

Installation Instructions

Suspended Ceiling Mount Kit for Bluezone® Model 450 Air Purification System

IMPORTANT SAFEGUARDS

READ AND SAVE THESE INSTRUCTIONS

Overview

The Ceiling Mount Kit is designed to be installed onto a 2' X 4' opening in the grid frame of a standard suspended ceiling with 2' x 2' or 2' X 4' tiles.

This manual contains important instructions and safety information about the Suspended Ceiling Mount Kit for the Bluezone® Model 450 Air Purification System. Observe the following dangers, warnings, cautions and notices when installing, operating and servicing the Ceiling Mount Kit with the Model 450 inside.

The Ceiling Mount Kit is used to mount the Bluezone Model 450 Air Purification System in suspended (drop) ceiling tiles.

This Ceiling Mount Kit is shipped separately from the Model 450.

This manual will refer to two pieces of equipment:

- 1) The Ceiling Mount Kit
- 2) The Bluezone Model 450 Air Purifier

This manual provides instructions to

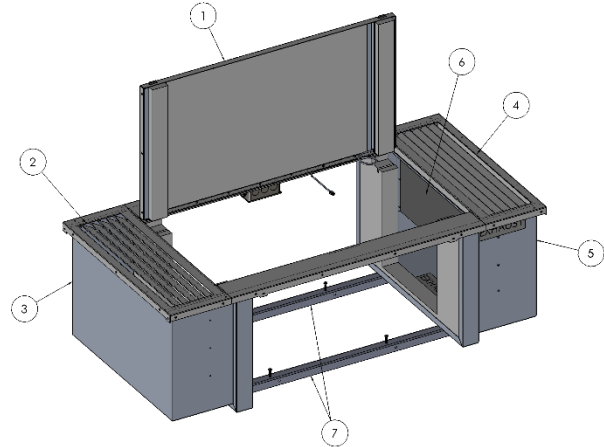
- 1) Attach the Bluezone Model 450 Air Purifier into the Ceiling Mount Kit; and
- 2) Install the Ceiling Mount Kit, including the Model 450 Air Purifier, in the suspended ceiling grid.

Description

The Ceiling Mounting Kit includes

1. assembled ceiling mount kit and
2. package of mounting accessories.

Figure 1 illustrates the key features of the Ceiling Mount Kit.



KEY COMPONENTS	
ITEM	DESCRIPTION
1	DOOR (OPEN POSITION)
2	INLET LOUVER
3	INLET HOOD
4	EXHAUST LOUVER
5	EXHAUST HOOD
6	SOUND ABSORBING AIR BAFFLE
7	MOUNTING RAILS

Figure 1: Ceiling Mount Kit

Figure 2 shows the Mounting Accessories: 4 screws, junction box cover, and IEC cord with plug and pig tail.

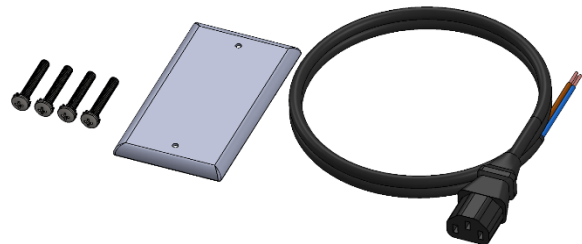


Figure 2: Mounting Accessories

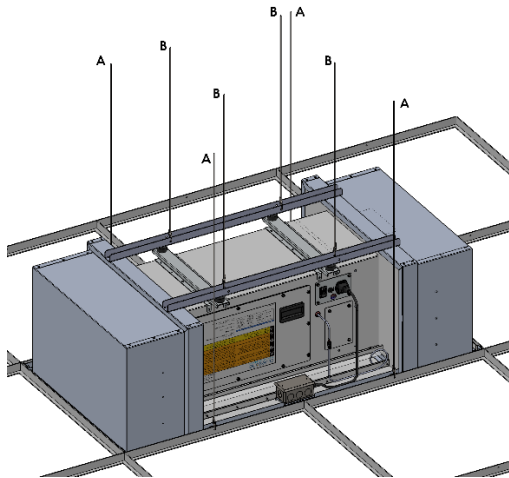
Equipment Provided by Installer

Installer provides 12-gauge wire to make hangars for both the Kit and the ceiling grid, as required. The Ceiling Mount Kit is supported with four (4), 12-gauge hanger wires. These wires attach to the same ceiling structure that supports the suspended ceiling grid. The ceiling grid surrounding the Ceiling Mount Kit is to be supported with a minimum of four (4), 12-gauge hanger wires.

Holes are located on the frame of the Ceiling Mount Kit if local building code requires the attachment of the Kit to the ceiling grid.

Installation Overview

Figure 3 shows the general mounting arrangement of the Ceiling Mount Kit (with Bluezone Model 450 inside) to the ceiling grid and the ceiling structure.



A = DROP CEILING GRID HANGER WIRES (4)
 B = CEILING MOUNT HANGER WIRES (4)

Figure 3: Ceiling Mount Kit Support Arrangement

The Ceiling Mount Kit is only to be mounted to a properly installed and structurally strong

suspended ceiling with structural members above the ceiling tiles to attach support wires.



