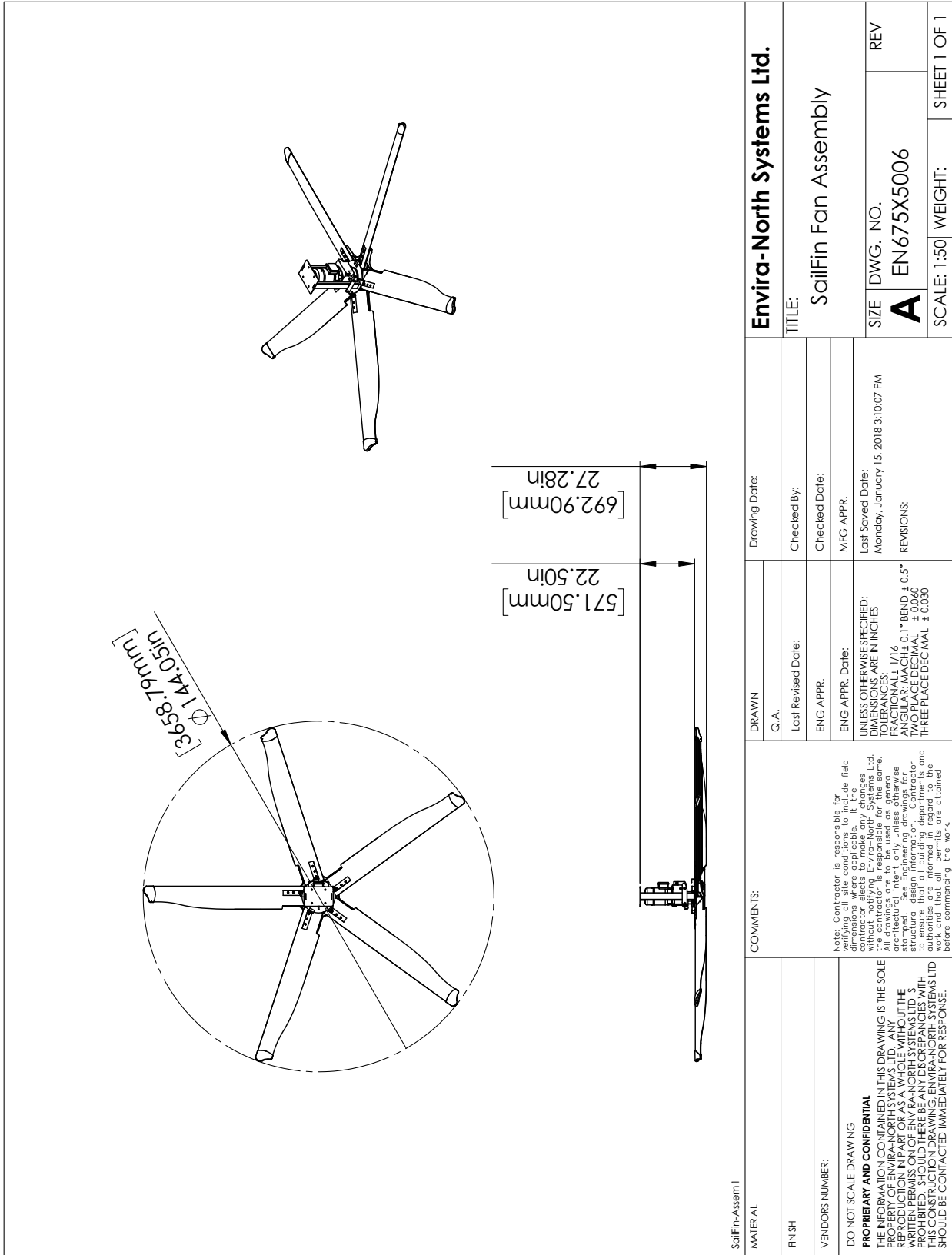
|  |                                       |
|--|---------------------------------------|
| Enclosure.....   | IP65                                  |
| Operation.....   | Key Pad                               |
| Control Options (Not Included).....  | Low Voltage / Temperature Control     |
| Standard Power.....  | 208 V / 230 V / 400 V / 460 V / 575 V |
| Special Wiring (Thermostats, Fire Alarm Interface, Networking Etc.)(Optional)..... | Consult Factory                       |
| 50 / 60 Hz Operation   |                                       |

### Warranty

|                                     |          |
|-------------------------------------|----------|
| Motor, Gearbox & Control Panel..... | 3 Years  |
| Blades, Hub & Mounting System.....  | Lifetime |

\*Please see Altra-Air Installation Guide for warranty specifications and exclusions.

# 3.7 M (12 FT) ALTRA-AIR SAILFIN FAN SPEC DRAWING



SailFin-Assem 1

MATERIAL

FINISH

VENDORS NUMBER:

DO NOT SCALE DRAWING

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COMMENTS:

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DRAWN

G.A.

Last Revised Date:

ENG APPR.

ENG APPR. Date:

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 0.1° BEND ± 0.5° THREE PLACE DECIMAL ± 0.030

Drawing Date:

Checked By:

Checked Date:

MFG APPR.

Last Saved Date: Monday, January 15, 2018 3:10:07 PM

REVISIONS:

Envira-North Systems Ltd.

TITLE: SailFin Fan Assembly

SIZE DWG. NO. REV

A EN675X5006

SCALE: 1:50 WEIGHT: SHEET 1 OF 1

## 3.7 M (12 FT) ALTRA-AIR SAILFIN FAN SPECIFICATIONS

### General

|  |                      |
|--|----------------------|
| Model Number.....                      | EN675X5006           |
| Diameter.....                          | 3.7 m (12 ft)        |
| Number of Blades.....                  | 5                    |
| Motor Power.....                       | 0.75 kW (1 HP)       |
| Noise Level.....                       | 62.5 dBA             |
| Weight (no mount).....                 | 111 kgs (245 lbs)    |
| Packaged Fan (30" x 31" x 32").....    | 128.8 kgs (284 lbs*) |
| Packaged Blades (11" x 11" x 72")..... | 50.4 kgs (111 lbs)   |

\* Mounts, extensions & controls packages separately. Weights may vary.



