



Installation, Operation and Maintenance Guide

FC-400 Series



OUR MISSION

To improve health and wellness by actively restoring indoor air to its pure, natural state where no pollution or contaminants exist, while reducing energy use and emissions in the process.

IMPORTANT

Save this Document
for Future Reference &
Warranty Information



AtmosAir.com
CAG-05-21-003

!IMPORTANT!

READ THIS BEFORE STARTING INSTALLATION.
DO NOT THROW AWAY THIS GUIDE.

For safe installation you **MUST**:

- Always disconnect power to the unit before handling any of the components.
 - DO NOT connect to the power before the installation is complete and personnel are aware of the imminent operation. Secondary voltage to the ionization tube can be as high as 3000 Volts AC.
 - Carefully read this instruction booklet before beginning the installation.
 - Follow each installation or repair step exactly as shown and explained in this guide.
 - Observe all local, state, national and international electrical codes.
 - Pay close attention to all warnings and caution notices given in this guide.
-

How to Contact Us: If you need help, please contact an AtmosAir Representative for technical assistance.

!CAUTION!

Do not touch while in operation shut off electricity before servicing!
This equipment should be inspected frequently and collected dirt removed from it regularly to prevent excessive accumulation that may result in flashover or risk of fire.

!MISE EN GARDE!

Ne touchez pas pendant le fonctionnement couper l'électricité avant l'entretien
Cet équipement doit être inspecté fréquemment et la saleté collectée doit être retirée régulièrement pour éviter toute accumulation excessive pouvant entraîner un contournement ou un risque d'incendie.



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01 PRODUCT OVERVIEW

The AtmosAir FC-400 series ionization generators are designed for installation in air conditioning systems or in custom-designed air distribution systems. AtmosAir equipment is effective in reducing odors and harmful pollutants through the introduction of positive and negative ions into the airstream to be treated. The number and size of the ionization units used is dependent upon the airflow, size of the space, and severity of the pollution and odors. The AtmosAir FC-400 series equipment is designed for minimal maintenance. The FC-400 series has two components that require inspection and maintenance:

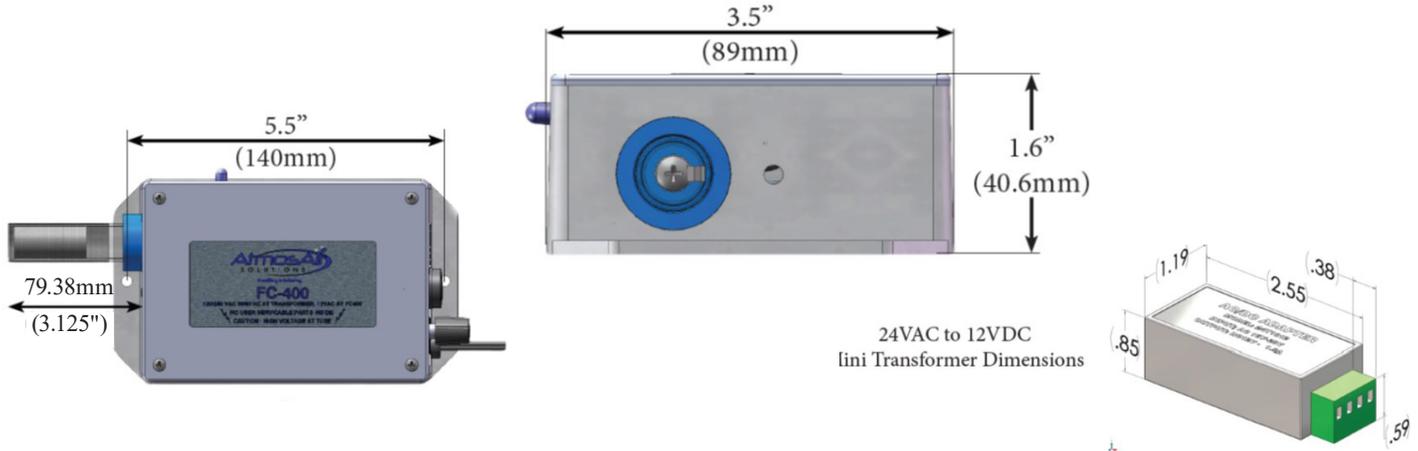
1. AtmosAir FC-400 series base unit components + fuse
2. Ionization tube

There are no user-serviceable components inside.

Because there are no moving parts, little maintenance is required, and the systems have very low failure rates. For more information, read the AtmosAir FC-400 series submittal document.

