AEROBARRIER
Breakthrough Envelope Sealing Technology

AeroBarrier Multifamily Kit Operation

How to use optional equipment for apartments, multi-story buildings and other small spaces

Purpose:
This document describes the AeroBarrier seal process in small areas such as apartments, and multi-story buildings. This information will cover the use of the Multi Family Kit as it is used with the residential AeroBarrier System. For details on the operation of the residential AeroBarrier System, please refer to that documentation.

Overall process description: The AeroBarrier process is the same as is for free-standing buildings, with a few exceptions. In many situations, the compressed air and power lines are not able to reach from the trailer or truck to the seal area. For these applications, the Multi-Story kit supplies the items/parts to run a seal operation without the truck or trailer utilities. A local power supply will be needed for the operation of the AeroBarrier Main Control Unit (MCU) and the air compressor.

- In most apartment or other multi-story seal operations, more than one room will be sealed. The Multi Family kit provides the additional equipment needed to set-up a second room while a seal operation is underway.
- Typical multifamily / apartment areas require a reduced number of sprayers to effectively perform a seal operation. The Multi Family kit has the capacity to run up to 4 tripods / 8 nozzles. See the **Set-up** section for special instructions on using fewer than 8 nozzles.

Optional equipment for Apartment, Multi Story and Small Space applications are listed on the following page.

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Item	Part	Qty	Function
1	Compressor Dolly	1	Supplies compressed air for up to 8 nozzles
2	Aluminum Frame	1	Blower Door – used to set-up 2nd room while 1st room is being sealed
3	45" Upper X-Bar	1	
4	BD Panel (Custom-Aero 1 Hole)	1	
5	50ft std NEMA extension cords w/ CS6364L type plugs	2	Supplies electricity from site 240volt 50-amp service to the MCU
6	30' Air Hose Assembly	2	Supplies compressed air from tankless compressor to AeroBarrier Master Control Unit
7	Air Hose Coupling Female to Female (not shown)	1	Connects compressor to air hoses
8	RH-Temp Sensor Hose Reel	1	Used to set-up 2nd room while 1st room is being sealed
9	25' Blue Tube for Room Pressure	1	Used to set-up 2nd room while 1st room is being sealed
10	30Amp / 50ft /240V power cord assembly	1	Connects power from MCU to tankless compressor

Connections:

The Multi Family kit requires a local power supply from the building or a temporary power box at a construction site. The power source must be a 240 V 50-amp 4wire/3 pole supply (CS6369 plug).

**Note: the compressor dolly cannot be powered through the MCU when it is connected to the trailer generator.*

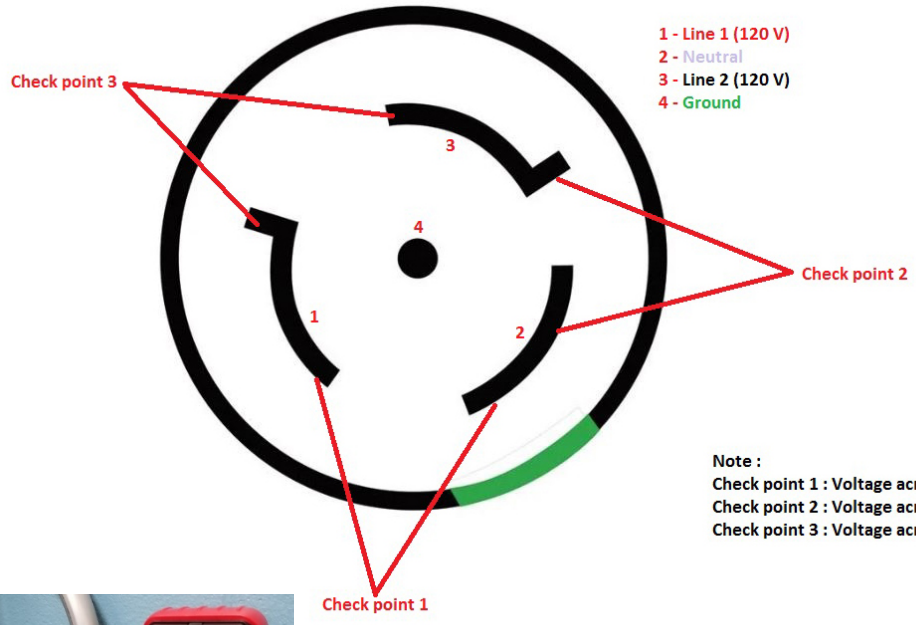
- Local power is connected to the MCU at the same port that used for generator power. Two 50ft std NEMA extension cords (Item 5) are included for this connection. See the **Using Site Power** section for more information.
- Compressor power is supplied through the MCU. Connect the 50ft power cord assembly (Item 10) to the MCU at the outlet labeled 220V, located next to the main power input.
- Connect compressed air from the compressor to the MCU by using the female-female adapter (Item 7) and the compressed air lines (Item 6).
    - Be careful when disconnecting the female-female adaptor (Item 7) when the compressor is ON. If the compressor is running with this adaptor ON, and not connected to the unit; the pressure relief valves on the compressor may be actuated.
    - The tankless compressor is controlled by the MCU. It will turn-on when the sealing operation begins.

