Hunter
INDUSTRIAL
ECO
INSTALLATION
MANUAL

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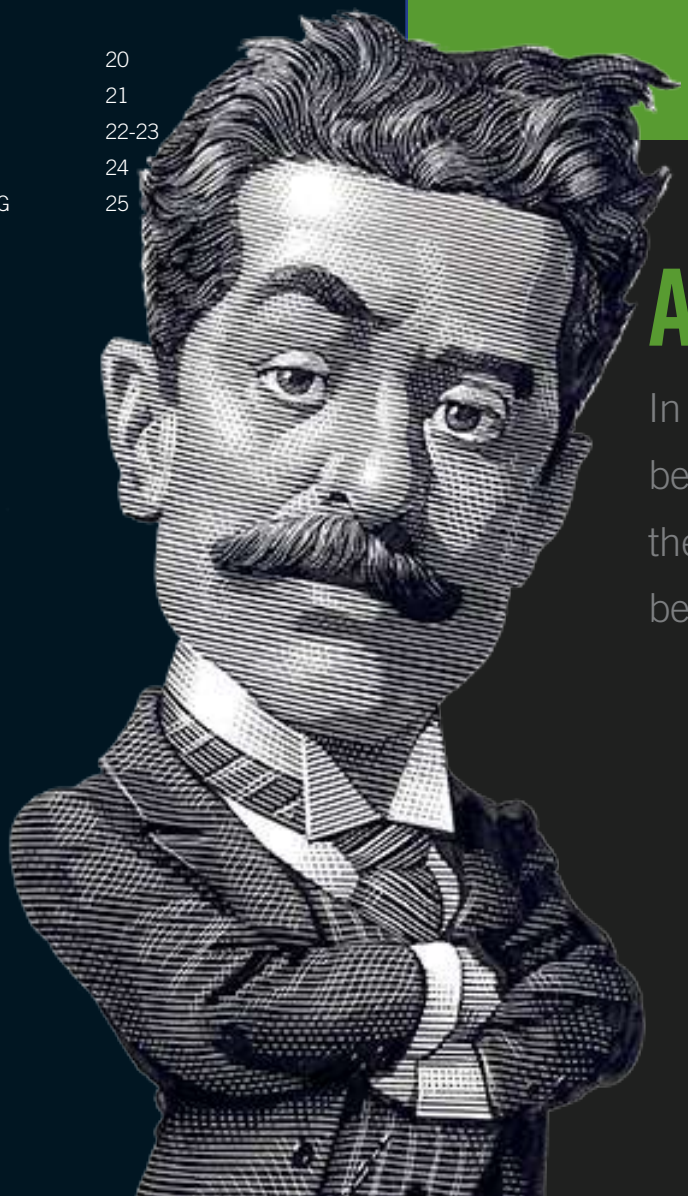
1886

LEGACY

The Hunter legacy is not only about quality—it's about longevity. We invented the ceiling fan. We build fans that last, fans that are designed as fans. We design our fans while considering each person in the process—from the installer to the owner.



AUTHENTICITY

In a world full of impersonators, be an original. We invented the ceiling fan, and we stand behind our products.

Hunter INDUSTRIAL

SAFETY & PRECAUTIONS

Important Safety Information

To prevent SERIOUS INJURY, DEATH, and PROPERTY DAMAGE, you should read, understand, and follow the warnings and instructions in this manual before installing or operating the fan.

READ AND SAVE THESE INSTRUCTIONS. This manual must always be kept with the fan and should remain with the fan if it is transferred or sold. Always give manual to fan owner following installation.

WARNING

FIRE, ELECTRIC SHOCK and CRUSH HAZARDS.

To prevent SERIOUS INJURY or DEATH:

- **ALWAYS mount fan directly from building structure that can withstand double the maximum hanging fan weight and install the Retention Cable.**
- **BEFORE installing or servicing your fan, ALWAYS disconnect the power by turning off the circuit breaker or breakers to the fan locations. If you cannot lock the circuit breakers in the off position, securely fasten a prominent warning device, such as a tag, to the electrical panel.**
- **All wiring must be in accordance with national and local electrical codes, including ANSI/NFPA 70. If you are unfamiliar with wiring or are in doubt, consult a qualified electrician.**
- **DO NOT install fan to be used in the presences of flammable vapors and gasses or in environments where combustible dust is present.**
- **DO NOT bend the blades or blade holders when installing or cleaning the fan.**
- **DO NOT insert foreign objects in between rotating fan blades.**

Installation, adjustment, repair, or maintenance must be performed by qualified personnel.

Follow all safety practices and instructions during the installation, operation, and servicing of the fan. Failure to apply these safety practices could result in death or serious injury. If you do not understand the instructions, please call our Technical Department at 1-844-593-FANS (3267) for guidance. Also, you may view our ECO Installation video on YouTube at: https://www.youtube.com/watch?v=bztBaVNra4g

Always check federal, state, and local codes before installing fan.

Code compliance is the responsibility of the installer. Check all relevant codes to make sure that all product certifications, product listings, and building regulations are met.

Professional installation practice requires following local utility company guidelines for connecting to AC mains.
This unit is for professional use only and is not required to comply with EN 61000-3-2:2006.
This fan conforms to ANSI/UL standard 507, Electric Fans and is certified to CSA STD C22.2 No. 113, Fans & Ventilators.

C ETL LISTED US
Intertek
5007479

SAFETY & PRECAUTIONS

WARNING Electric Shock Hazard

To prevent serious injury or death:

- **BEFORE installing or servicing your fan, ALWAYS disconnect the power by turning off the circuit breaker or breakers, to the fan locations and confirm Lockout/Tagout procedures are in place. If you cannot lock the circuit breakers in the off position, securely fasten a prominent warning device, such as a tag, to the electrical panel.**
- **All wiring must be in accordance with national and local electrical codes, including ANSI/NFPA 70. If you are unfamiliar with wiring or in doubt, consult a qualified electrician.**
- **Do not use an extension cord with fan.**
- **Do not remove covers while power is on.**
- **Do not use improper voltage source.**

All fan controls and incoming power should be installed only by qualified technicians familiar with the requirements of the National Electrical Code and local codes. Failure to follow these guidelines will void the manufacturer's warranty.

All electrical controls are configured at the factory and are ready to use. No user adjustments are available. Follow the included installation instructions when installing this device to ensure proper operation. Do not make any changes to any part of the fan without first consulting Hunter Industrial. Installation is to be in accordance with ANSI/NFPA 70: National Electrical Code and local codes.

The user is responsible for compliance with all international and National Electrical Code requirements with respect to grounding of all equipment. Many of the parts of this unit operate at line voltage.

Before installing, servicing, or cleaning the unit, switch power off at the service panel, lock the service disconnecting means, and confirm Lockout/Tagout procedures are in place to prevent power from being switched on accidentally. When the service disconnect means cannot be locked, securely fasten a prominent warning sign, such as a tag, to the service panel.

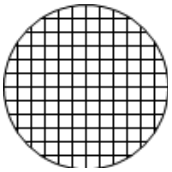
To reduce the risk of electric shock, serious injury, and death, only use this unit as intended by the manufacturer. If you have any questions, call our Technical Department at 1-844-593-FANS (3267).

SAFETY & PRECAUTIONS

WARNING CRUSH HAZARD

To prevent serious injury or death, ALWAYS attach the Retention Cable to the fan motor and secure to the building structure on EVERY fan.

The Retention Cable, if installed per Hunter Industrial specifications, can limit the distance the fan could fall in the unlikely event of mounting system failure. Failure to install and to secure the retention cable will void your warranty.



Mark the Floor to Alert Personnel

When mounting a fan in an area where materials could be elevated and contact the rotating fan blades, mark or paint the floor with a large crosshatched circle, similar to the figure to the left, to alert personnel of the overhead fan locations.

Weight and Torque Considerations

Always mount fan directly to building structure that can withstand approximately double (2x) the maximum hanging weight of the fan.

The maximum hanging weight of a 24' fan with a 4' downrod is 159 lbs and a maximum torque of 75 ft lbs.