FC-400 Diagram

AtmosAir FC-400 Layout:



- A. Power Input
- B. Ionization Tube
- C. Blue LED Power Light
- D. Mounting Holes
- E. Fuse Holder
- F. 24 VAC to 12 VAC Mini Transformer

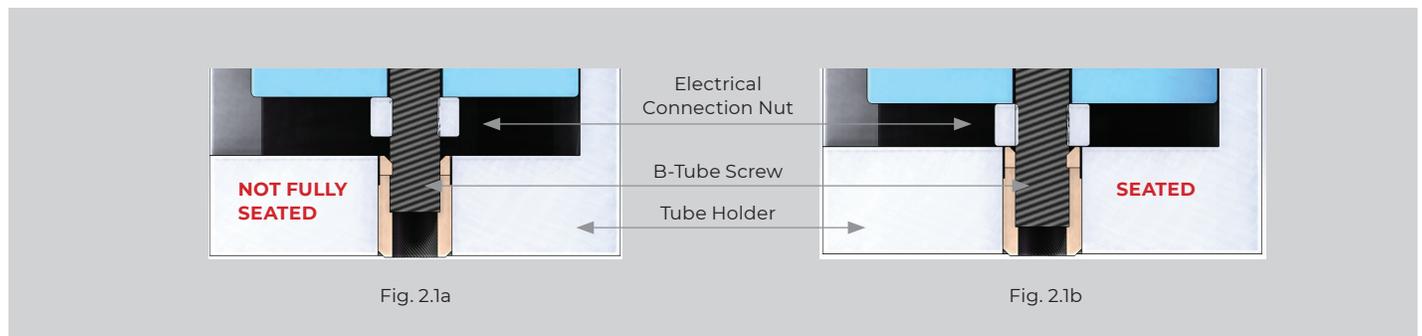
Overall Mounting Plate Dimensions:
 152.40mm (6") L x 88.90mm (3.5") W x 40.64mm (1.6") H

02 INSTALLATION

AtmosAir FC-400 series equipment are mounted using the baseplate mounting flange. The units operate best when located after all filters, coils, and fans. Various mounting arrangements are possible; however, the available options may be limited due to size and configuration restrictions. When mounted, the FC-400 ionization system should not be exposed to condensing moisture or excessive heat (refer to the Product Submittal for maximum environmental temperature specifications). The AtmosAir FC-400 operates on 100-250 VAC, 50/60 Hz. The tube and electrode contacts should not come into contact with any conductive surface. A minimum 38.1mm (1.5") clearance around the tube is recommended.

Mechanical Installation

1. Carefully remove the equipment from its shipping container. Inspect the box, components, and tubes for damage. Verify that the unit's voltage rating is the same as the available voltage, 100-250 VAC 50/60 Hz.
2. **Install the ionization tube:** Gently pull the conductor strap back to allow the tube to turn freely; screw the end screw of the tube into the tube-holder hand-tight. Ensure that the tube is **FULLY SEATED**.
3. Once the tube is secure, return the conductor strap to its normal position and ensure solid, flat, and continuous contact is made with the tube's outer mesh. (See page 8.)
4. **Location and Orientation:** Install the unit downstream of filters, coils, and fans with tubes perpendicular to airflow whenever possible. Contact AtmosAir Engineering for Installations outside this scope.
5. Mark the drill holes for the self-tapping screws to mount the FC-400.
6. Affix the unit securely using self-tapping screws. Do not over-tighten, this may strip the screw-hole.
7. Units should be installed to allow easy access for maintenance. Install units so that the power adjustment knob, fuse, and status light are easily accessible, variable, and visible.



!!!WARNING!!!

The secondary voltage to the ionization tubes can be as high as 3000 volts AC. Do NOT connect to power before the installation is complete and all personnel are aware of imminent operation. Always disconnect power to the unit before handling any of the components.

Electrical Installation

- AtmosAir FC-400 series systems require an average of 4.5 watts per unit.
- **Follow proper electrical procedures, guidelines, and codes for providing power supplies to the systems.** Including requirements for conduit, sufficient ampacity, phase balancing, etc. Electrical installation should be performed by a qualified electrician.
- Field-install a power plug outlet or power receptacle within 1.83 meters (6') of the unit(s).
- Each FC-400 series unit is shipped with an 2.44 meters (8') power cord with a field install pair of wire hot/neutral connector on one end and a quick-disconnect plug on the other end. The FC-400FM has a polarized quick-disconnect on the unit. Each unit is shipped with two wiring options per country-specific requirements:
 1. Two-conductor, field wire connection (No Ground)
 2. NEMA 5-15 two-prong plug adapter