- All other connections are the same as the residential/house configuration.

Using Site Power:

If site power is available, you can use it for all of your power requirements. First, confirm that you have a 50-amp service available. Power outlet needs to be a 125/250 V 50A 4 wire/3 pole plug type CS6369. If you would like to confirm the correct wiring and voltage being supplied, use the diagram below to check each position of the plug.

If you are not trained to work with electricity or are otherwise not sure how to safely measure voltage, ***DO NOT*** *perform this check. Consult a professional electrician.*



Use your multi-meter to check voltage starting with Checkpoint 1, then proceeding to Checkpoint 2 and then Checkpoint 3.

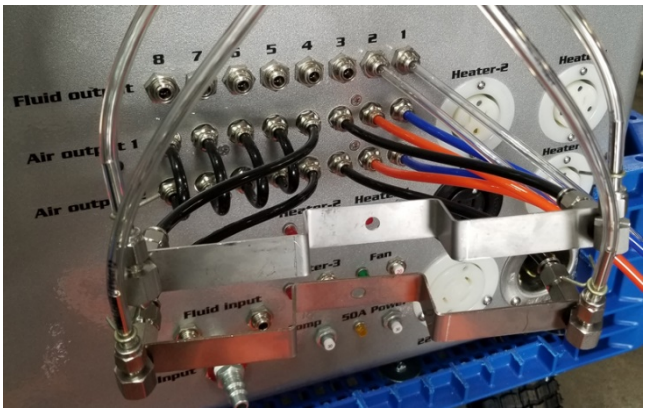
Set-up:

All set-up tasks are the same as the residential/house configuration with a few important exceptions:

- Due to the noise level generated by the compressor, you may choose to locate the compressor dolly at some distance away from the MCU. The power and air lines will extend to 50ft. Wear hearing protection as needed.
- Bypass air channels 5-8 using the black tubing provided in the Spare Parts Kit (see picture below).

- Carefully assess the number of tripods needed for the area being sealed. If less than 4 tripods/8 nozzles are needed – nozzle assemblies must be attached to the air channels that are not in use.

Example – Seal process with 2 tripods (see image below)

• **Sealant channels** 1 & 2 are active – Channels 3 – 8 are blocked at the sealant manifold (inside the MCU by the pump) • **Air channels** (output) 1 & 2 are active - Channels 3 & 4 have nozzle connected to bleed air from the system to balance compressor air flow – the rest of the air channels are bypassed	

  - If one tripod is used - Channels 2,3,4 would have nozzles attached to bleed air
  - If three tripods are used – Channel 4 would have a nozzle to bleed air
  - If four tripods are used, all four air channels will be in use and no additional steps are needed.