### Performance

|                                 |                         |
|---------------------------------|-------------------------|
| Maximum Velocity.....           | 1.96 m/s (386 ft/min)   |
| Airflow.....                    | 33,236 l/s (70,424 CFM) |
| Maximum Speed.....              | 105 RPM                 |
| Power Usage.....                | 782 W                   |
| Maximum Effective Diameter..... | 24 m (80 ft)            |

### Construction

|                     |                                 |
|---------------------|---------------------------------|
| Frame.....          | Galvanized Steel Frame          |
| Hub.....            | 713 Cast Aluminum Alloy         |
| Blades.....         | 6063 Extruded Anodized Aluminum |
| Blade End Caps..... | High Impact Polystyrene         |

### Safety Components

|                    |                       |
|--------------------|-----------------------|
| Safety Cables..... | 3/16" Stainless Steel |
| Guy Wires.....     | 1/8" Stainless Steel  |
| Safety Clips.....  | Zinc Plated Steel     |

### Mounting Hardware

|                                 |                                  |
|---------------------------------|----------------------------------|
| Standard Mount.....             | Universal I-Beam Clamp w/ Swivel |
| Standard Drop.....              | 1 ft / 2 ft / 4 ft               |
| Drop Extensions (Optional)..... | 1 ft / 2 ft / 4 ft               |

### Mounting

|  |                                       |
|--|---------------------------------------|
| Open Web Steel Joist (Optional).....               | Steel Beam With Brackets              |
| Wood Beam Mount (Optional).....                    | Steel Machined Mount Plates           |
| Concrete Beam Mount (Optional).....                | Steel Beam with Matching Mount Plates |
| Purlin "Z" Mount (Optional).....                   | Steel Beam Brackets                   |
| Steel Thickness Varies Depending on Beam Span..... | Consult Factory for Specifics         |

\*Please see Altra-Air Installation Guide for more information regarding mounting hardware.

### Gear Motor

|                       |                               |
|-----------------------|-------------------------------|
| Type.....             | Helical Inline Reducer        |
| HP.....               | 1 HP (50 Hz / 60 Hz)          |
| Ratio.....            | 13.39                         |
| Volts.....            | 230 V / 400 V / 460 V / 575 V |
| Amps Consumed.....    | 9.9 A @ 230 V                 |
| Insulation Class..... | F                             |
| Torque.....           | 53 Nm (39 ft-lbs)             |
| Thrust.....           | 125 N (28 lbs)                |

### Fan Control

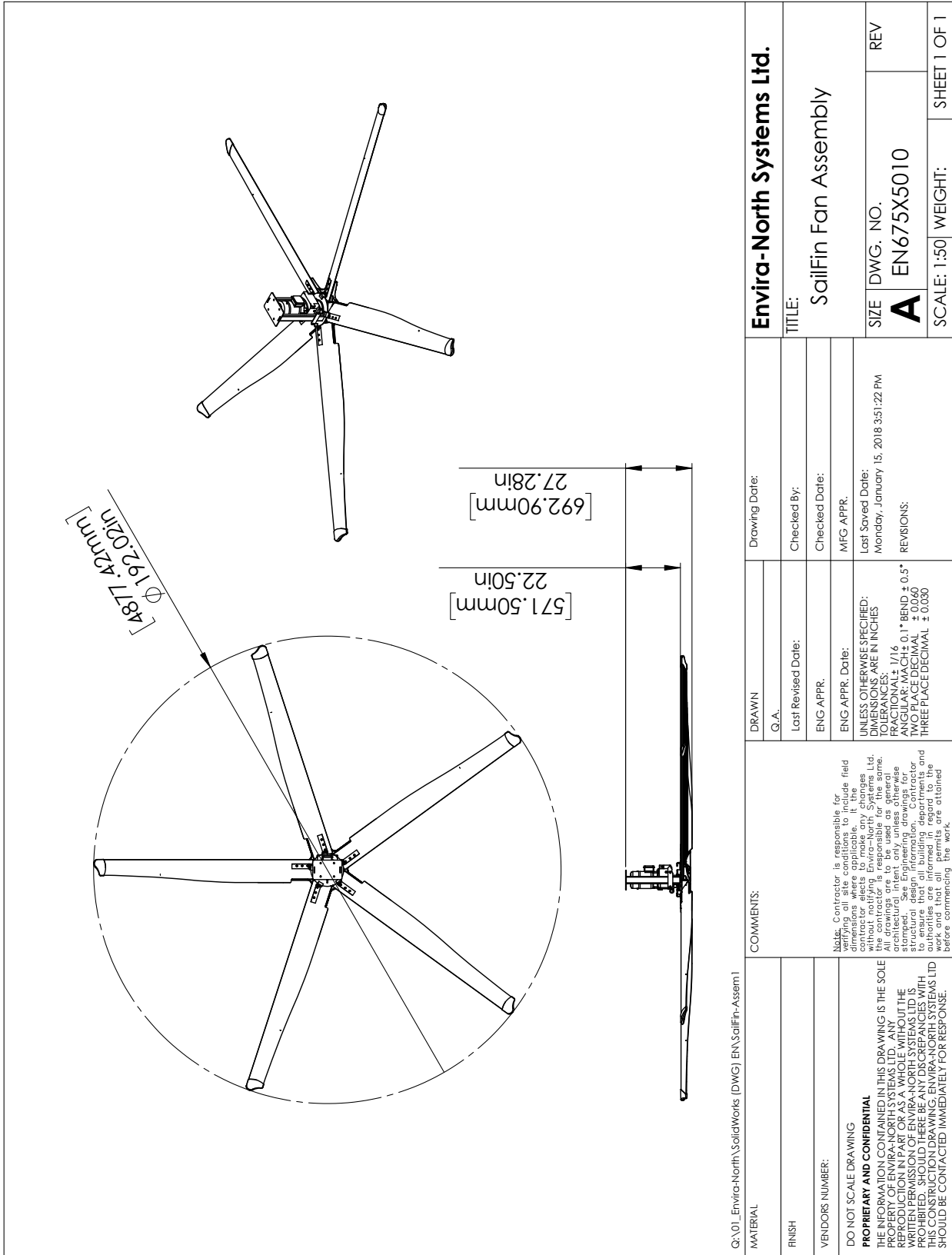
|  |                                       |
|--|---------------------------------------|
| Enclosure.....   | IP65                                  |
| Operation.....   | Key Pad                               |
| Control Options (Not Included).....  | Low Voltage / Temperature Control     |
| Standard Power.....  | 208 V / 230 V / 400 V / 460 V / 575 V |
| Special Wiring (Thermostats, Fire Alarm Interface, Networking Etc.)(Optional)..... | Consult Factory                       |
| 50 / 60 Hz Operation   |                                       |