If there is any uncertainty about the potential for the building structure to withstand double the maximum hanging weight of the fan, a professional structural engineer should perform a thorough evaluation of the building prior to purchasing the fans. Hunter Industrial provides guidelines for mounting fans; however, it is the sole responsibility of the building owner and installer to ensure the safety of the mounting system and retention cable, the building structure is sound, and the installation complies with all federal, state, and local codes.

Always use Personal Protective Equipment

You should always wear Personal Protective Equipment, such as a Hard Hat, Safety Glasses, and a Fall Harness when installing industrial fans.

Damaged Equipment

Never operate or install any fans or fan accessories that appear to be damaged. Failure to follow this instruction can result in death, serious injury or equipment damage.

To reduce the risk of personal injury, do not bend the blades or blade holders when installing or cleaning the fan.
Do not insert foreign objects in between rotating fan blades.

Service

If the fan does not operate properly using the procedures in this manual, remove all power to the unit and contact our Technical Department for further assistance at 1-844-593-FANS (3267).

Fan Placement

ALWAYS mount fan so the bottom edge of blade to the floor is at least 10 feet from the floor and at least 25% of fan diameter from the ceiling.

A large fan, 20 to 24 foot in diameter, performs best at 20 to 30 feet above the floor, but acceptable performance has been demonstrated as low as 10 feet and as high as 50 ft.

Always mount fans away from the following:

Sprinkler Systems
Prior to installing fans, review all codes applicable to sprinkler systems and fans to ensure code compliance and refer to NFPA 13: Fire Sprinkler System Installation. In any installation where fire sprinklers are present, the fan should not interfere with their operation.

- Fans should be located at least 3 feet below a sprinkler deflector.
- Fans should be centered between 4 adjacent sprinklers.
- The Industrial Control Panel should be connected to a fire relay system, which can stop the fans in the event a fire occurs.

It is your responsibility that the installation complies with the applicable codes. For assistance, please call our Technical Department at 1-844-593-FANS (3267).

Walkways and Mezzanines
If the building has elevated walkways or mezzanines, mount the fans so that a person cannot reach the rotating blades in any way. Position fans so that the tips of the blades are at least 5 feet away from any area where a person may be able to extend outward to reach them.

Lights and Skylights
If possible, avoid mounting fans directly below lights or skylights to avoid any strobe effect caused by moving blades.

There should be a minimum of 2 feet between the blades and any light fixture.

Air Discharge Locations
Fans should not be located directly beneath any vertical air discharge. This includes air conditioning units and evaporative coolers. Such equipment can be used effectively in conjunction with high-volume, low-speed (HVLS) fans; however the discharge of the unit must be located outside the swept area and at a distance of at least two times the diameter of the fan. For horizontal air discharge, the fan cannot be placed in direct path at any distance.

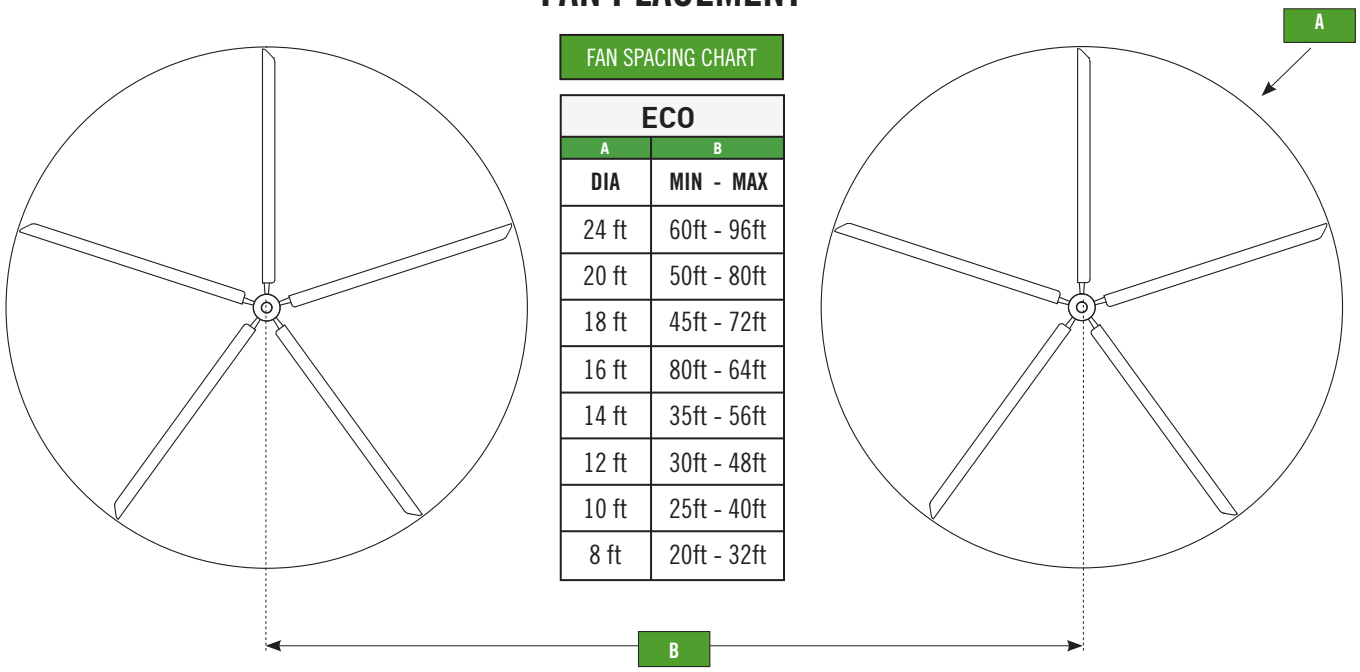
Windy Locations
Do not operate or install fans in outdoors or in areas exposed to wind. Failure to follow this instruction can result in death, serious injury, or equipment damage.

Wet Locations
DO NOT locate fans where they may come into direct contact with water. These fans are only suitable for mounting in *damp* locations.

Other HVLS Fans
See the chart on the next page to determine proper spacing between adjacent fans.

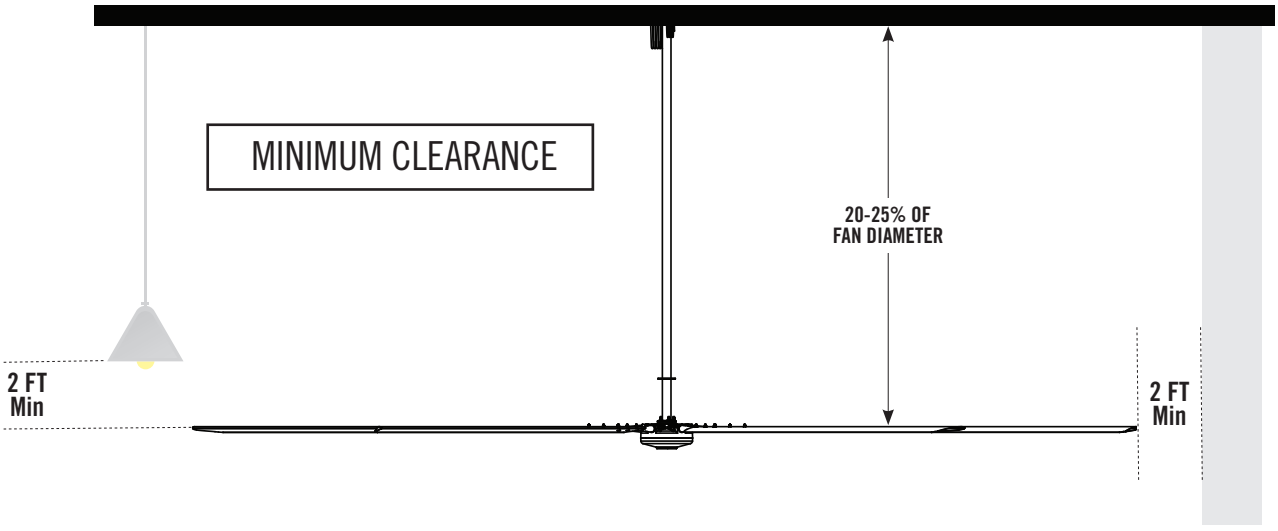
FAN PLACEMENT

FAN PLACEMENT



FAN SPACING CHART

ECO	
A	B
DIA	MIN - MAX
24 ft	60ft - 96ft
20 ft	50ft - 80ft
18 ft	45ft - 72ft
16 ft	80ft - 64ft
14 ft	35ft - 56ft
12 ft	30ft - 48ft
10 ft	25ft - 40ft
8 ft	20ft - 32ft



