

Installation Manual

AVD 370 Fan



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AVD 370 FAN

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Literature (Pg. 3)

- Order Verification.** I have verified the order information. All components are accounted for.
- Read.** I have read this Installation Manual and all other instructions before installing this fan.

Power (Pg. 3-4)

- Power Requirements.** I have verified the incoming power supply is sufficient for the fan.

Safety (Pg. 4-5)

- Safety Familiarity.** I am familiar with the safety components and features of the fan. I have verified the presence of a safety cable, and guy wires.

Airfoils (Pg. 5-7)

- Height from Floor.** I have verified the airfoils will be at least 10ft (3.05 m) above the floor.
- Application Clearance.** I have consulted the manual to determine that the airfoils will meet or exceed the clearance requirements regarding obstructions, or other fans.
- Airfoil Reach.** I have verified the airfoils will be mounted such that they are at least 3 feet away from any area where someone can extend outward and reach them.
- High Winds.** I have verified the fan will not be subjected to high winds from any outside influences, such as large garage door openings or HVAC systems.
- Diffuser Interference.** If diffusers are present, I will ensure that the fan is mounted at least 1.5X the diameter of the fan away from any source of airflow.
- Airfoil Compatibility.** I have verified the Airfoils and other fan components are those that shipped with the motor unit.
- Installing Multiple Fans.** I will not mix and match any hardware or blades.

Structure (Pg. 6-8)

- Application Suitability.** I have verified the application was approved by a structural engineer. I have checked the hanging weight and torque specs in the installation manual to ensure that the mounting structure can withstand the forces generated by the fan.
- Structural Suitability.** I have verified the building structure is suitable for this fan mounting. The fan will be mounted to an I-beam or Glulam or similar. I will not mount the fan to a single purlin, truss, or bar joist. I will consult a structural engineer for mounting not covered herein.
- Mount Suitability.** I have the appropriate mount for this application. I have verified in the installation manual that the mounting option provided is suitable for this application. I will consult a structural engineer for applications and mounting methods not covered herein.

Caution and Safety

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory, or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

⚠ ATTENTION: Safety. READ AND SAVE THE ENTIRE MANUAL BEFORE OPERATING THE FAN. Ensure that all safety procedures and instructions are followed 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 for guidance.

⚠ CAUTION: Non-Compliance. The fan installation should follow the recommendations outlined in this manual. MacroAir is not responsible for any injury or damage to persons or property because of 'not complying' with the recommendations outlined in the manual.

Electrical Guidelines

⚠ WARNING: Electrical Damage. Improper electrical installation can cause damage to the fan and interfere with other electronic equipment. In addition to standard electrical safety considerations, please observe the following:

- **MacroAir Cables.** The wiring from the control panel to the fan MUST be by MacroAir supplied shielded cable.
- **Electrical Interference.** Separate incoming power and CAT5 motor control cables by a minimum of six (6) inches to avoid communication issues.
- **Individual Fan Wiring.** Run wiring for each fan separately.
- **Multiple Fans.** Do not attempt to control multiple fans from one (1) control panel.
- **ALWAYS GROUND PROPERLY.** Connect the supplied cable glands to each end of the motor cable and tighten them securely at both the fan motor and control panel ends. Connect the ground bar in the control panel to ground at the main breaker and test.
- **Read.** Please refer to the installation instructions for more information.

Electrical Guidelines cont.

⚠ ATTENTION: Qualified Technicians. All fan controls should only be installed by qualified technicians familiar with the requirements of the National Electrical Code (NEC) and local codes. Refer to appropriate portions of this manual for other important requirements. Failure to follow these guidelines will void the manufacturer's warranty.

⚠ ATTENTION: Factory Configured. All electrical controls are configured at the factory and are ready to use. No user adjustments are available. Follow the included wiring schematics and installation instructions when installing this device to ensure proper operation. Do not make any changes to any part of the motor control panel without first consulting MacroAir.

⚠ ATTENTION: Code Compliance. Installation is to be in accordance with the NEC, ANSII/NFPA 70-1999 and local codes.

Hazard of Electrical Shock, Explosion or Arc Flash:

⚠ ATTENTION: Read. Read and understand this manual before installing or operating a fan unit. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.

⚠ ATTENTION: Code Compliance. The user is responsible for compliance with all international and National Electrical Code requirements with respect to grounding of all equipment.

⚠ WARNING: Do Not Touch. Many of the parts of this unit operate at line voltage. DO NOT TOUCH.

⚠ WARNING: Covers. Install all covers before applying power or starting and stopping the unit.

Installation and Service

⚠ WARNING: Damage. Do not operate or install any fans or fan accessories that appear to be damaged.

⚠ WARNING: Death and Injury. Failure to follow this instruction can result in death, serious injury, or equipment damage.

⚠ WARNING: Disconnect Power. If the fan does not operate properly using the procedures in this manual. BE CERTAIN TO REMOVE ALL POWER TO THE UNIT and contact our technical department for further assistance.

⚠ CAUTION: Moving Parts. Keep all body parts clear of moving parts at all times.

⚠ ATTENTION: Qualified Technicians. All electrical troubleshooting and repair must be done by a qualified technician and meet all applicable codes.

Key Safety Systems

⚠ ATTENTION: Safety. MacroAir fans are engineered with key safety features to prevent pieces of the fan from falling in the unlikely event of a catastrophic failure. Used together, these systems and devices provide comprehensive protection to people, equipment, and property.

⚠ WARNING: Safety Cable and Guy Wires. Install safety cable on EVERY fan. Install guy wires on every fan using a UMH mount, unless otherwise specified. Properly installing the guy wires will keep the fan stable in case of earthquake or in “outdoor” installations where high wind conditions may occur. The safety cable, if installed per MacroAir specifications, will prevent the fan from falling in the unlikely event that the mounting system should fail.

⚠ WARNING: Safety Cable. A MacroAir fan should never be run without a properly installed safety cable, which is supplied with every fan along with all required hardware. You must install a safety cable for the warranty to be in effect.

⚠ ATTENTION: Mark the Floor to Alert Personnel. When mounting a fan in an area where materials may be elevated into its path, MacroAir recommends marking or painting the floor with a large, crosshatched circle to alert personnel of the overhead location of fans.

Mounting Guidelines

⚠ WARNING: Weight Considerations. We recommend that a building structure be capable of holding approximately twice the stated hanging weight of the fan. If there is some doubt of this, a professional contractor or architect should perform a thorough evaluation of the building prior to purchasing the fans. MacroAir 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, that the building structure is sound, and that the installation complies with all federal, state, and local codes.

⚠ WARNING: Torque. The maximum torque (twisting force) that must be handled by the mounting system, including the building structure, occurs at fan startup. For a 12-foot fan, maximum potential starting torque is 20 Ft-Lbs. When standard electrical controls are installed, the fan will never begin to approach this maximum because the standard variable-speed control system uses the soft-start fail, or when a fan is installed as a single-speed model without the variable speed control system (rare), full torque might be applied to the mounting system, so it is important that it be adequate to withstand 20 Ft-Lbs. torque.

⚠ ATTENTION: Check Federal, State, and Local Codes. Check all relevant codes to make sure that all product certifications, product listings, and building regulations are met. Code compliance is the responsibility of the installer.

⚠ WARNING: Welding. DO NOT attach the fan or fan mounting components to the building structure by welding that component to the structure. DO NOT cement the fan to the structure.

Clearance Guidelines

⚠ ATTENTION: Sprinkler Systems and Fan Placement. In any installation where fire sprinklers are in place, do not interfere with their correct operation. Fans should be located no less than 3 feet below a sprinkler and placed central to each sprinkler quadrant.

⚠ ATTENTION: Sprinkler Systems and Code Compliance. Prior to installing fans, review all codes applicable to sprinkler systems and fans to ensure code compliance. Refer to the wiring diagrams packaged inside the control panel for proper installation. If further advice is needed, you may contact our support staff. However, it is your sole responsibility to see that the installation is completed to code and is correct.

General Information on Fan Placement and Spacing

⚠ ATTENTION: Strobe and Performance. If possible, avoid mounting fans directly below lights or skylights to avoid any strobe effect caused by moving blades.

⚠ WARNING: Mezzanine Placement. If the building has a mezzanine, fans should be mounted so a person cannot reach a fan in any way from the upper level/deck. Make certain that fans are positioned so that blade tips are at least 3 feet away from any area where a person may be able to extend outward to reach them.

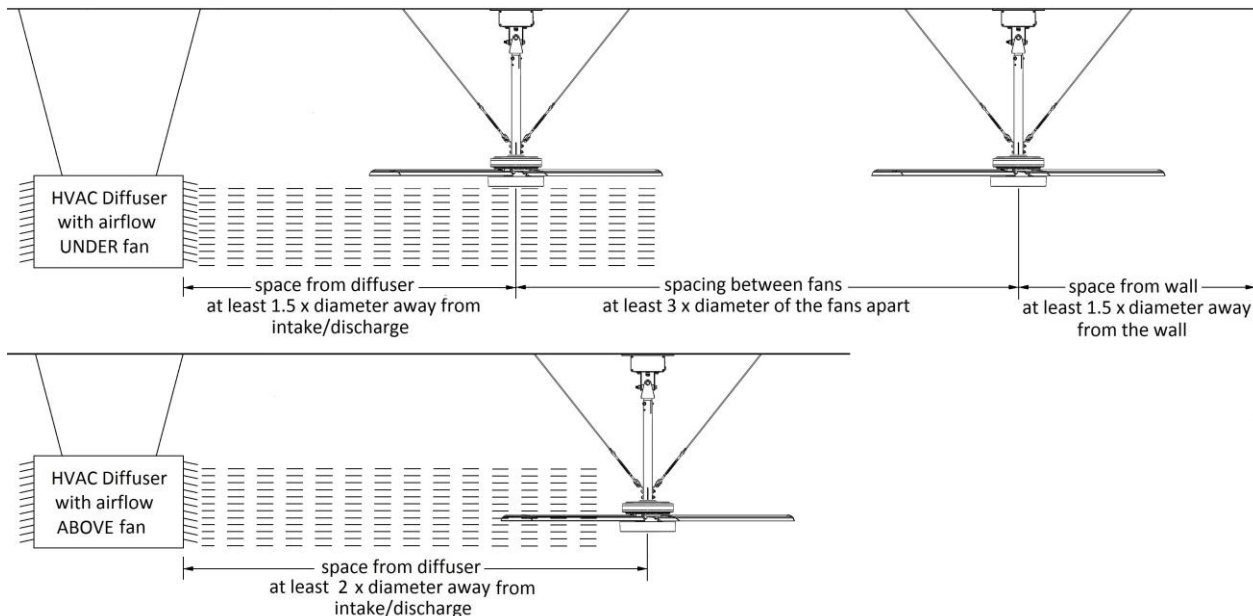


Figure 1: Fan Clearance and Placement

⚠ ATTENTION: The minimum distance of a fan to a wall or similar obstruction should be no less than 1.5 times the diameter of the fan. Reference Figure 1.

General Information on Fan Placement and Spacing, cont.

Rapid Mount Commercial

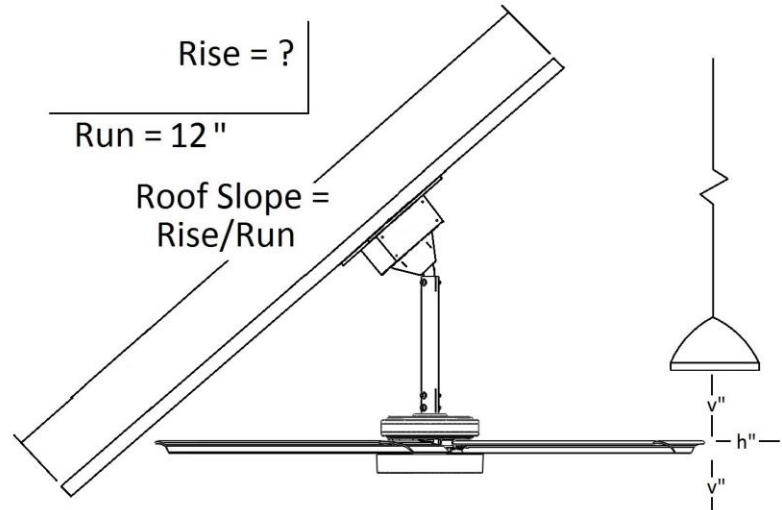


Figure 2: Fan Clearance

Slope (in)	0	2/12	4/12	6/12	8/12	10/12
Roof Angle	0	9.5°	18.4°	26.6°	33.7°	39.8°
Diameter	Recommended Total Drop (Mount to Airfoil) Length (ft)					
6 feet	2	2	2	3	4	4
8 feet	2	2	3	3	4	5
10 feet	2	2	3	4	5	6*
12 feet	2	2	3	5	6*	8*

Figure 3: Maximum Angle

* Note: Greater than 5' drop requires Universal Mt with Guy Wires

Airfoil / Drop Length (ft)	2	3	4	5
6 feet	7/7	7/7	8/8	9/8
8 feet	7/7	7/8	8/8	9/9
10 feet	7/8	7/8	8/9	9/10
12 feet	7/8	7/9	8/10	9/11

Figure 4: Minimum Clearance (Horizontal/Vertical inches)

⚠ WARNING: FANS ARE NOT MEANT TO BE OPERATED IN WINDY CONDITIONS.

The goal of Figures 2 and 5 are to determine the proper extension length to maintain a minimum blade clearance of 3 feet for optimal performance. The extension lengths above are minimum recommendations only, based solely on roof pitch and fan diameter. Other factors must be evaluated when determining extension requirements.

⚠ ATTENTION: Minimum Height. MacroAir requires that the fan blades must be a minimum of 10 feet (3.05 meters) above the floor. Contact MacroAir for assistance with fan placement and extension selection.

General Information on Fan Placement and Spacing, cont.

Universal Mount (UMH)

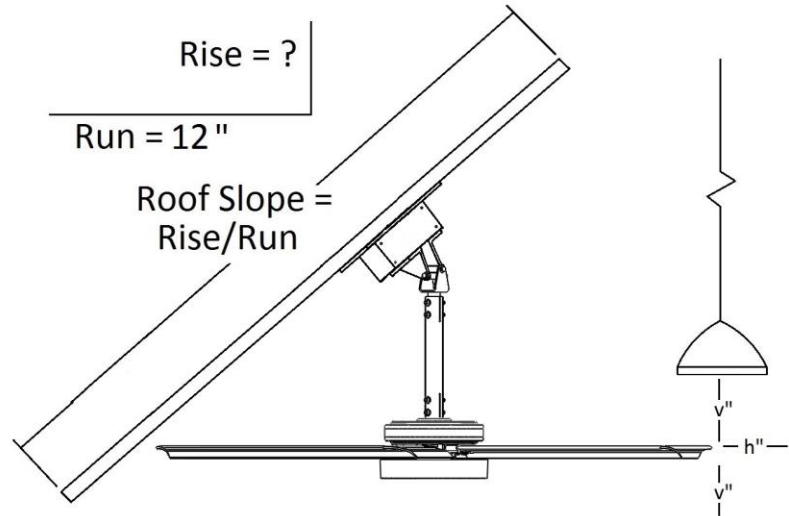


Figure 5: Fan Clearance

Slope (in)	0	2/12	4/12	6/12	8/12	10/12
Roof Angle	0	9.5°	18.4°	26.6°	33.7°	39.8°
Diameter	Recommended Total Drop (Mount to Airfoil) Length (ft)					
6 feet	2	2	2	3	4	4
8 feet	2	2	3	3	4	5
10 feet	2	2	3	4	5	6
12 feet	2	2	3	5	6	8

Figure 6: Maximum Angle

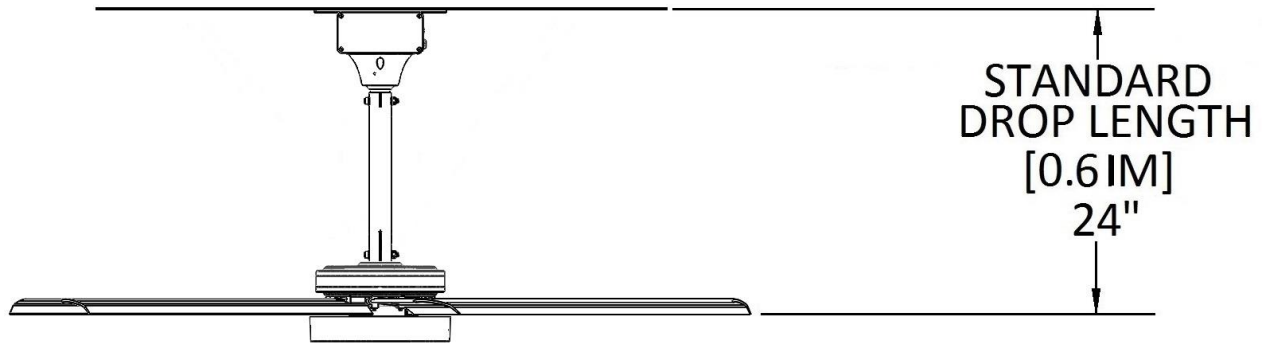
Note: Drop longer than 10ft not recommended

Airfoil / Drop Length (ft)	2	3	4	5	6	7	8	9	10
6 feet	7/7	7/7	8/8	9/8	8/7	9/8	10/8	12/9	14/9
8 feet	7/7	7/8	8/8	9/9	8/8	9/8	10/9	12/10	14/10
10 feet	7/8	7/8	8/9	9/10	8/9	9/9	10/10	12/11	14/11
12 feet	7/8	7/9	8/10	9/11	8/10	9/10	10/11	12/12	14/13

Figure 7: Minimum Clearance (Horizontal/Vertical inches)

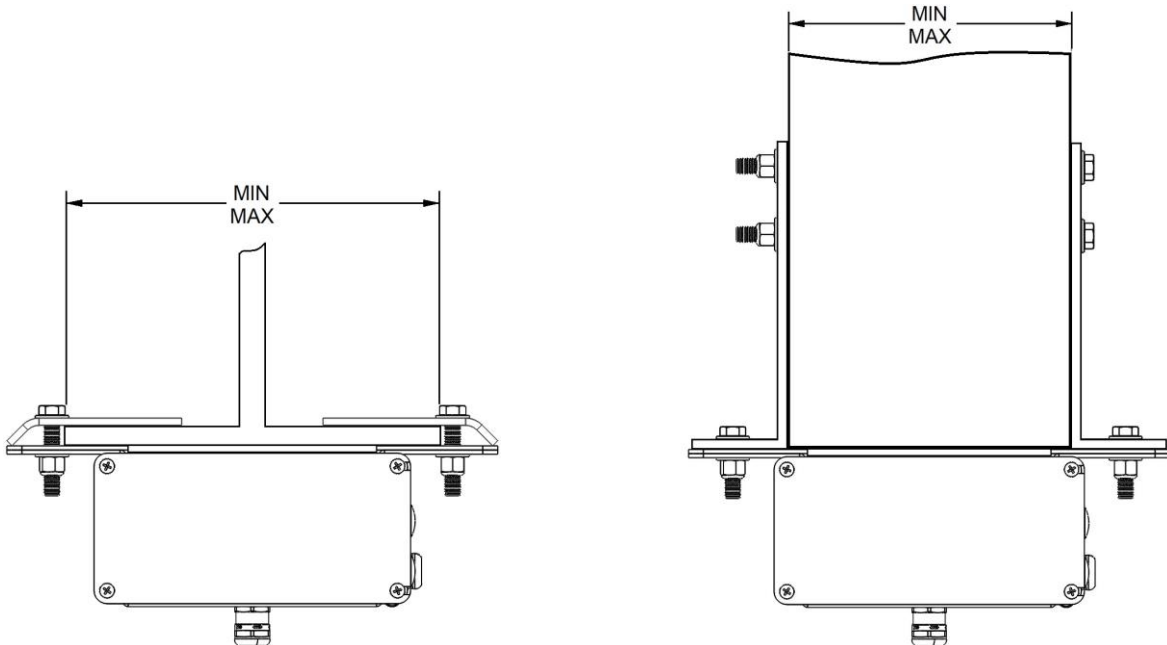
⚠ ATTENTION: Minimum Height. MacroAir requires that the fan blades must be a minimum of 10 feet (3.05 meters) above the floor. Contact MacroAir for assistance with fan placement and extension selection.

Fan Dimensions



Dimensions listed above are applicable to all MacroAir AVD 370 fans.

I-Beam/Glulam Chart



I-Beam Min/Max		
Minimum		Maximum
4.50"		9.50"

Glulam Min/Max		
Minimum	Mid	Maximum
2.00"	4.63"	7.50"

The Maximum Range dimension in these tables is determined by using the outside slots of the control panel. The Minimum Range dimension is determined by using the inside slots.

The Glulam mounting method (Referenced on pages 21-23) is recommended for Glulams or wood beams 5-1/8" or wider. For narrower beams, span across two or more beams using the Unistrut mounting method (Referenced on pages 25-26).

Max Amp Draw

Fuse Chart

VOLTAGE and PHASE		MAX AMP DRAW / RECOMMENDED FUSE			
		AVD 370 FAN			
		6FT	8FT	10FT	12FT
1.	100-120VAC / 1 PHASE	1.5A / 2.5A	2.4A / 4A	2A / 3A	1.6A / 2.5A
2.	208-240VAC / 1 PHASE	0.9A / 1.5A	1.4A / 2.5A	1.1A / 2A	0.9A / 1.5A

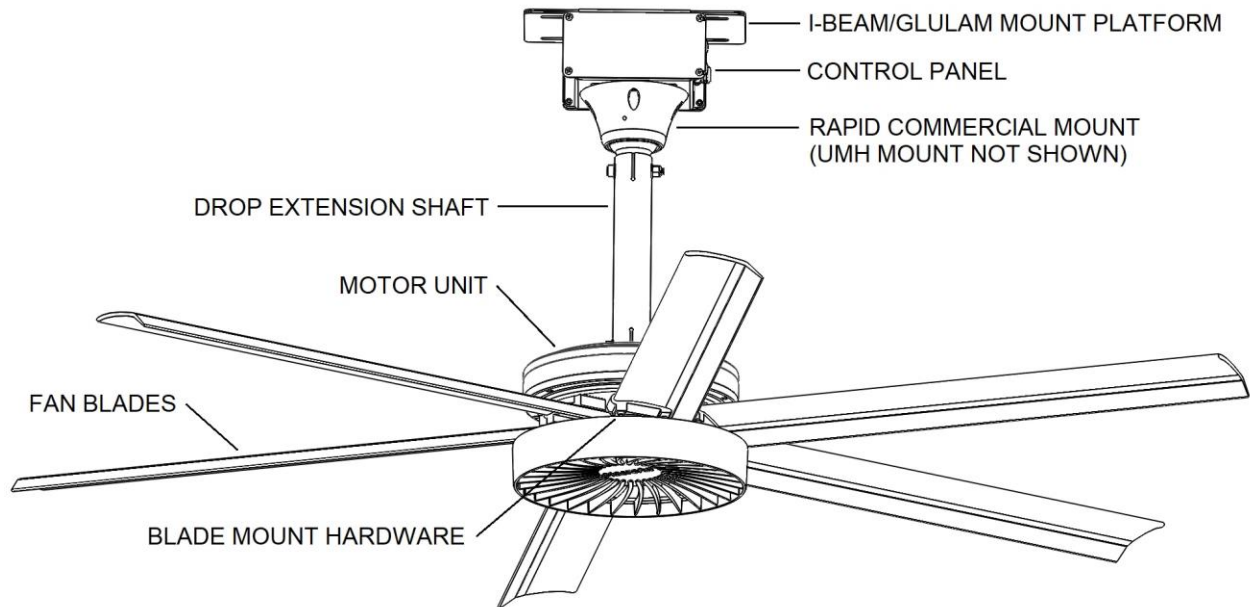
NOTE: 1. STEP-UP TRANSFORMER PANEL (REF PAGE 39).