### Warranty

|                                     |          |
|-------------------------------------|----------|
| Motor, Gearbox & Control Panel..... | 3 Years  |
| Blades, Hub & Mounting System.....  | Lifetime |

\*Please see Altra-Air Installation Guide for warranty specifications and exclusions.

# 4.9 M (16 FT) ALTRA-AIR SAILFIN FAN SPEC DRAWING



Q:\01\_Envira-North\SolidWorks (DWG) EN\Sailfin-Assem1

|   |  |  |  |  |  |                           |  |
|---|--|--|--|--|--|---------------------------|--|
| MATERIAL  |  | DRAWN  |  | DRAWING DATE:  |  | Envira-North Systems Ltd. |  |
| FINISH  |  | G.A.   |  | Checked By:  |  | TITLE:                    |  |
| VENDORS NUMBER:   |  | Last Revised Date:   |  | Checked Date:  |  | SailFin Fan Assembly      |  |
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|   |  | COMMENTS:  |  | REVISIONS:   |  | SCALE: 1:50 WEIGHT:       |  |
|   |  | Note: Contractor is responsible for verifying all site conditions to include field conditions and any changes to the contract without notifying Envira-North Systems Ltd. All drawings are to be used as general architectural intent only unless otherwise stamped. See Engineering drawings for details. To ensure that all building departments and authorities are informed in regard to the drawings, drawings are obtained before commencing the work. |  | 1  |  | SHEET 1 OF 1              |  |
|   |  | 5  |  | 2  |  | 1                         |  |

## 4.9 M (16 FT) ALTRA-AIR SAILFIN FAN SPECIFICATIONS

### General

|  |                      |
|--|----------------------|
| Model Number.....                      | EN675X5010           |
| Diameter.....                          | 4.9 m (16 ft)        |
| Number of Blades.....                  | 5                    |
| Motor Power.....                       | 1.1 kW (1.5 HP)      |
| Noise Level.....                       | 62.7 dBA             |
| Weight (no mount).....                 | 125 kgs (275 lbs)    |
| Packaged Fan (30" x 31" x 32").....    | 128.8 kgs (284 lbs*) |
| Packaged Blades (11" x 11" x 96")..... | 60.8 kgs (134 lbs)   |

\* Mounts, extensions & controls packages separately. Weights may vary.



### Performance

|                                 |                          |
|---------------------------------|--------------------------|
| Maximum Velocity.....           | 2.79 m/s (550 ft/min)    |
| Airflow.....                    | 59,953 l/s (127,033 CFM) |
| Maximum Speed.....              | 80 RPM                   |
| Power Usage.....                | 939 W                    |
| Maximum Effective Diameter..... | 43 m (140 ft)            |

### Construction

|                     |                                 |
|---------------------|---------------------------------|
| Frame.....          | Galvanized Steel Frame          |
| Hub.....            | 713 Cast Aluminum Alloy         |
| Blades.....         | 6063 Extruded Anodized Aluminum |
| Blade End Caps..... | High Impact Polystyrene         |

### Safety Components

|                    |                       |
|--------------------|-----------------------|
| Safety Cables..... | 3/16" Stainless Steel |
| Guy Wires.....     | 1/8" Stainless Steel  |
| Safety Clips.....  | Zinc Plated Steel     |

### Mounting Hardware

|                                 |                                  |
|---------------------------------|----------------------------------|
| Standard Mount.....             | Universal I-Beam Clamp w/ Swivel |
| Standard Drop.....              | 1 ft / 2 ft / 4 ft               |
| Drop Extensions (Optional)..... | 1 ft / 2 ft / 4 ft               |

### Mounting

|  |                                       |
|--|---------------------------------------|
| Open Web Steel Joist (Optional).....               | Steel Beam With Brackets              |
| Wood Beam Mount (Optional).....                    | Steel Machined Mount Plates           |
| Concrete Beam Mount (Optional).....                | Steel Beam with Matching Mount Plates |
| Purlin "Z" Mount (Optional).....                   | Steel Beam Brackets                   |
| Steel Thickness Varies Depending on Beam Span..... | Consult Factory for Specifics         |

\*Please see Altra-Air Installation Guide for more information regarding mounting hardware.

### Gear Motor

|                       |                               |
|-----------------------|-------------------------------|
| Type.....             | Helical Inline Reducer        |
| HP.....               | 1.5 HP (50 Hz / 60 Hz)        |
| Ratio.....            | 23.74                         |
| Volts.....            | 230 V / 400 V / 460 V / 575 V |
| Amps Consumed.....    | 5.2 A @ 230 V                 |
| Insulation Class..... | F                             |
| Torque.....           | 141 Nm (104 ft-lbs)           |
| Thrust.....           | 231 N (52 lbs)                |

### Fan Control

|  |                                       |
|--|---------------------------------------|
| Enclosure.....   | IP65                                  |
| Operation.....   | Key Pad                               |
| Control Options (Not Included).....  | Low Voltage / Temperature Control     |
| Standard Power.....  | 208 V / 230 V / 400 V / 460 V / 575 V |
| Special Wiring (Thermostats, Fire Alarm Interface, Networking Etc.)(Optional)..... | Consult Factory                       |
| 50 / 60 Hz Operation   |                                       |

### Warranty

|                                     |          |
|-------------------------------------|----------|
| Motor, Gearbox & Control Panel..... | 3 Years  |
| Blades, Hub & Mounting System.....  | Lifetime |

\*Please see Altra-Air Installation Guide for warranty specifications and exclusions.