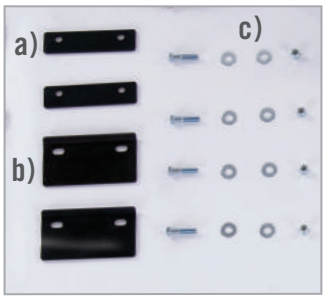
TOOLS NEEDED

- ☐ Metric Combination Wrench Set (10mm - 19mm)
- ☐ Metric (Deep & Short) Socket and Ratchet Set
- ☐ Standard (Deep & Short) Socket and Ratchet Set
- ☐ Metric Allen Wrench Set
- ☐ Metric Allen Socket Set
- ☐ Tape Measure
- ☐ Magnetic Level (Magnetic post level recommended)
- ☐ Torque Wrench
- ☐ Wire Rope Cutters (optional)
- ☐ Phillips and Flat Head Screwdrivers
- ☐ #10 to #14 AWG Strippers (optional)
- ☐ Multimeter (optional)
- ☐ Cat5 Termination Tools (optional)
- ☐ Cat5 Tester (recommended)

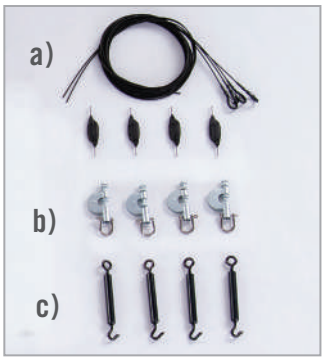
IN THE BOX

FAN COMPONENTS

MOUNTING HARDWARE KIT



GUY WIRE KIT



COMMUNICATON KIT

FAN COMPONENTS

a) (1) Downrod
b) (1) Motor & (4) Motor Nuts
c) (1) 350 Series Control
d) (1) Control Panel
e) (4) Blades

MOUNTING HARDWARE KIT

a) (2) Shims
b) (2) Clamps
c) (4) Bolts, Nuts, and Washers

GUY WIRE KIT

a) (1) Gripple Kit
b) (4) Beam Clamps
c) (4) Turnbuckles

COMMUNICATON KIT

a) (1) 100ft Cat5 Cable (Terminated)

INSTALLATION MANUALS

a) ECO Installation Manual
b) HMI installation and user guide

PRE-INSTALLATION CHECKLIST

☐	A structural engineer has approved the mounting structure.
☐	The location of the fan will allow for a minimum of two feet of blade clearance from any obstruction and at least 10 feet of clearance above the floor.
☐	The fan location will not be subjected to high winds.
☐	If installing multiple fans, reference the fan placement chart on page 6 for optimal spacing.
☐	The control panel, motor and blade assemblies are all marked with the diameter. Ensure the markings all match when assembling the fan.
☐	The control panel voltage markings should match your buildings supply power.
☐	The fan power should be run to five feet outside the swept area of the fan. Please refer to the chart on page 19 for the appropriate receptacle and breaker size.

WARNING CRUSH HAZARD

To prevent SERIOUS INJURY or DEATH, ALWAYS mount fan directly from building structure that can withstand double the installed fan weight.

A

Secure bracket and downrod to lift and raise to an I-Beam that is part of the building stucture.

B

Assemble shims and clamps on one side of the bracket per the figure below.

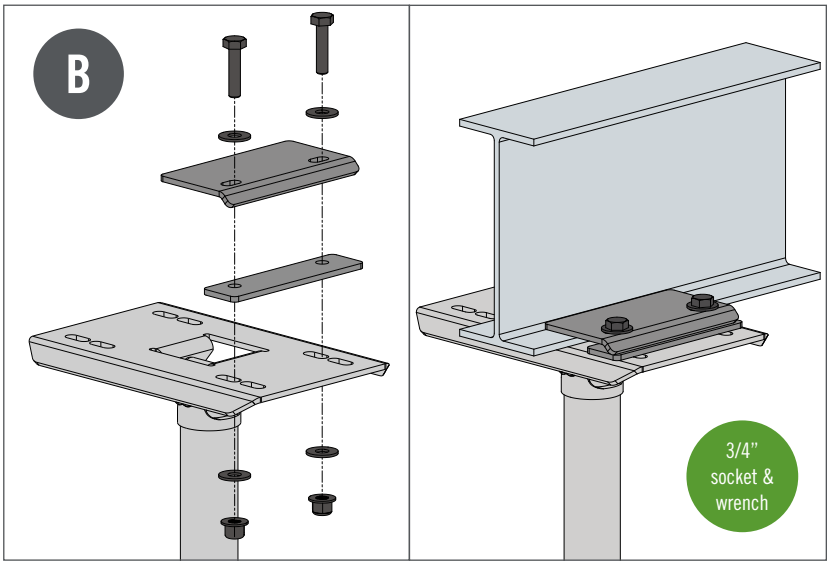
Hook the clamp on one side of the I-beam and tighten hardware until the clamp and shim are snug but can still be moved.

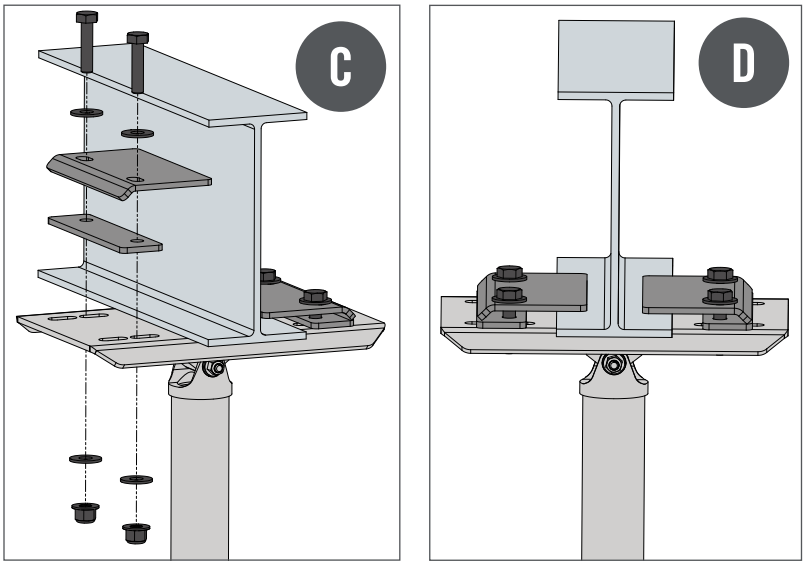
C

Assemble the opposing shim and clamp on to the I-beam and hand tighten.

D

Center the mount under the I-beam. Check that clamps have maximum engagment on both sides and tighten hardware.

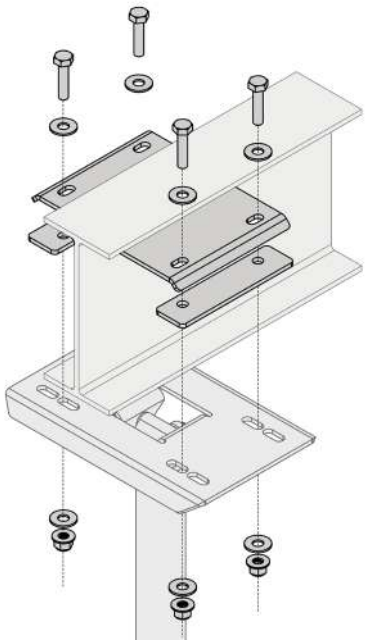




Warning: Support directly from building structure

NOTE

For alternate configurations, see mounting configurations on page 18.