- Block the sealant flow at the sealant manifold on any channels that will not be used for the seal operations.

Seal Preparation:

Seal preparation is the same as the prep needed for the residential/house configuration, in addition to the following steps.

- Sealant may be able to travel through common walls, ceilings and floors. Make sure you have access to the adjacent rooms and that they are not occupied during sealing operations. Have a scrubber available to use in any area that may have sealant mist leaking into it.

Seal Operation:

Very small apartments (<300sqft) will present a unique challenge when sealing to a target of 1ACH or less. This equates to approximately 40 CFM50 leakages. For these low fan-flows, note that the pump will run slow and will be injecting sealant at very slow speeds. Suggested steps are:

1. Setup at-least 2 nozzle tripods even if the room size is very small. This gives you the flexibility to stop a channel if not needed.
2. Pre-Test envelope to determine current leakage.
    a. > 7 ACH preseal blower door number points towards big leaks for small units.
        i. Use Smoke Pencil / fogger to look for leakage paths
        ii. If no obvious gaps / hidden coves found, then it might mean that the gap sizes are small enough for AeroBarrier process.
        iii. Look for issues in Common walls and floor to floor openings
    b. < 7 ACH preseal blower door number – means a high probability that there are no big leaks and typically you proceed into sealing phase.
3. Start sealing process.
    a. During the first few minutes look for following-
        i. Sensors are working as expected.
        ii. Compressed air pressure is reading >60PSI.
        iii. Nozzles are spraying correctly
        iv. The correct heaters are working (compare digital 5V LEDs to the 120 LEDs outside the box). Software determines optimal heat to be added.
        v. After 10-15 minutes check for seal rates. Graph should be trending down. A seal rate of >6CFM/min is a good run rate.
        vi. If seal rate < 2CFM/min then look for big holes and reasons for no spray atomization.
    b. Always Pause pump before changing fan rings or going into the apartment. (this will avoid spikes and impact your ability to discern the graph trend)
    c. During the sealing process, Room RH sensor should be slowly trending upwards. If not – either there is a big leak or there is an issue with the spraying function.
    d. For very small leakage targets < 30 CFM you may want to consider using a **Low leakage Protocol** (see below) which involves providing a vent for sealant spray. This will allow the fan to run at a higher ring setting and create more flow and consequently more sealant injected into the apartment. (Caution - You might need to manage overspray concerns in and around adjacent occupied spaces if you choose to do this).
    e. Note: remember to install the backflow preventor on the fan (using magnets), as the apartment gets tighter and pressures increase.

- While the seal operation is in progress, prep the next apartment for sealing. Use the remaining tripods, tubing reels, sensor reels, and blower door to prepare the next apartment.
- Perform Post Seal - Make sure compressed air is shut off

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Low leakage Protocol

For sealing smaller spaces (esp. dorm rooms), a window can be used as a controlled vent. Use the directions below to create a vent to control airflow.

If you are targets are below <150CFM, the fan will be either at "Ring D or Ring E". At this flow rate, create a hole of 20 sq inches or 5 inches in diameter.

There are couple of ways you can create a 20 sq inch or 5 inch diameter vent

Easy way - Use a piece of the foam provided with your equipment kit. Cut a section of the foam that will fit tightly in the window area when it is raised 9- 10 inches. Cut a 4 inch by 5 inch hole in the foam and place it in the window.

Alternatively, a hole saw can be used to drill (1) 5 inch hole, or (2) 2 ½ inch holes (shown to the right) to provide venting

Once you reach your target, prepare for the post seal measurement.

- If the vent hole is accessible from outside block the opening.
- If not accessible from outside, after venting (fan should be running at 100% to reduce back flow) -go inside the apartment/dorm room and plug the vent hole before post seal. Use a full-face respirator if there is any sealant mist present.

Keep in mind that sealing <30CFM tends to create sealant depositions on the fan. For proper operation, plan on cleaning the fan every three seals or as needed