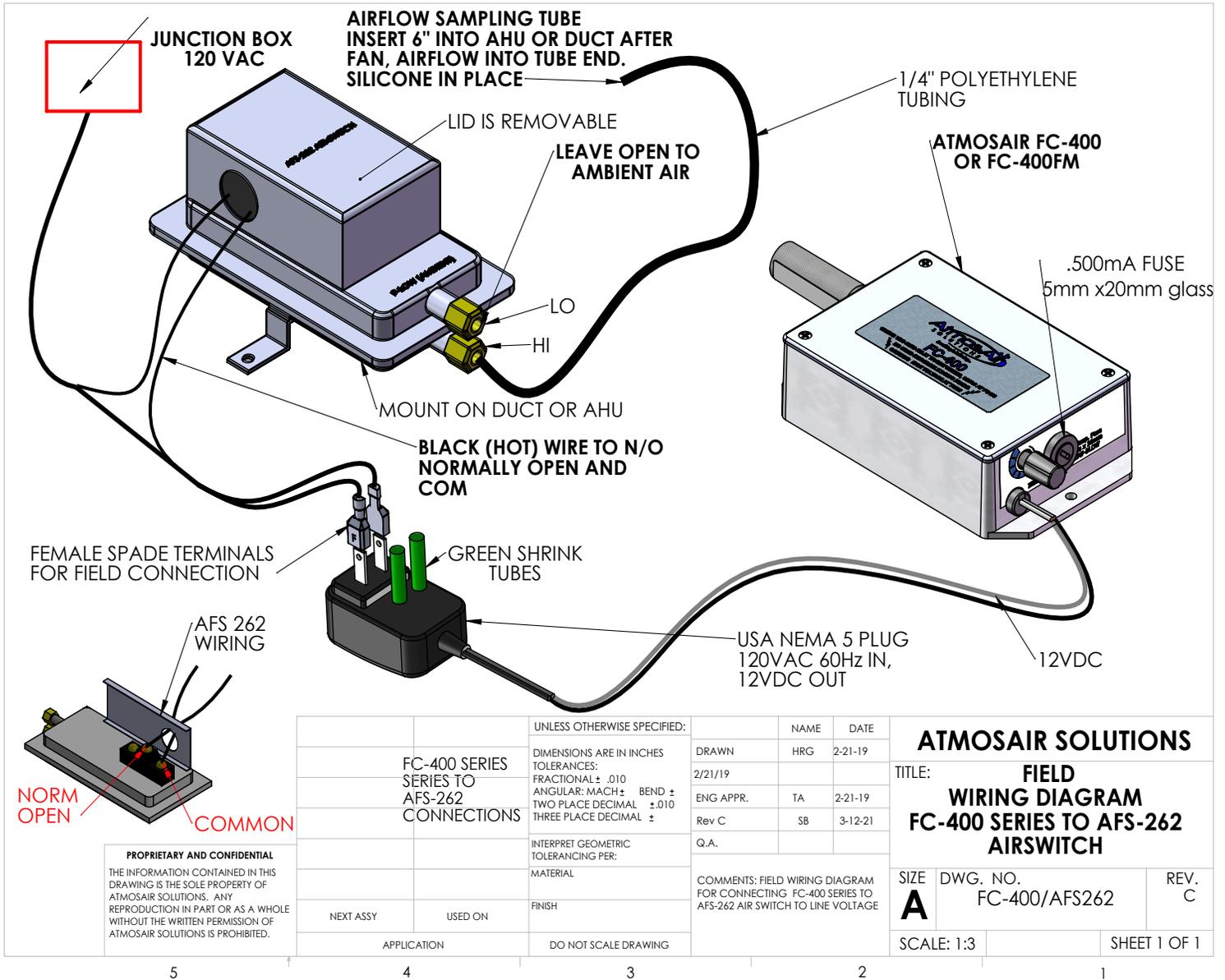
!!!WARNING!!!

THE SECONDARY VOLTAGE TO THE IONIZATION TUBE CAN BE AS HIGH AS 3000 VOLTS AC. DO NOT CONNECT TO POWER BEFORE THE INSTALLATION IS COMPLETE AND ALL PERSONNEL ARE AWARE OF IMMINENT OPERATION. ALWAYS DISCONNECT POWER TO THE UNIT BEFORE HANDLING ANY OF THE COMPONENTS.