2. FUSED DISCONNECT PANEL (REF PAGES 40-41).

Network Wiring Instructions

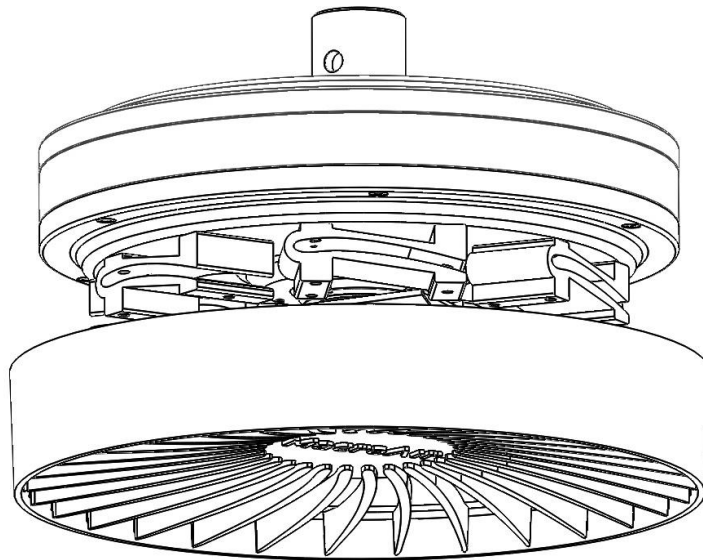
For clarification of approved networking principles and methods for installing MacroAir Fans, refer to the MacroAir control panel instructions included with your MacroAir Control Panel.

Fan Components



View of Assembled Fan

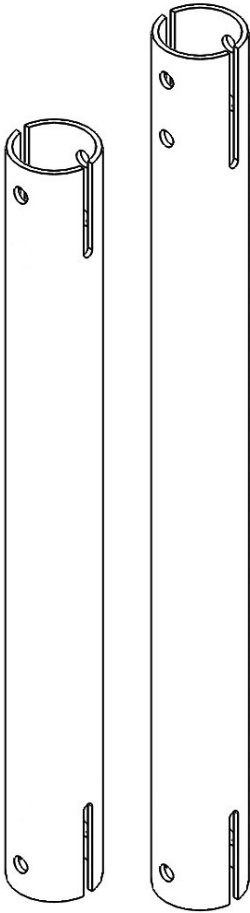
⚠ ATTENTION: Guy Wires are required when a Universal Mount is used to mount the fan.



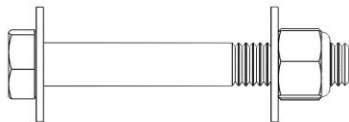
Motor Unit

Images are not to scale

Mounts & Components

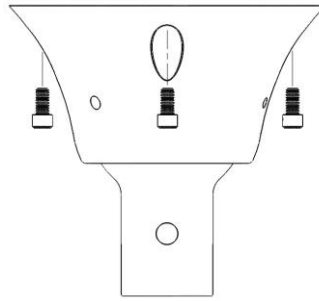


Extension Tube
(Aluminum used w/Rapid Commercial)
(Steel used w/UMH Mount)



Extension Tube Bolt Kits
(2) Hex Bolts 3/8"-16x2-3/4
(4) Washers, 3/8"
(2) Nuts, 3/8" Nylon Lock

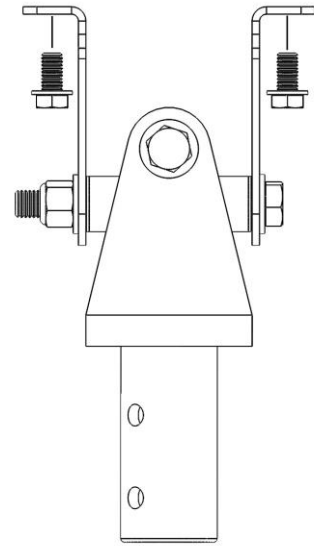
Unistrut Mount Bolt Kit (optional)
Hardware Required but Not Provided:
(4) 3/8"-16 x 1-1/2" Hex Bolts
(4) 3/8" Flat Washers
(4) 3/8" Unistrut Spring Nut



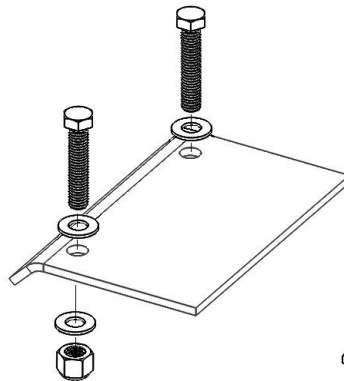
Rapid Commercial Mt (2'-5' Drop)
(shown w/mounting Bolt Kit)
(4) Bolt, Soc HD Cap 1/4"-20x1/2"



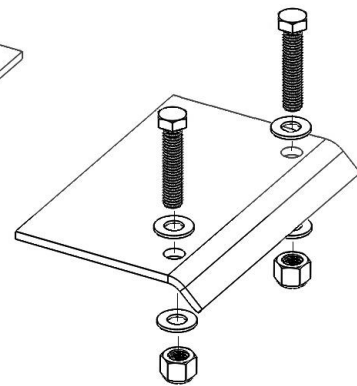
(2) Guy Wire Bracket
(Used with UMH)



UMH Mount (use w/2'-10' Drop)
(shown w/mounting Bolt Kit)
(4) Hex Bolts 3/8"-16x3/4"
(4) Washers, 3/8" Flat



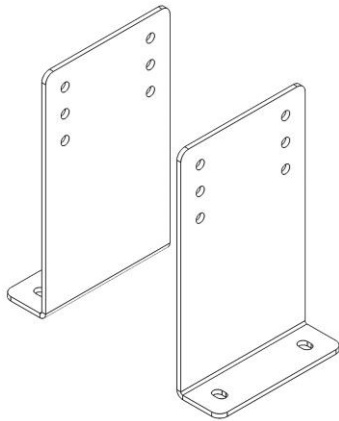
I-Beam Clamp & Bolt Kit
(2) I-Beam Clamps
(4) Hex Bolts 3/8"-16x2"
(8) Washers, 3/8" Flat
(4) Hex Nuts 3/8"-16, Nylon Lock



Glulam Bolt Kit:
(4) Hex Bolts 3/8"-16x1-1/4"
(8) Washers, 3/8" Flat
(4) Hex Nuts 3/8"-16, Nylon Lock

Images are not to scale

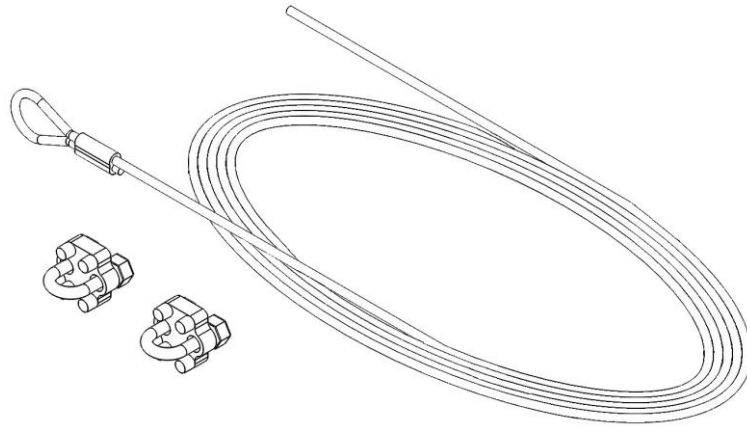
Mounts & Components (cont.)



Glulam Brackets (optional)

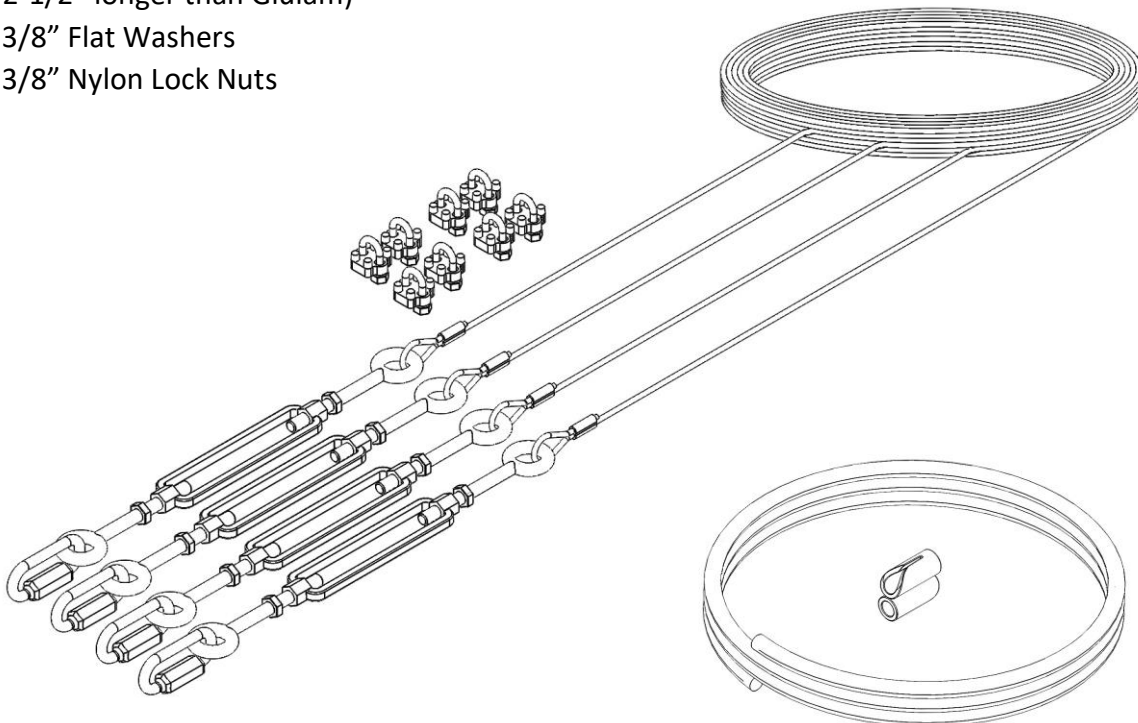
Hardware Required but Not Provided:

- (4) 3/8"-16 Grade 5 Hex Bolts (at least 2-1/2" longer than Glulam)
- (8) 3/8" Flat Washers
- (4) 3/8" Nylon Lock Nuts



Safety Cable Kit

- (1) Wire Rope 1/8"
- (2) Wire Rope Clamps



Guy Wire Assembly

- (4) Wire Rope, 19ft (A), 23ft (B*), 33ft (C*)
- (4) Turn Buckles
- (4) 1/4" Quick Links
- (8) Wire Rope Clamps

* Kits B and C provided with longer drop lengths

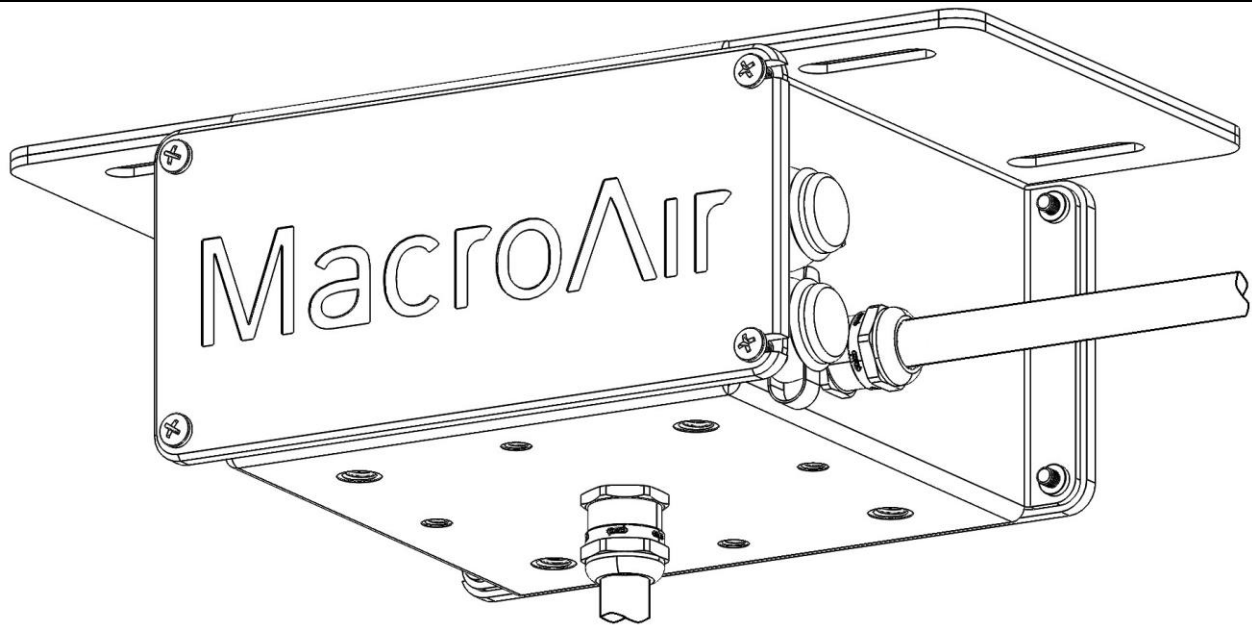
Guy Wire Band Kit

- (1) Elastic Cord
- (1) Cord Clip

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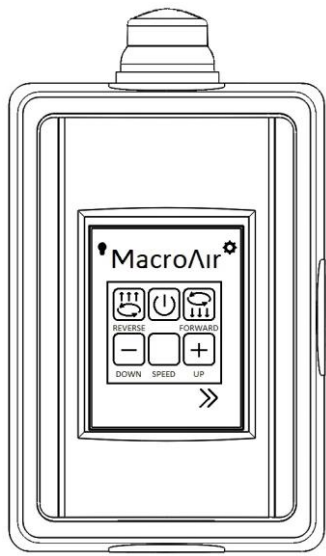
⚠ ATTENTION: Guy Wires are required when a UMH Mount is used to mount the fan.

Control Panel & Components

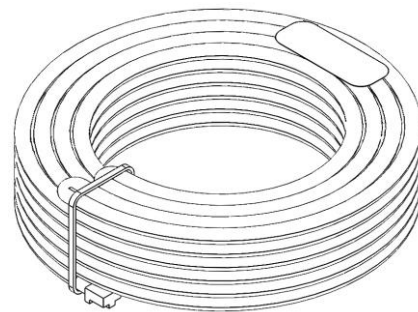


Control Panel

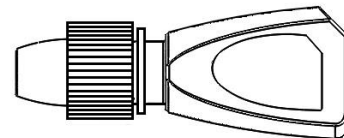
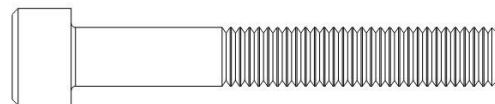
(Mount using I-Beam Clamp or Glulam Brackets)
Accepts Rapid Commercial or UMH Drop Mounts



Digital Touchpad Remote



CAT5E Stranded Shielded Cable

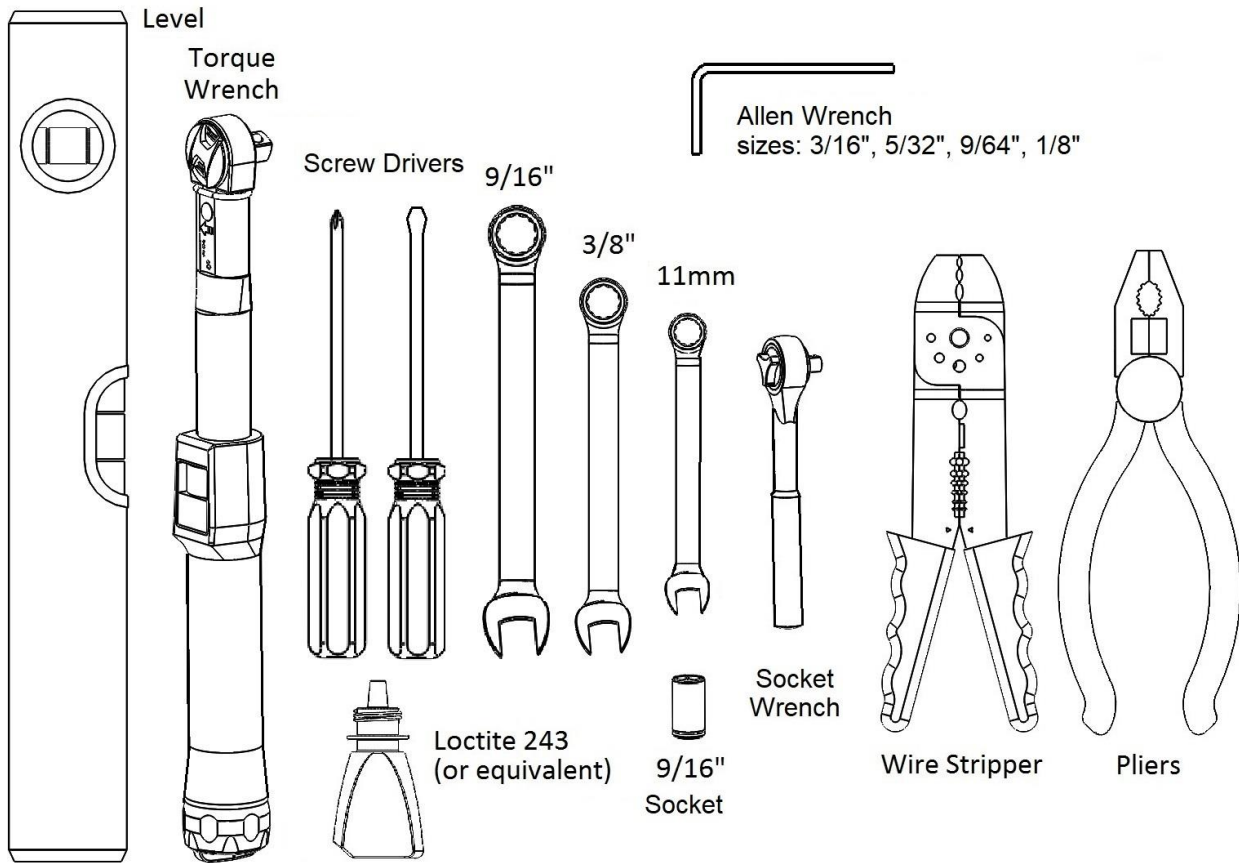


Blade Bolt Kit

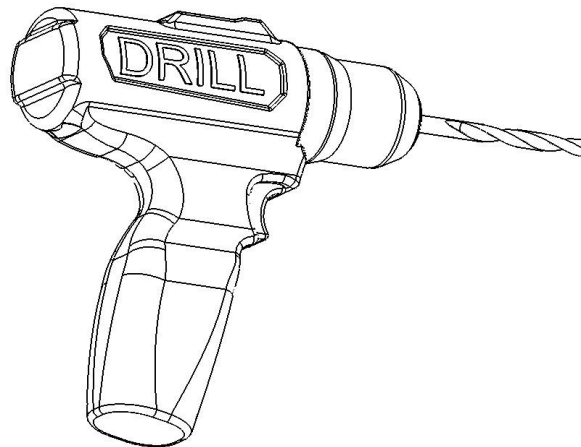
(18) Bolt, Soc Hd Cap 1/4"-20x1-1/2"x1"
(1) Loctite 243

Images are not to scale

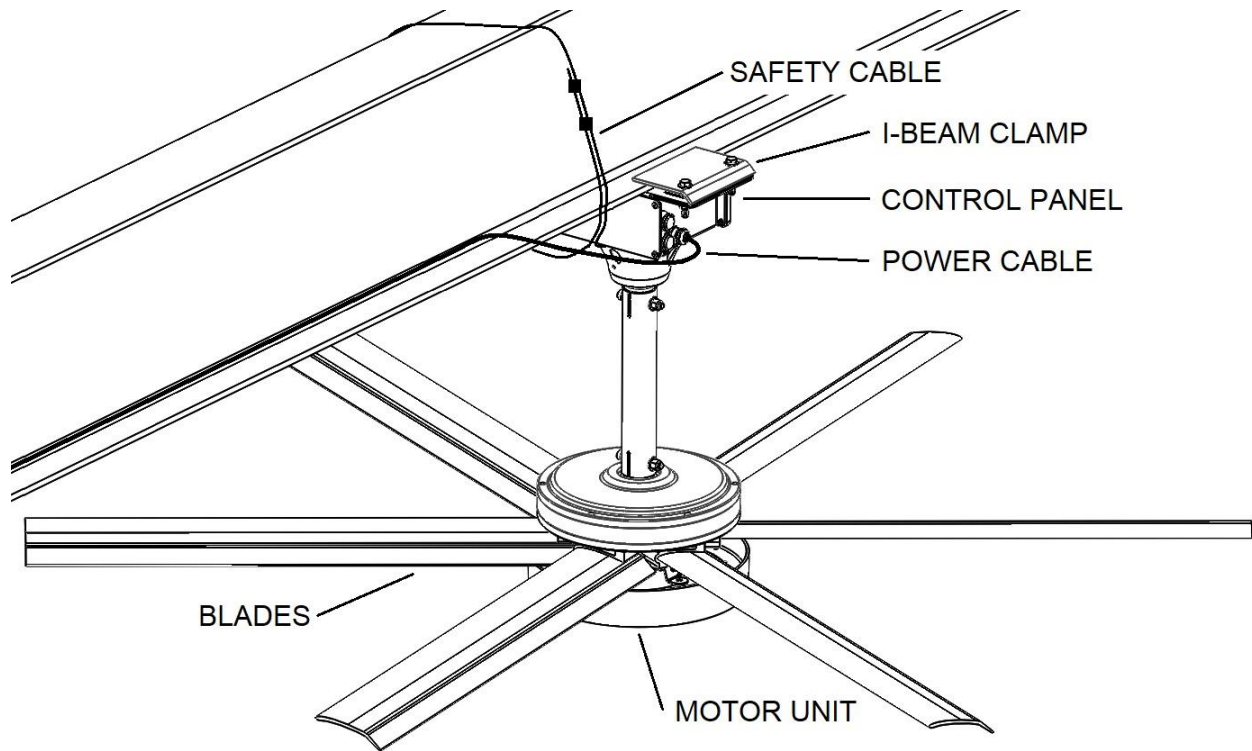
Tools Required



Note: A drill and drill bits will also be required when mounting brackets to Glulam