NOTE: It is the installer's responsibility to:

- Determine if the drop ceiling structure is capable of supporting an additional load of 50lbs. (see weights and dimensions in Table 1 below).
- Assure local building, electrical and safety codes are followed related to the installation of this equipment.
- Provide electrical hookup cable as determined by an on-site electrician.
- Provide the 12-gauge hanger wire to support both the ceiling grid and the Mounting Kit.

Assembly and installation of this unit is considered to be a "two-person" job to avoid injury and potential damage to the unit. It is recommended that the installer consider a duct lift to raise the Ceiling Mount Kit (with Model 450 Air Cleaner) into the ceiling opening.

Clearances

The Ceiling Mount Kit is inserted into the ceiling opening at an angle and then seated into the ceiling grid as shown in Figures 4 and 5. Clearance of 28" above the ceiling grid is needed in order to accommodate the insertion of the Kit into the ceiling.

Clearance on the sides of the unit is 12".

Installer may use judgement to decrease clearance to 0 on one or two sides of the unit if there is additional head height to maneuver.

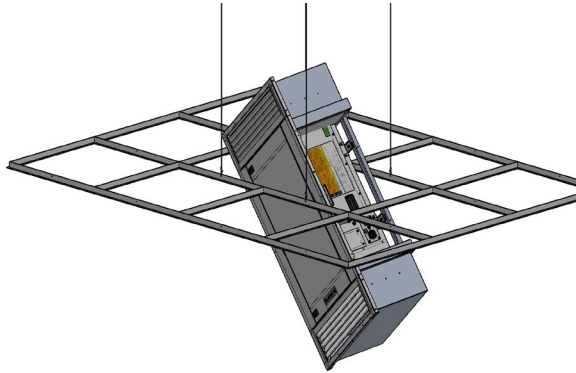


Figure 4: Ceiling Mount Sideways Insertion into Suspended Ceiling

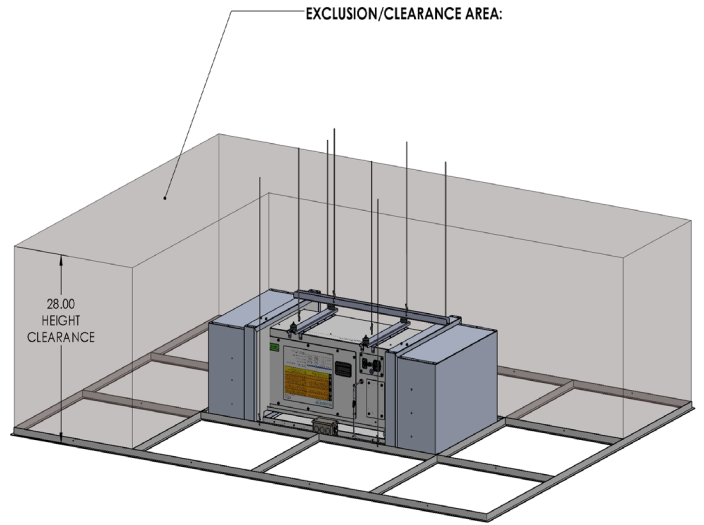


Figure 6A: Recommended Clearance Height in Ceiling

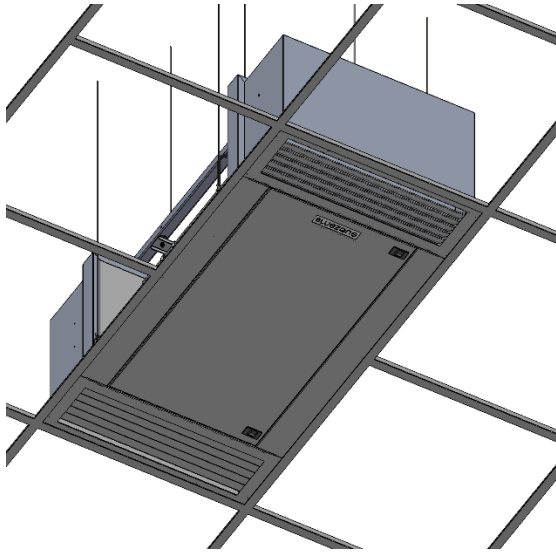


Figure 5: Ceiling Mount Kit Contained in Ceiling Grid

Recommended Clearances are shown in Figure 6.

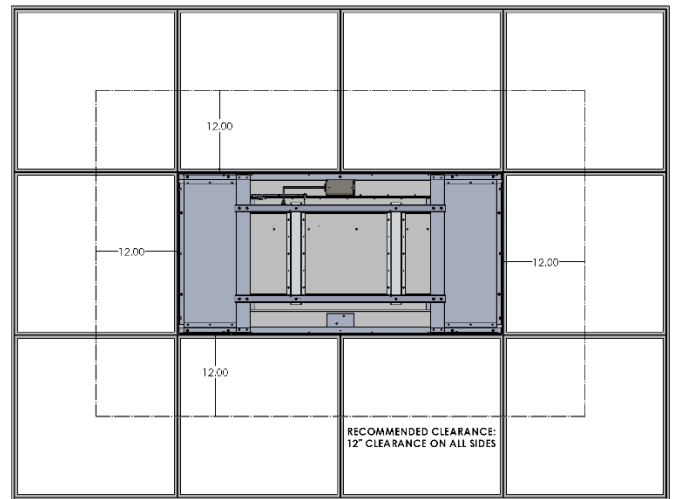


Figure 6B: Recommended Clearance around Ceiling Mount Kit

Specifications

The specifications of the Bluezone Ceiling Mount Kit with Model 450 Air Purifier are shown in Table 1.