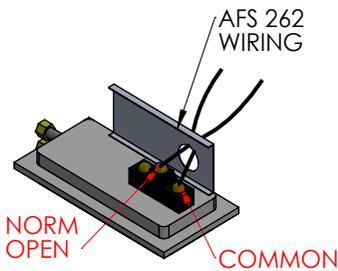
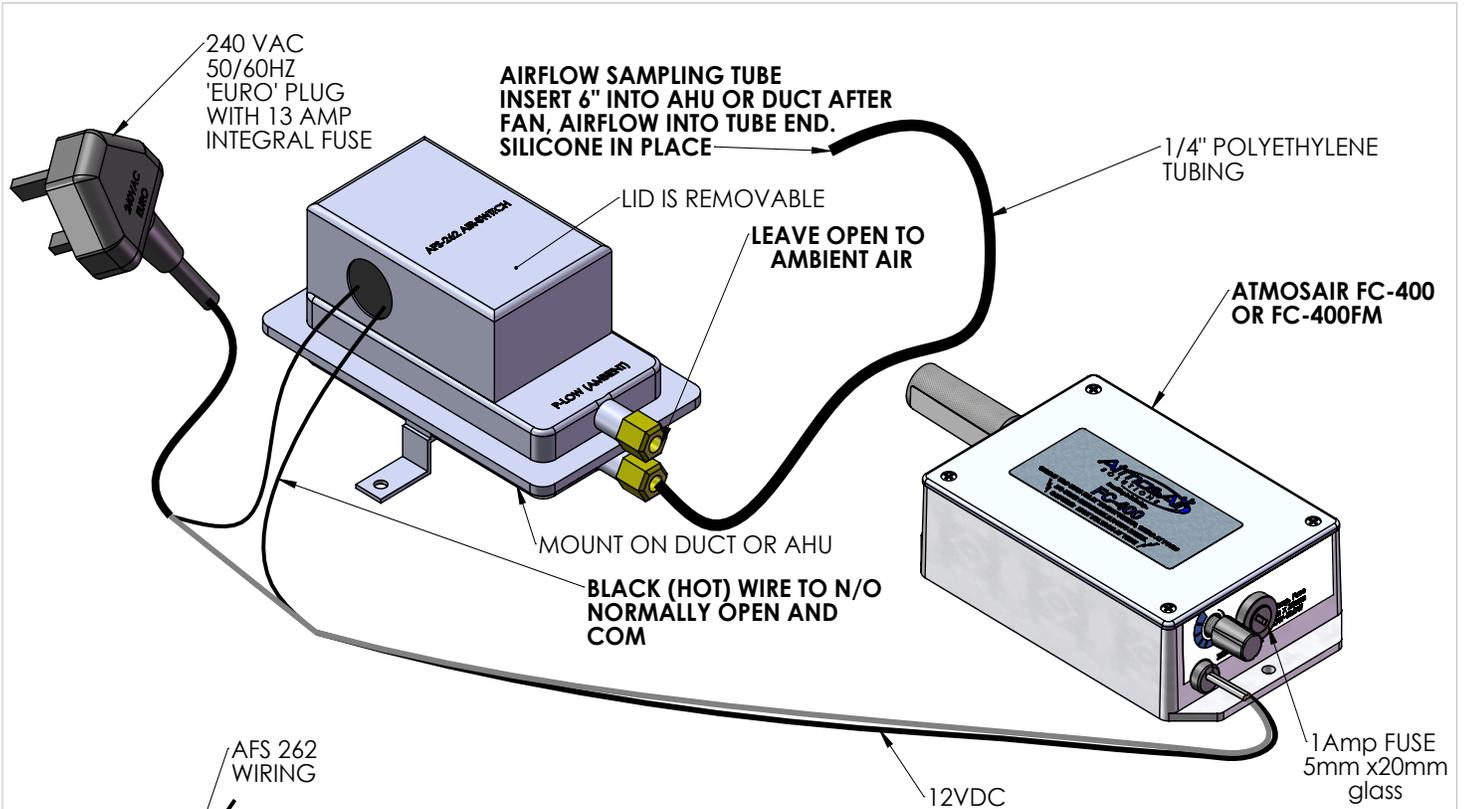
Caution!

A non-functioning LED light may improperly indicate that the system is not functioning. Be sure to disconnect from the main power before performing maintenance or troubleshooting the system.