## 6.1 M (20 FT) ALTRA-AIR SAILFIN FAN SPECIFICATIONS

### General

|   |                      |
|---|----------------------|
| Model Number.....                       | EN675X5014           |
| Diameter.....                           | 6.1 m (20 ft)        |
| Number of Blades.....                   | 5                    |
| Motor Power.....                        | 1.5 kW (2 HP)        |
| Noise Level.....                        | 63.4 dBA             |
| Weight (no mount).....                  | 140 kgs (320 lbs)    |
| Packaged Fan (30" x 31" x 32").....     | 128.8 kgs (284 lbs*) |
| Packaged Blades (11" x 11" x 120")..... | 75.7 kgs (167 lbs)   |

\* Mounts, extensions & controls packages separately. Weights may vary.



### Performance

|                                 |                          |
|---------------------------------|--------------------------|
| Maximum Velocity.....           | 2.56 m/s (505 ft/min)    |
| Airflow.....                    | 83,157 l/s (176,200 CFM) |
| Maximum Speed.....              | 63 RPM                   |
| Power Usage.....                | 1460 W                   |
| Maximum Effective Diameter..... | 61 m (200 ft)            |

### Construction

|                     |                                 |
|---------------------|---------------------------------|
| Frame.....          | Galvanized Steel Frame          |
| Hub.....            | 713 Cast Aluminum Alloy         |
| Blades.....         | 6063 Extruded Anodized Aluminum |
| Blade End Caps..... | High Impact Polystyrene         |

### Safety Components

|                    |                       |
|--------------------|-----------------------|
| Safety Cables..... | 3/16" Stainless Steel |
| Guy Wires.....     | 1/8" Stainless Steel  |
| Safety Clips.....  | Zinc Plated Steel     |

### Mounting Hardware

|                                 |                                  |
|---------------------------------|----------------------------------|
| Standard Mount.....             | Universal I-Beam Clamp w/ Swivel |
| Standard Drop.....              | 1 ft / 2 ft / 4 ft               |
| Drop Extensions (Optional)..... | 1 ft / 2 ft / 4 ft               |

### Mounting

|  |                                       |
|--|---------------------------------------|
| Open Web Steel Joist (Optional).....               | Steel Beam With Brackets              |
| Wood Beam Mount (Optional).....                    | Steel Machined Mount Plates           |
| Concrete Beam Mount (Optional).....                | Steel Beam with Matching Mount Plates |
| Purlin "Z" Mount (Optional).....                   | Steel Beam Brackets                   |
| Steel Thickness Varies Depending on Beam Span..... | Consult Factory for Specifics         |

\*Please see Altra-Air Installation Guide for more information regarding mounting hardware.

### Gear Motor

|                       |                               |
|-----------------------|-------------------------------|
| Type.....             | Helical Inline Reducer        |
| HP.....               | 2 HP (50 Hz / 60 Hz)          |
| Ratio.....            | 27.24                         |
| Volts.....            | 230 V / 400 V / 460 V / 575 V |
| Amps Consumed.....    | 8.8 A @ 230 V                 |
| Insulation Class..... | F                             |
| Torque.....           | 217 Nm (160 ft-lbs)           |
| Thrust.....           | 280 N (63lbs)                 |