TIP

For many beams, the inside holes in the downrod bracket should be used.

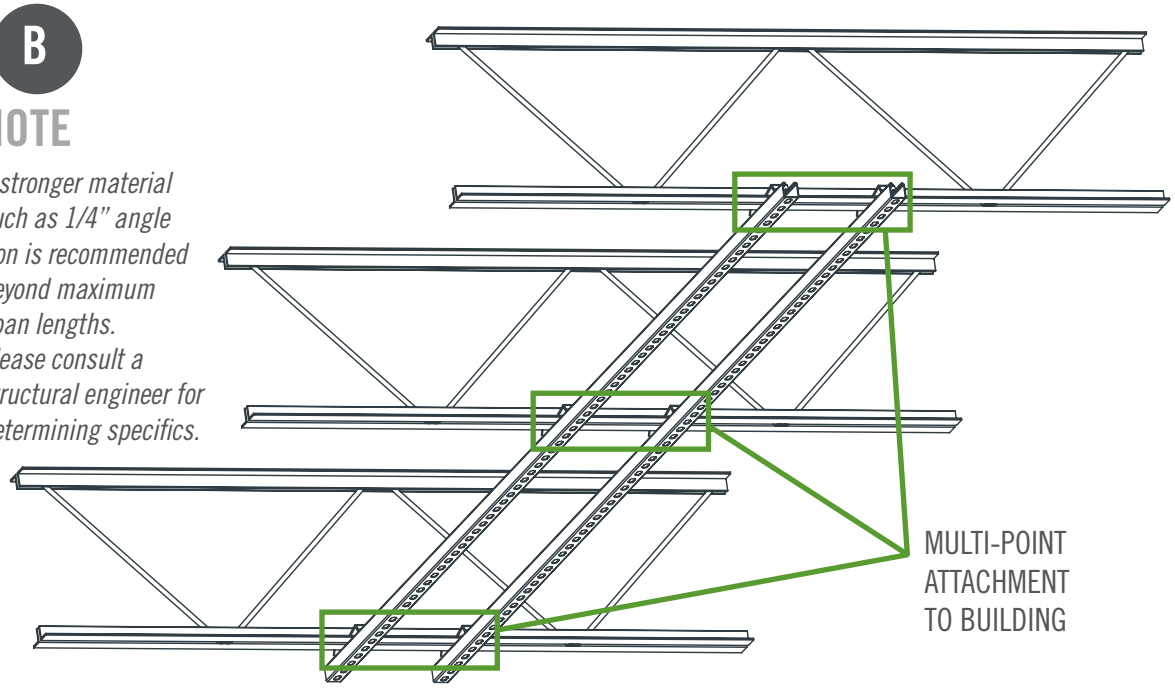
A

CHANNEL HEIGHT	MATERIAL THICKNESS	MAXIMUM SPAN LENGTH
1 5/8"	12 GA.	84"
1 5/8"	14 GA.	72"
1 5/8"	16 GA.	60"
1 3/8"	12 GA.	60"
7/8"	12 GA.	30"
3 1/4"	12 GA.	240"
2 7/16"	12 GA.	156"

B

NOTE

A stronger material such as 1/4" angle iron is recommended beyond maximum span lengths. Please consult a structural engineer for determining specifics.



Warning: Support directly from building structure

A

Select proper strut channel from the chart.

B

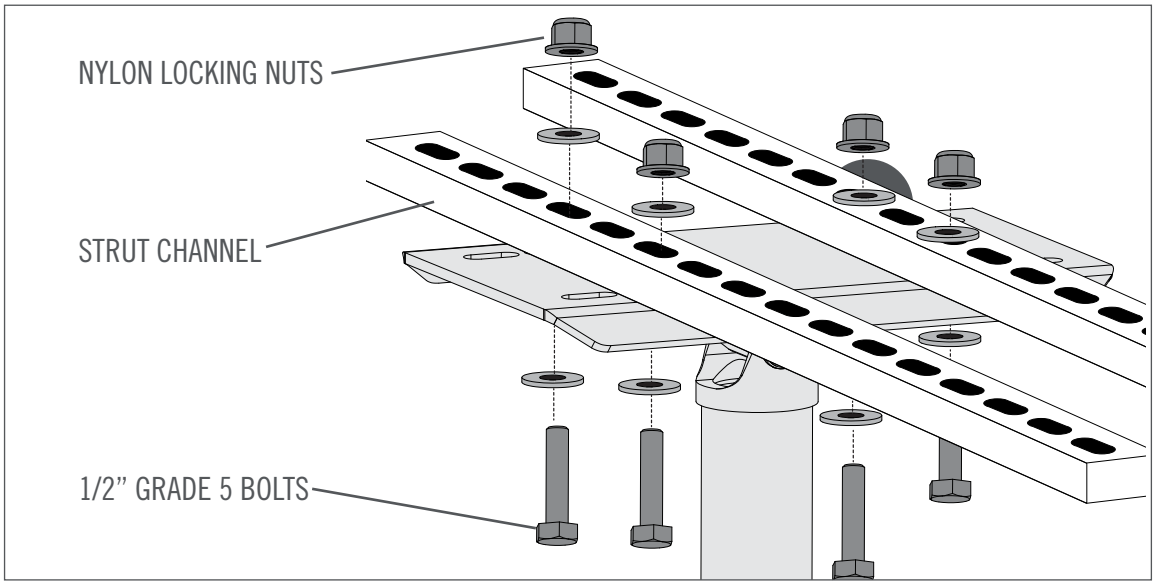
Use strut channel or similar to span three points of the building structure and create a stable attachment point for the fan.

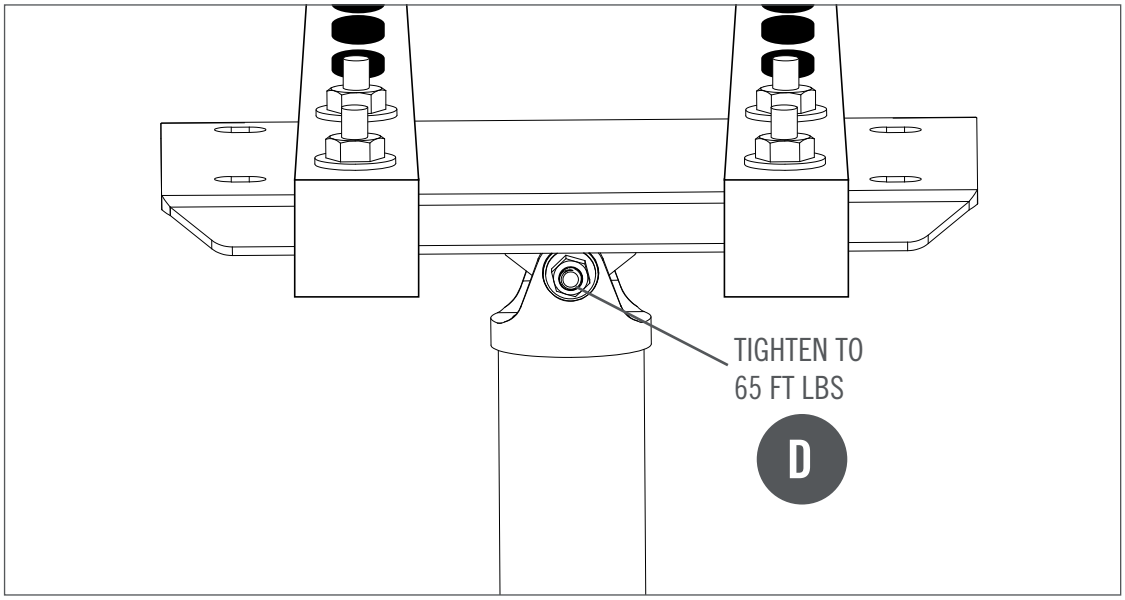
C

Bolt fan mounting plate to attachment point using 1/2" grade 5 bolts and nylon locking nuts.