03 FIELD WIRING DIAGRAMS



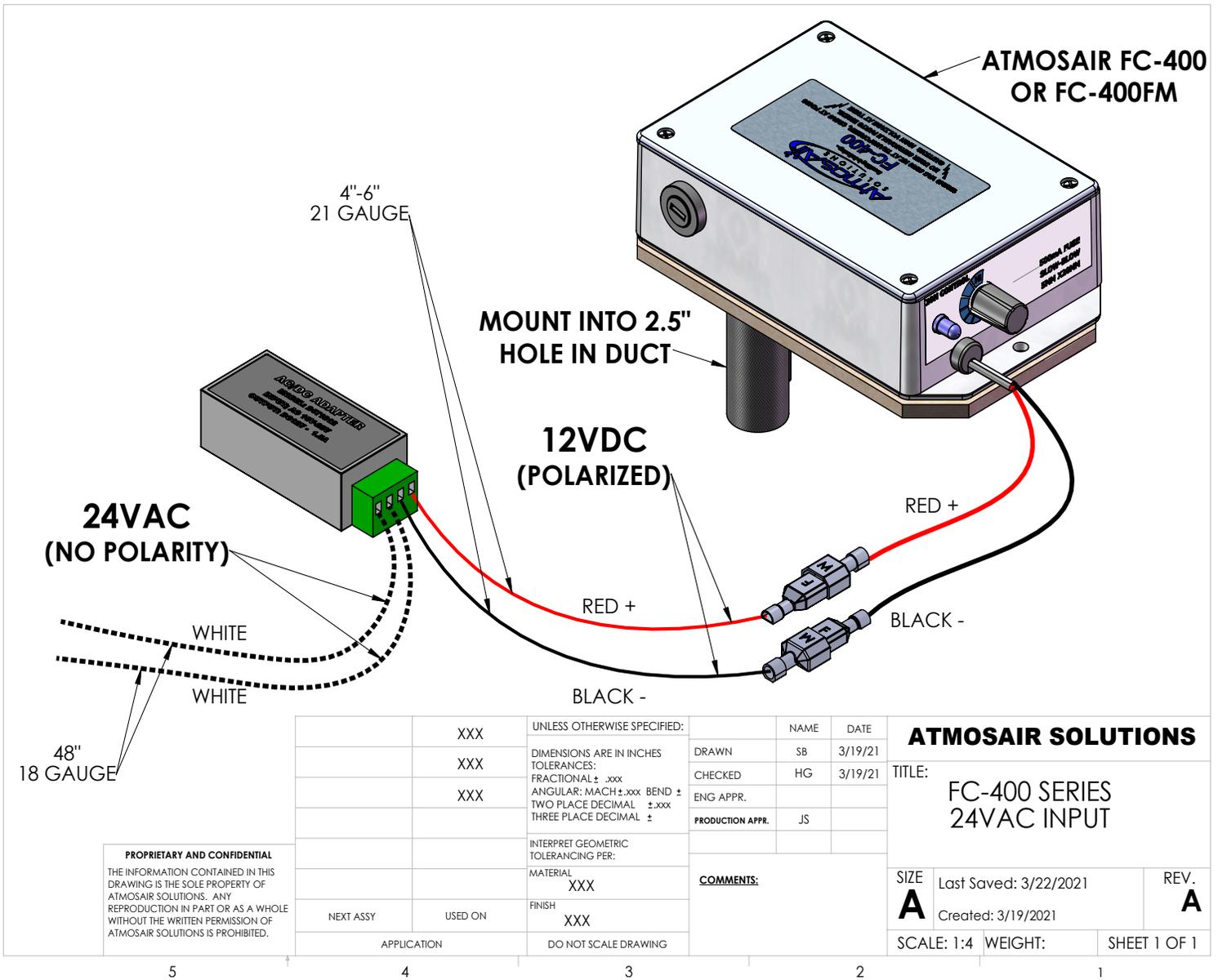
03 FIELD WIRING DIAGRAMS CONTINUED



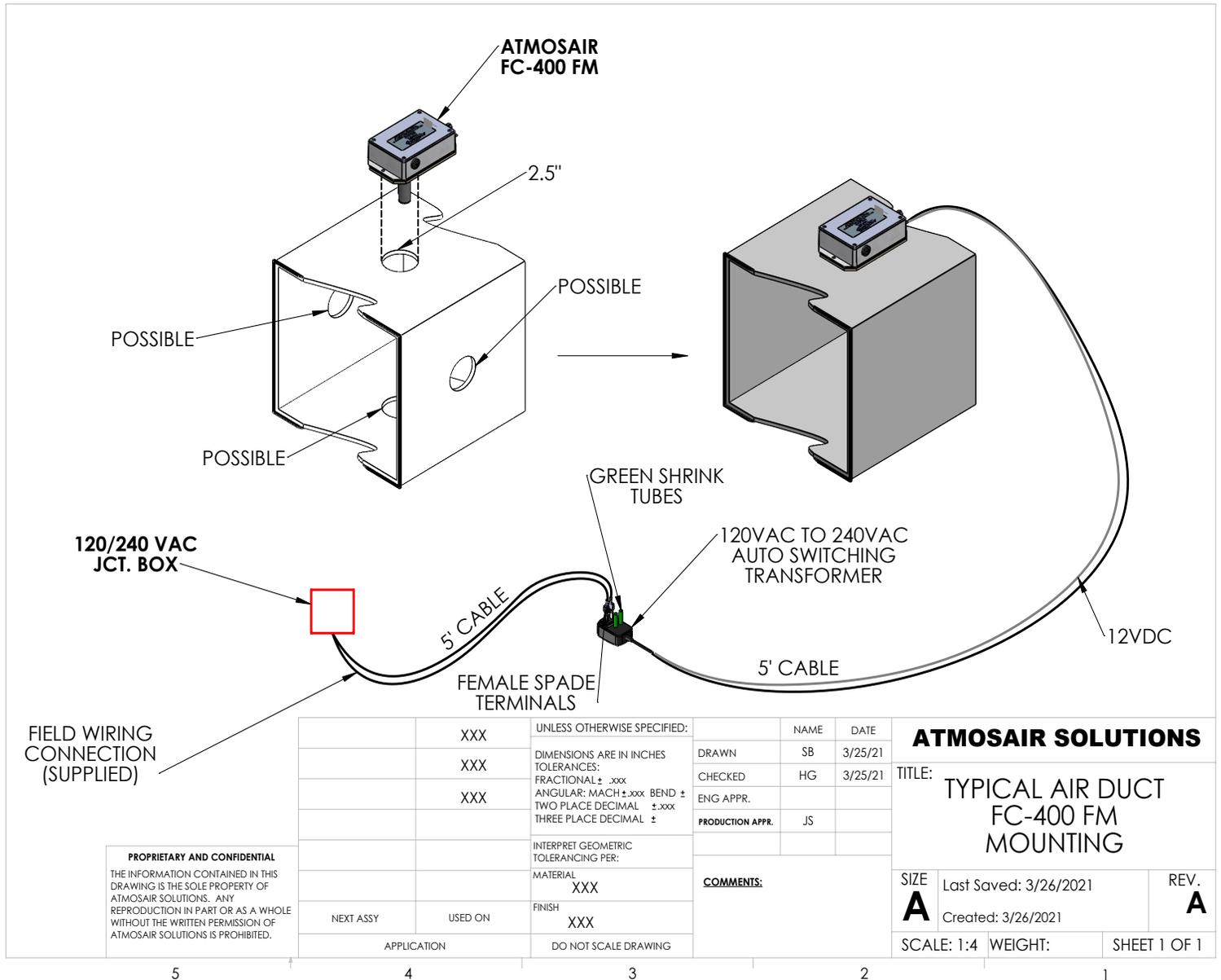
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						SCALE: 1:3	SHEET 1 OF 1