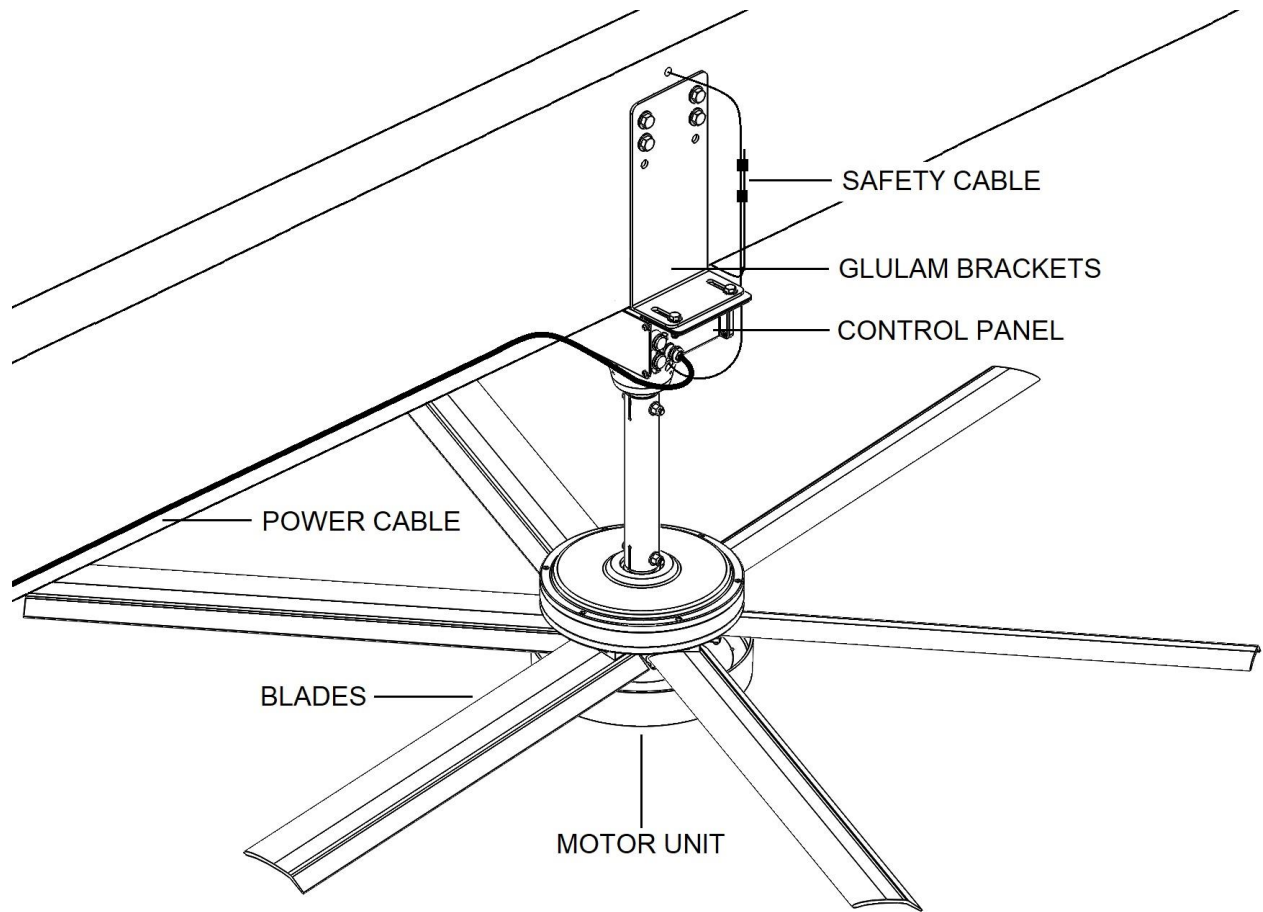


I-Beam



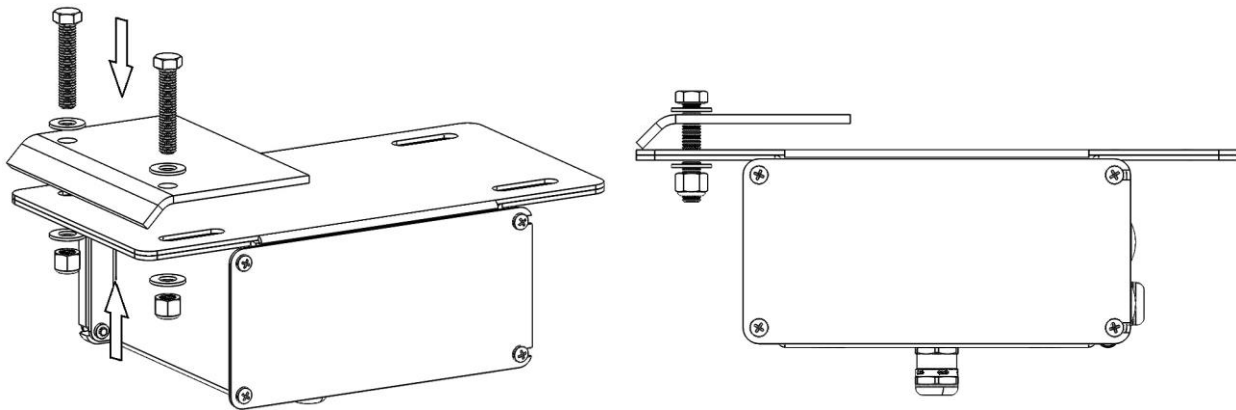
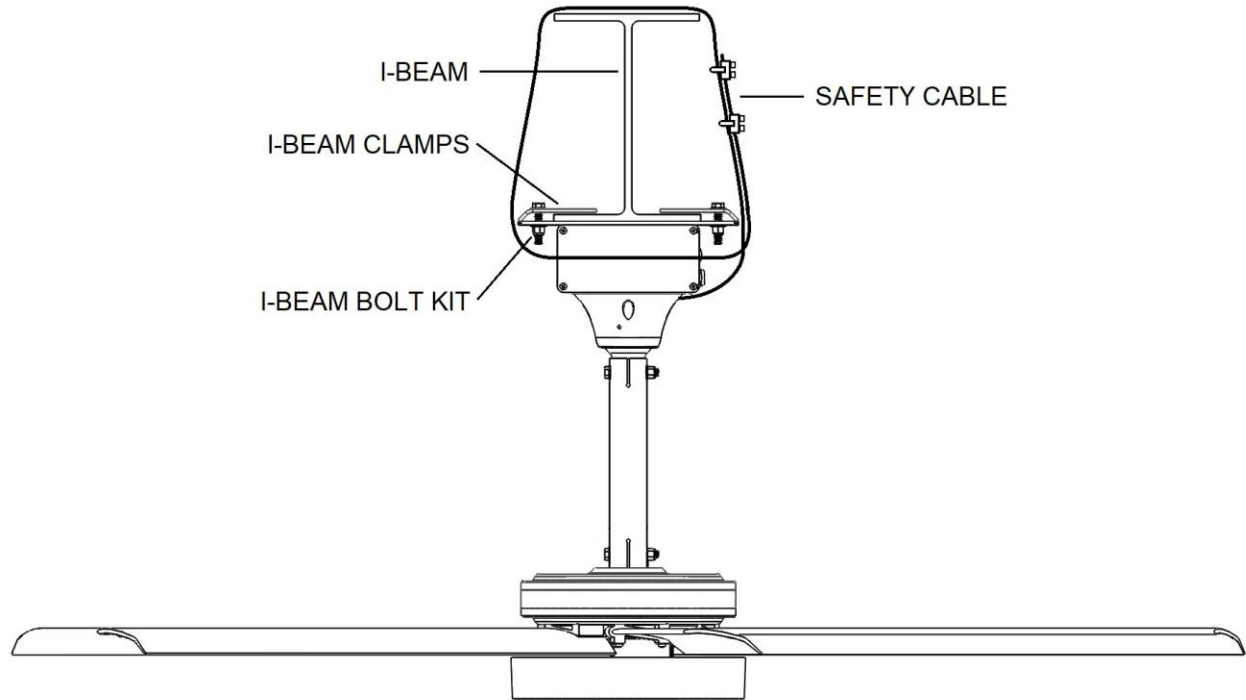
1. Mount Fan Motor Unit using Rapid Commercial Mount or Universal Mount (UMH, not shown) and drop extension onto the base of the control panel using hardware kit, combination wrench, and hex wrench.
2. The Control Panel must be secured to the I-Beam with I-Beam Clamps and hardware kit.
3. The Safety Cable exits top of Rapid Commercial Mount (or UMH) and needs to be fed around I-Beam and secured with provided cable clamps.

Glulam



1. The Safety Cable needs to be fed through a hole in the Glulam, preferably above the center line of the Glulam.
2. The Control Panel must be secured to the Glulam with Glulam brackets and hardware kit. **DO NOT** discard the Glulam brackets and mount the control panel directly to the Glulam.
3. The Glulam brackets need to be through bolted to the Glulam as high as possible.
4. Mount Fan Motor Unit using Rapid Commercial Mount or Universal Mount (UMH, not shown) and drop extension onto the base of the control panel using hardware kit, combination wrench, and/or Allen wrench.

I-Beam Mounting the Control Panel

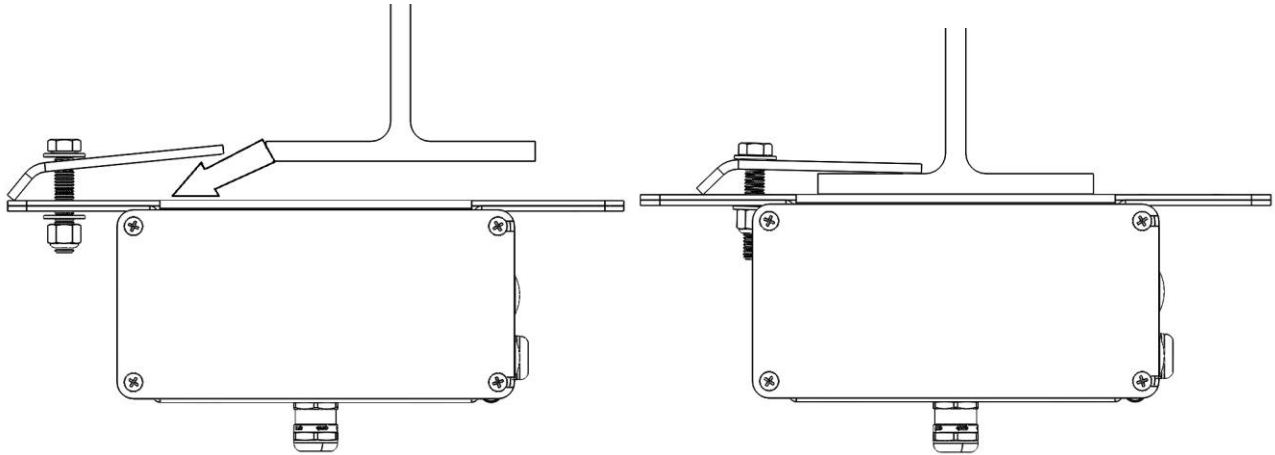


1.) Assemble one side of I-Beam Mount with (1) Clamp, and Hardware.

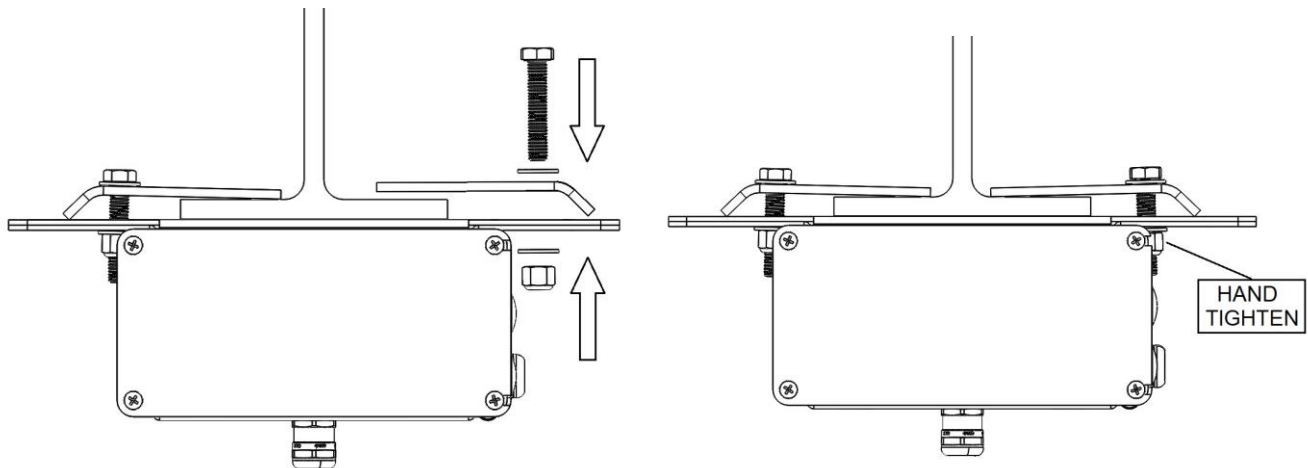
I-Beam Clamps & I-Beam Bolt Kit

- (2) I-Beam Clamps
- (4) Hex Bolts 3/8"-16x2"
- (8) Washers, 3/8" Flat
- (4) Hex Nuts 3/8"-16, Nylon Lock

I-Beam Mounting the Control Panel (cont.)



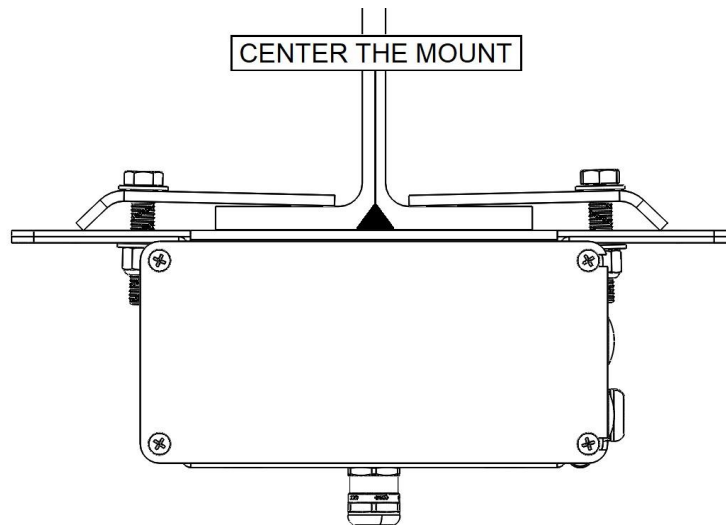
2.) Position the Control Panel under the I-Beam so that one side of the beam is between the clamp and the mount.



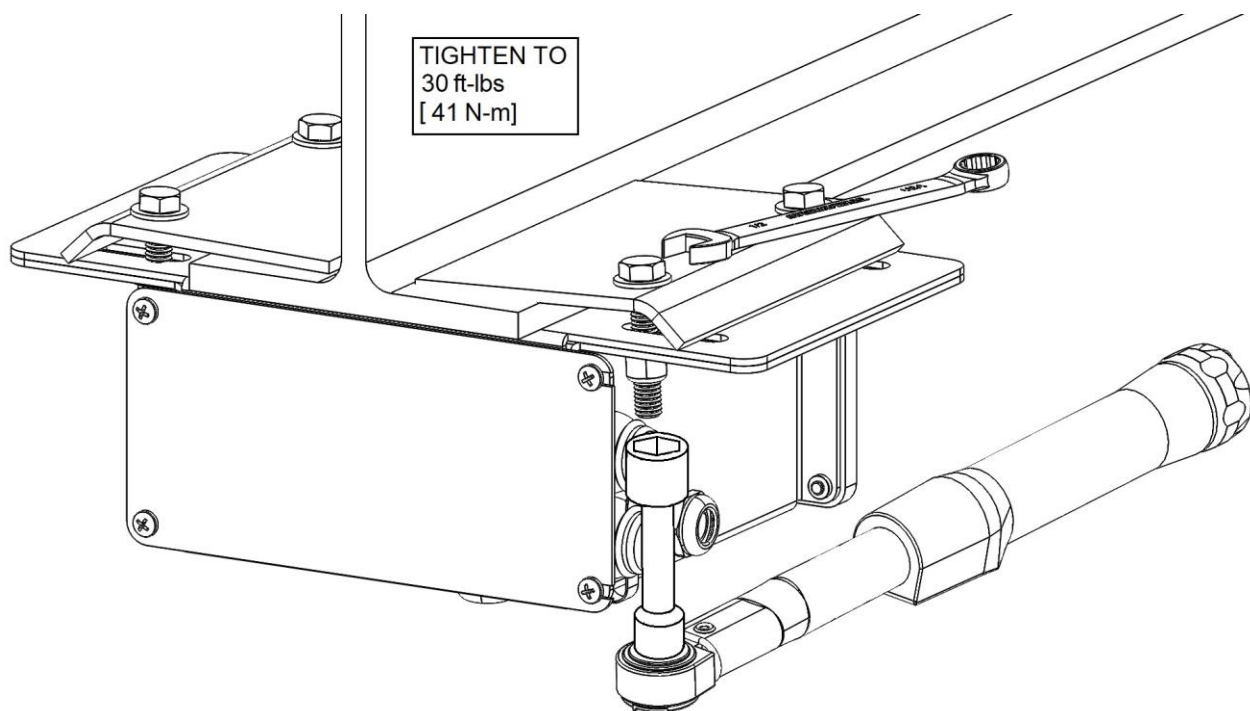
3.) Assemble other side of I-Beam Mount with (1) Clamp and Hardware.

4.) Hand tighten nuts to secure Clamp in place.

I-Beam Mounting the Control Panel (cont.)

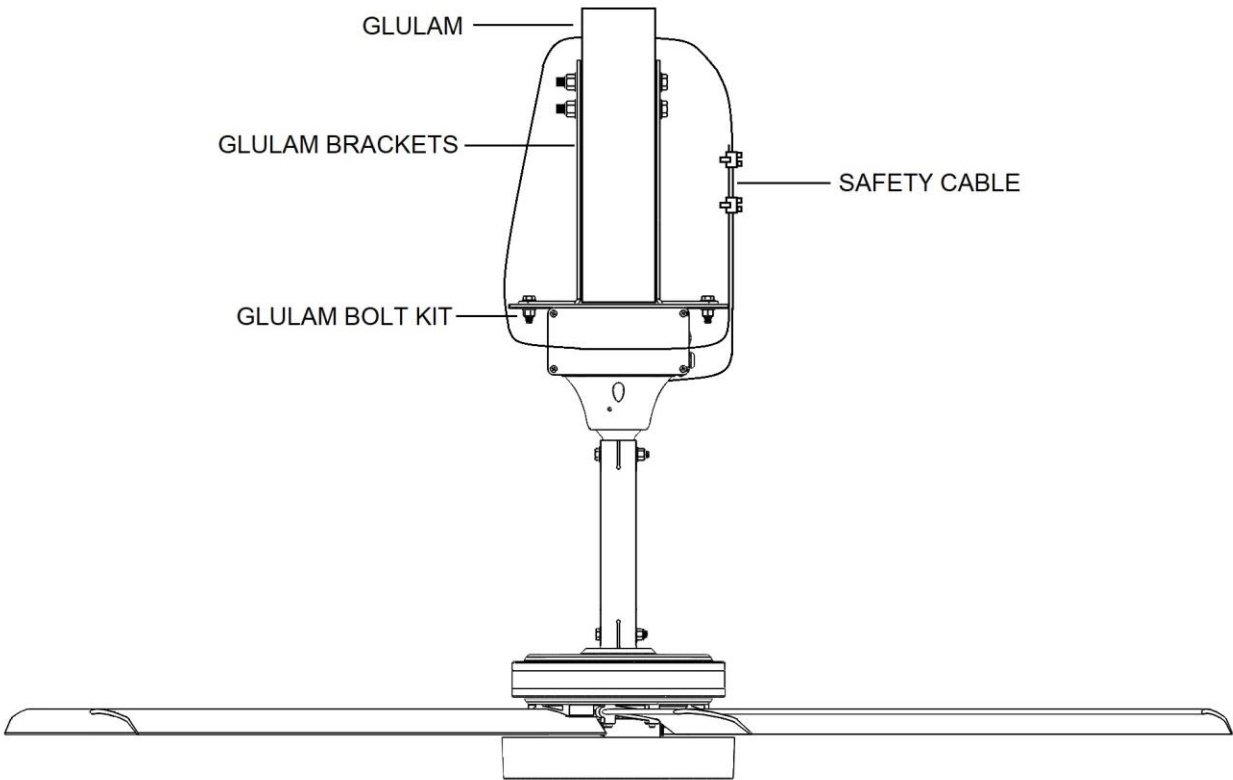


5.) Center the Control Panel on the I-Beam.

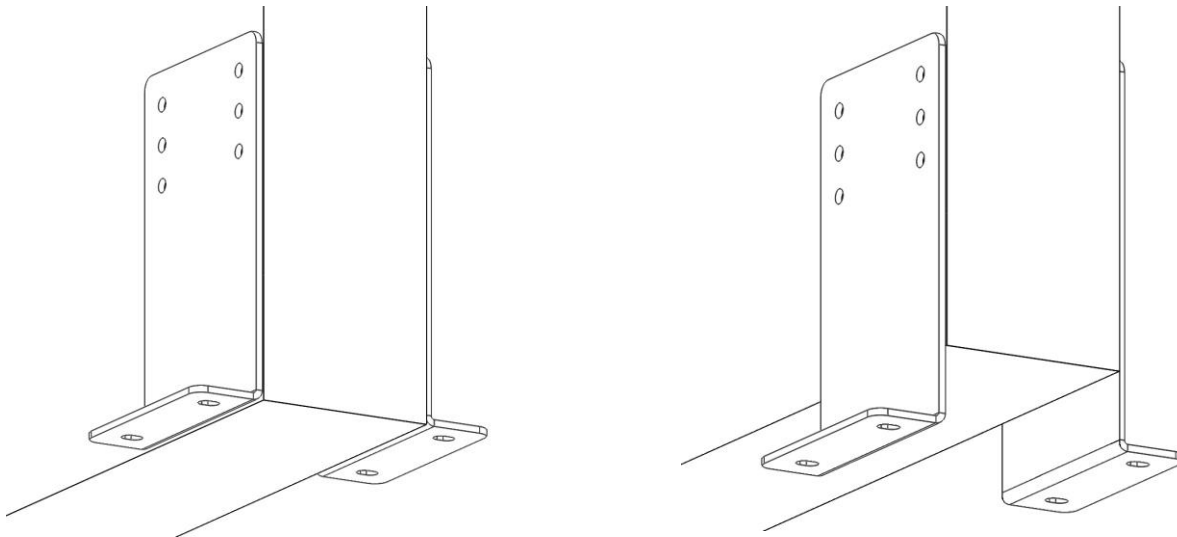


6.) Using a 9/16" combination wrench and a 9/16" socket and torque wrench tighten all hardware to 30 ft-lbs. [41 N-m]. Note: An extension may be required.

Glulam Mounting the Control Panel

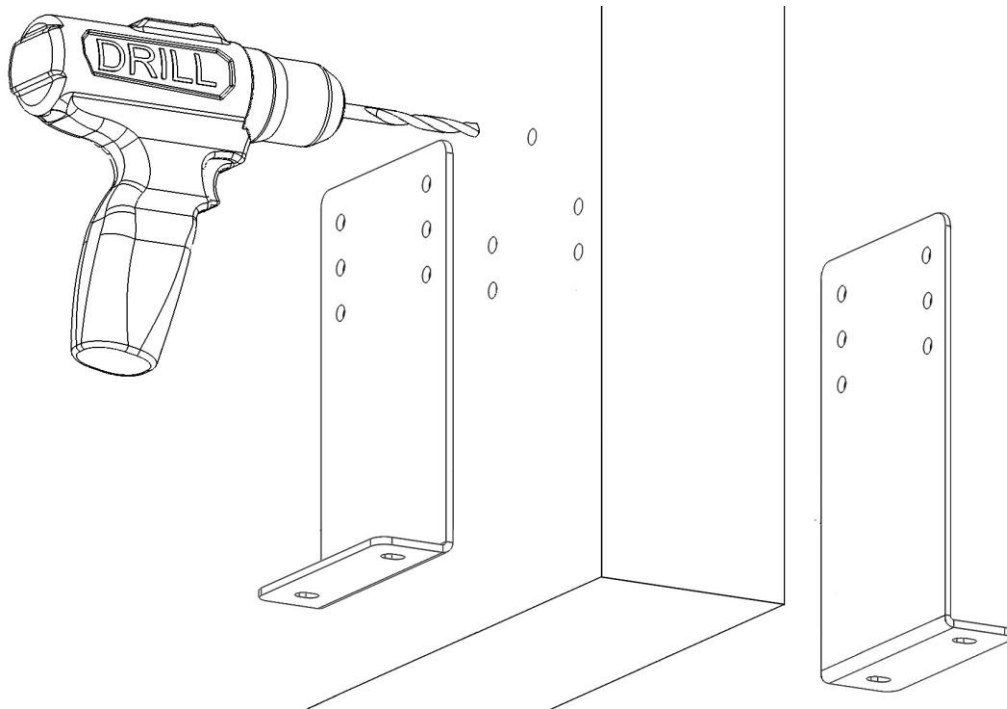


This method is recommended for Glulams or wood beams 5-1/8" or wider. For narrower beams, span across two or more beams using the Unistrut mounting method. (Refer to page 25)

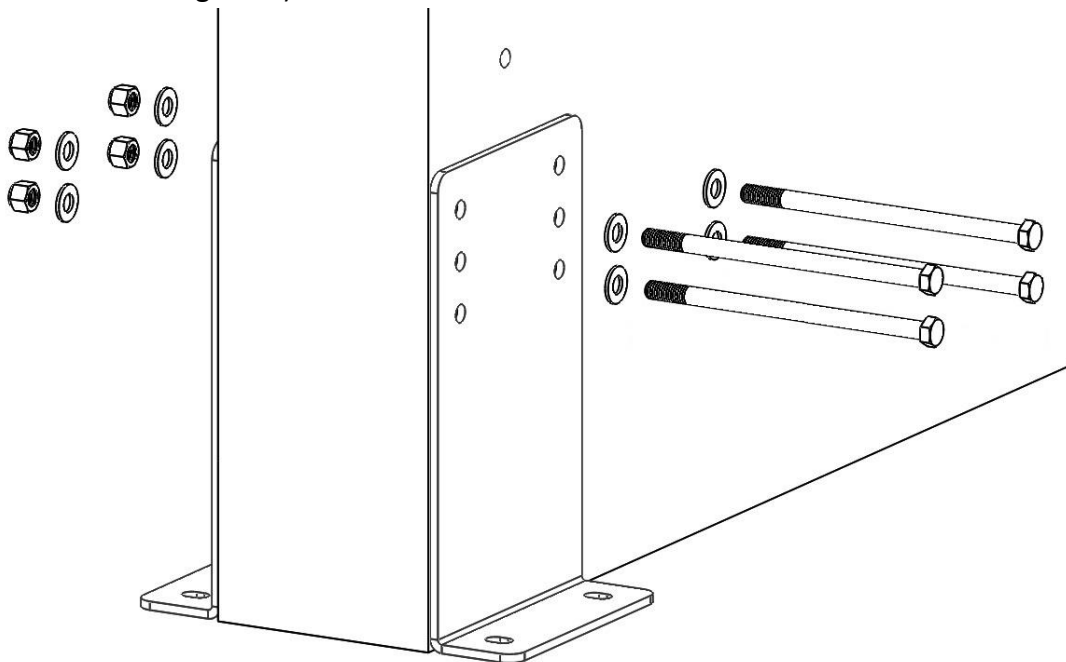


1. The Brackets can be located below the glulam if necessary but is not recommended. Locate brackets even with bottom of glulam.