Table 1: Bluezone Ceiling Mount Kit Specifications

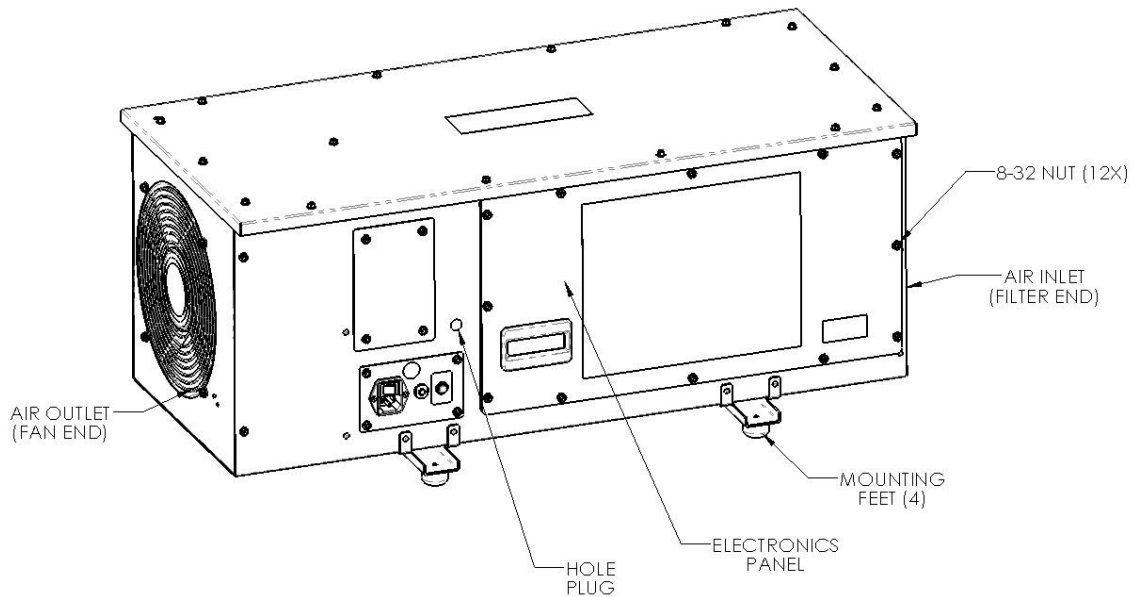
Specification Category	Ceiling Mount
Dimensions	47 ¾" L x 23 ¾" W x 15 ¾" H
Product Weight Empty	~ 19.5 LBS
Product Weight with Model 450 Unit	~45.5 LBS
Model 450-052 Input	120 VAC / 60Hz / 3A Max / 350W Max
Model 450-055 Input	240VAC / 50Hz / 1.5A MAX / 350W Max

Procedure

Bluezone Model 450 Air Purifier and Ceiling Mount Kit are shipped separately.

To conduct the installation, both pieces of equipment are needed.

1. Bluezone Model 450 is prepared for wiring to the Ceiling Mount Kit.
2. Model 450 is connected mechanically and electronically to the Ceiling Mount Kit.
3. Integrated Ceiling Mount Kit/Bluezone Model 450 Air Purifier is mounted in the ceiling grid.
4. Integrated Ceiling Mount Kit/Bluezone Model 450 Air Purifier is electrically wired to power.



MODEL 450
KEY FEATURES

Figure 7: Key Features of Bluezone Model 450 Air Purifier

Preparing Model 450 for Wiring to Ceiling Mount Kit

The instructions below provide a guide to preparing the Model 450 for connection of its digital display output to the display on the Ceiling Mount Kit. This electronic connection allows the Model 450 output to drive an illuminated Bluezone logo on the access panel of the Ceiling Mount Kit. (Operating codes displayed through the logo are defined on Page 15)

Refer to figures while following the steps, below.

1. Place the Bluezone Model 450 on a flat surface with space available in front of the unit.
2. Remove the twelve (12) 8-32 nuts on the electronics panel and set aside. (Note: you will be replacing the nuts at the completion of this step)

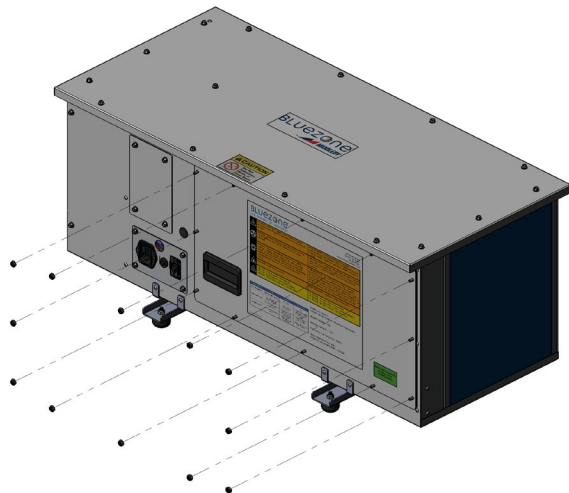


Figure 8: Remove Nuts from Access Panel

3. Slowly pull the electronics panel off of the mounting studs.



Do not pull too far as there is a cable that connects the panel to the chassis.