### Fan Control

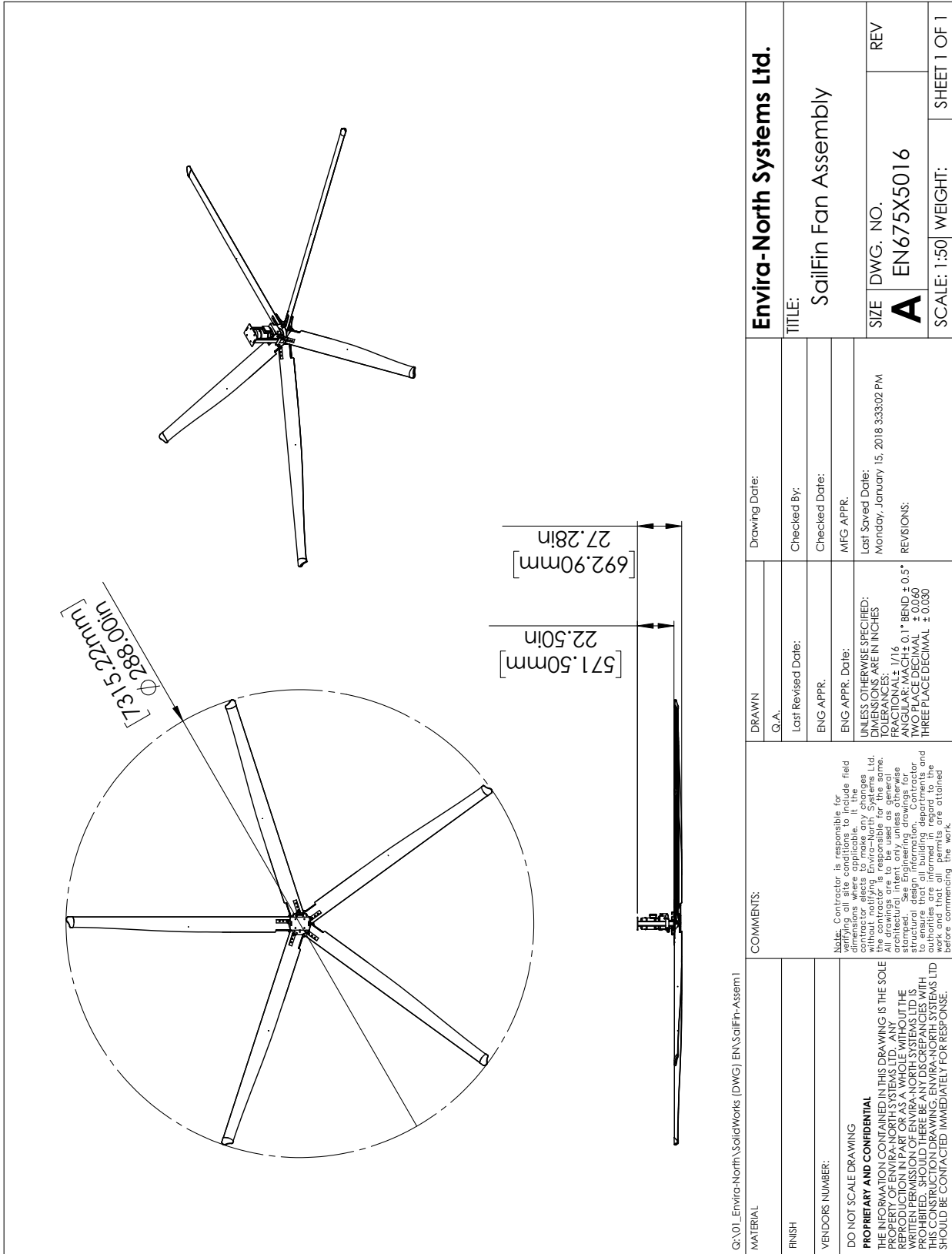
|  |                                       |
|--|---------------------------------------|
| Enclosure.....   | IP65                                  |
| Operation.....   | Key Pad                               |
| Control Options (Not Included).....  | Low Voltage / Temperature Control     |
| Standard Power.....  | 208 V / 230 V / 400 V / 460 V / 575 V |
| Special Wiring (Thermostats, Fire Alarm Interface, Networking Etc.)(Optional)..... | Consult Factory                       |
| 50 / 60 Hz Operation   |                                       |

### Warranty

|                                     |          |
|-------------------------------------|----------|
| Motor, Gearbox & Control Panel..... | 3 Years  |
| Blades, Hub & Mounting System.....  | Lifetime |

\*Please see Altra-Air Installation Guide for warranty specifications and exclusions.

# 7.3 M (24 FT) ALTRA-AIR SAILFIN FAN SPEC DRAWING



Q:\01\_Envira-North\SolidWorks (DWG) EN\Sailfin-Assem1

**MATERIAL**

**FINISH**

**VENDORS NUMBER:**

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**COMMENTS:**

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**DRAWN**

**G.A.**

**Last Revised Date:**

**ENG APPR. Date:**

**ENG APPR.**

**UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 0.1° BEND ± 0.5° THREE PLACE DECIMAL ± 0.030**

**Drawing Date:**

**Checked By:**

**Checked Date:**

**MFG APPR.**

**Last Saved Date:** Monday, January 15, 2018 3:33:02 PM

**REVISIONS:**

**Envira-North Systems Ltd.**

**TITLE:** SailFin Fan Assembly

**SIZE** **DWG. NO.** **REV**

**A** **EN675X5016**

**SCALE: 1:50** **WEIGHT:** **SHEET 1 OF 1**

|   |   |   |   |   |
|---|---|---|---|---|
| 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|

## 7.3 M (24 FT) ALTRA-AIR SAILFIN FAN SPECIFICATIONS

### General

|   |                      |
|---|----------------------|
| Model Number.....                       | EN675X5016           |
| Diameter.....                           | 7.3 m (24 ft)        |
| Number of Blades.....                   | 5                    |
| Motor Power.....                        | 1.5 kW (2 HP)        |
| Noise Level.....                        | 63.4 dBA             |
| Weight (no mount).....                  | 157 kgs (347 lbs)    |
| Packaged Fan (30" x 31" x 32").....     | 128.2 kgs (284 lbs)* |
| Packaged Blades (11" x 11" x 144")..... | 86 kgs (190 lbs)     |

\* Mounts, extensions & controls packaged separately. Weights may vary.



### Performance

|                                 |                           |
|---------------------------------|---------------------------|
| Maximum Velocity.....           | 2.52 m/s (497 ft/min)     |
| Airflow.....                    | 148,676 l/s (315,026 CFM) |
| Maximum Speed.....              | 53 RPM                    |
| Power Usage.....                | 1486 W                    |
| Maximum Effective Diameter..... | (70 m) 230 ft             |

### Construction

|                     |                                 |
|---------------------|---------------------------------|
| Frame.....          | Galvanized Steel Frame          |
| Hub.....            | 713 Cast Aluminum Alloy         |
| Blades.....         | 6063 Extruded Anodized Aluminum |
| Blade End Caps..... | High Impact Polystyrene         |

### Safety Components

|                    |                       |
|--------------------|-----------------------|
| Safety Cables..... | 3/16" Stainless Steel |
| Guy Wires.....     | 1/8" Stainless Steel  |
| Safety Clips.....  | Zinc Plated Steel     |

### Mounting Hardware

|                                 |                                  |
|---------------------------------|----------------------------------|
| Standard Mount.....             | Universal I-Beam Clamp w/ Swivel |
| Standard Drop.....              | 1 ft / 2 ft / 4 ft               |
| Drop Extensions (Optional)..... | 1 ft / 2 ft / 4 ft               |

### Mounting

|  |                                       |
|--|---------------------------------------|
| Open Web Steel Joist (Optional).....               | Steel Beam With Brackets              |
| Wood Beam Mount (Optional).....                    | Steel Machined Mount Plates           |
| Concrete Beam Mount (Optional).....                | Steel Beam with Matching Mount Plates |
| Purlin "Z" Mount (Optional).....                   | Steel Beam Brackets                   |
| Steel Thickness Varies Depending on Beam Span..... | Consult Factory for Specifics         |

\*Please see Altra-Air Installation Guide for more information regarding mounting hardware.