Glulam Mounting the Control Panel (cont.)

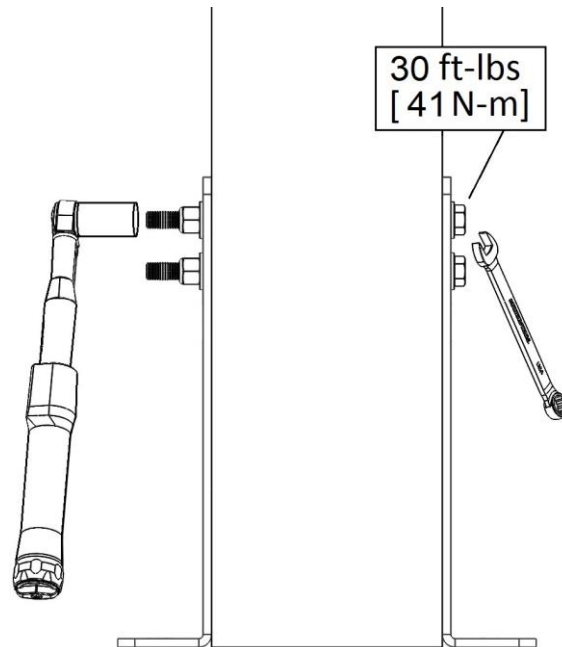


2. Drill maximum 1/2" diameter clearance holes through the glulam for (4) 3/8"-16 mounting bolts (not provided by MacroAir) and (1) hole for the 3/16" diameter safety cable. The highest bolt hole should not be below the beam's center line unless the glulam is too tall. The hole for the safety cable should be centered above the brackets (preferably above the center line of the glulam).

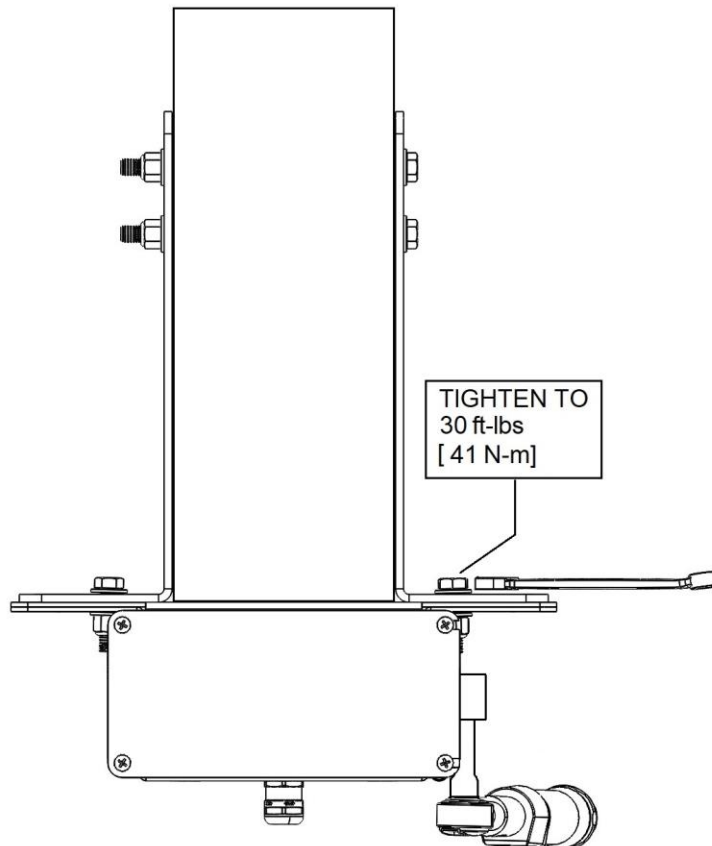


3. Secure the Glulam brackets to the Glulam via (4) 3/8"-16 grade 5 bolts (long enough to go through the entire beam with nylon lock nuts). Stack the Bolt, washer, washer, nut as shown above. Note: This hardware is not provided by MacroAir.

Glulam Mounting the Control Panel (cont.)



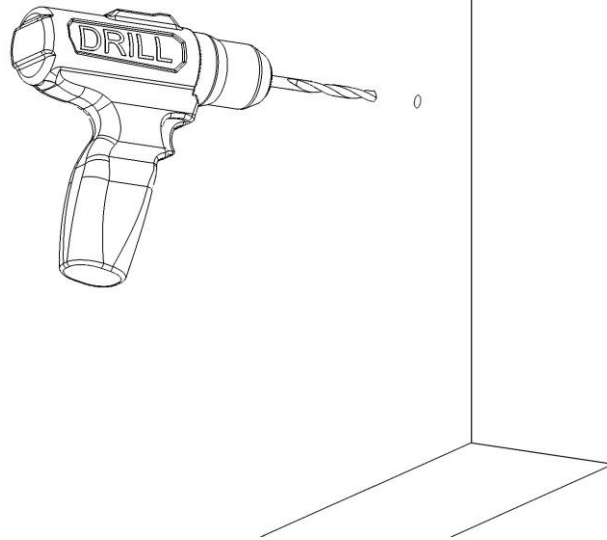
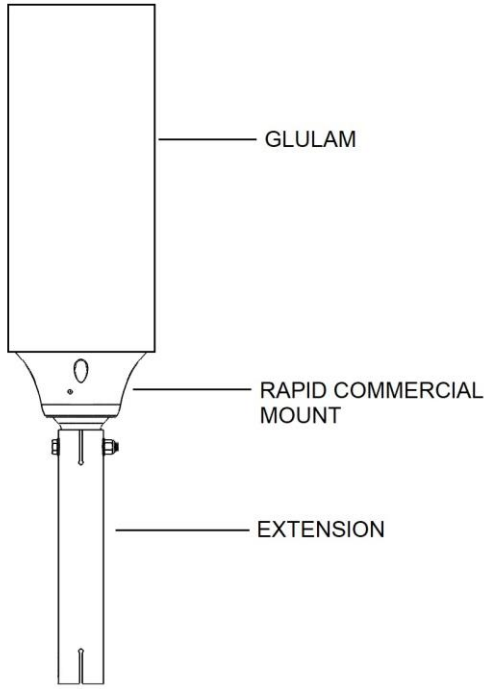
4. Using a 9/16" combination wrench and 9/16" socket and torque wrench tighten all hardware to 30 ft-lbs.[41 N-m].
5. Mount the Control Panel to the glulam brackets using the Mount Bolt Kit which contains: (4) 3/8"-16 x 2" Hex Bolts, (8) 3/8" Washers and (4) 3/8"-16 Nylon Lock Nuts. Using a 9/16" combination wrench and a 9/16" socket and torque wrench tighten all hardware to 30 ft-lbs. [41 N-m].



Direct Mounting on a Glulam or Wood Beam

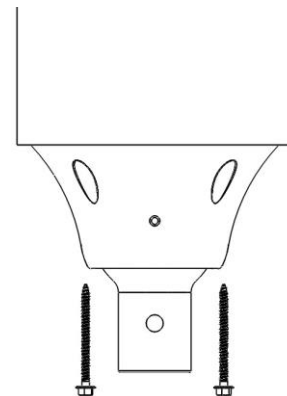
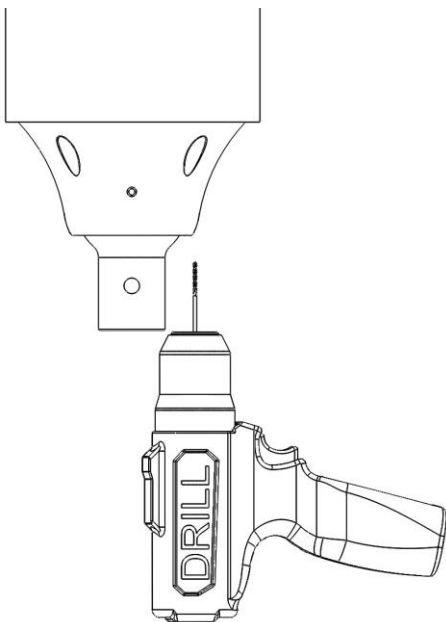
This method is suitable for the Rapid Commercial Mount only and must be specified at the time of fan purchase.

⚠ ATTENTION: Glulam's and wood beams must be at least 6" wide to use Direct Mounting.



1. A hole, all the way through the glulam, needs to be drilled to accommodate 1/8" Dia safety cable.
Note: Safety Cable routing is to be the same as described on pages 29-33.

2. Position the mount so that the screws are as far away from the edge of the beam as possible.
3. Drill (4) pilot holes before installing screws.



4. Four (4) #10 x 2-1/2" Lag Screws are provided if this method of mounting is indicated at time of fan purchase.

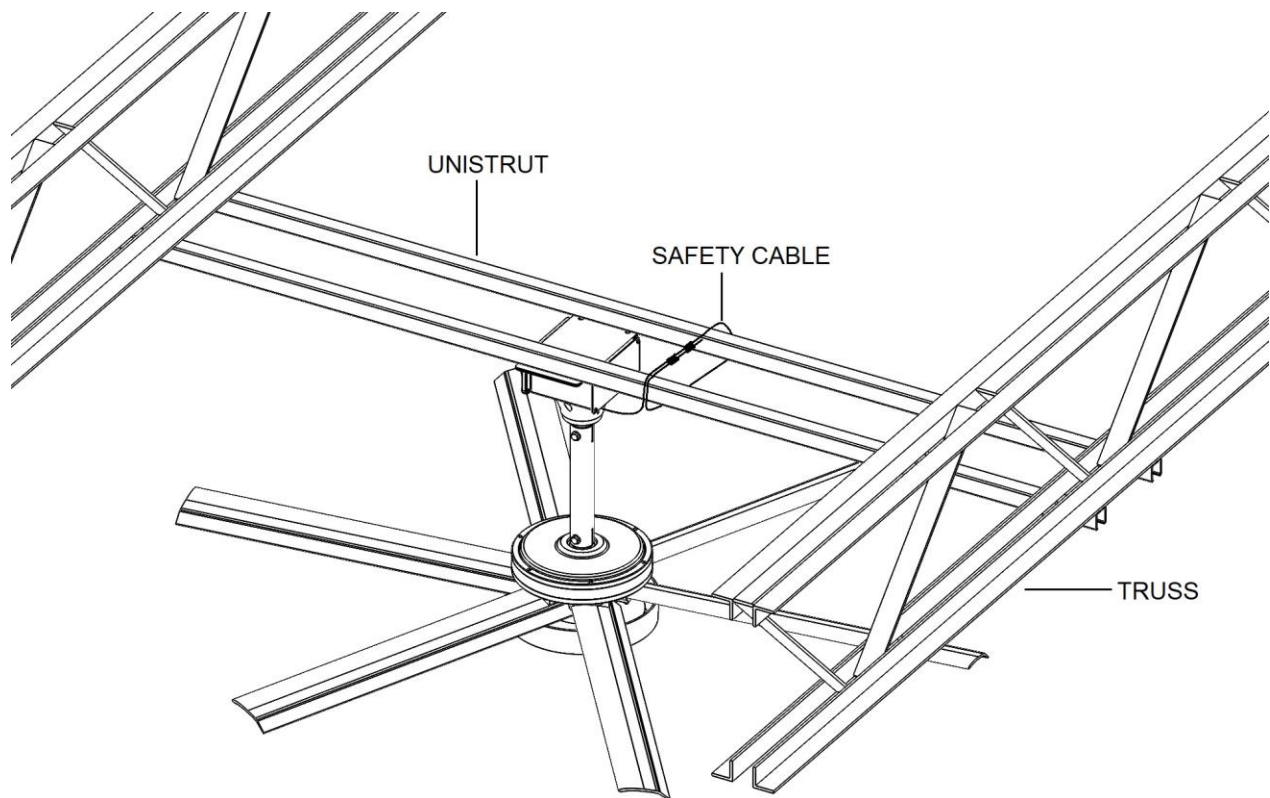
If mounting is to be into concrete, four (4) #10 x 1-3/4" concrete screws are provided.

Note: Control Panel (not shown) is to be mounted outside the blade sweep area using industry best method. Additional length of motor cable is provided.

Unistrut Mounting the Control Panel

This method is used to span components of a building structure. Attachment points to the building structure can vary greatly, so we recommend contacting Unistrut, so they can recommend the best method for attaching the Unistrut (www.unistrut.us).

1. Two (2) pieces of 1-5/8" x 1-5/8" 12-gauge Unistrut need to span the trusses. Distance apart to be centered over the widest hole pattern in the Control Panel (see step 2). Maximum allowable distance between trusses is 8 feet. If the spanning distance is greater than 8 feet, please consult a Structural Engineer. Please refer to page 5 "Mounting Guidelines" for the maximum torque and weight values.

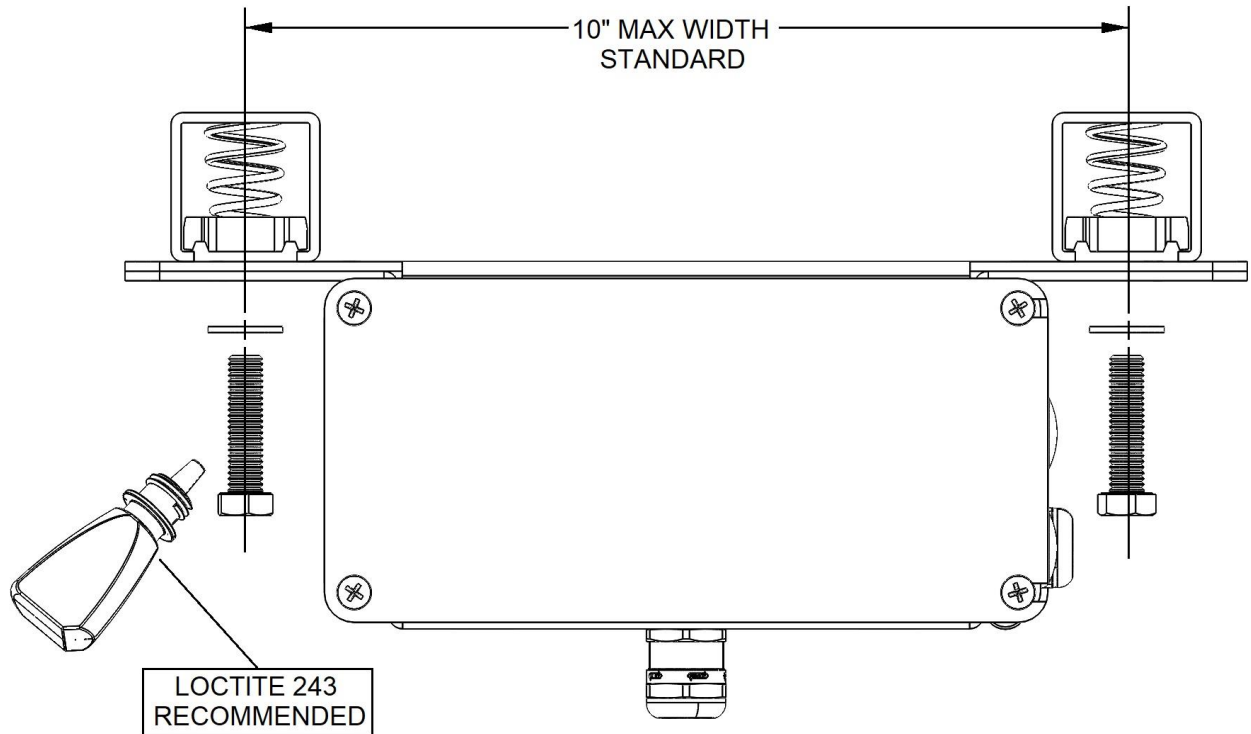


Hardware Required but Not Provided:

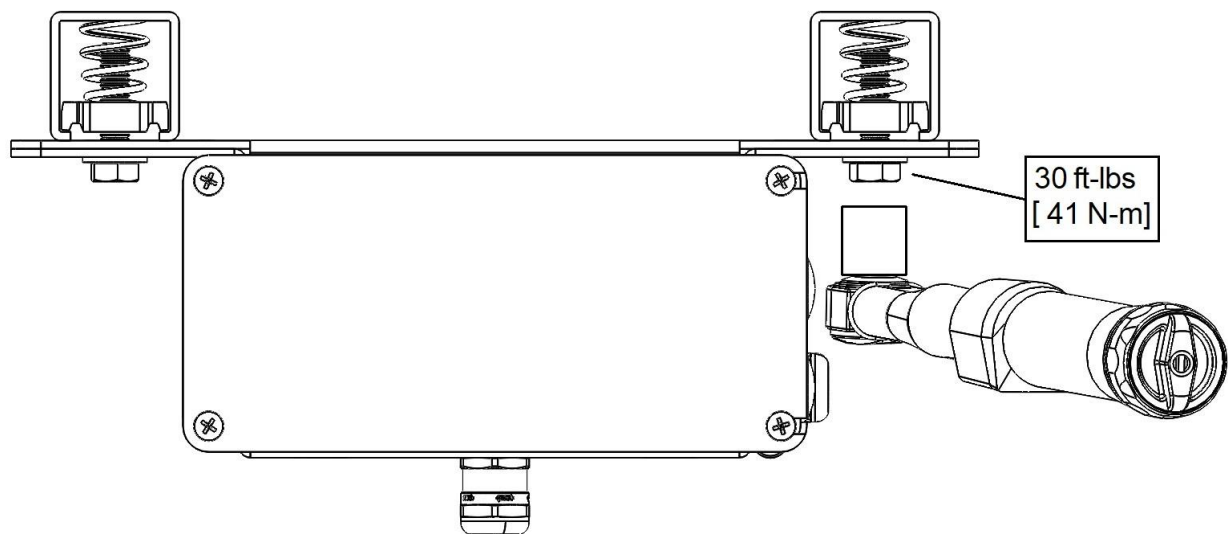
- (4) 3/8"-16 x 1-1/2" Hex Bolts
- (4) 3/8" Flat Washer
- (4) 3/8" Unistrut Spring Nut
- (1) Loctite 243

Unistrut Mounting the Control Panel (cont.)

2. Attach the Control Panel in the most desired position between the trusses using hardware indicated (not provided). Apply Loctite 243 to the 3/8"-16 bolts prior to mounting. Unistrut clamps are not permitted in this mounting method.



3. Using a Torque wrench, tighten hardware to 30 ft-lbs (41 N-m).

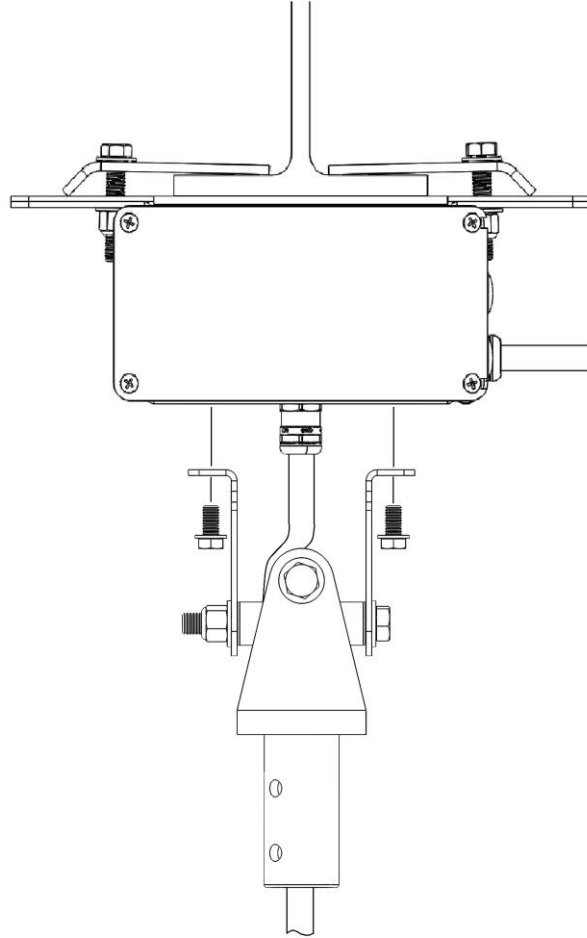


NOTE: Mounting to C- and Z-purlins requires Unistrut span mounting. Mounting to trusses under three (3) inches in width requires two or more trusses to be linked with Unistrut. We recommend contacting Unistrut, so they can recommend the best method for attaching the Unistrut (www.unistrut.us).

Mounting the UMH onto the Control Panel

Universal (UMH) Mount on a Control Panel

Note that the image below depicts the Control Panel mounted to an I-Beam, The UMH mounting described here is the same for Control Panels mounted on a Glulam or Wood beam.

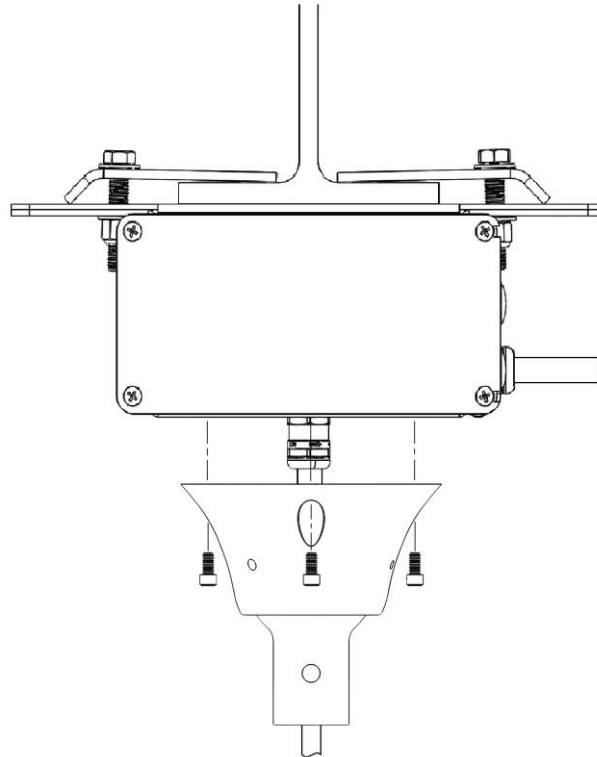


1. The UMH Mount is affixed to the bottom of the mounted Control Panel using the provided Bolt Kit consisting of:
 - (4) Hex Bolts 3/8"-16x3/4"L
 - (4) Washers, 3/8" Flat
2. Pass the motor power cable through the UMH mount as the mount is installed. Continue the cable through the extension when installed (page 29) and through the motor when installed (page 31, 33-34).