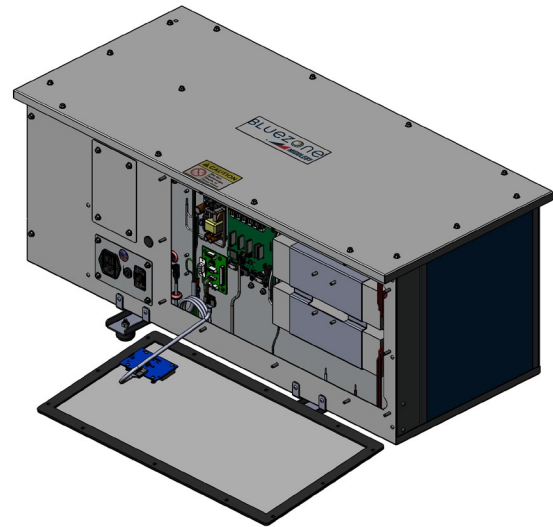


Figure 9: Carefully Remove and Lower Access Panel to Table

Disconnect the unit display cable from the control board. This is the cable that connects the main control board to the display on the electronics panel. Gently place the panel on the table.

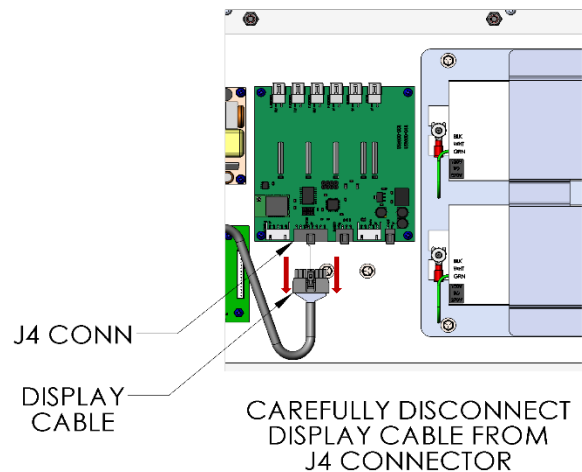


Figure 10: Remove Display Cable from Control Board

4. Remove the hole plug then uncoil and feed the Ceiling Mount LED Cable through the hole, snapping the grommet into the hole to protect the cable. The grommet is already on the cable.

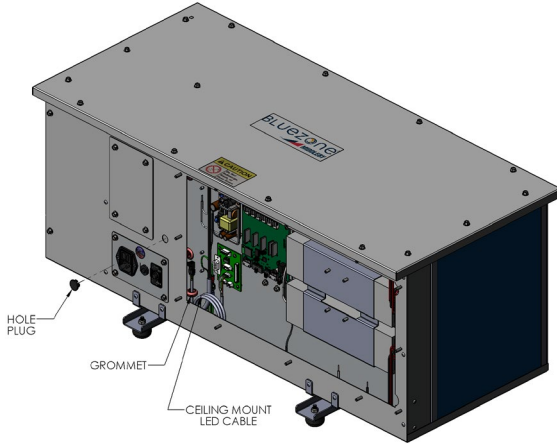


Figure 11: Remove Hole Plug, Thread LED Cable Through Hole, Secure Cable Grommet into Hole.

5. Lift electronics panel and reconnect the display cable “J4” (Display) Connector on the main control board.

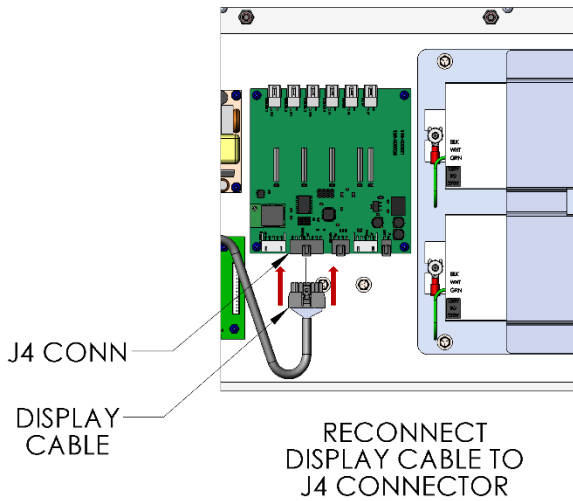


Figure 12: Reconnect J4 Cable Connector to Control Board

6. Position the electronics panel onto studs and make sure no wires or cables are being pinched. Secure display panel to chassis with the twelve 8-32 nuts removed in Step 2.