D

Using a fence post level plumb the downrod and torque all 8 locking nuts to 65 ft lbs.



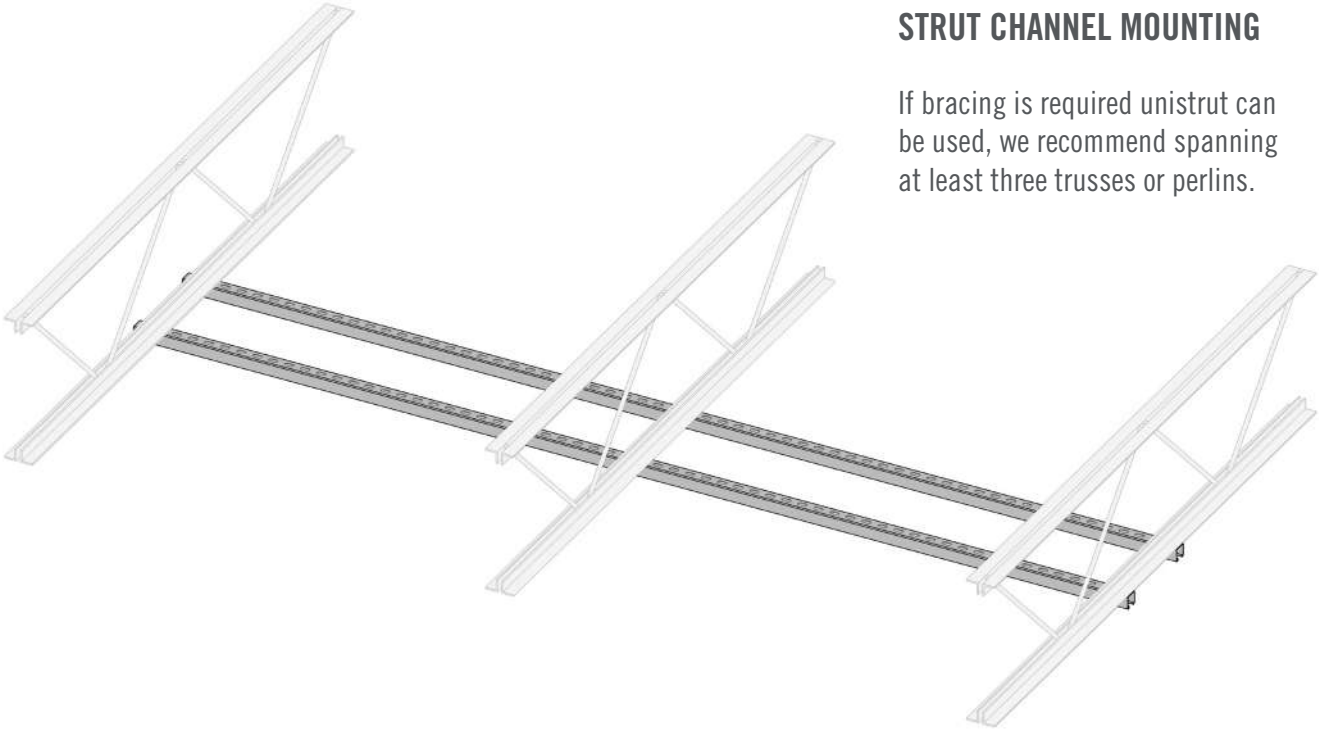


Warning: Support directly from building structure

MOUNTING CONFIGURATION

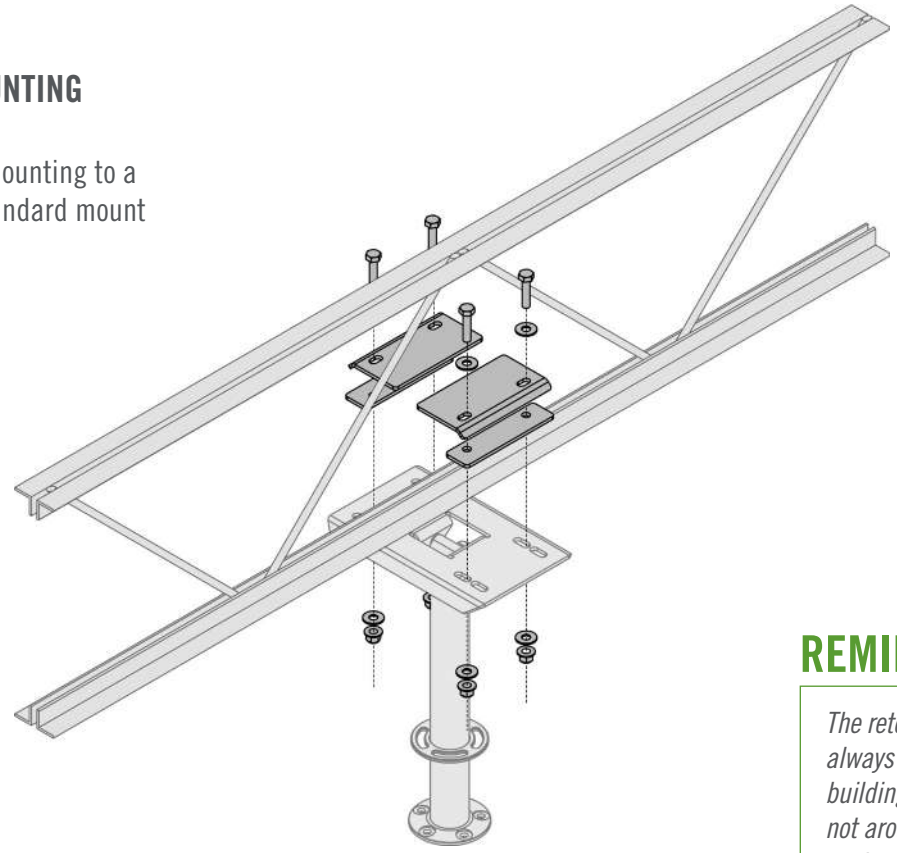
STRUT CHANNEL MOUNTING

If bracing is required unistrut can be used, we recommend spanning at least three trusses or perlins.



K-BAR MOUNTING

Example of mounting to a trust with standard mount hardware.



REMINDER

The retention cable should always be secured around the building structure or a beam, not around something bolted on, such as a strut channel.

2 RETENTION SYSTEM

WARNING **CRUSH HAZARD. To prevent serious injury or death, ALWAYS attach the retention cable to the fan motor and secure to the building structure on EVERY fan.**

TOOLS

1/2" Socket or wrench will be needed for the wire rope clamps.

A

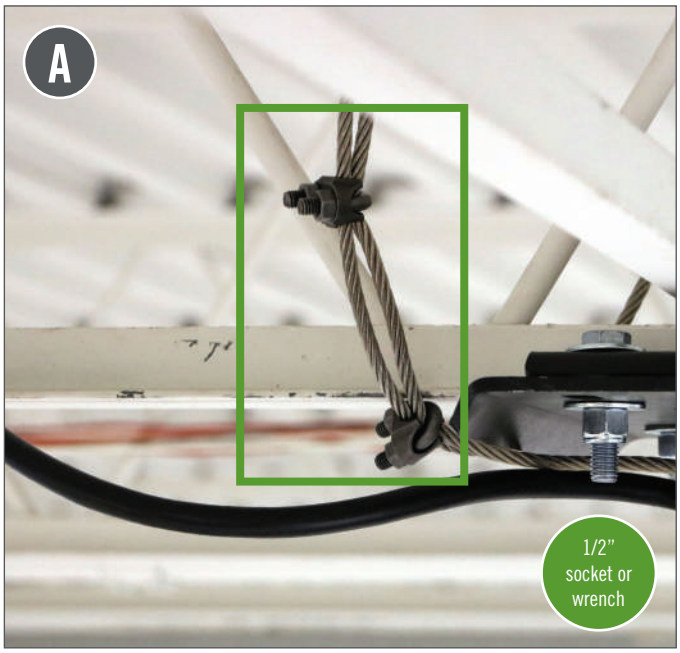
Wrap retention cable around building structure that can withstand double the installed fan weight.