Mounting the Rapid Commercial Mount onto the Control Panel

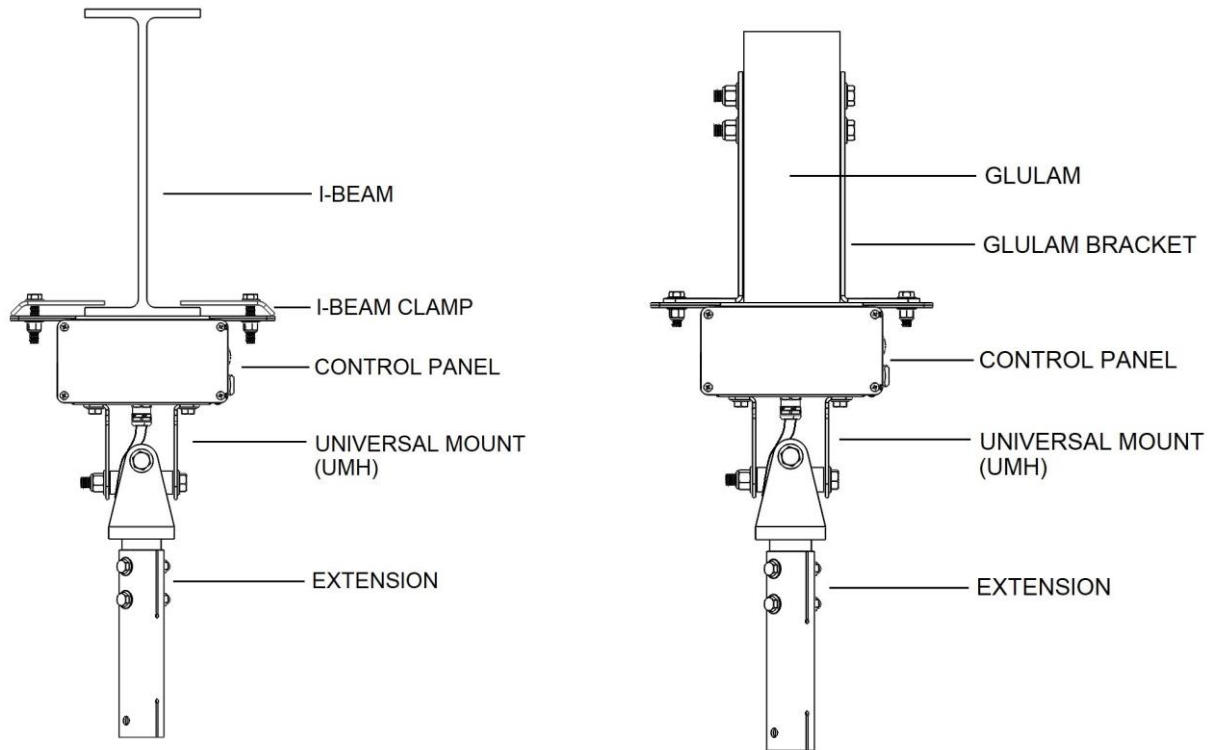
Rapid Commercial Mount on a Control Panel

Note that the image below depicts the Control Panel mounted to an I-Beam, The Rapid Commercial mounting described here is the same for Control Panels mounted on a Glulam or Wood beam.



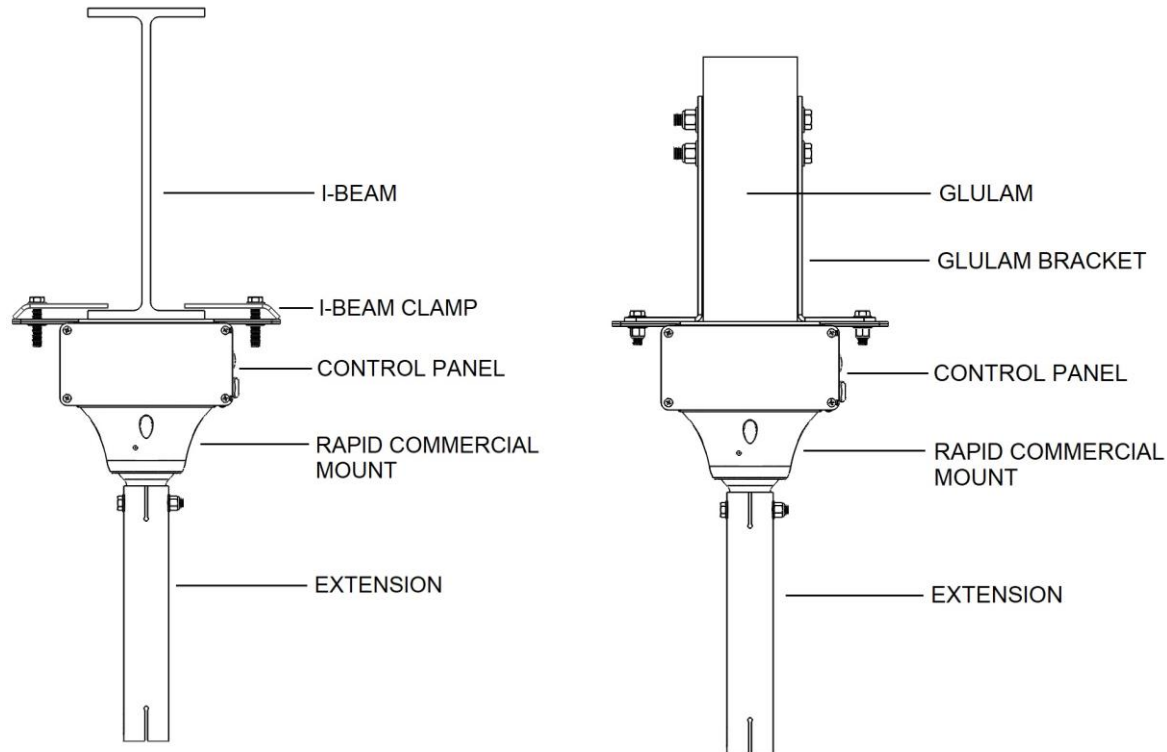
1. The Rapid Commercial Mount is affixed to the bottom of the mounted Control Panel using the provided Bolt Kit consisting of:
(4) Soc Hd Cap Bolts 1/4"-20x1/5"L
2. Pass the motor power cable through the Rapid Commercial mount as the mount is installed. Continue the cable through the extension when installed (page 30) and through the motor when installed (page 32-34).

Mounting the Extension onto the UMH



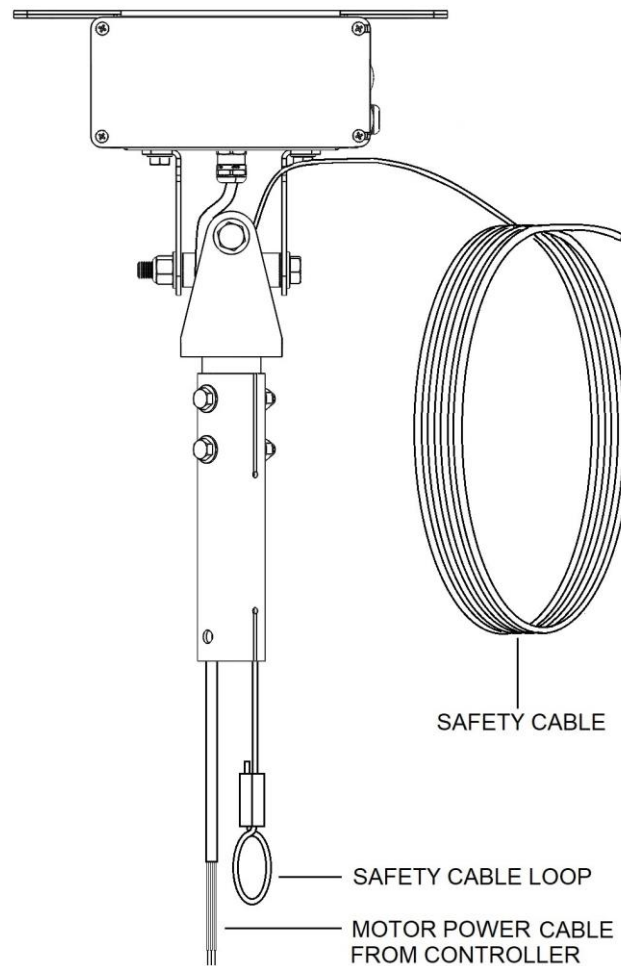
1. Attach the extension to the bottom of the Universal Mount “UMH” (shown above) using the provided hardware pack.
2. Tighten hardware to 30 ft-lbs [41 N-m] using torque and combination wrenches.

Mounting the Extension onto the Rapid Commercial Mount



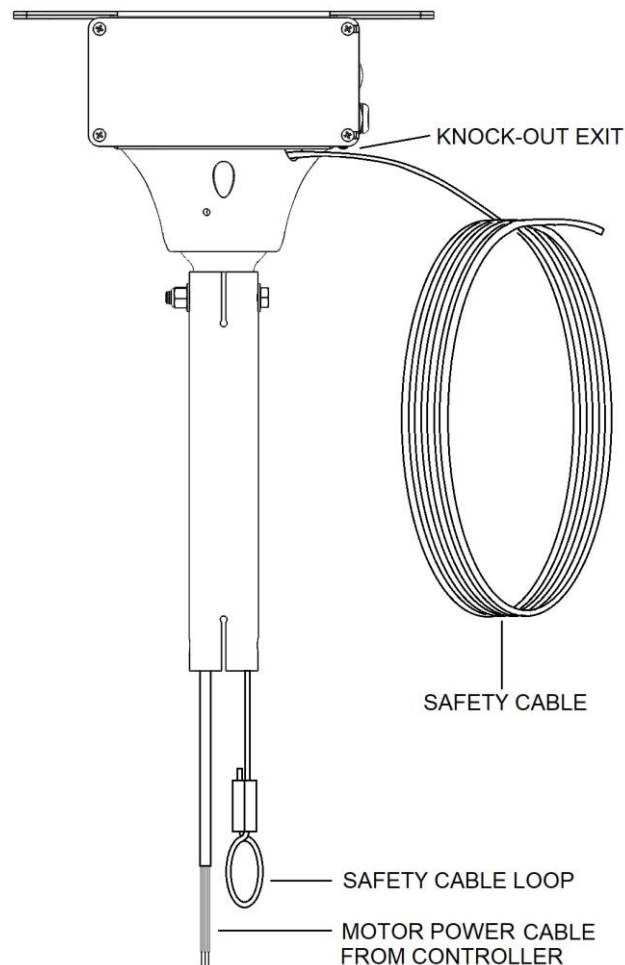
1. Attach the extension to the bottom of the Rapid Commercial Mount (shown above) using the provided hardware pack.
2. Tighten hardware to 30 ft-lbs [41 N-m] using torque and combination wrenches.

Motor and Safety Cable Routing through the UMH



1. The Safety Cable is fed up through the Drop Extension Tube and out between the UMH mount and the Control Panel. The motor cable and the safety cable is to be routed through the mount and extension as shown above, after the mounts have been properly secured to the building.

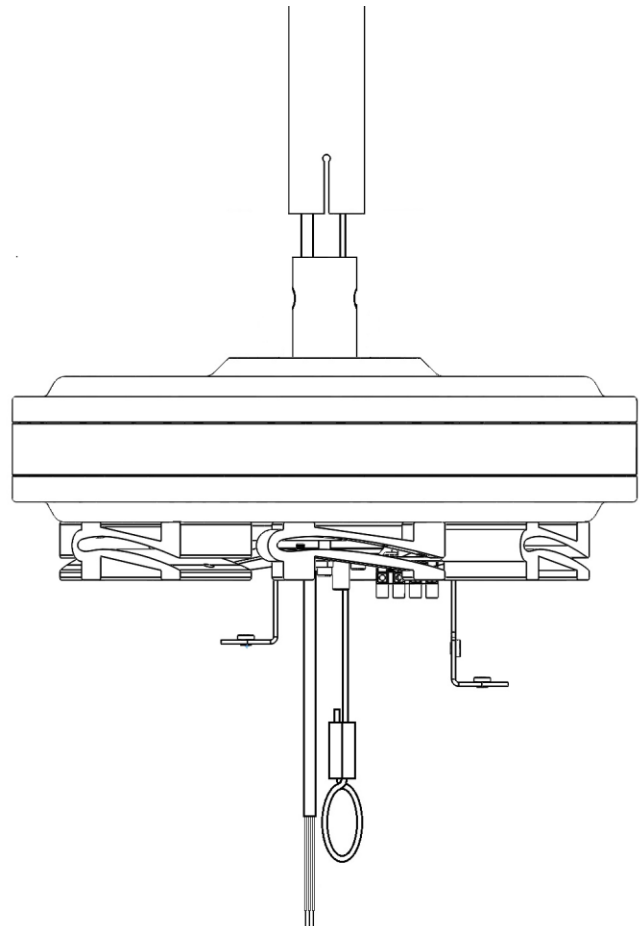
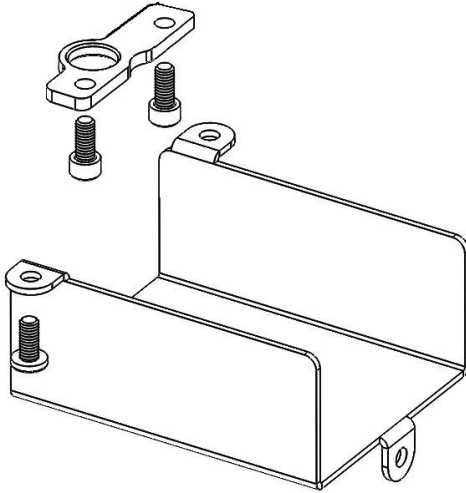
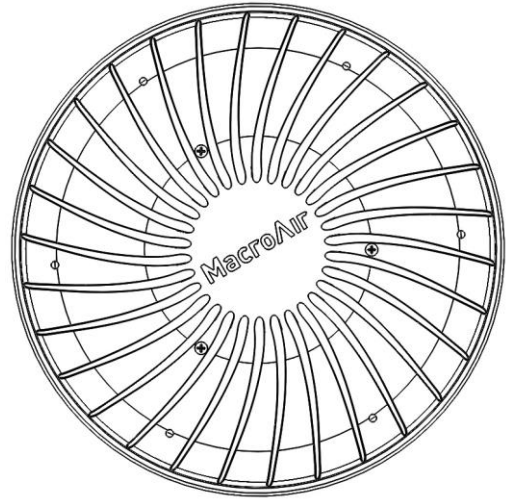
Motor and Safety Cable Routing through the Rapid Commercial Mount



1. The Safety Cable is fed up through the Drop Extension Tube and out through one of the knock-outs on the Rapid Commercial mount, between the mount and the Control Panel. The motor cable and the safety cable is to be routed through the mount and extension as shown above, after the mounts have been properly secured to the building.

Mounting the Motor Unit onto the Drop Extension

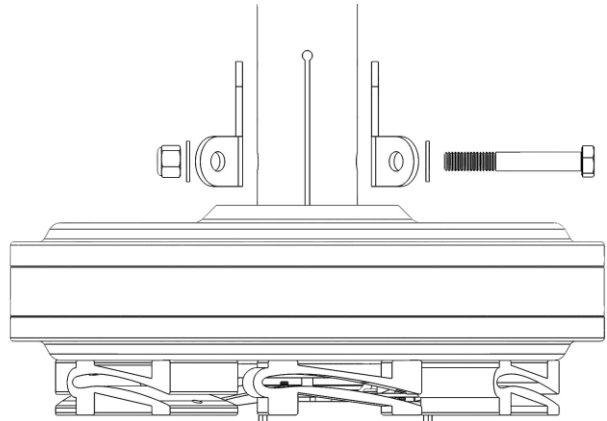
1. Use a Phillips screwdriver to loosen the (3) #8-32 screws about the center of the cover. Do not remove the screws completely as they are captured on the cover with plastic lock washers.
2. Remove the bottom cover from the fan, ensure the screws are still captured on the cover with the (3) nylon washers. Set the bottom cover to one side.
3. Remove the electrical cover and the Safety Cable Retaining Bracket. Use a 9/64" Allen Wrench to remove the bracket. Momentarily set this hardware to one side.



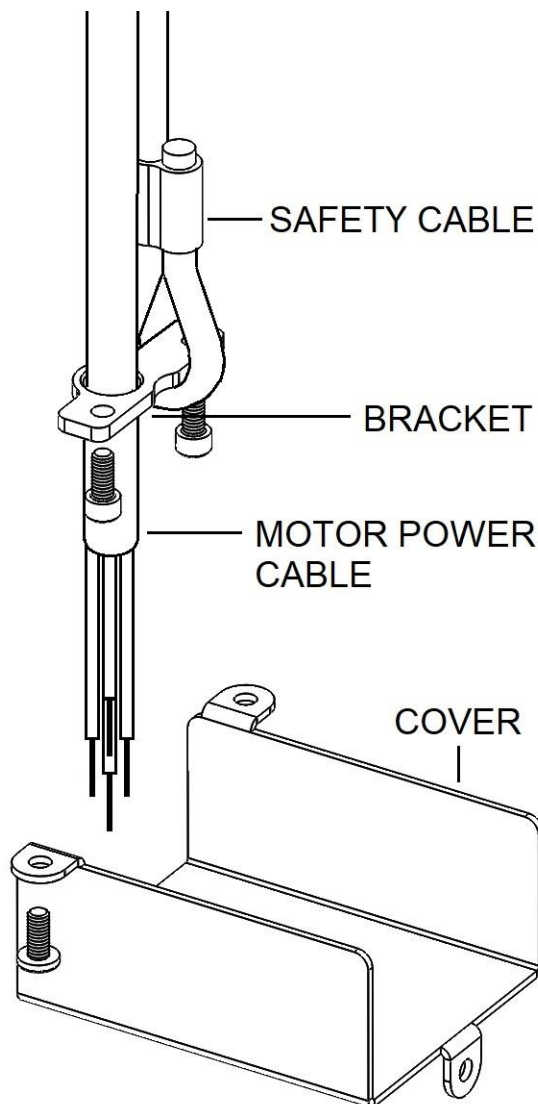
4. Raise the fan and carefully guide the motor shaft into the extension tube. Feed the safety cable and motor cable through the motor.

Mounting the Motor Unit onto the Drop Extension

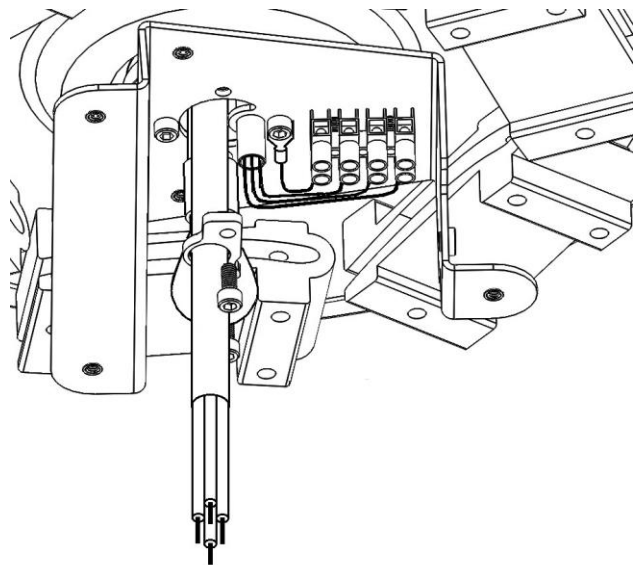
5. Bolt the fan motor shaft to the extension tube. If Guy Wires are to be used (on UMH and steel extension), then fasten the Guy Wire mounting brackets at this location in the orientation shown here.
6. Be careful of the wires in the motor shaft and extension tube.
7. Tighten the bolts to 30 ft-lbs [41 N-m] using torque and combination wrenches.



8. The Safety Cable is fed up through the Drop Extension Tube and out through one of the knock-outs on the Rapid Commercial mount, between the mount and the Control Panel or out the open UMH mount. Refer to the illustrations on pages 31-32.



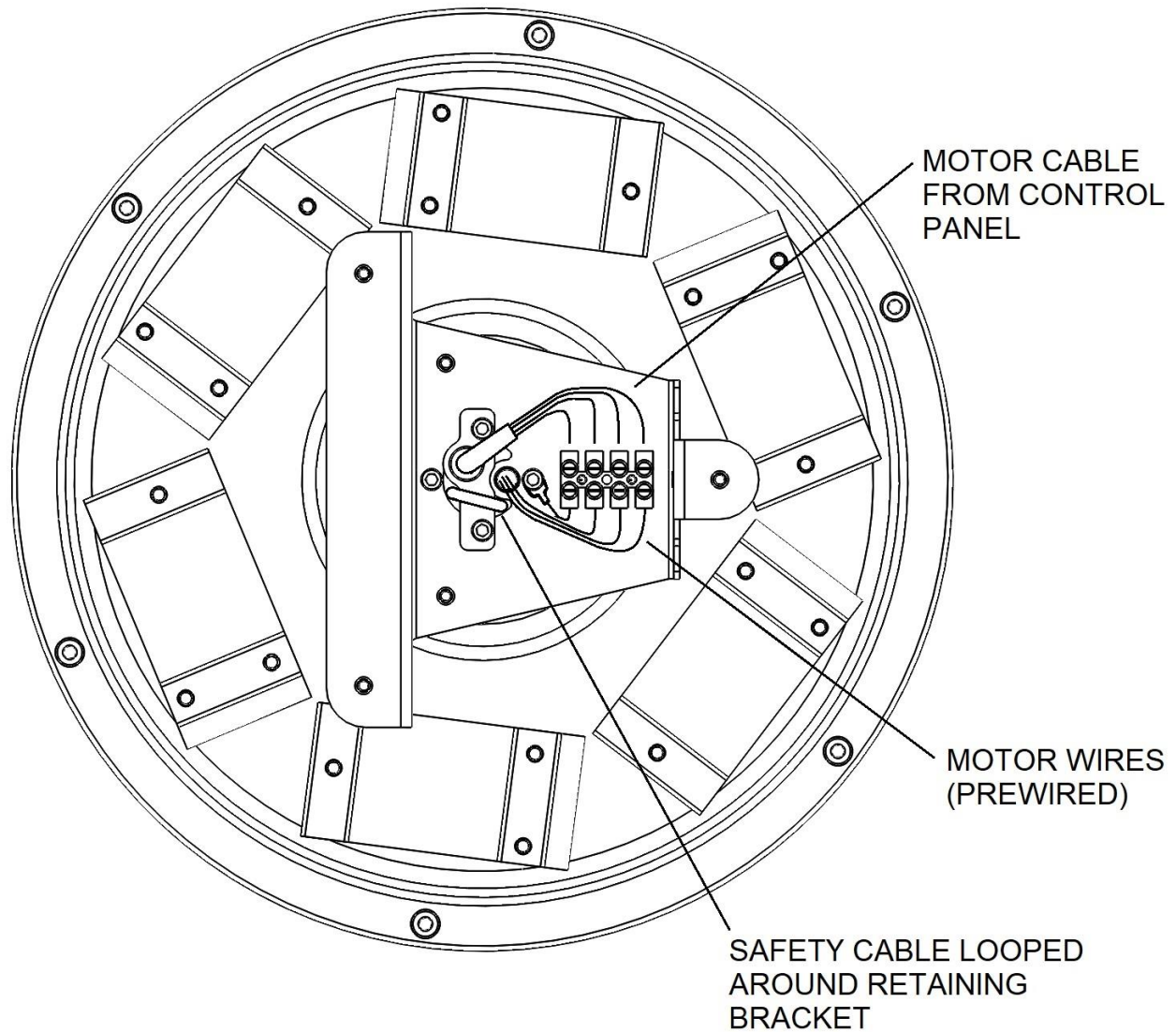
9. Attach the loop of the safety cable to the retaining bracket, as shown. Pass the motor power cable through the hole provided in the bracket.



10. Reattach the retaining bracket to the Motor with the hardware set aside in Step 3 (page 33). Use a 9/64" Allen Wrench.