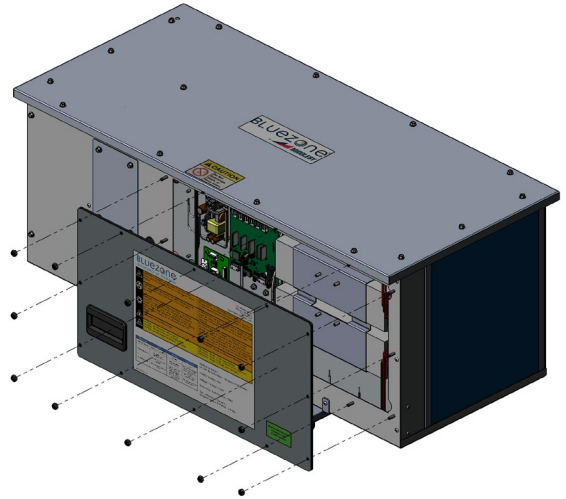
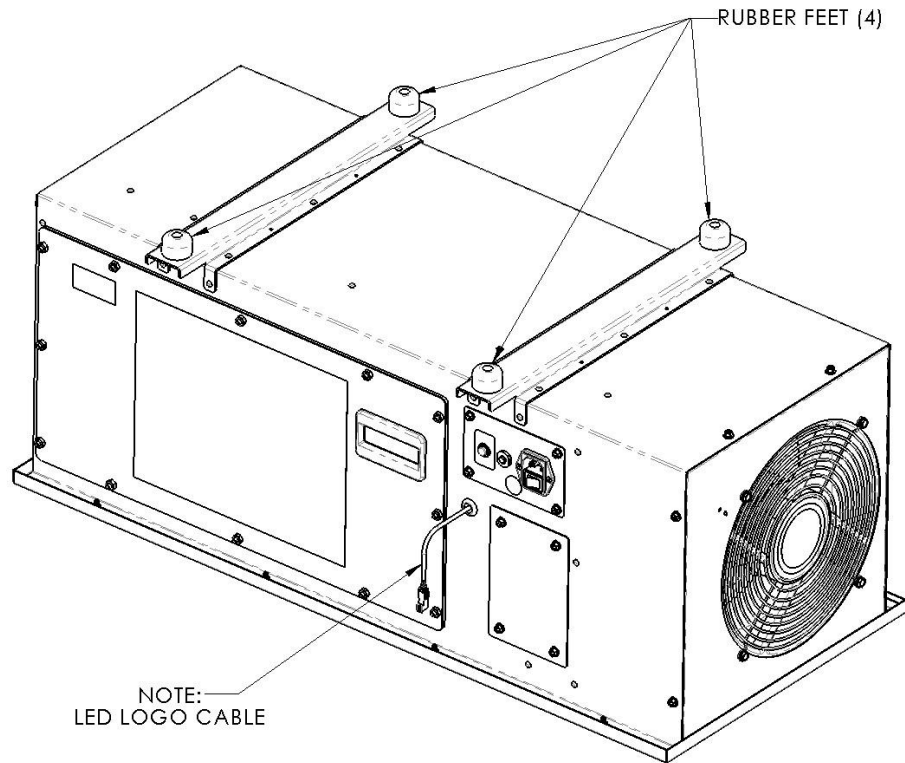


Figure 13: Replace Nuts on Access Panel

Mechanical Connection of Model 450 to Ceiling Mount Kit

The steps below illustrate how to mount the Model 450 mechanically into the Ceiling Mount Kit.

1. Invert the Model 450 onto its top cover and remove the screws and nuts holding each of the (4) rubber feet. (See Figure 7) Set the rubber feet aside.



DETAIL "B"
MODEL 450
MOUNTING PREPARATION

Figure 14: Mounting Preparation



IMPORTANT: The orientation of the Model 450 within the ceiling mount is critical to the fit and function of the system. Please review Figure 15 to identify the key features and to locate the internal air baffle in the exhaust hood. When installing the Model 450 it is critical that the exhaust (fan end) face the exhaust hood (containing the air baffle). The exhaust hood contains the air baffle that is covered with sound absorbing foam. The inlet hood has no baffle.

The Exhaust is marked with a label inside and outside indicating “EXHAUST”.

1. Place the ceiling mount frame upside down (louvers side up) onto a hard surface so the mounting rails are supported along their full length. Unlatch and open the door, having a second person support the open door and holding the Ceiling Mount LED cable out of the way during these assembly steps.
2. Identify the exhaust end of the ceiling mount frame. This end contains the air baffle.

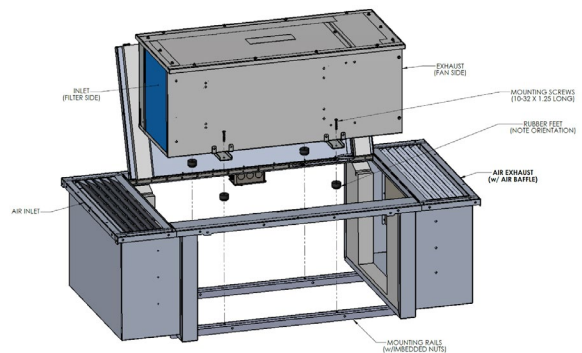


Figure 16: Inserting Model 450 into Ceiling Mount Frame

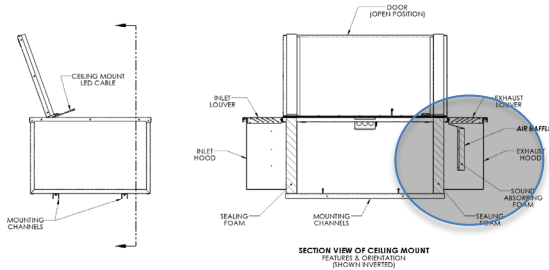


Figure 15: Ceiling Mount Features and Orientation

3. Orient the Model 450 as shown in Figure 9 with the fan end facing the air baffle. Roughly center the Model 450 into the opening, with the mounting feet channels directly above the 10-32 mounting nut of the mounting rail. Note: Once the Model 450 is inserted fully, the sealing foam segments on either end will grip the chassis making it difficult to adjust its position.