### Gear Motor

|                       |                               |
|-----------------------|-------------------------------|
| Type.....             | Helical Inline Reducer        |
| HP.....               | 2 HP (50 Hz / 60 Hz)          |
| Ratio.....            | 30.43                         |
| Volts.....            | 230 V / 400 V / 460 V / 575 V |
| Amps Consumed.....    | 8.6 A @ 230 V                 |
| Insulation Class..... | F                             |
| Torque.....           | 248 Nm (183 ft-lbs)           |
| Thrust.....           | 632 N (142 lbs)               |

### Fan Control

|  |                                       |
|--|---------------------------------------|
| Enclosure.....   | IP65                                  |
| Operation.....   | Key Pad                               |
| Control Options (Not Included).....  | Low Voltage / Temperature Control     |
| Standard Power.....  | 208 V / 230 V / 400 V / 460 V / 575 V |
| Special Wiring (Thermostats, Fire Alarm Interface, Networking Etc.)(Optional)..... | Consult Factory                       |
| 50 / 60 Hz Operation   |                                       |

### Warranty

|                                     |          |
|-------------------------------------|----------|
| Motor, Gearbox & Control Panel..... | 3 Years  |
| Blades, Hub & Mounting System.....  | Lifetime |

\*Please see Altra-Air Installation Guide for warranty specifications and exclusions.