Motor Cable Connection

1. The motor cable from the Control Panel is passed through the retaining bracket and connected to the four-position terminal block.



2. Wiring to the terminal block:

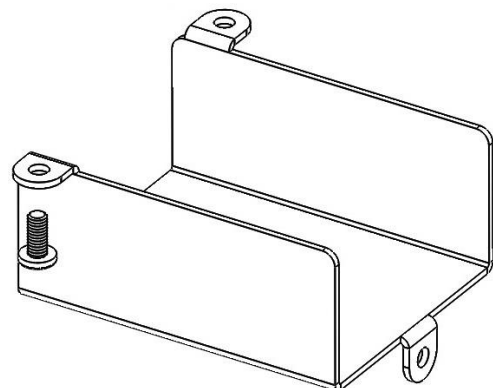
Green wire chassis Gnd – motor control cable bare wire

White wire – motor control cable black #1 wire

Black wire – motor control cable black #2 wire

Yellow wire – motor control cable black #3 wire

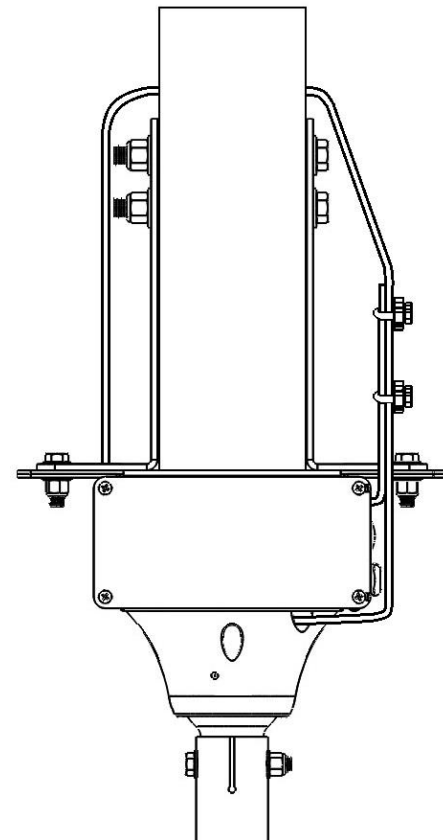
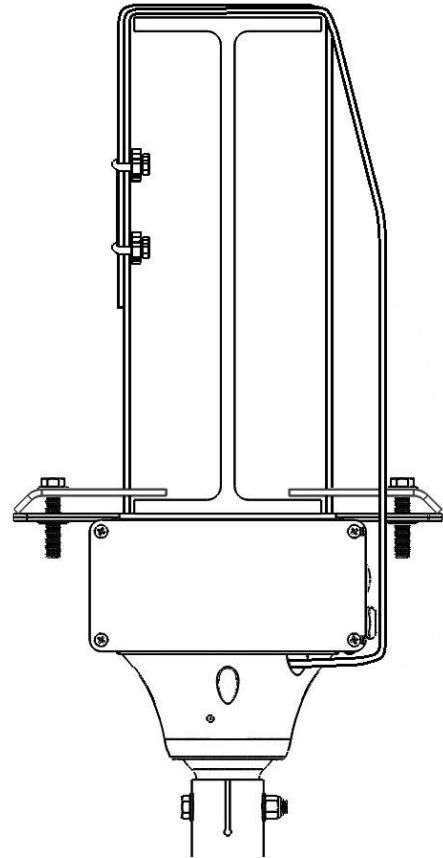
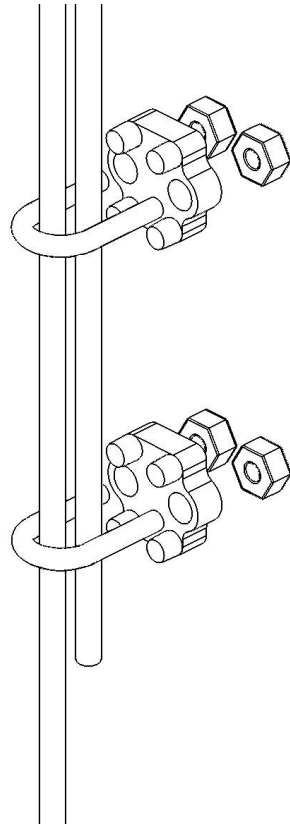
3. Replace the cover previously removed to access the terminal block. Do not yet replace the MacroAir bottom cover as you still need access to install the blades.



Safety Cable Installation

I-Beam

1. Wrap 1/8" diameter safety cable from the mount, around the I-beam multiple times.
2. Secure two (2) safety cable clamps around the wire. Pull the cable taut and tighten both nuts using 3/8" combination wrench.

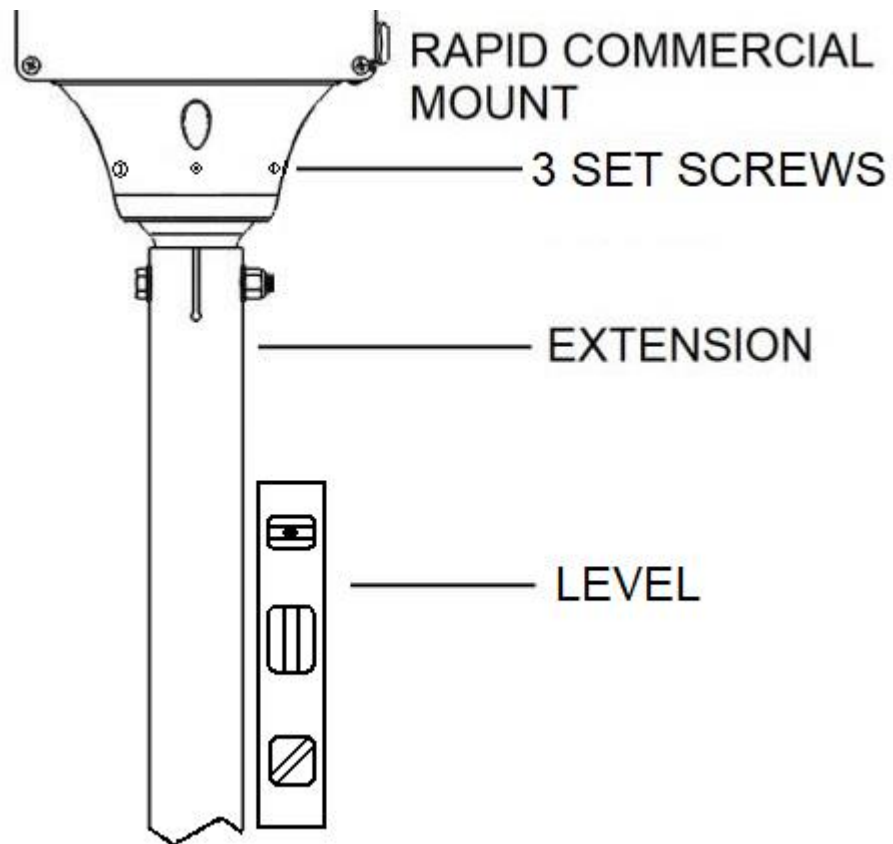


Glulam or Wood Beam

1. Wrap 1/8" diameter safety cable from the mount, through the hole drilled in the Glulam above brackets.
2. Secure two (2) safety cable clamps around the wire. Pull the cable taut and tighten both nuts using 3/8" combination wrench.

Note: while the images on this page depict a Rapid Commercial Mount, the Safety Cable Installation is the same when the UMH is present.

Set Screws on the Rapid Commercial Mount

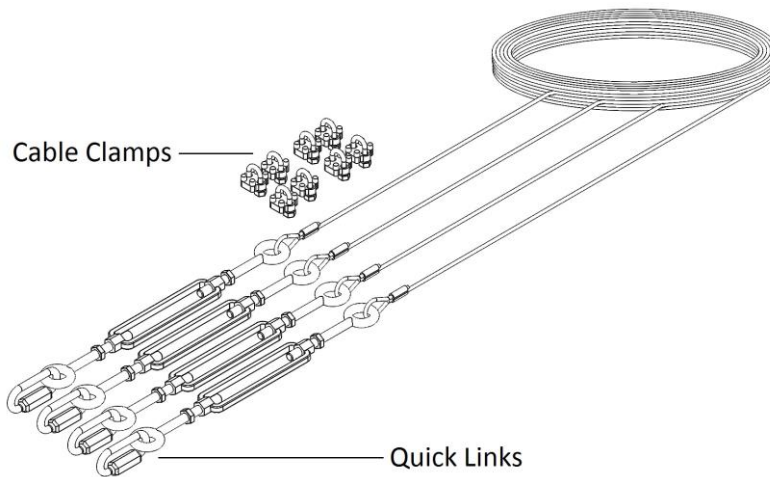


The Set Screws on the Rapid Commercial Mount are used to fix the angle of the Extension Drop in the vertical and prevent rotation and movement. There are three (3) Set Screws on the mount, one (1) 3/8"-16 Set Screw and two (2) 1/4"-20 Set Screws. The purpose of the 3/8"-16 Set Screw is to fix the internal "ball" of the mount from rotating by sitting in the "groove" of the ball. If the "ball" of the mount rotates, then the 3/8"-16 Set Screw is not properly "in" the groove of the ball. Make sure the 3/8"-16 Set Screw is properly fixed in the groove of the ball before initiating the Set Screw tightening steps listed below.

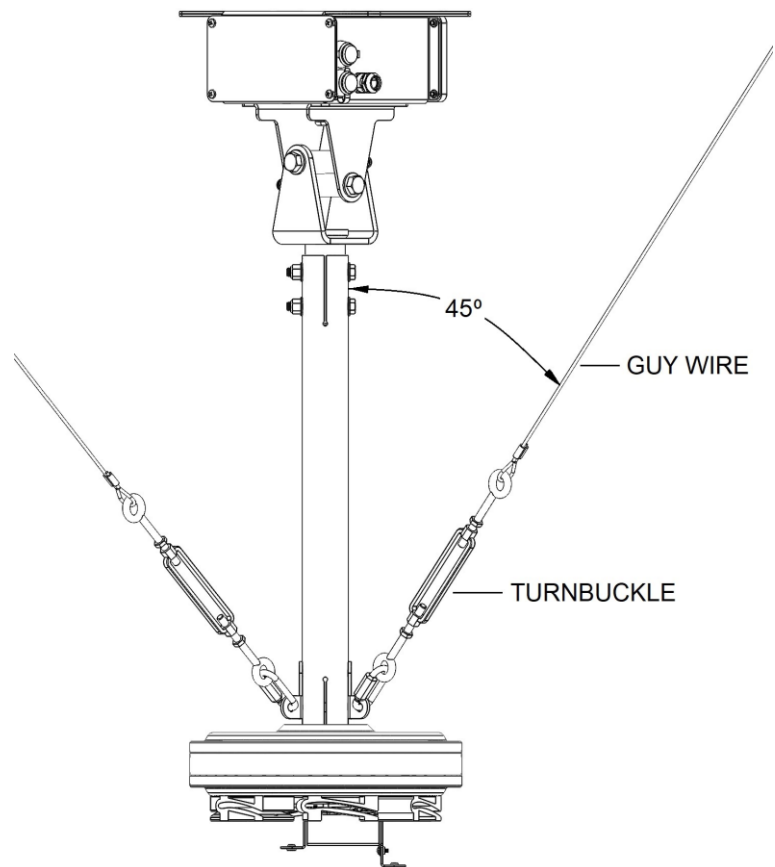
Leveling the fan and tightening the Rapid Commercial Mount Set Screws

1. By holding a level against the extension move the extension until vertical, then move the level 90 degrees around the extension and in that direction move the extension until vertical.
2. Tighten the 3/8"-16 set screw, both of the 1/4"-20 set screws on the mount. Tools needed are a 3/16" Allen wrench and an 1/8" Allen wrench.
3. Repeat step 1 and 2 again and tighten all three set screws a second time.

Guy Wire Installation (use w/UMH Only)



1. Attach the turnbuckle end of the guy wires to the guy wire mounting brackets through the hole provided at each wing.
2. When laying out the locations of the guy wire mounting points, **attempt to maintain a 45-degree angle** between the ceiling and the guy wires and 90-degree angle between each guy wire.



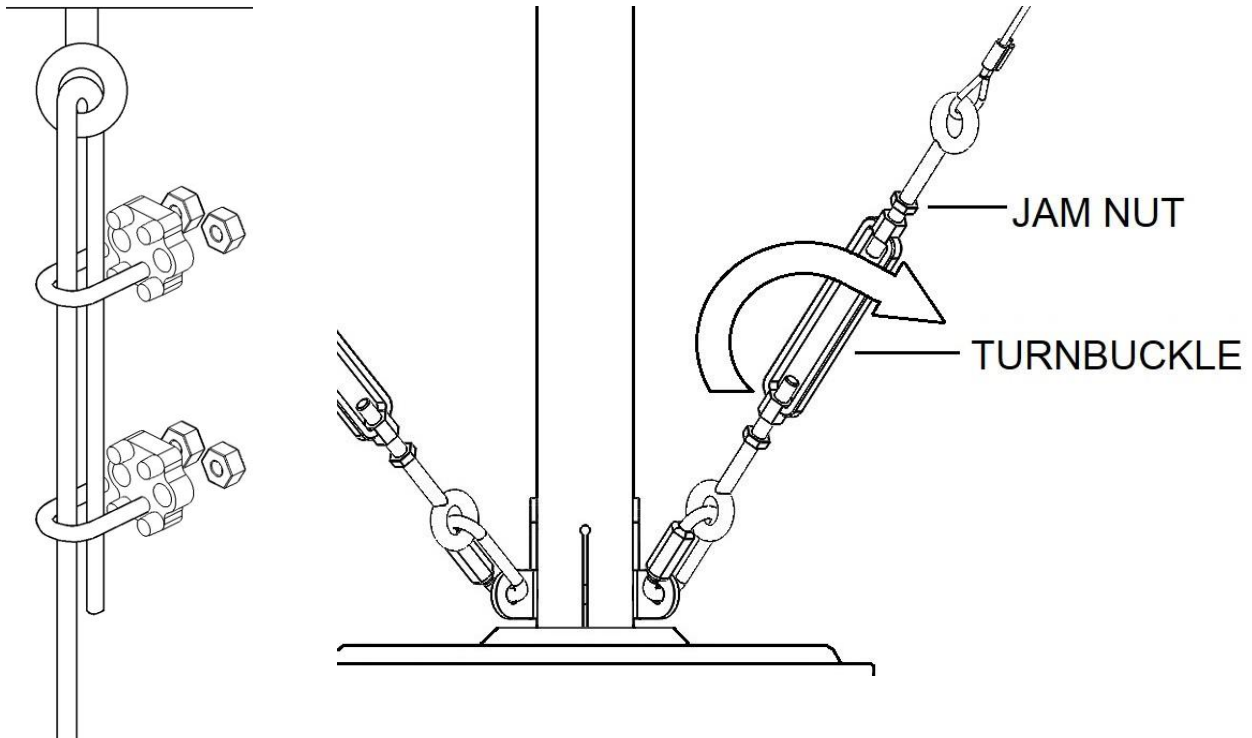
3. Avoid any sharp edges that may contact the guy wire. Guy wires need to be attached to the building structure via 1/2" eye lags or bolts with the provided cable clamps. Eye Lags or bolts are not supplied by MacroAir.

Note: Guy Wires are never used with the Rapid Commercial Mount.

⚠ WARNING: DO NOT wrap the guy wires around the building structure.

Guy Wire Tightening

4. Tighten down cable clamp nuts with a 11mm combination wrench (or socket wrench).



5. With the aid of a level placed against the drop extension, tighten the turnbuckles by hand in a crisscross pattern while periodically checking to ensure that the fan is level.
6. Tighten the turnbuckles until the fan unit is stable in the level position.

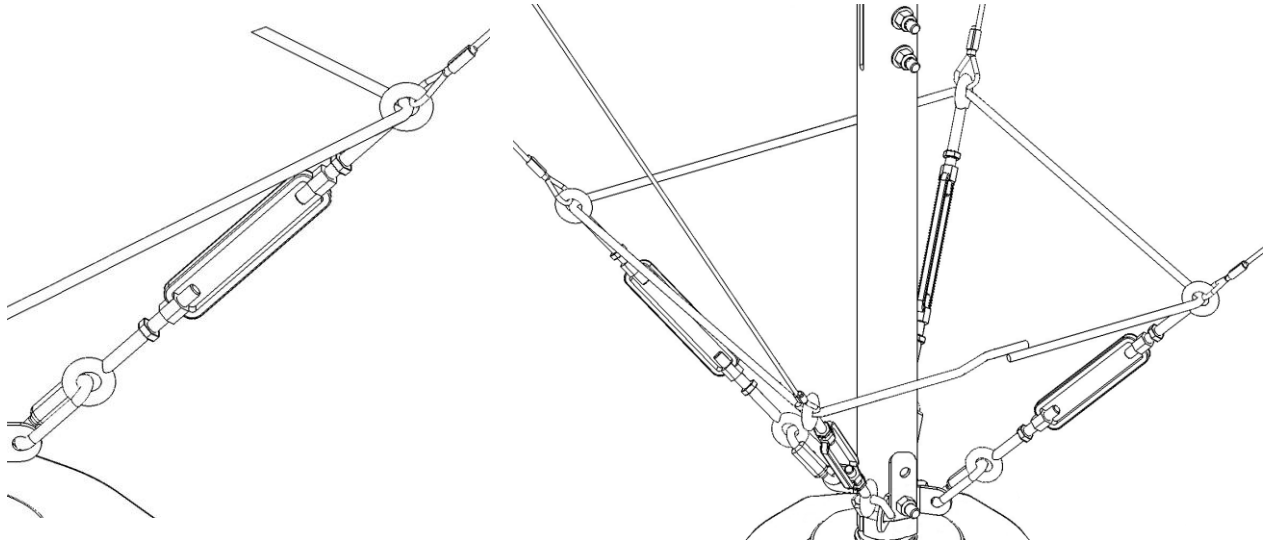
⚠ WARNING: Make sure to not overtighten the turnbuckles.

7. Once all the guy wires are taut (stretched or pulled tight with no slack) and the fan unit is stable and level, tighten the jam nuts on the turnbuckles with a 1/2" combination wrench.

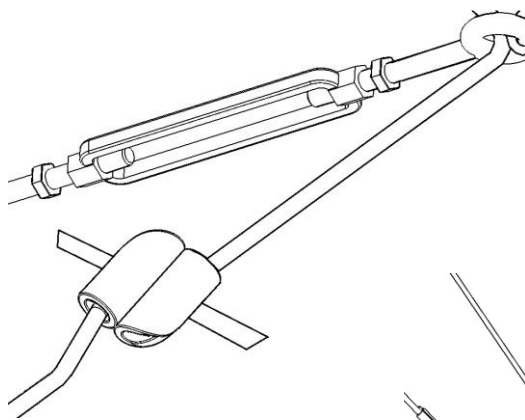
⚠ WARNING: Do not use tools to tighten the turnbuckles; only use tools to tighten the jam nuts.

Guy Wire Band Installation

1. Insert the elastic cord through the top eyelet of each of the 4 turnbuckles.

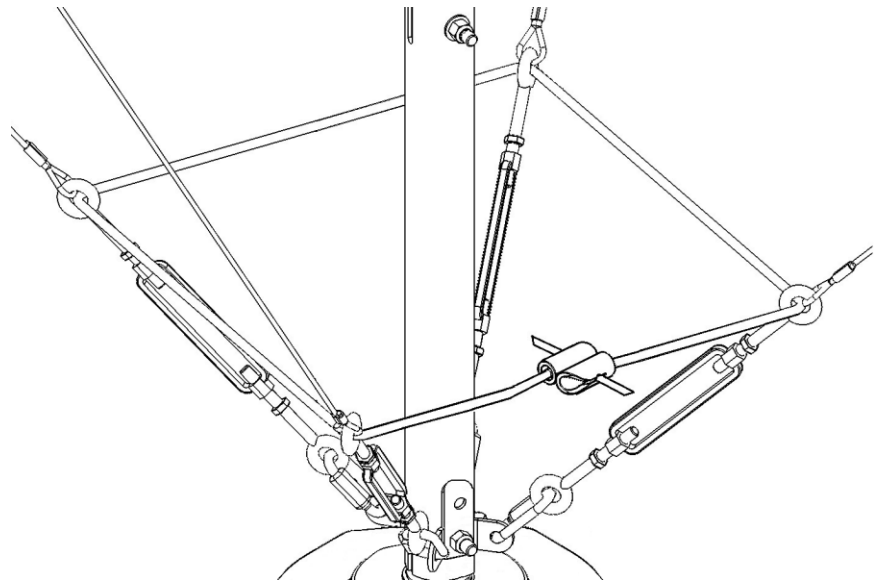


2. Pull one of the ends of the cord through one of the holes on the cable lock and then pull the end into the groove to lock it. Use pliers to properly secure the cord in the groove of the cable lock.



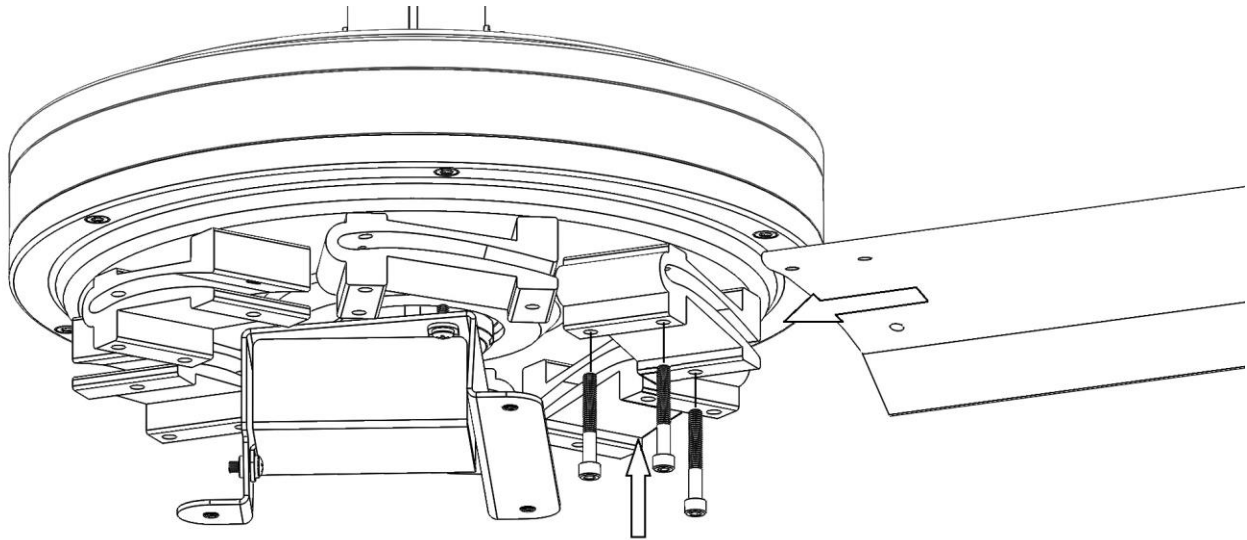
3. Repeat the previous instruction for the second end of the cord using the opposite hole and groove on the cable lock.