4. Gently push the Model 450 chassis approx. $\frac{3}{4}$ the way into the Ceiling Mount structure. Place the (4) rubber feet over the holes in the ceiling mount rails, rounded side down. Place the four (4) 10-32x 1.25 long screws (supplied) through the holes of the Model 450 mounting channels.
5. Push the Model 450 chassis the rest of the way down until it rests on the rubber feet. Align screws through feet and thread into the mating nuts on the ceiling mount rails as shown. Tighten the four screws evenly and by hand. Do not over tighten to where the rubber feet

distort. Although the screws have lock washers, it is recommended that Loctite or a jam nut be used as well.

6. Route the Ceiling Mount LED cable from the ceiling mount door down next to the Model 450 chassis. Close and latch the door. Connect the LED logo cable from the door to the LED logo cable from the Model 450. See Figure 17.

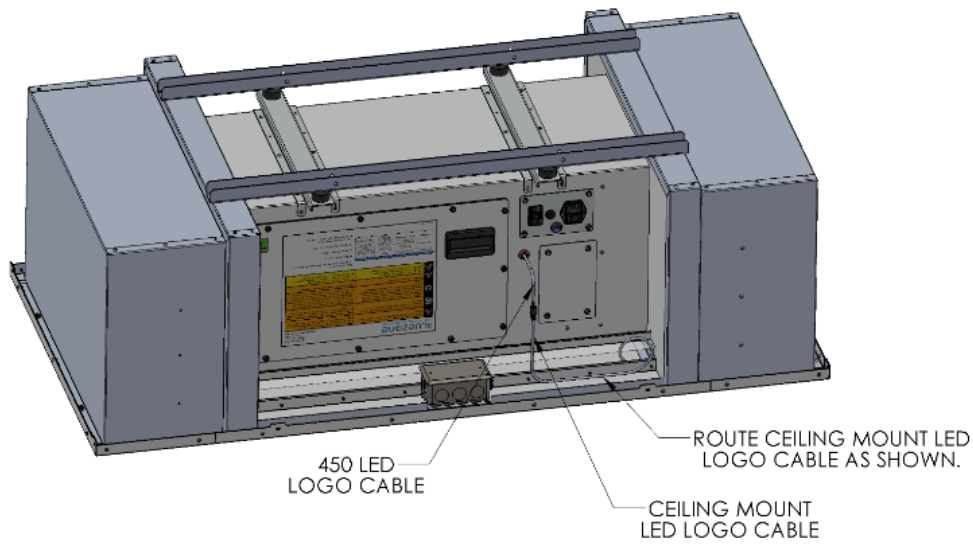


Figure 17: Routing and Connecting LED Cable

Drop Ceiling Grid Modification

1. Determine specific grid cells that the ceiling mount is to use. Remove the two ceiling tiles from the area that the unit will occupy. It is suggested to remove the surrounding tiles for ease of access during the entire installation process.
2. Remove the single 24" cross tee from the opening. This will create the 24" x 48" opening on which the ceiling mount unit will sit.

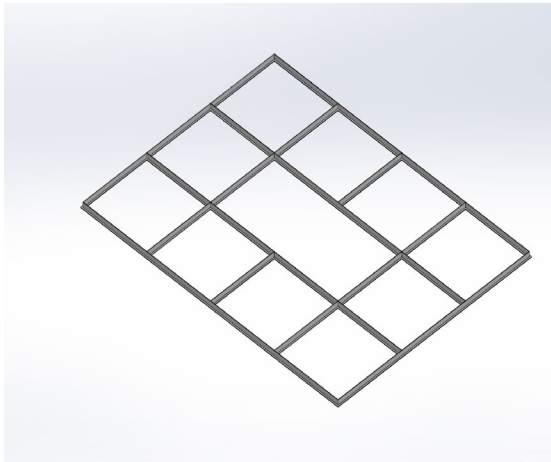


Figure 18: Drop Ceiling Grid (shown with tiles removed).

Installation into Ceiling Grid

1. Carefully angle and push assembly through the opening in the ceiling.

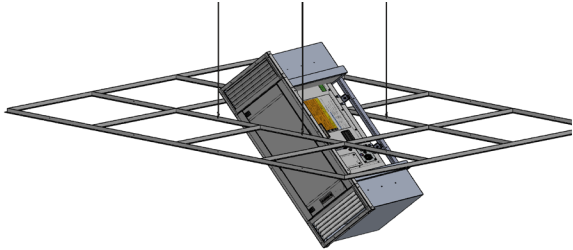


Figure 19: Insert Unit Sideways and Upwards into the Ceiling Grid

2. Orient the unit with louver openings facing down and rest frame on the ledge of the ceiling grid.

28" of space above the ceiling tiles, and 12" of space on two adjacent sides are needed to maneuver the Ceiling Mount Kit into place