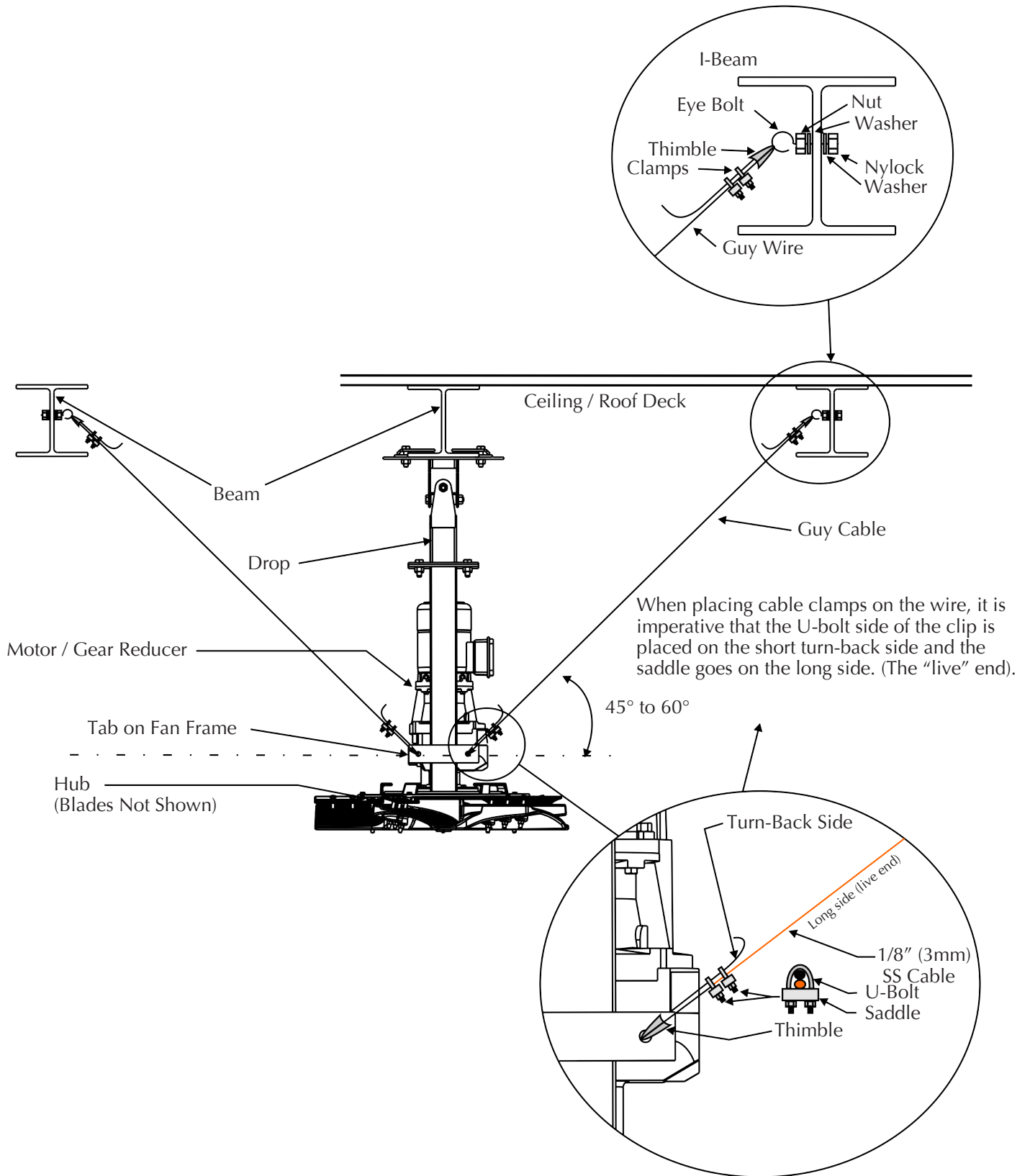
## SUMMARIZED FAN SPECIFICATIONS

| Altra-Air Sailfin Fans Performance Specifications |            |            |             |             |             |
|---|------------|------------|-------------|-------------|-------------|
| Fan Size in Diameter                              | 8 ft       | 12 ft      | 16 ft       | 20 ft       | 24 ft       |
|   | 2.4 m      | 3.7 m      | 4.9 m       | 6.1 m       | 7.3 m       |
| Motor Power                                       | 1 HP       | 1 HP       | 1.5 HP      | 2 HP        | 2 HP        |
|   | 0.75 kW    | 0.75 kW    | 1.1 kW      | 1.5 kW      | 1.5 kW      |
| Power Consumption                                 | 782 W      | 782 W      | 939 W       | 1460 W      | 1486 W      |
|   | 782 W      | 782 W      | 939 W       | 1460W       | 1486 W      |
| Actual Amps at 230 Volts                          | 3 A        | 3 A        | 3.6 A       | 5.6 A       | 5.7 A       |
|   | 3 A        | 3 A        | 3.6 A       | 5.6 A       | 5.7 A       |
| Torque  | 39 ft-lbs  | 39 ft-lbs  | 104 ft-lbs  | 160 ft-lbs  | 183 ft-lbs  |
|   | 53 Nm      | 53 Nm      | 141 Nm      | 217 Nm      | 248 Nm      |
| Thrust  | 28 lbs     | 28 lbs     | 52 lbs      | 63 lbs      | 142 lbs     |
|   | 125 N      | 125 N      | 231 N       | 280 N       | 632 N       |
| Speed   | 105 rpm    | 105 rpm    | 80 rpm      | 63 rpm      | 53 rpm      |
|   | 105 rpm    | 105 rpm    | 80 rpm      | 63 rpm      | 53 rpm      |
| Airflow   | 59,494 cfm | 70,424 cfm | 127,033 cfm | 176,200 cfm | 315,026 cfm |
|   | 28,078 l/s | 33,236 l/s | 59,953 l/s  | 83,157 l/s  | 148,676 l/s |
| Maximum Effective Diameter                        | 60 ft      | 80 ft      | 140 ft      | 200 ft      | 230 ft      |
|   | 18 m       | 24 m       | 43 m        | 61 m        | 70 m        |
| Maximum Velocity                                  | 386 ft/min | 386 ft/min | 550 ft/min  | 505 ft/min  | 497 ft/min  |
|   | 1.96 m/s   | 1.96 m/s   | 2.79 m/s    | 2.56 m/s    | 2.52 m/s    |
| Weight (No Mount)                                 | 220 lbs    | 245 lbs    | 275 lbs     | 320 lbs     | 347 lbs     |
|   | 99 kgs     | 111 kgs    | 125 kgs     | 145 kgs     | 157 kgs     |
| Noise Level                                       | 62.5 dBA   | 62.5 dBA   | 62.7 dBA    | 63.4 dBA    | 63.4 dBA    |
|   | 62.5 dBA   | 62.5 dBA   | 62.7 dBA    | 63.4 dBA    | 63.4 dBA    |

The data in this specification sheet represent the most current data developed by Envira-North Systems or other agencies. Envira-North Systems is constantly seeking to improve its products for the betterment of its customers; we therefore reserve the right to change these specifications as required without notification. Weights are subject to change. Please contact our shipping department for the latest information on shipping container sizes and weights. Maximum effective diameter is where horizontal airspeed at 1.0 ft above floor drops below 0.2 m/s in an empty room.



# GUY WIRES



## ALTRA-AIR SAILFIN FAN PACKAGING DETAILS

### Packaged Fan

30" x 31" x 32" (76.2 cm x 78.74 cm x 81.28 cm)  
284 lbs (128.8 kgs)

### 24 FT (7.3 M) Packaged Blades

11" x 11.5" x 144" (27.9cm x 29.2cm x 365.8cm)  
190lbs (86kgs)

### 20 FT (6.1 M) Packaged Blades

11" x 11.5" x 120" (27.9cm x 29.2cm x 304.8cm)  
167lbs (75.7kgs)

### 16 FT (4.9 M) Packaged Blades

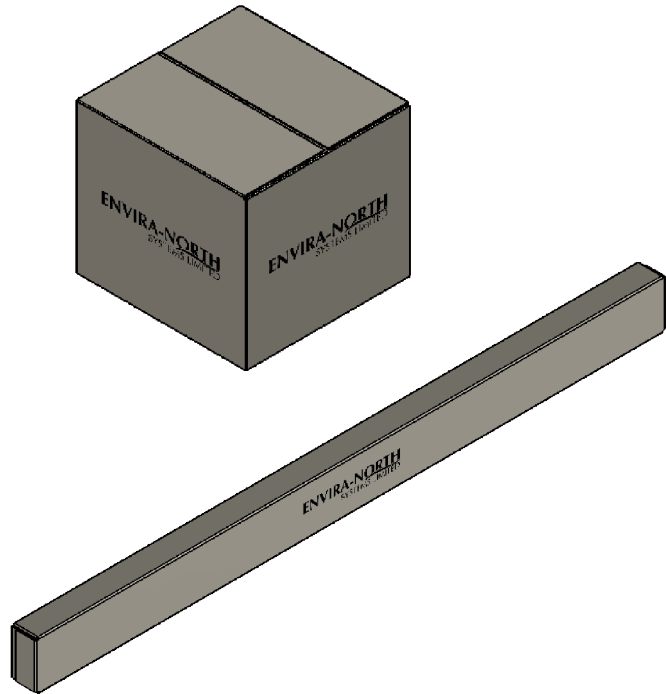
11" x 11.5" x 96" (27.9cm x 29.2cm x 243.8cm)  
134lbs (60.8kgs)

### 12 FT (3.7 M) Packaged Blades

11" x 11.5" x 72" (27.9cm x 29.2cm x 182.9cm)  
111lbs (50.4kgs)

### 8 FT (2.4 M) Packaged Blades

11" x 11.5" x 48" (27.9cm x 29.2cm x 121.9cm)  
86lbs (39kgs)



## MOUNTS & EXTENSIONS PACKAGING DETAILS

These items can be placed inside the packaged fan when ordering with a fan. (Excluding 4 FT (1.22 M) items)  
Please add the additional weight to the fan packages above.