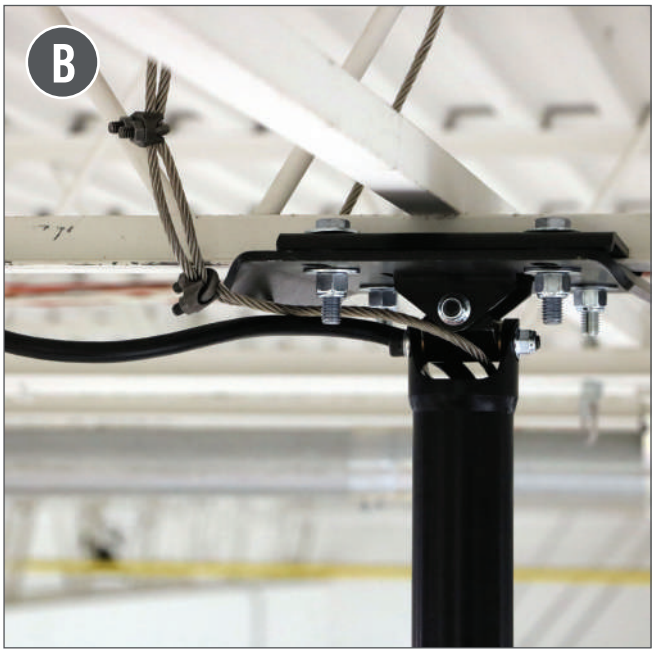
B

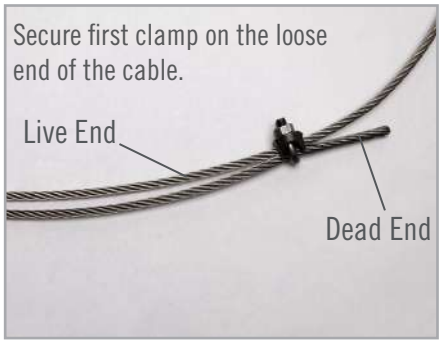
Secure remaining cable to itself with cable clamps.

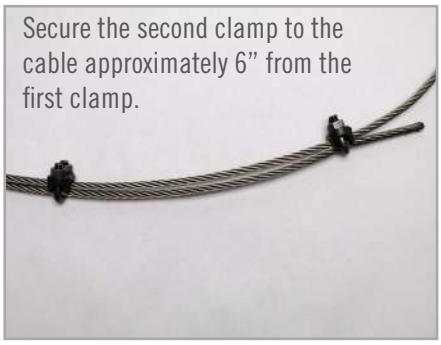
NOTE

Leave approximatlely 3" of slack in the wire and the cable at the top of the downrod opening.









When attaching cable clamps, remember: **"Never saddle a dead horse."**
Place the u-bolt on the "dead" end of the Retention Cable and the saddle on the "live" portion of the Retention Cable. If done incorrectly, the U-bolt could crush the wire when tightened and can reduce the strength of the wire.

3 MOTOR ASSEMBLY

WARNING **CRUSH HAZARD. To prevent serious injury or death, ALWAYS attach the retention cable to the fan motor and secure to the building structure on EVERY fan.**

A

Insert retention link into fork and align holes.

Insert clevis pin into retention rod and secure with provided clip.

B

Align the connector from the motor with the downrod connector.

Twist the collar on the connector to complete the connection.

Be sure to twist until the connection locks.

C

Lift motor up to downrod while pushing cables into downrod.

Feed the press studs through downrod flange.

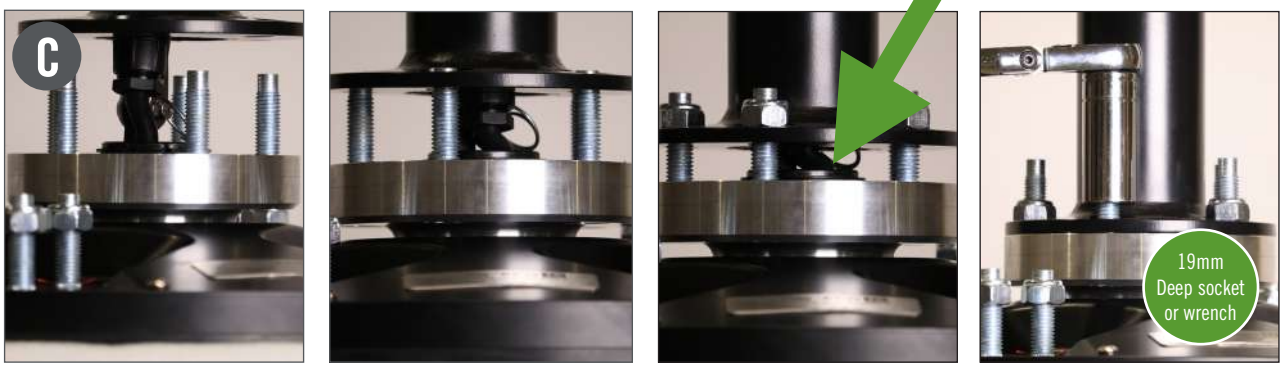
Secure with nylon lock nuts. (Pull excess wire and cable through top of downrod.)

NOTE

Leave approximatlely 3" of slack in the wire and the cable at the top of the downrod opening.

NOTE

Be sure not to pinch the motor cable when raising the downrod into place.



WARNING Electric Shock Hazard

Electric Shock Hazard

To prevent serious injury or death:

- BEFORE installing or servicing your fan, ALWAYS disconnect the power by turning off the circuit breaker or breakers to the fan locations and confirm Lockout/ Tagout procedures are in place.
- If you cannot lock the circuit breakers in the off position, securely fasten a prominent warning device, such as a tag, to the electrical panel.
- All wiring must be in accordance with national and local electrical codes, including ANSI/NFPA 70. If you are unfamiliar with wiring or in doubt, consult a qualified electrician.
- The electrical receptacle for the panel should be installed prior to panel installation. For a chart of receptacles, refer to page 19.
- Do not use an extension cord with fan.
- Do not remove covers while power is on.
- Do not use improper voltage source.

4 CONTROL PANEL

A

The control panel should be mounted 5 feet outside of the swept area of the fan.

B

Position the control panel with plug connectors facing down.

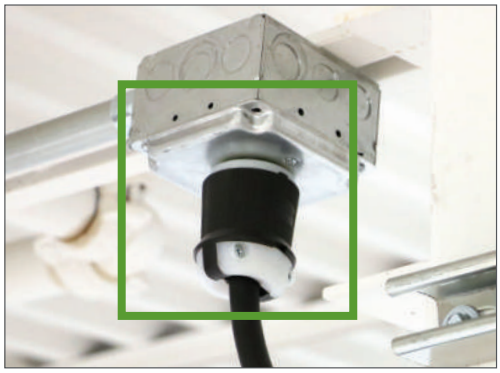
If using uni-strut attached to the building structure, secure industrial control panel with four 1/4”-20 fasteners, one in each corner of the panel.

C

Connect VFD cable from fan to the industrial control panel. Twist to lock in place. Secure excess cable to mounting location.

D

Connect the communication cable (Cat 5) to one of the COMM terminals and run cable down to the control location.



CAUTION: DO NOT CONNECT POWER UNTIL MECHANICAL INSTALLATION IS COMPLETE.

NOTE

Twist Lock will act as a disconnect.

TIP

For detailed E-Stop (Fire Relay) wiring, see Page 20

6 GUY WIRES

WARNING

- **Attach guy wire to building structure while maintaining a 45° angle between the ceiling and the guy wire.**
- **Do not wrap guy wires around the building structure. The guys wires could fray if in contact with the building structure.**

A

Attach beam clamps to structure. Clip 15’ guy wire end to beam clamp.

B

Feed one end of the 15’ guy wire through the Gripple.

C

Clip end of the 2’ guy wire to the eyebolt of the turnbuckle.

D

Feed the opposite end of the 2’ guy wire through the same Gripple as the 15’ guywire from step B.