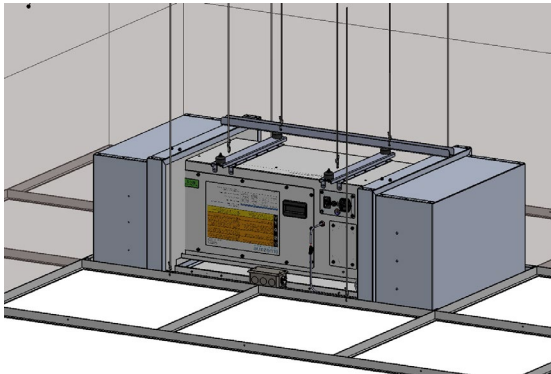


Figure 20: Turn Unit so Louvers Face Down and Unit Nests into Ceiling Grid

3. Determine secure support points for the hanger wires (provided by installer), keeping them as vertical as possible from the ceiling mount unit. Securely attach 4 hanger wires to the support points. Each wire should be long enough to reach the ceiling tiles. Take

each wire and feed it through the corresponding wire hole of the Ceiling

Mount mounting rail. Adjust the length to take a portion of the load from the ceiling mount unit off of the drop ceiling grid. Bend and twist tightly together. These 4 hanger wires are intended to support a majority of the load, working in conjunction with the ceiling grid itself.

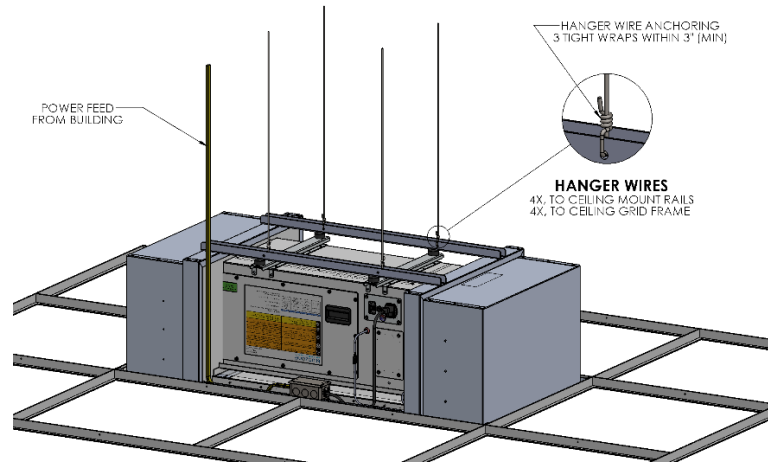



Figure 21: Secure Hangar Wires

4. Ensure that there are at least 4 hangar wires on the ceiling grid members that are supporting the Ceiling Mount Kit.
5. Consult local building codes to determine if attachment of the Ceiling Mount Kit to the ceiling grid is required. If so, use 12-gauge wire ties to attach the Kit to the grid.

Connect Electrical Wire

6.  The electrical installation must be done by a licensed electrician. This installation must comply with local electrical codes and the National Electrical Code.
7. Connect the plug end of the IEC power cable provided to the AC power inlet.
8. Knock out a convenient opening in the junction box.
9. Thread the pig tail end of the power cable into the junction box through the opening.

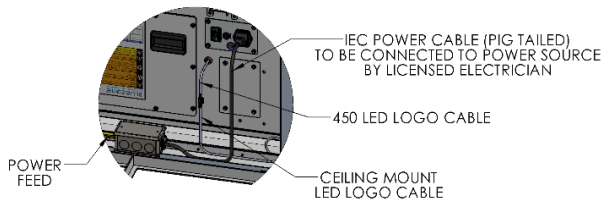


Figure 22: Bring Wires to Junction Box

10. Connect the main service to the pig tail as shown in Figure 22.

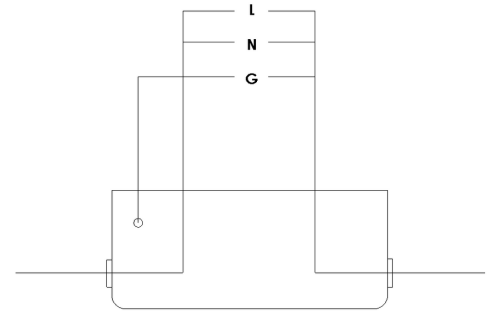


Figure 23: Main Service Connections

11. Attach cover (provided) to junction box

Operation

Follow startup procedures in the Model 450 Manual. Once it is determined it is functioning properly, replace the surrounding ceiling tiles.

The Ceiling Mount features an LED display that illuminates the Bluezone logo in Blue when the unit is operating properly. Operation Codes are shown in the table below

Table 2: Operation Codes

Color	Meaning
Steady Blue	Operating Properly
Flashing Blue (5 second on, 5 seconds off)	Time to order new bulbs/replace the bulbs
Red	Lamps have reached end of life and must be replaced. or Operating error

If the logo is red, open the access door to view the display and diagnostic information on the Model 450 itself. Refer to the Model 450 manual for diagnostic information.

Recommended Number and Location of Bluezone® Model 450s for Restaurant Use

The risk of aerosol transmission of virus can be significant in a restaurant because:

- 1) Dining rooms are indoors (limited and/or difficult to control ventilation rates)
- 2) It is impossible to wear a mask while eating (otherwise recommended for indoor activities)
- 3) Diners sit in restaurants for an extended period of time (exposure time increases risk)
- 4) Diners are generally speaking loudly (more virus emitted with loud voices)
- 5) Restaurants have dense occupancy (more people, more risk of transmission)

Bluezone units pull air up and away from diners, clean and redistribute the air to reduce the risk of aerosol transmission.