4. The safety cord should be pulled tight and fastened as shown.

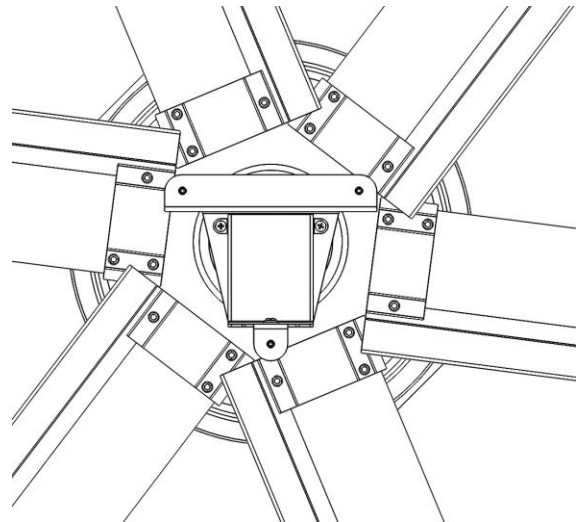


**DO NOT EXCESSIVELY
STRETCH THE ELASTIC CORD.**

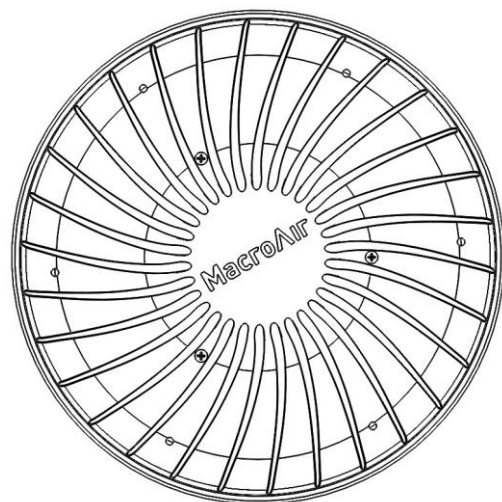
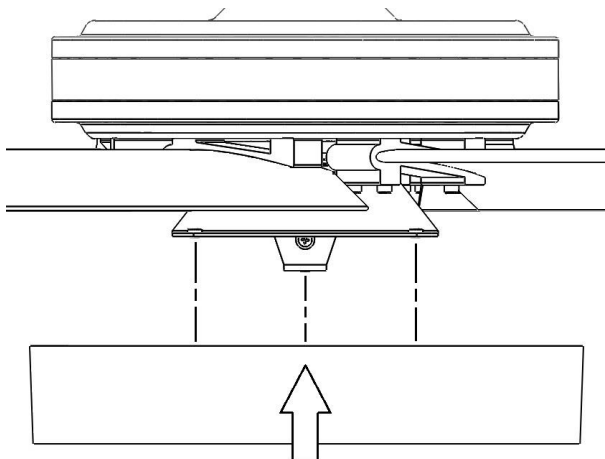
Blade Assembly



1. Slide fan blade into a blade mounting block until mounting holes line up. Insert three (3) 1/4"-20x1-1/2"x1" Socket Head Cap Screws provided in Blade Bolt Kit. Tighten with 3/16 Allen wrench.
2. Install each blade in same manner.
3. Once all the blades are in place, reinstall the MacroAir cover.



4. The three Screws to mount the cover should still be attached to the cover with plastic lock washers.



Electrical & Safety Cable Installation

⚠ WARNING: MOTOR CABLES AND INCOMING POWER MUST NEVER BE RUN IN THE SAME CONDUIT. FAILURE TO INSTALL PER MACROAIR INSTRUCTIONS, INCLUDING WIRING, MAY BE HAZARDOUS, CAUSE PREMATURE FAILURE, AND VOID THE MANUFACTURE'S WARRANTY.

⚠ ATTENTION: Regulatory Notice, EMI (Electromagnetic Interference)

Electromagnetic Interference (EMI) is any signal or emission, radiated in free space or conducted along power or signal leads, that endangers the functioning of radio navigation or other safety services or seriously degrades, obstructs, or repeatedly interrupts a licensed radio communications service. Radio communications services include but are limited to AM/FM commercial broadcast, television, cellular services, radar, air-traffic control, pagers, and personal communications services (PCS). These licensed services, along with unintentional radiators such as digital devices, variable frequency drives (VFDs), and other equipment such as fans with VFDs, contribute to the electromagnetic environment.

Electromagnetic compatibility is the ability of items of electronic equipment to function properly together in the electronic environment. MacroAir Fans variable frequency drives, VFDs, are designed to be in compliance with regulatory agency limits for EMI. However, there is no guarantee that interference will not occur in a particular installation. If MacroAir's products (fans) do cause interference with radio communications services, which can be determined by turning the fans off and on, please notify MacroAir technical support.

MacroAir Technologies' products are designed, tested, and classified for their intended electromagnetic environment. These electromagnetic environment classifications generally refer to the following harmonized definitions:

Class A is typically for business or industrial environments.

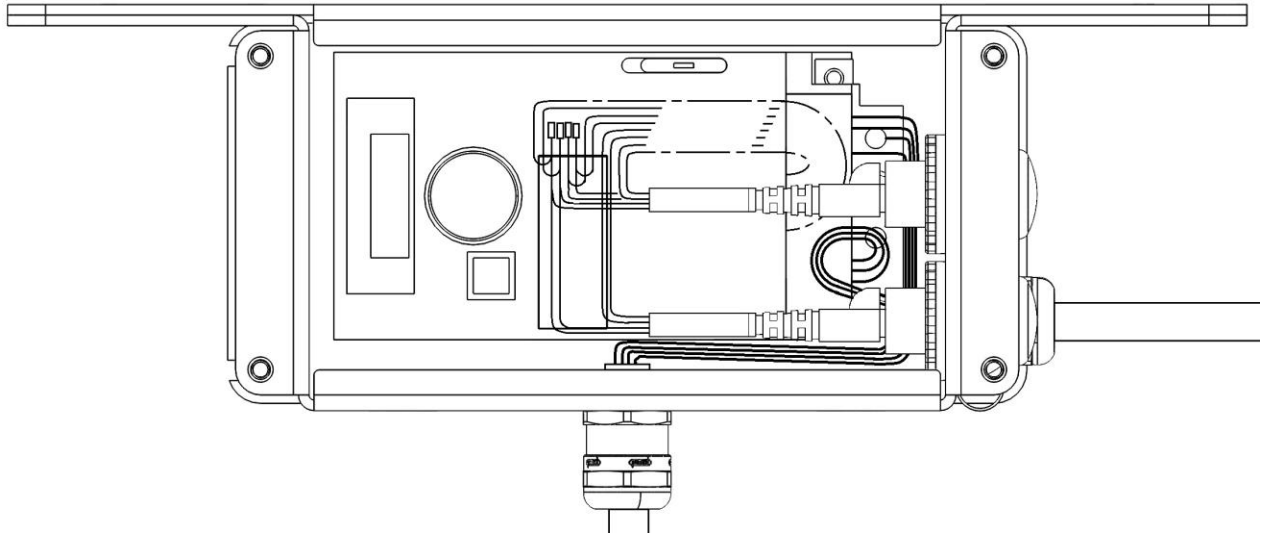
Class B (MacroAir products are **NOT** designed for typical residential environments covered under this classification).

CODE COMPLIANCE IS THE RESPONSIBILITY OF THE INSTALLER, AND ULTIMATELY, THE END USER. All wiring should conform to the National Electric Code (NEC) 2005, ANSI/NFPA 70-1999, and all local codes. This fan control should only be installed by qualified technicians familiar with the requirements of the NEC and local codes.

Note: MacroAir Technologies has a policy of continuous product improvement and reserves the right to change design and specifications without notice.

If you have any questions, please contact MacroAir technical support.

Control Panel Overview



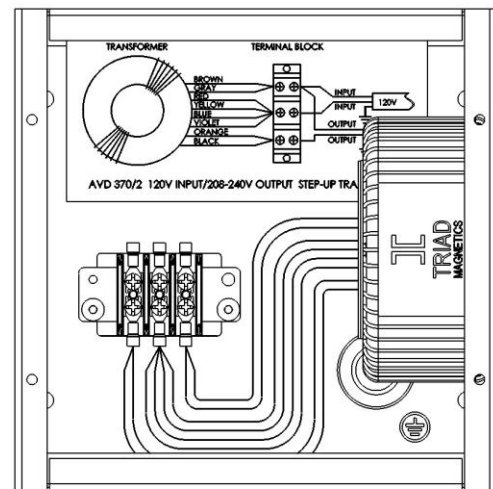
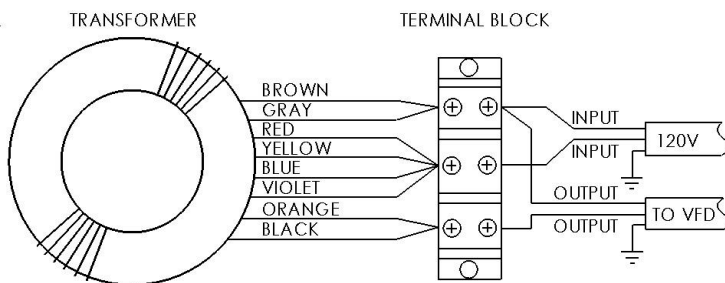
Control Panels come pre-wired, as illustrated above.

1. Make sure the control wiring is CAT5e shielded, stranded or greater.
2. The Motor Cable and Cable Gland does come pre-installed.
3. Connect Stranded, Shielded CAT5e to RJ45 labeled “in” or “controller” for single touchpad controller.
4. 25 feet of shielded power cable is provided exiting the control panel to be used to connect to power source.

Step-Up Transformer Panel Overview

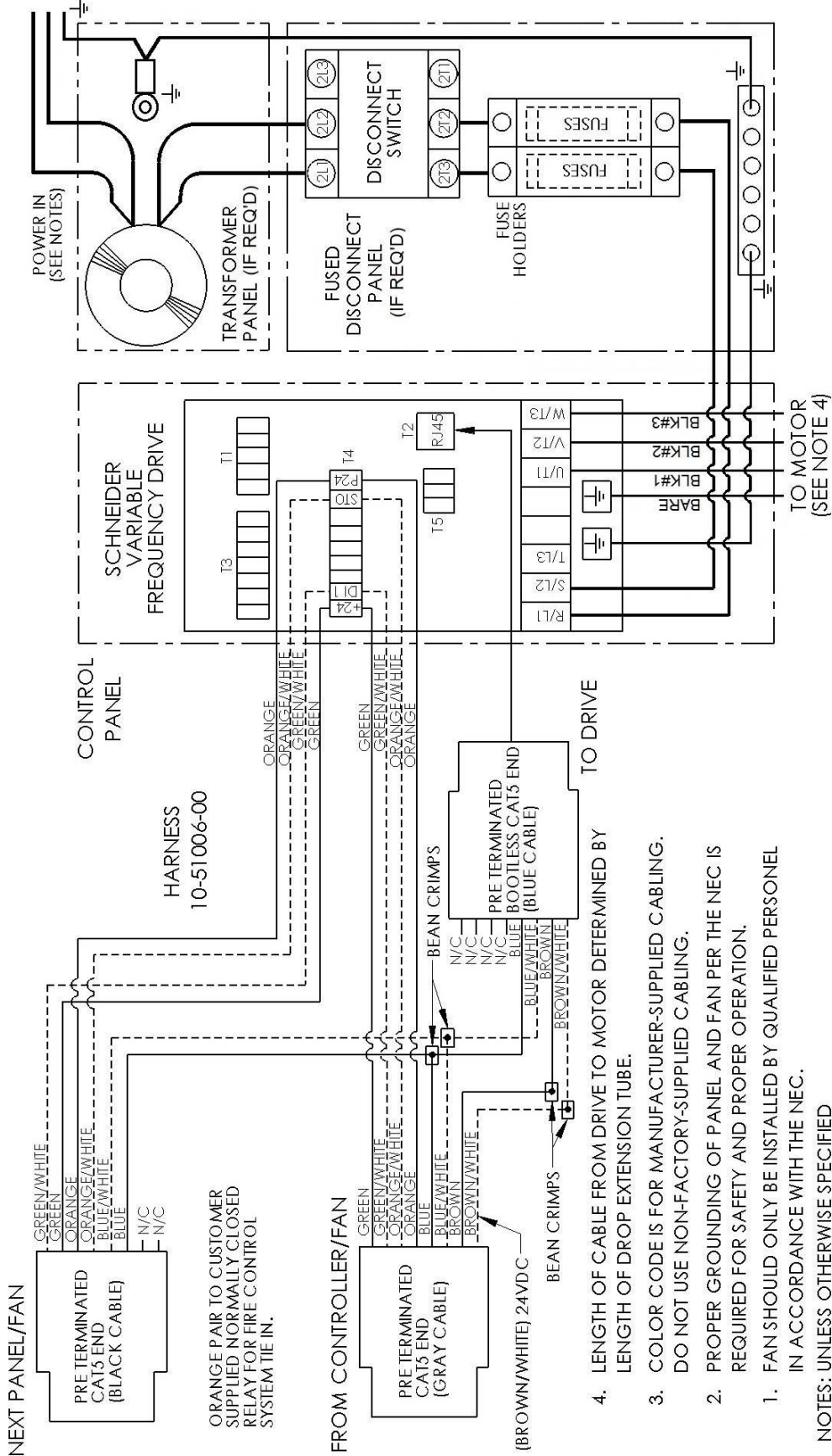
100-120VAC Option: A MacroAir Step-Up Transformer Panel is required for applications where the available line power is 100-120VAC. The Step-Up Transformer comes prewired as illustrated here and is mounted using best industry methods.

A wiring diagram is shown below and a general wiring schematic for 100-120V is provided on page 41.

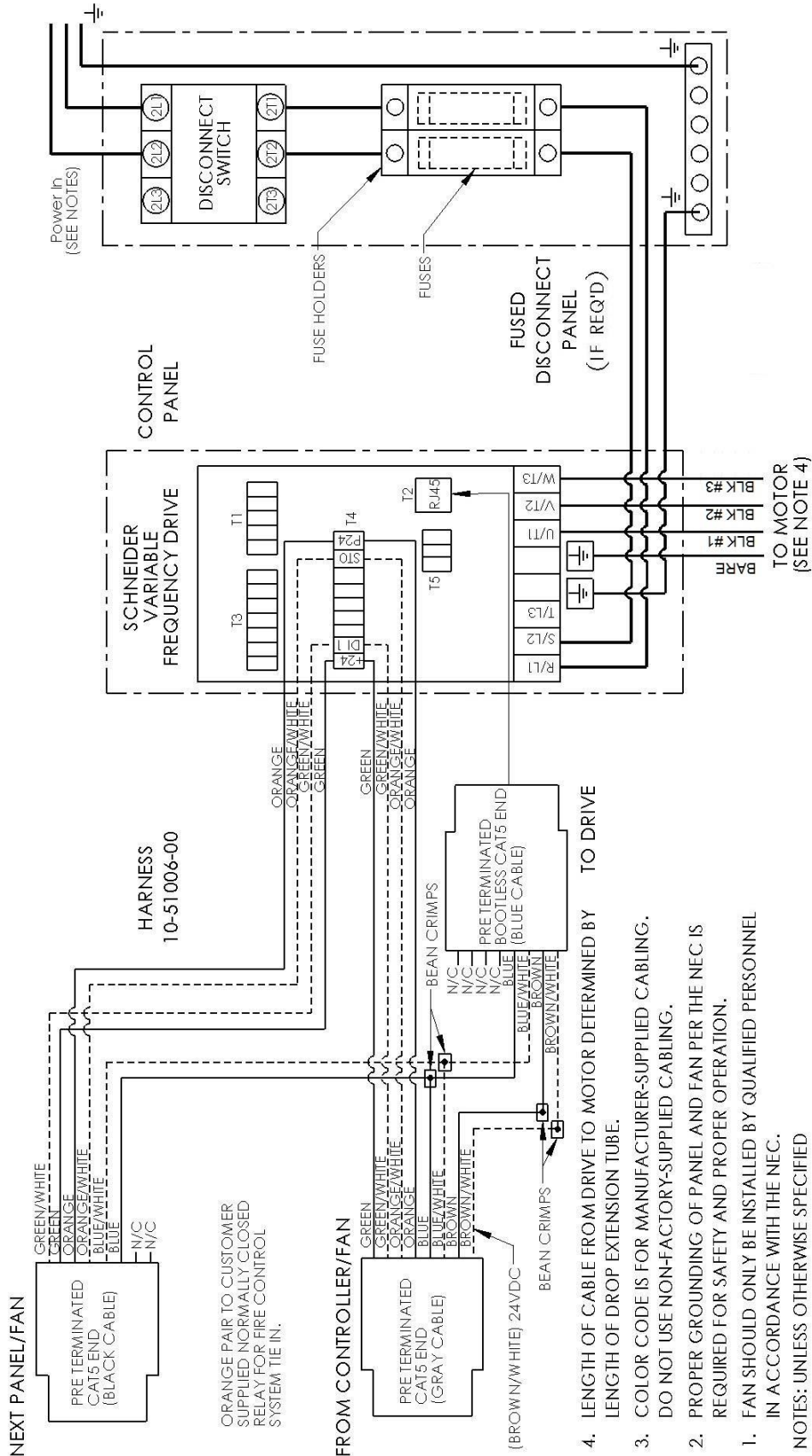


SHOWN WITH COVER REMOVED

Digital Control Panel Schematic (100-120V, 1PH)



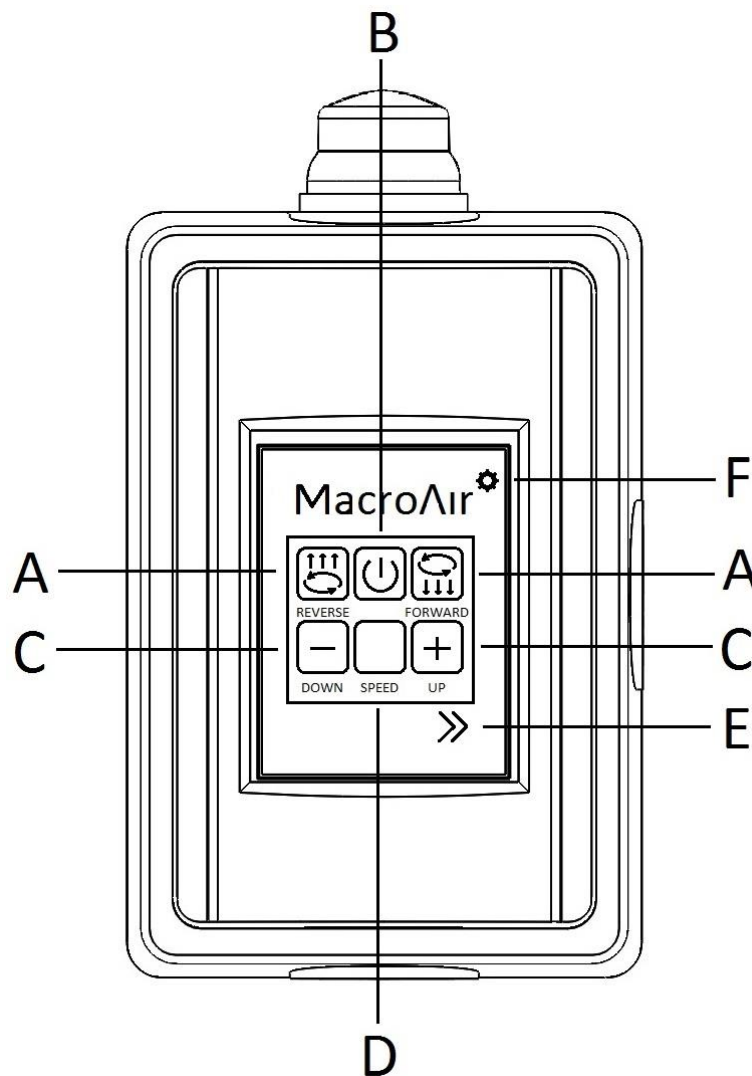
Digital Control Panel Schematic (208-240V, 1PH)



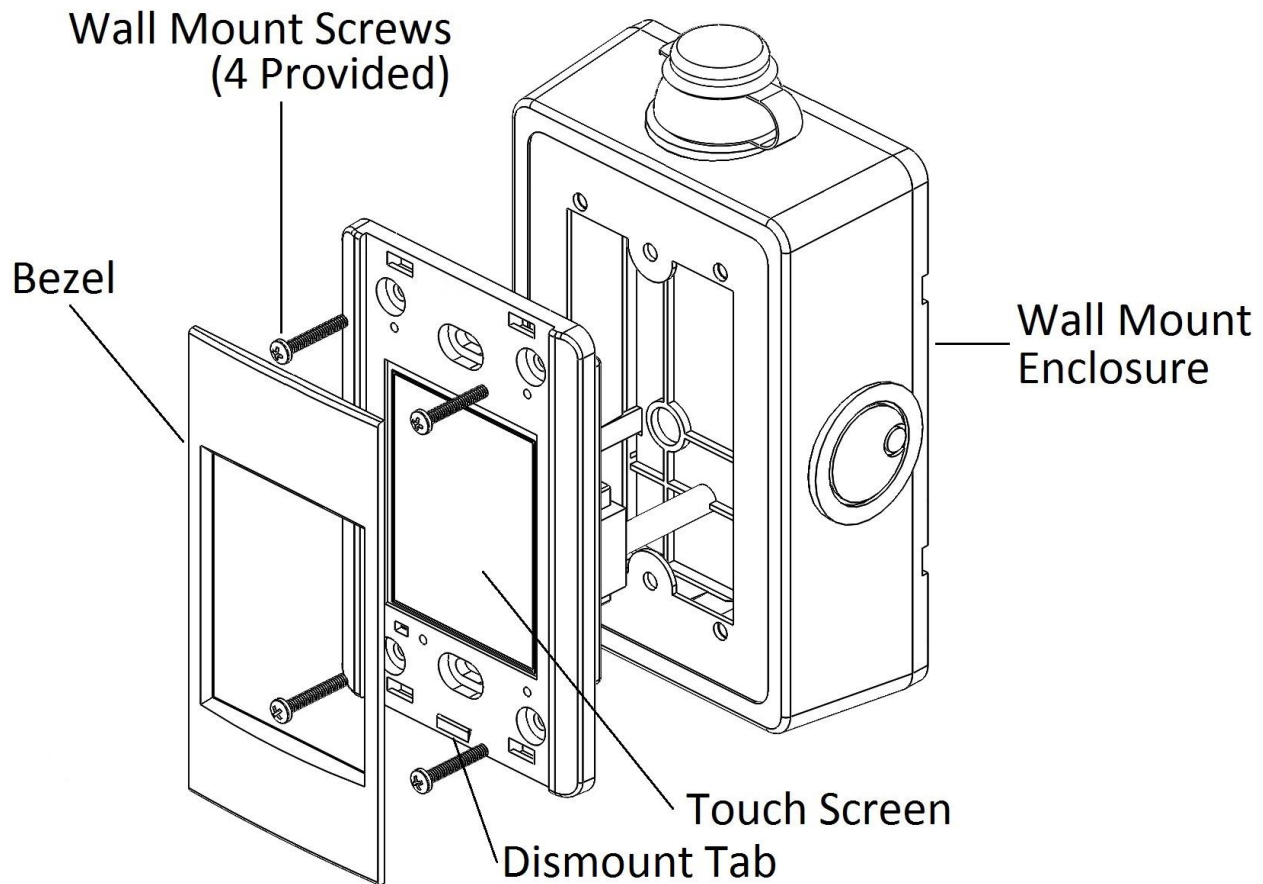
Touchpad Remote User Interface

Buttons:

- A** – Forward / Reverse: Select fan rotational direction.
- B** – Power Button: Turn the fan on or off (forward or reverse must be chosen to start the fan).
- C** – Speed Up / Speed Down: Increase or decrease the speed of the fan.
- D** – Speed Box: Real-time indication of fan speed.
- E** – Navigation: Navigate to the next screen.
- F** – Settings: Displays settings and information about the fan.