E

Feed guy wires through disc to hold in place during turnbuckle installation. Pull excess cable until guy wire is taut. Place level against the downrod and tighten the turnbuckles by hand in a crisscross pattern, periodically checking to ensure the downrod is plumb and the fan is level.

F

Tighten bolts on Gripples, and then tighten the set screws on the turnbuckles.

NOTE

Make sure the guy wires do not interfere with cables or other obstructions.

7 BLADES

A

To install blade, insert the press studs through the holes in the blade holder.

Remember to install with the numbers facing up.

B

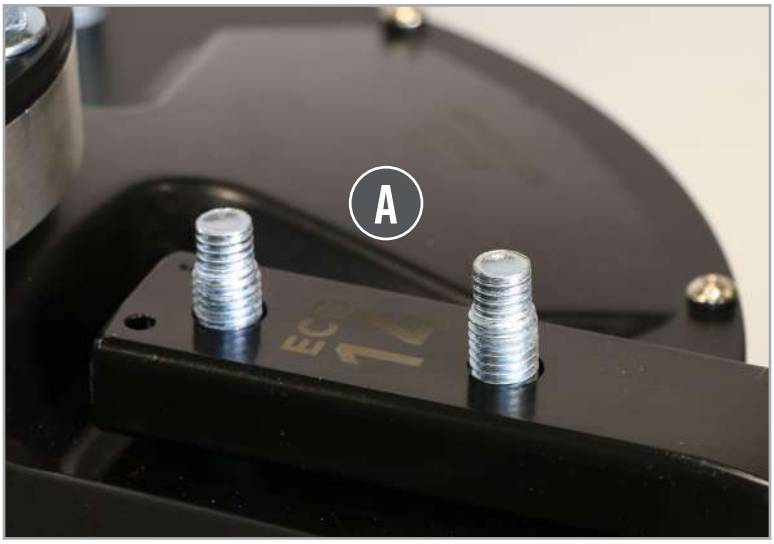
Start the nylon lock nuts onto the press studs to hold in place.

C

Tighten the nylon locknuts on the the press studs using the 19mm wrench or socket.

D

Repeat steps A-C for each of the three remaining blades.



NOTE

The blade is marked with a number to signify which size fan with which it goes. Make sure you match the correct blade size with the correct motor size.

Electrical Plug Requirements

Voltage	Phase	Plug (included)	Receptacle
200-240V	Single	HBL2321	L6-20R
200-240V	Three	HBL2421	L15-20R
380-480V	Three	HBL2431	L16-20R

HBL2321

HBL2421

HBL2431

Do not use extension cord with fan.
Do not remove covers while power is on.
Do not use improper voltage source.

ECO MAX AMP DRAW

Fan Diameter	220V / 1 PH	Recommended Breaker Size	220V / 3 PH	Recommended Breaker Size	480V / 3PH	Recommended Breaker Size
24’	6.3A	10A	2.6A	5A	2.3A	5A
20’	5.5A	10A	2.9A	5A	2.1A	5A
18’	4.9A	10A	2.6A	5A	2.0A	5A
16'	5.6A	10A	2.8A	5A	2.2A	5A
14’	4.5A	10A	2.4A	5A	2.0A	5A
12’	4.6A	10A	2.4A	5A	1.8A	5A
10’	4.7A	10A	2.4A	5A	1.9A	5A
8’	2.7A	5A	1.4A	5A	1.2A	5A

REFERENCE

DAISY CHAINING

When daisy chaining fans with one control, the layout will be similar to the one below:

A

You will have one Cat5e cable (or 2 with for premium) from the HMI to the Drive of the first fan:

B

When you first apply power to the HMI, it will ask how many fans on the circuit. All other critical programing is done by Hunter

C

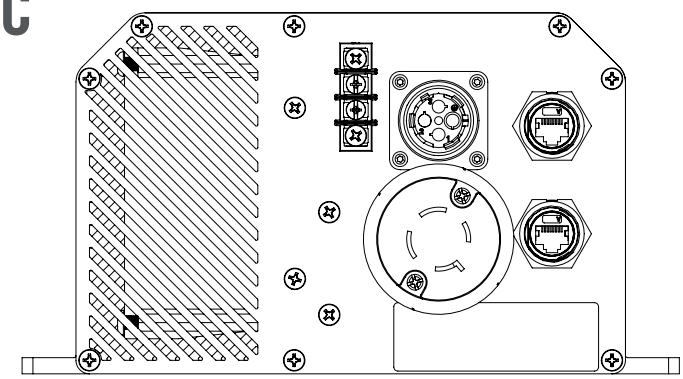
The cable can plug in to either comm1 or comm2. The next cable will plug into the unused port and plug into a comm port on the next drive, and so on. The different premium models will have (2) RJ45 jacks, allowing for the HMI to be in the middle of the fan circuit

NOTICE you will need a 115v outlet for your HMI

A

or

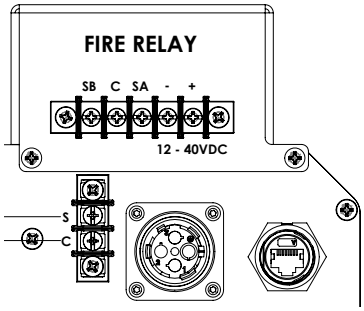
C



FIRE PANEL (FIELD WIRING)

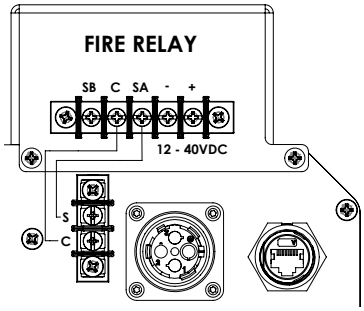
DRY CONTACTS: NORMALLY CLOSED

- On the Terminal Strip mounted to the outside of the VFD enclosure a Jumper will be in place on terminals “S” and “C”. Remove the Jumper from terminals “S” and “C”.
- Connect the wires coming from the Fire Panel to terminals “S” and “C”.



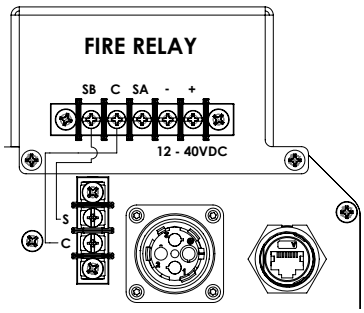
NORMALLY ENERGIZED

- On the Terminal Strip mounted to the outside of the VFD enclosure a Jumper will be in place on terminals “S” and “C”. Remove the Jumper from terminals “S” and “C”.
- Connect a wire from terminal “S” to “SA” on the Fire Relay Terminal Strip.
- Connect a wire from terminal “C” to “C” on the Fire Relay Terminal Strip.
- Apply 12-40VDC from Fire Panel to Fire Relay Input. Relay has a 20mA draw.