The guideline below shows recommended number of units for restaurants offering quick service or a longer dining experience.

Following this guideline for Bluezone use can reduce the risk of aerosol transmission as much having patrons wear a fabric mask.

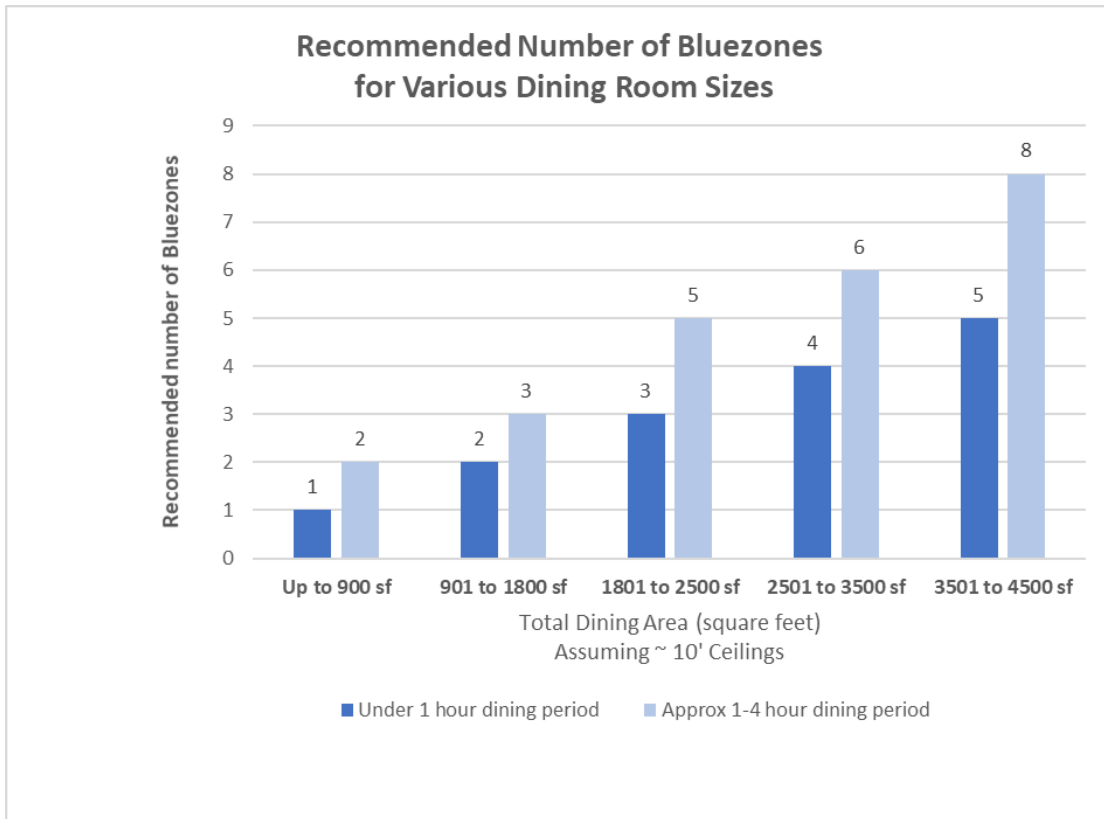


Figure 24: Recommended Number of Bluezone Model 450 Units in Restaurants

Restaurant room configuration can vary widely.

In general, we recommend that the Bluezones be distributed evenly throughout the dining space.

Distribute Model 450 Units evenly around the perimeter of the space, with the exhaust side of the units pointing toward the walls, as shown in Figure 25.

In a small room with one single Unit, place the Model 450 near the center of the room.

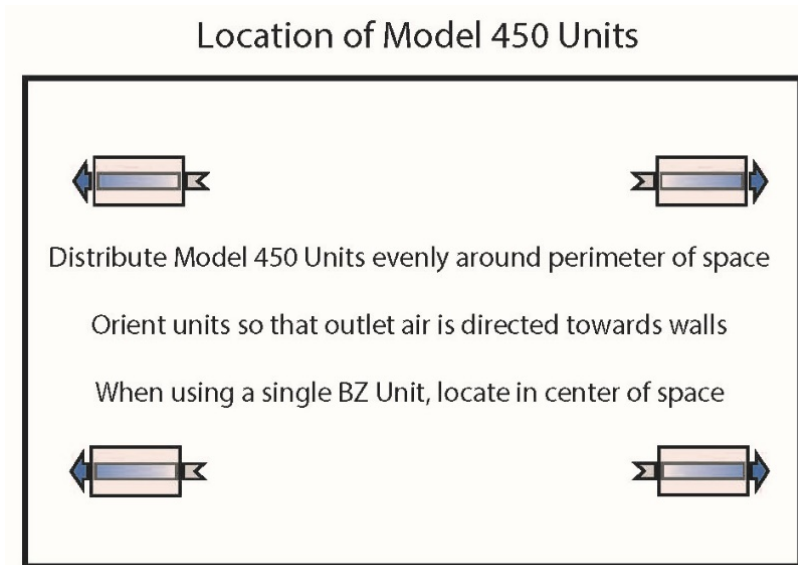


Figure 25: Recommended Orientation of Bluezone Model 450 Units in Restaurants

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