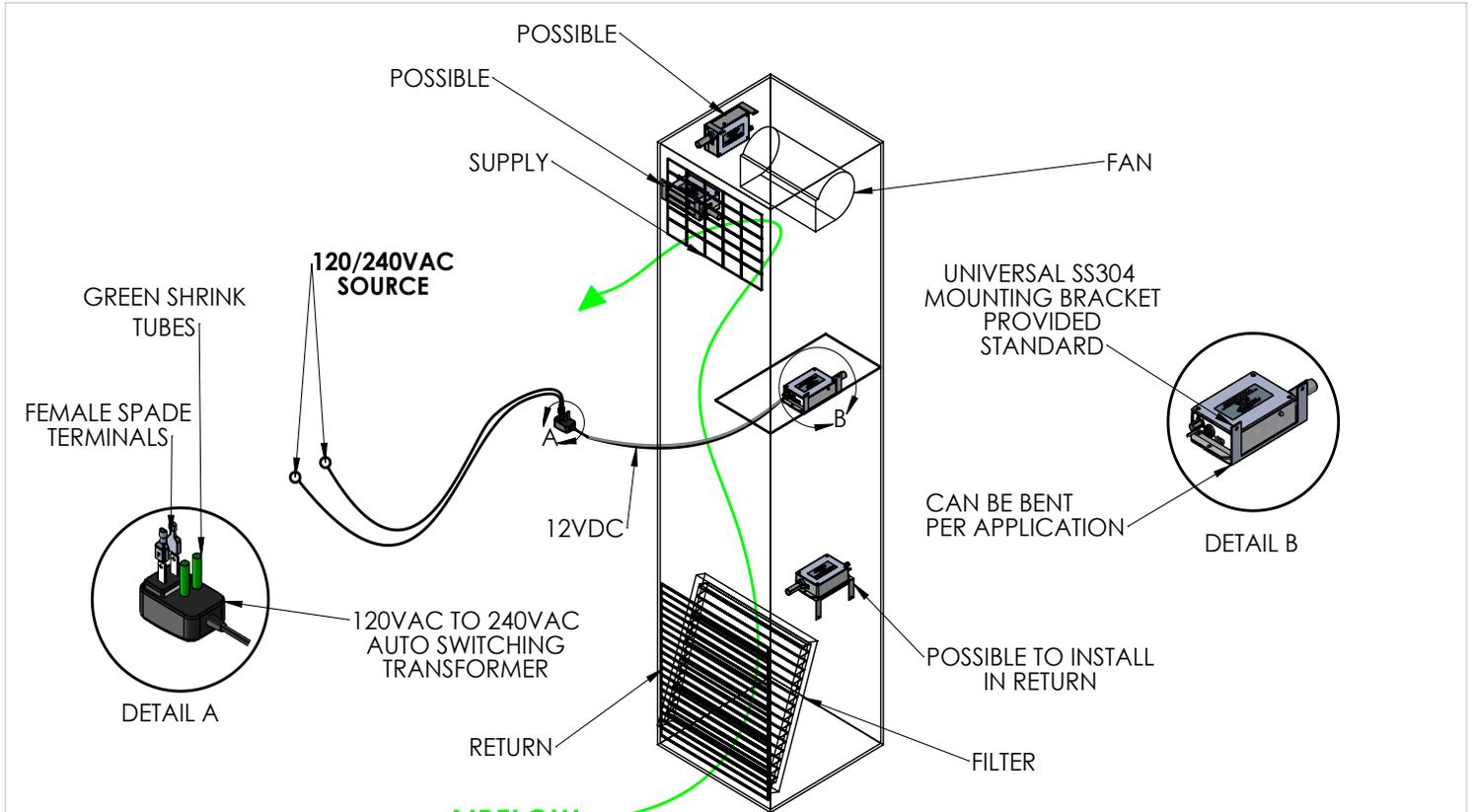
03 FIELD WIRING DIAGRAMS CONTINUED



03 FIELD WIRING DIAGRAMS CONTINUED



03 FIELD WIRING DIAGRAMS CONTINUED



FC-400 UNIT TYPICALLY INSTALLED IN SUPPLY, HOWEVER UNDER SPECIAL CIRCUMSTANCES CAN BE INSTALLED IN RETURN

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ATMOSAIR SOLUTIONS		
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04 OPERATION