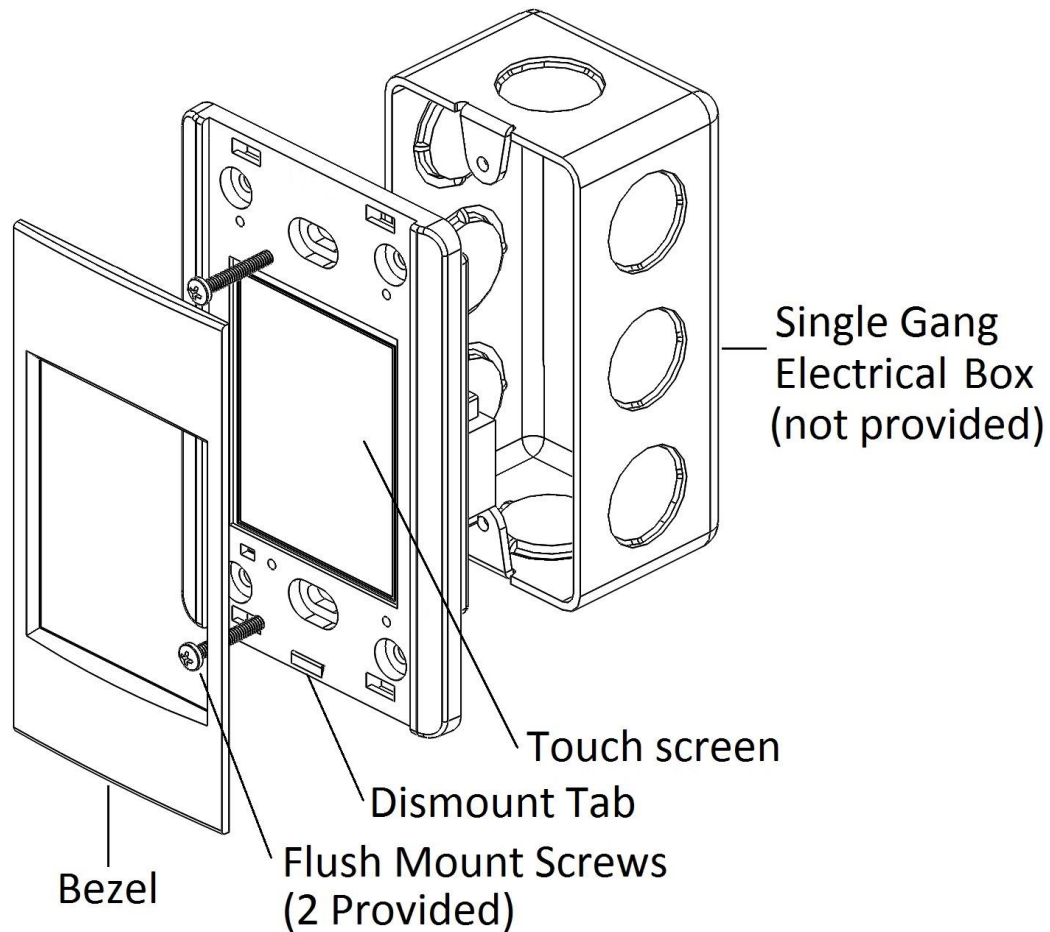
Touchpad Remote Installation



Wall Mounting (Provided)

1. Gently remove the front bezel from the touch screen using a small flat tipped screwdriver where the bezel notch meets the dismount tab located at the bottom of the touch screen.
2. Mount the base plate of the enclosure to the wall using the 4 provided wall anchors and screws.
3. Snap the front of the enclosure to the base plate.
4. Plug in the pre-wired Stranded, Shielded CAT5e cable from the screen into the RJ45 coupler inside the enclosure.
5. Secure the touch screen to the enclosure using the 4 provided screws.
6. Lock the provided bezel into place via the plastic tabs.
7. Plug the provided Stranded, Shielded CAT5e cable from the fan into the RJ45 on the outside of the enclosure.

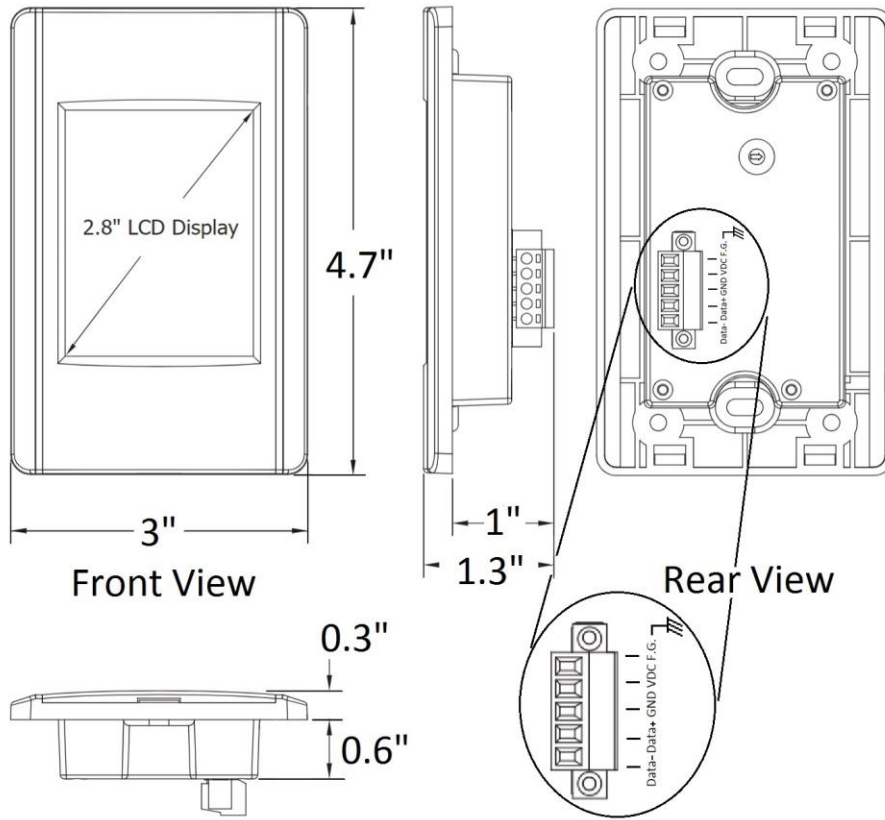
Touchpad Remote Installation (cont.)



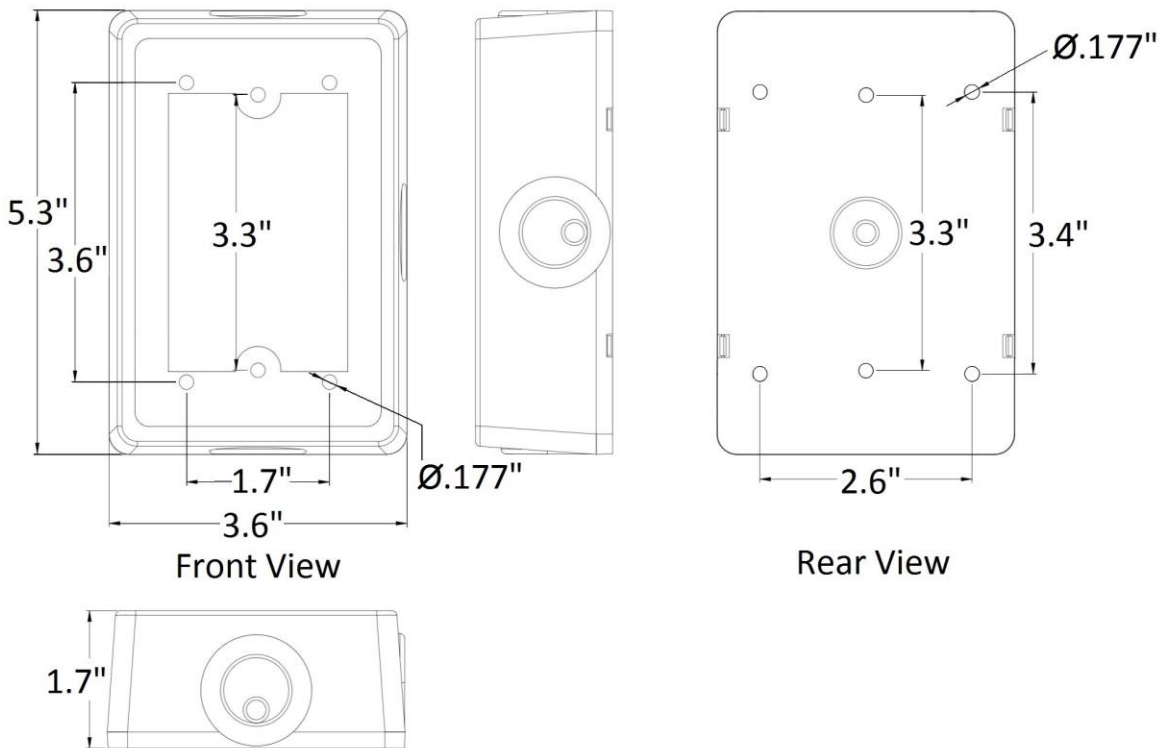
Flush Mounting (Not Provided)

1. Gently remove the front bezel from the touch screen using a small flat tipped screwdriver where the bezel notch meets the dismount tab located at the bottom of the touch screen.
2. Install the single gang electrical box (not provided).
3. Run the provided Stranded, Shielded CAT5e cable from the fan into the single gang electrical box.
4. Plug the remote cable into the pre-wired Stranded, Shielded CAT5e cable from the screen using the provided RJ45 coupler.
5. Secure the touch screen to the enclosure using the 2 provided screws.
6. Lock the provided bezel into place via the plastic tabs.

Touchpad Remote LCD Display

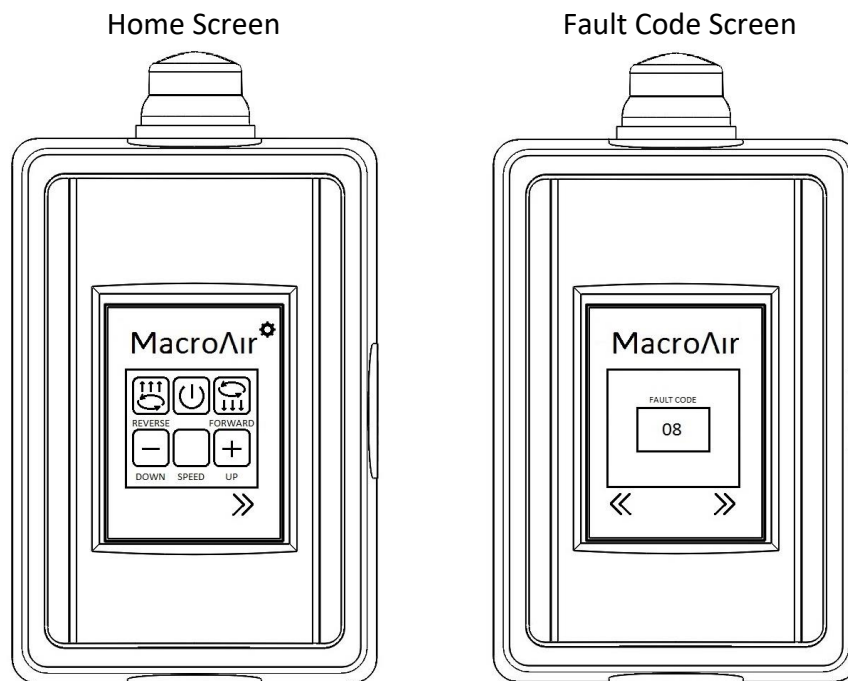


Touchpad Remote Enclosure



Touchpad Remote

1. Upon first power-up of the touchpad, the correct fan diameter will need to be selected.
2. After the blade size is selected, navigate to the next page using the arrow in the lower left to reach the “Setting Blade Size” page.
3. Once Setting Blade Size is done, press the lower left arrow to get to the Motor Type Screen. Then the lower left arrow again to get to the address screen. Change to the desired address and press the Reset button. If you do not need to change the address, press the arrow in the lower left until you are at the fan control screen.
4. If the fan stops operating unexpectedly, navigate to the fault code screen using the bottom right arrow and record any fault codes (if present). Click the reset button until the display reads ‘0’ or none. Then, attempt to run the fan again. If the fan is still not operating, navigate to the fault code screen via the navigation arrows at the bottom of the screen and document the code(s) displayed and call technical support at 866-668-3247. NOTE: Some faults can only be read from the VFD.



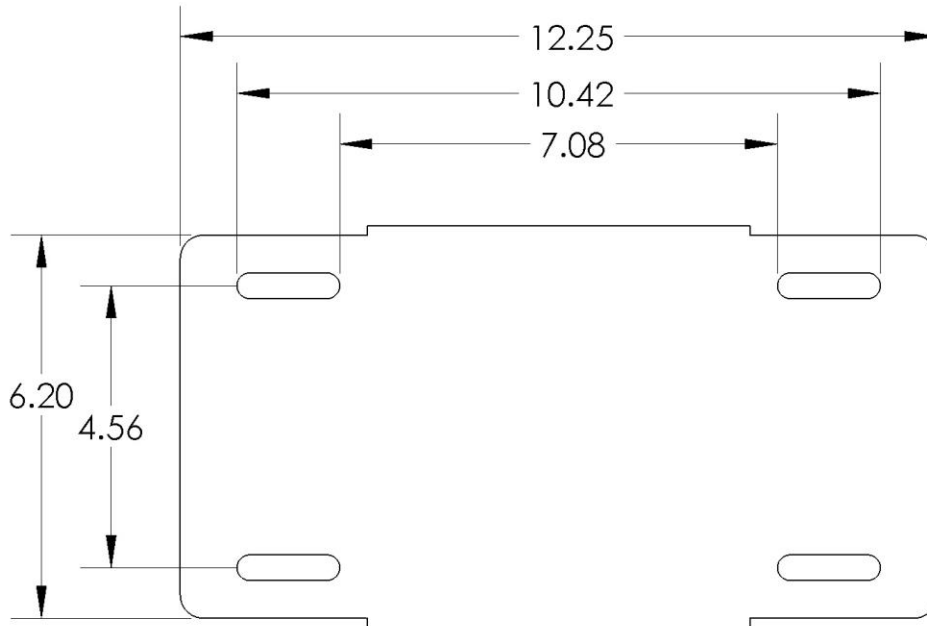
Network Controller 30

1. Press the Settings button in the upper right corner.
2. Once on the Settings page, Press the Admin Login button and enter your credentials. The default Username and password are both "admin".
3. Once you are successfully logged in under Admin, go back to the fan control screen.
4. Once on the Fan screen, press the Configure button.
5. Once on the Configure screen, input the correct fan diameter and number of blades.
6. Press "Done" to return to the Fan Control Screen.

Note: For clarification of these and other procedures refer to the Manual included with your MacroAir Controller 30.

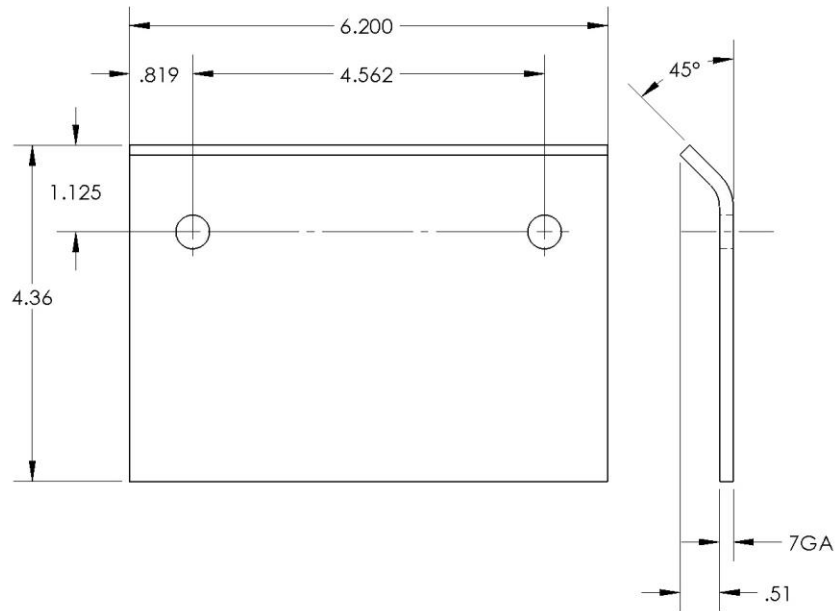
Mounting Bracket Hole Patterns

Standard Mounting Pattern
On Control Panel

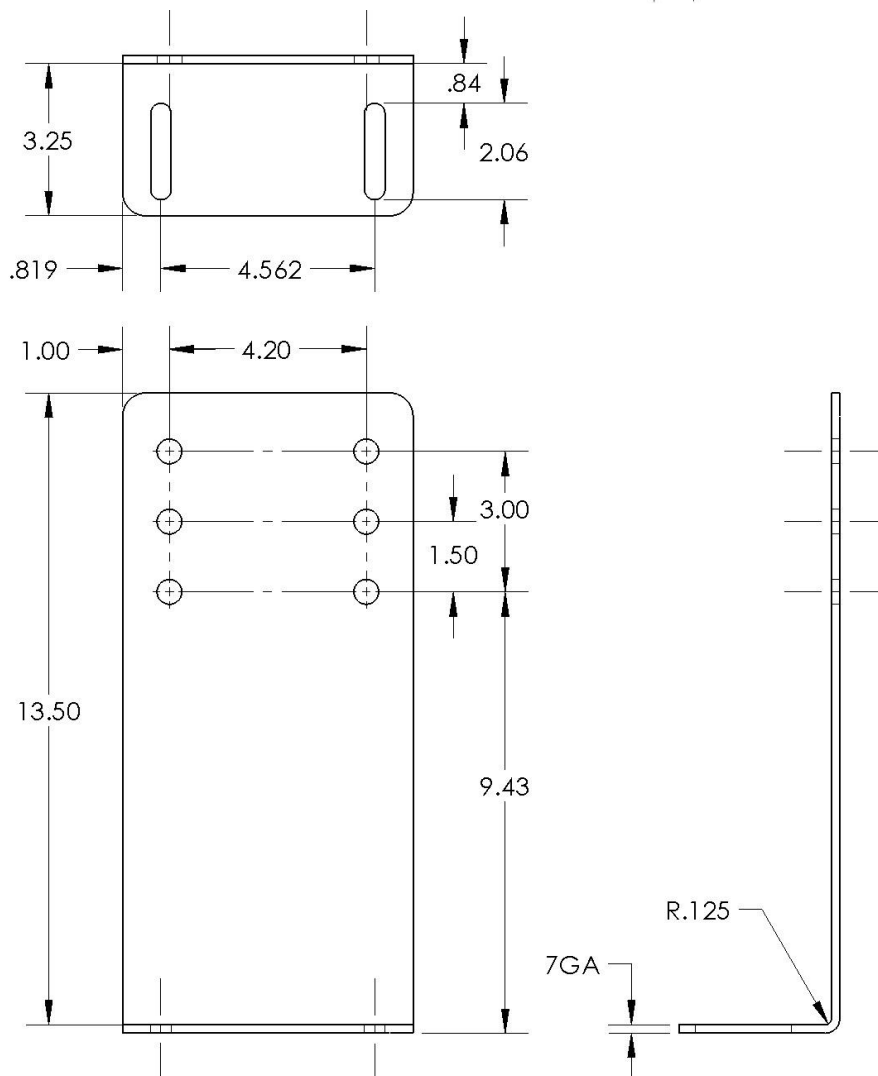


Mounting Bracket Hole Patterns, cont.

I-Beam Bracket



Glulam Bracket



Maintenance

Guy Wire Check (if applicable): Checking a MacroAir fan's guy wires for tension and inspecting for frayed sections could mitigate a problem before it occurs. The guy wires should be under enough tension to prevent any movement in the motor unit or the extension tube. If the motor unit can be moved by pushing on it, the guy wires need to be tightened. Fan owners should confirm that the guy wires are not wrapped around any sharp edges. MacroAir recommends attaching guy wires to the building with eyebolts or eye lags. If they are not already installed with eyebolts or eye lags, we urge fan owners to install these to help keep the guy wires from fraying. If guy wires are installed with turnbuckles, jam nuts should periodically be checked to ensure tightness. If they are loose, the guy wire cables may need to be re-tensioned.

Blade Cleaning: Depending on the type of commercial application the MacroAir fan is in, there can be quite a bit of dust or other particulates that cling to the fan's blades. While this may not affect fan performance, we recommend fan owners keep blades clean by having a maintenance person or skilled trade professional – who has experience using a lift – wipe the fan blades with a rag or sponge using hot water or mild cleaning solutions. Please do not use chlorine or any chemicals containing chlorine.

Safety Cable Check: Each MacroAir fan comes with a safety cable. Depending on the fan model, the safety cable either wraps around the building structure and the fan frame or comes out of the top of the fan and wraps around the building structure. The safety cable is an important part of the safety system and acts as a last resort should an earthquake, collision, or similar catastrophic event occur. As such, it is vital for fan owners to ensure that the safety cable is intact and properly secured.

Reverse Operation: The beauty of MacroAir HVLS fans is that they are built to run in forward and reverse mode. However, changing the direction of your fan can put initial stress on the fan if it has not been properly checked. It is a good idea to make sure guy wires, safety cables and all bolts and nuts are tight. Cleaning the fan before switching directions will prevent dust and other particles from falling off the fan airfoils when turning in the opposite direction.

Maintenance Plan: Things to look for include properly torqued fasteners, rust, cracked welds, unusual noise, hub migration/movement, guy wire loosening or movement.

Years 1-10: One inspection on lift per year.

Year 11 and beyond: Annual inspections from a lift and seasonal inspections both before and after the busy season from the ground.

NOTE: If there are issues or concerns discovered during an inspection, please contact the service and technical support department at MacroAir for help.

CONTACT US: For installation assistance, application questions, technical sales support & any other inquiries, please contact us at **(866) 668-3247**.

Troubleshooting

Please refer to the table below if you experience issues with the fan operation.

Symptoms	Possible Solution
The fan is not turning and the lights on the VFD are lit.	Flip disconnect switch to "OFF" for 30 seconds and then flip switch to "ON". Ensure that the VFD is properly connected to the motor.
The fan is not turning and the lights on the VFD are NOT lit.	Confirm that there is power coming from the building.
The fan is spinning in reverse when forward is selected.	Confirm the motor is wired in the correct order per page #32.
The fan will rock and will not start.	Confirm that the correct fan diameter is set on the controller.
The fan is spinning too slow/fast.	
The fan is shutting off at high speed.	
The fan is operating noisily.	Confirm that there is nothing interfering with any moving parts. Confirm that the correct fan diameter is set on the controller.
The fan is wobbling.	Confirm that the fan is level, and the guy wires (if present) are properly installed and tightened. If the fan is installed on Unistrut, confirm with a structural engineer that the mounting is adequate for the fan weight and torque.

If your issue cannot be resolved using the table above, please contact MacroAir technical support at **(866) 668-3247**.

Warranty

MacroAir warrants the Products listed in the table below will be free from defects in materials and workmanship under normal use and maintenance for the applicable Warranty Period. Other than the Warranty set forth in this document, no other written or oral warranties apply, and no employee, agent, dealer, or other person is authorized to give any other warranties on behalf of MacroAir.

START DATE OF WARRANTY COVERAGE

Warranty Period begins fifteen (15) days following shipment of the Product, or on the date the Product is installed (not to exceed sixty (60) days Customer receives the Product), whichever date is later. Customer should retain necessary documentation to verify the date of receipt and installation of the Product. The customer will be required to produce this documentation in order to obtain Warranty services from MacroAir. The Warranty specified herein applies only to Products purchased on or after April 15, 2021.

PRODUCTS AND SYSTEMS COVERED BY THIS WARRANTY AND APPLICABLE WARRANTY PERIODS:

Fan Type	Mechanical: Blades, Hub & Frame	Standard Electrical ¹ : Motor, Electrical Controls, Remote	Labor
AVDX	15 Years	10 Years	1 Year
AirVolution	15 Years	7 Years	1 Year
AirLegacy	15 Years	5 Years	1 Year
AVD3	10 Years	7 Years	1 Year
AVD 370	10 Years	5 Years	1 Year

WARRANTY COVERAGE:

Subject to the exclusions herein, the MacroAir Warranty covers any defects in workmanship or materials of the covered Products under normal operation and prescribed maintenance when those defects adversely affect the ability of the Product to operate properly.² The Warranty only covers Products which have been installed in compliance with MacroAir's written installation instructions by a state-qualified or licensed electrical contractor and operated and maintained by the Customer in conformity with MacroAir's written instructions, and when the Product is purchased directly from MacroAir or a MacroAir Authorized Dealer.

This Warranty is subject to all provisions, conditions, limitations, and exclusions explained in this Warranty document.

*Scan QR code or visit macroairfans.com/warranty for full warranty information.



¹ "Standard Electrical" means any common electrical component that is utilized across more than one fan line will assume the higher warranty period.

² "Operate properly" applies only to mechanical, electrical, and structural systems of the Product.

MA

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