### 1 FT (0.31 M) Packaged UMH Mount

9" x 9" x 15" (22.9 cm x 22.9 cm x 38.1 cm)  
22 lbs (9.98 kgs)

### 2 FT (0.61 M) Packaged UMH Mount

9" x 9" x 28" (22.9 cm x 22.9 cm x 71.1 cm)  
33 lbs (14.97 kgs)

### 4 FT (1.22 M) Packaged UMH Mount

9" x 9" x 51" (22.9 cm x 22.9 cm x 129.5 cm)  
47 lbs (21.32 kgs)

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### 2 FT (0.61 M) UMH Extension

9" x 9" x 28" (22.9 cm x 22.9 cm x 71.1cm)  
21 lbs (9.53 kgs)

### 4 FT (1.22 M) UMH Extension

9" x 9" x 49" (22.9 cm x 22.9 cm x 124.5 cm)  
31 lbs (14.06 kgs)

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# CERTIFICATION DETAILS

Envira-North Systems Ltd.

'Declaration of Conformity'

## DECLARATION OF CONFORMITY

according to the  
**Safety of Machinery Directive (98/37/EC),  
Low Voltage Directive (2006/95/EC), Electromagnetic Compatibility Directive (2004/108/EC),  
and including amendments by the CE Marking Directive, 93/68/EEC**

**Type of equipment:** Industrial Ceiling Fans  
**Type designation:** Series #EN6XXX  
**Manufacturer:** Envira-North Systems Ltd.  
92 Railway Street  
Seaforth, ON N0K 1W0  
Canada

The following harmonized European standards or technical specifications have been applied:

| <u>Standard</u>      | <u>Subject</u>  |
|----------------------|---|
| ISO/TR 12100-1: 2003 | Safety of Machinery - Basic Concepts, General Principles for Design - Part 1: Basic Terminology, Methodology. |

**With reference to the Safety of Machinery Directive:**

The product complies with good engineering practice in safety matters within the EU, even though it may not fully comply with the safety standards/specifications listed above, (see Technical Construction File). The product is CE marked in year 2010. Envira-North Systems Ltd. has an internal production control system and formal quality control process that ensures compliance between the manufactured products and the technical documentation.

**With reference to the EMC Directive:**

Full utilization of CE Certified or equivalent equipment.

**With Reference to the Low Voltage Directive:**

Full utilization of CE Certified or equivalent equipment.

As manufacturer/manufacture's authorized representative, we declare under our sole responsibility that the equipment follows the provisions of the Directives stated above (this Declaration of Conformity and its associated Technical Construction Files shall be retained and valid for a minimum of ten years following the below Date).

CE

10

Signing Authority:

Date:

Cathy Vanneste  
Senior Administrator  
Envira-North Systems Ltd.

*Cathy Vanneste*  
June 25/10

Prepared By:

Date:

*Paul M. Johnson*  
Paul M. Johnson, C.E.T., ASQ  
President  
Neoteric Enterprises Inc.

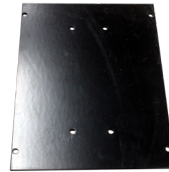
*Paul M. Johnson*  
June 21/10

## FAN CONTROL OPTIONS

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### FlexAIR FAN CONTROL

KEYPAD ONLY

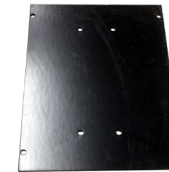


Mount Plate

- Wall Mounted Variable Frequency Drive (VFD) Configuration
- Minimal Distance Between VFD & HVLS Fan
- One Per Fan Required

### FlexAIR FAN CONTROL

FLEXAIR FAN CONTROL I/O



Mount Plate

- Fan Mounted VFD
- Package Includes Mounting Plate
- Requires Additional Controls

RECOMMENDED

### LOW VOLTAGE CONTROL (LVC)



- Controls Groups of (up to) Seven (7) Fans
- Lockable Cover
- Stop Button
  - Forward/Reverse
  - Speed Up/Down
  - Toggle Between Manual/Auto Modes

RECOMMENDED

OPTIONAL



### TEMPERATURE CONTROL (TFD-1)

- Programmed for Automatic Fan Speeds
- Constantly Measures Temperature
- Automatically Adjusts to Your Set Points

OPTIONAL



### WIND SENSOR

- For Use With Outdoor Applications
- Automatically Turns Off During High Winds
- Compact Design
- Programmable For Customized Applications

OPTIONAL

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# FlexAIR

FAN CONTROL

FLEXAIR FAN CONTROL MODBUS



- Fan Mounted VFD
- One Control Per Fan Required
- Package Includes Mounting Plate
- Requires Additional Controls

Mount Plate

## MODBUS CONTROL OPTIONS:

### SCHNEIDER DRIVE



- One Per Fan Required
- Minimal Distance Between VFD and FAN
- Requires HMI for Operation (SmartAIR or TouchAIR or LVC)

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### SmartAIR

FAN CONTROL



- Automated Fan Control for Single or Multiple Fans
- Continually Measures Temperature and Humidity, Adjusting Fan Speed Accordingly
- Integrated Light Operation to Control On/Off
- Plug-and-Play Installation
- Monitor Performance of Motor and Drive

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### TouchAIR

FAN CONTROL



Touch Pad Control

- Single Point Fan Control
  - Controls up to 20 Fans
  - CAT-5 Daisy Chain Connections
  - Intuitive Operation
  - Individual and Group Controlling
  - Remote Diagnostics
  - Over 500m (1640') of Wire Distance
  - Used in Conjunction with ZoneAIR Fan Control
-

## 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) Gear Reducer           | 3 year Limited Warranty                |
| e) VFD control panel      | 3 year Limited Warranty                |
| f) Labour                 | 1 year Limited Warranty (pre-approved) |
| g) 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.

## 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

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

Change 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 profiles are extruded from 6005-aluminum alloy and heat-treated to T-61 condition. They are anodized to 10 Microns (0.0004") 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 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.

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