NORMALLY UNENERGIZED

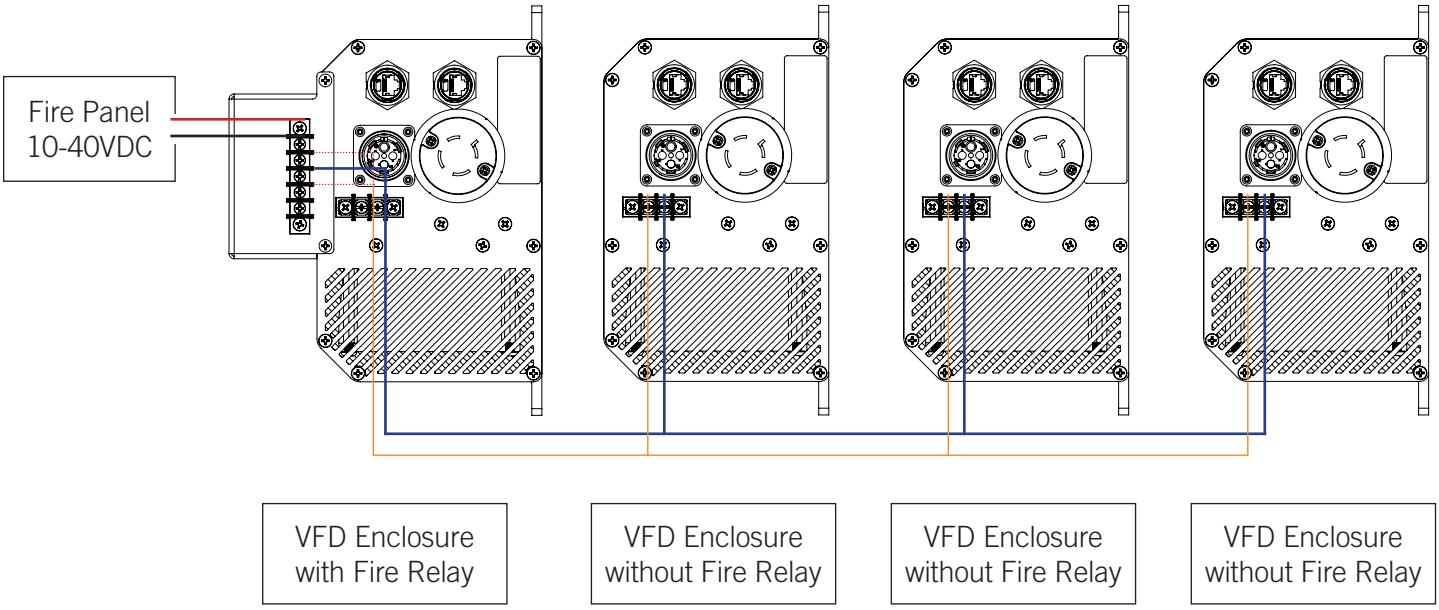
- On the Terminal Strip mounted to the outside of the VFD enclosure a Jumper will be in place on terminals “S” and “C”. Remove the Jumper from terminals “S” and “C”.
- Connect a wire from terminal “S” to “SB” on the Fire Relay Terminal Strip
- Connect a wire from terminal “C” to “C” on the Fire Relay Terminal Strip.
- Apply 12-40VDC from Fire Panel to Fire Relay Input. Relay has a 20mA draw.



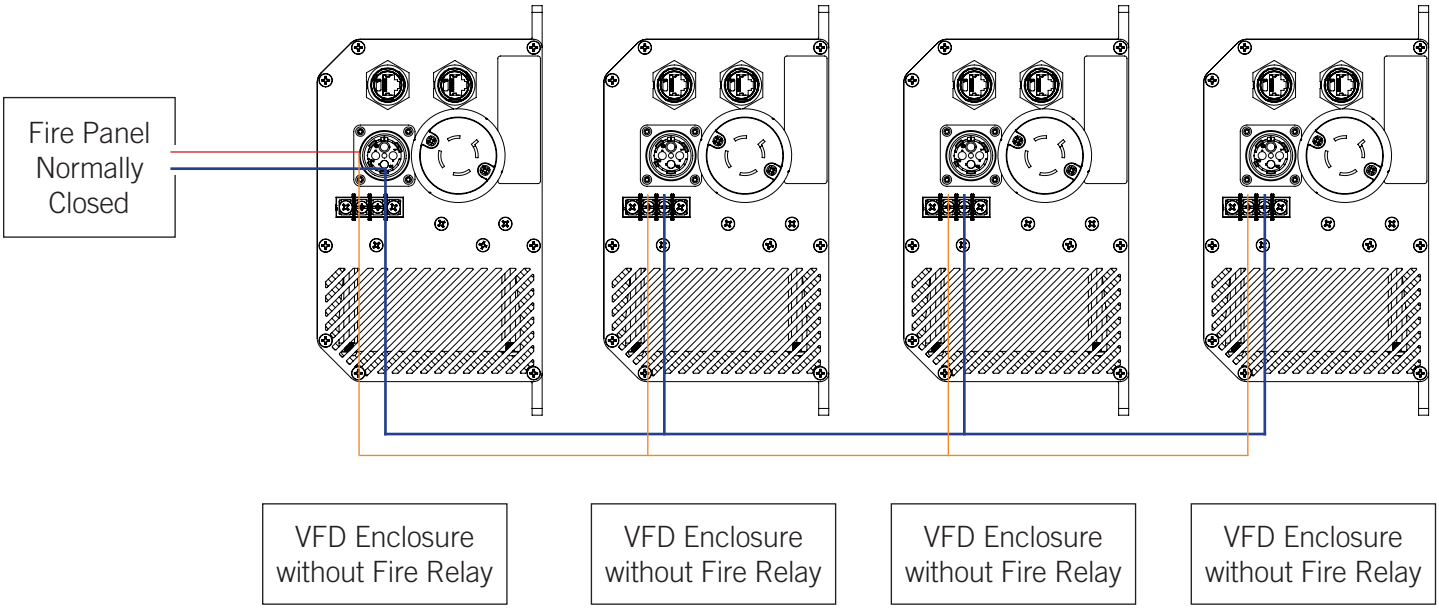
FIRE PANEL (FIELD WIRING)

FIRE RELAY ARRANGEMENT FOR MULTIPLE FANS (30 FAN MAXIMUM)

Normally Energized/Unenergized



Dry Contacts



WARNING Electric Shock Hazard

Electric Shock Hazard

To prevent serious injury or death:

- **BEFORE performing maintenance or service, ALWAYS disconnect the power by turning off the circuit breaker or breakers to the fan locations and confirm Lockout/Tagout procedures are in place.**
- **If you cannot lock the circuit breakers in the off position, securely fasten a prominent warning device, such as a tag, to the electrical panel.**
- **Do not remove covers while power is on.**

Blade Cleaning

Depending on the commercial application, dust or other particulates can build up on the fan blades over time. At least every 12 months, a maintenance person or skilled trade professional, who has experience using a lift, should clean the blades using a rag or sponge and hot water or regular cleaning solutions.
DO NOT use chlorine or any chemicals containing chlorine or the blades may be damaged.

Retention System Check

Each fan is installed with a retention system. Every 12 months, check that the retention cable is properly attached to the building structure. Inspect the visible portions of the retention cable for damage, including fraying.

The retention cable is an important part of the safety system and protects users in the unlikely event of a catastrophic situation. It is critical for fan owners to ensure that it is intact and properly secured.

Replacement Parts

Please call 1-844-593-FANS (3267) for replacement parts.

Service

If the fan does not operate properly using the procedures in this manual, follow Lockout/Tagout procedures for your facility and lockout all power to the unit and contact our Technical Department for further assistance at 1-844-593-FANS (3267).

TROUBLESHOOTING

Symptom	Possible solution
FAN WILL NOT START	• Verify that the fan's circuit breaker has power and that it is on. • Verify that the VFD's receptacle has power and that the VFD is plugged in. • Check for secured plug connections. Each connection should be checked to ensure they are fully engaged. • Inspect for loose wiring connections. Each termination should be checked to be sure they are firmly tightened.
IF THE ABOVE IS VERIFIED AS WITHIN SPECIFICATION	• Cycle the power to the VFD by flipping the circuit breaker off for a minimum of three minutes. Flip the circuit breaker back on and check the fan's operation.
MOTOR IS PULLING EXESSIVELY HIGH AMPS	• Make sure the motor voltage is a match for the supply voltage. • Make sure that correctly sized fan blades have been installed.
FAN IS "SWINGING" AS IT RUNS	• Check for correct fan blade installation. Be sure that all blades are the same size and that all blades have been properly installed and tightened. • Ensure all guy wires are tensioned properly and that the downrod is plumb. • Check for improper incoming air discharge. Make sure that no discharge is blowing directly on the fan.
A FAN BLADE APPEARS TO BE 'SAGGING'	• Make sure that the 'sagging' blade has been properly tightened.

For situations beyond the scope of this guide, please call our Technical Service Department at 1-844-593-FANS (3267).

2434 ATRIUM WAY
NASHVILLE, TN 37214

1-844-591-FANS (3267)

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