Once the system is properly installed and all personnel are clear of the high voltage tubes, the system can be turned on:

1. Ensure the ionization power knob is turned to the appropriate quadrant: from low to high clockwise. Typically, it is suggested to start at a baseline of 50% ionization. Twenty-four hours later, re-evaluate your air quality and adjust accordingly.
2. Plug the power cord on the FC-400 ionization system into the plug receptacle.
3. Once the FC-400 system is plugged in the system will be on. Check that the blue embedded LED light is lit. The LED is programmed to indicate that the system is on, ionization has been activated, and high voltage is being sent to the tube.
4. Settings are determined upon commissioning and installation with the Criteria below:
5. The system is intended to deliver ions into the treated area such that the ion levels should be between 350 and 1500 negative ions/cm³. The desired ion increase is dependent on many factors, including space, use, contaminant level, humidity RH, and distribution effectiveness. An authorized AtmosAir design consultant should recommend the desired ion increase and appropriate system layout.

05 MAINTENANCE REQUIREMENTS

Caution!

A non-functioning LED light may improperly indicate that the system is not functioning. Be sure to disconnect from the main power before performing maintenance or troubleshooting the system.

The maintenance requirements on an AtmosAir system are mainly site-dependent; a heavily contaminated environment may require more frequent inspection and maintenance. Annual system maintenance is recommended. A bi annual tube replacement is required. Your local AtmosAir dealer can provide you with an annual service contract.

Recommended Maintenance Procedures:

- Visually check the performance of the system by checking the blue light on the unit. If not, proceed to the troubleshooting section for repair. Maintain a physical distance between all personnel and the tubes while system is operating or turned on.
- **Optional:** Check performance using a high voltage probe paired with a multimeter (minimum of 5000 V probe). Contact AtmosAir for additional minimum probe specifications. Follow proper safety procedures for dealing with high voltages. If you are uncertain, do NOT perform any maintenance with the power on and proceed to the next step.
- Disconnect the system from the main power before performing any maintenance steps.
- Inspect the unit box, plastic tube caps, and tube-mounting area. Remove particles from mounting area, and thoroughly wipe clean any tracks or grooves that may have developed in the plate or caps.
- Inspect connections: tightness of all nuts and screws; remove deposits on the connections using wire brush or similar tool - it may be necessary to remove the tubes for this step.
- It may be beneficial to clean the tubes to improve performance. The tubes can be cleaned using an air compressor for a quick clean, or more thoroughly with cleaning solutions. Do not immerse the tubes in water. Ensure that the tubes and mesh are completely dry before re-installing.

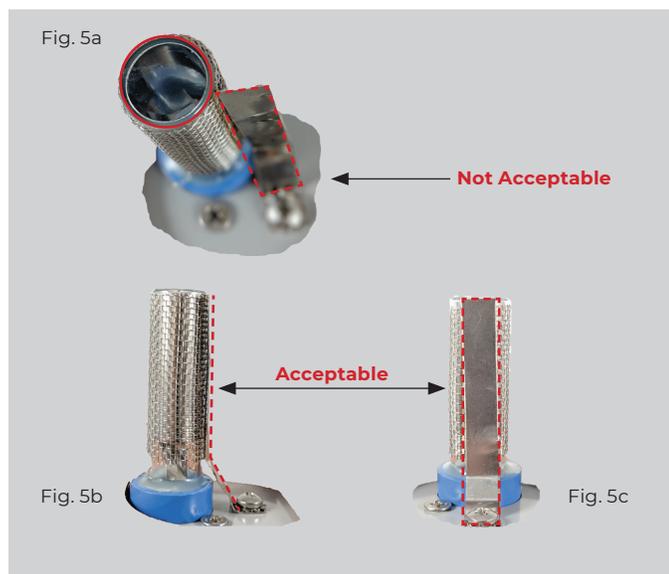
Bi-Annual Tube Replacements:

The ionization tubes should be replaced once every 24 months, as the production efficiency slowly declines over time due to the stress caused by plasma and (lack of) cleanliness of the electrodes. The ionization tube will only last for 24 months regardless of run time. Old or excessively dirty tubes can also put undue stress on the transformer causing it to prematurely fail.

06 TROUBLESHOOTING

In the event that the system is not functioning, follow these steps **IN ORDER**:

1. Check the fuse. If it is blown, replace it with the appropriately sized slow-blow 500 mA (0.5 Amps) glass 5 mm × 20 mm fuse rated at 250 V and continue to the next step.
2. Check that the main power supply is sending the correct power to the unit (100-250 VAC).
3. If the main power is controlled or any other power limiting device is installed, check that these are not preventing power from being sent to the system.
4. If power is reaching the unit and it was necessary to replace the fuse, the next step is to determine whether there is a fault in the system or a tube. First, to check that the system's power is functioning, set the ionization power knob and the power switch both to the 'off' position. Make sure all personnel are clear of the high voltage tubes, then re-connect the power supply. Flip the power switch to 'on' and observe the green light. If the light does not turn on, there is still a problem with delivering power to the system. If all external sources of failure are eliminated, the system should be serviced by a qualified AtmosAir technician. Refer to the contact information at the bottom of this page.
5. Check that the spring tang is making **CLEAN, FLAT-TO-TUBE** contact with the tube as shown below:



The next step is to determine the cause of the failure, or blown fuse. Typically, failures are caused by arcing between the inner and outer electrodes, or between one electrode and ground. Often, this occurs either because the tube isn't properly seated, or because of damaged tubes or dirty and/or wet conditions that have allowed carbon tracking to temporarily connect two electrodes and/or a grounding point electrically.

6. Inspect the mounting plate for tracking evidence.
7. Inspect the tubes for cracks, pitting, or other degeneration of the dielectric material that causes the dielectric to fail and arcing to occur.
8. If physical inspection has not revealed the cause of failure, one may carefully observe the tubes as the ionization system is turned on to determine whether arcing is occurring at a particular tube. The fuse will usually blow, again, but for a short time, one may observe the cause of the power surge in the form of a visual or audio cue. Usually, a failing tube can be determined in a darkened room by looking for a flash or arc from the failing tube.
9. If the fuse blows, then the system should be serviced by a qualified AtmosAir Technician. You can contact repair services at RMA@atmosair.com or by contacting us at 1-888-MY-AIR11.
10. If the fuse continuously blows, then the system should be serviced by a qualified AtmosAir technician. **DISCONTINUE USE IMMEDIATELY!**
11. Otherwise, replace the damaged tube(s), clean and smooth any mounting plate or end cap carbon tracking, and return the system to service.

07 EXPLANATION OF TECHNOLOGY

AtmosAir Solutions'™ mission is to bring and restore every indoor environment the same clean and pure quality air that is typically found at higher mountain elevations.

AtmosAir's unique and proven air purification process significantly reduces mold, controls the spread of bacteria and airborne viruses, and reduces airborne particles that evade normal filtration solutions.

AtmosAir equipment uses non-thermal plasma technologies to generate bi-polar ionization that attacks and breaks down odors and contaminants.

08 PRODUCT WARRANTY



CLEAN AIR GROUP, INC. – PRODUCT WARRANTY

Clean Air Group, Inc. d/b/a AtmosAir Solutions (“Clean Air Group”) warrants to the original purchaser of this product (“Customer”), that should it prove to be defective by reason of improper materials or workmanship, for **twenty-four (24) months** from the date of installation, or **twenty-seven (27) months** from the date of Clean Air Group’s delivery of the product, whichever occurs first, Clean Air Group shall repair or replace the product without charge to the Customer. Proof of malfunction and return of the non-working product must be presented by the Customer if submitting a warranty claim. This warranty is invalid if the factory applied serial number has been altered or removed from the product. This warranty does not cover damage due to acts of God, misuse, abuse, negligence, or modification of or to any part of the product. This warranty does not cover damage due to improper installation, operation or maintenance, connection to improper voltage or electrical supply, or repair by anyone other than an authorized Clean Air Group service provider. To obtain warranty service the Customer must: (1) provide proof of purchase in the form of a Bill of Sale or receipted invoice, with evidence that the product is within the warranty period; (2) request a Return Merchandise Authorization (“RMA”) from Clean Air Group prior to shipping; and (3) ship the product with the RMA to Clean Air Group, freight prepaid, in either its original packaging or packaging affording an equal degree of protection. The product should be delivered to *AtmosAir, 2115 East Cedar Street, Suite 6, Tempe, AZ 85281*. All transportation charges and shipping expenses are the Customer’s responsibility. Clean Air Group will return the product by the same method it receives the product. A product returned for repair after the warranty period, or that shows damage outside of the warranty coverage described herein, shall be repaired for a reasonable charge as determined by Clean Air Group. The Customer will be advised of the cost of repair or replacement before Clean Air Group proceeds.

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Disclaimer: The air purification technology provided by AtmosAir is intended to improve air quality. It is not intended to replace reasonable precautions to prevent the transmission of airborne contaminants. Customer, its employees, invitees and all persons having access to the serviced premises should comply with all applicable public health laws and guidelines issued by federal, state and local governments and health authorities such as the Centers for Disease Control and Prevention (CDC). These precautions include but are not limited to wearing face masks, social distancing, hand hygiene and appropriate sanitizing and disinfecting. Clean Air Group does not assert that its products can protect people from viruses, bacteria or other airborne contaminants, expressly excludes liability for loss or damage arising from any such claims, and does not assume any liability for the consequences arising out of the application, use or misuse of its products, including any injury or damage to any person or damage to any property as a matter of product liability, negligence, contract or otherwise.

Manufacturer,

A handwritten signature in black ink, appearing to read "Anthony M. Abate".

Anthony M. Abate
Chief Technology Officer
Clean Air Group, Inc.