

Installation Instructions for RAB 17 & 21 Return Air Box

THIS ASSEMBLY IS DESIGNED TO CONVERT UPFLOW FORCED AIR SYSTEMS WITH BOTTOM RETURN APPLICATIONS INTO SIDE RETURN APPLICATIONS USING A RETURN AIR DROP ASSEMBLY. CAREFULLY READ ALL DIRECTIONS INCLUDING EQUIPMENT MANUFACTURER'S SPECIFICATIONS BEFORE BEGINNING INSTALLATION OF THIS ASSEMBLY. ALWAYS USE CAUTION WHEN HANDLING SHEET METAL. PLEASE NOTE: ALL DIMENSIONS LISTED ARE IN INCHES.

RAB 17 [20.5"h X 17.5"w X 28"d For 17.5" wide applications.]

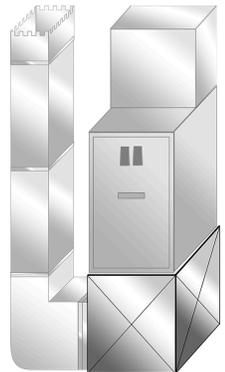
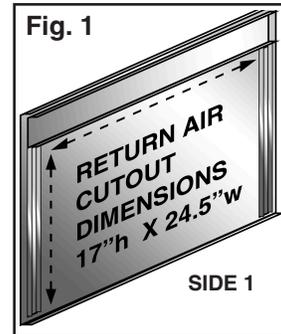
RAB 21 [20.5"h X 21"w X 28"d For 21" wide applications.]

SUGGESTED TOOLS:

- Safety Gloves & Eyewear
- Sheet Metal Snips
- Drill with 1/16" Drill Bit
- Rivet Gun
- Flat-Head Screwdriver
- Rubber Mallet
- Black Permanent Marker (i.e. Sharpie®)
- Duct Folding Tool

NOTE THE FOLLOWING BEFORE ASSEMBLY AND INSTALLATION!

- The RAB Return Air Box meets all dimensional requirements when used with Hamilton's furnaces, air handlers, indoor coils, and return air drops. Trimming is NOT REQUIRED for most typical applications.
- SIDES 1 & 2 have bent (Straight Edge) flanges. The TOP and BOTTOM have S-Lock type edges. SIDE 1 has channel pieces already attached for support.
- The channel pieces attached to SIDE 1 provide a MAXIMUM RETURN AIR CUTOUT DIMENSION of 17"h X 24.5"w. This pattern is available starting at 1/2" from the bottom and 1 1/2" from the sides of the Return Air Box. (See Fig. 1)
- Before assembly, use a permanent marker to trace the 17"h X 24.5"w cutout areas onto the outside of SIDE 1. This will indicate the MAXIMUM RETURN AIR CUTOUT, and will be used later to attach the return air drop.



Assembled system features the Return Air Box (RAB), used with the Plenum (WKDP), Air Handler (WMA), and the Return Air Drop (RA 16).

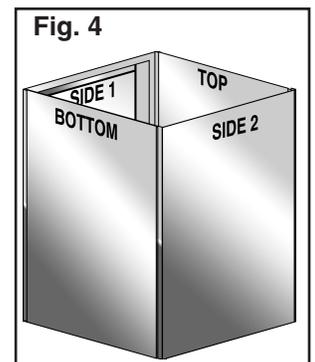
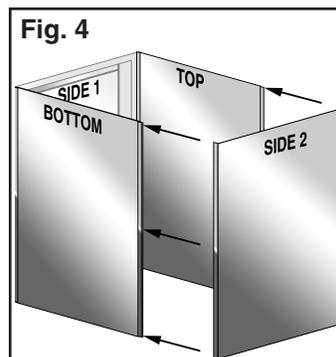
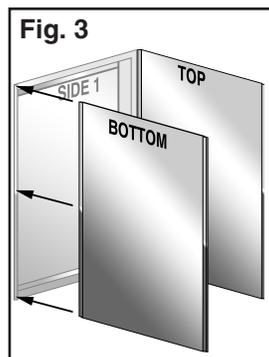
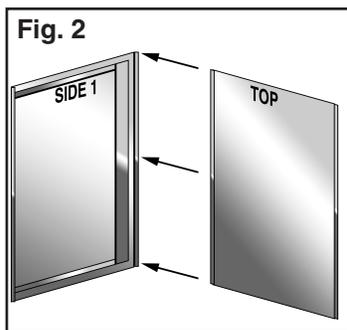
ASSEMBLY

1. With SIDE 1 and the TOP piece in hand, join the *top corner* of SIDE 1 (Straight Edges) with the *top corner* of the TOP piece (S-Lock Edges). With the corner started, continue by snapping the rest of SIDE 1 into the TOP piece, all the way down. (Fig. 2)

INSTALLATION TIP: If necessary, use a flat head screwdriver to slightly adjust the gap of the (S-Lock) RECEIVING EDGES to more easily accept the STRAIGHT EDGES.

2. With SIDE 1 and the TOP assembled, attach the BOTTOM to the SIDE 1 in the same manner as the TOP piece. (Fig. 3)
3. With SIDE 1, the TOP, and BOTTOM pieces assembled, attach SIDE 2 to the TOP and BOTTOM pieces to complete the 4-sided assembly. (Fig. 4) Verify that all 4 sides are securely connected and that all corners are aligned for the end caps to connect properly.

INSTALLATION TIP: If necessary, use a rubber mallet to tap the sides into place, and if necessary, gently tap the corners of the assembly into a flush and square alignment.



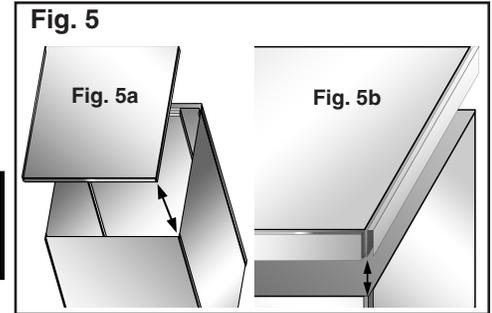
Hamilton Home Products, Inc.
P.O. Box 185 Canal Winchester, OH 43110

Questions? (800) 879-0123
www.HamiltonHomeProducts.com

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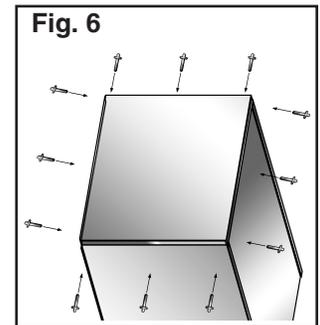
To install the END CAPS:

- Line up one corner of the END CAP with one corner of the box (open end). Carefully slide the (S-Lock) receiving ends of the END CAP corner over the straight edges of the box corner. Once the corner is started, continue sliding the rest of the edges on the cap into position around the straight edges of the box, until the box is sealed. *Follow the same steps for the second END CAP.* (Fig. 5a and 5b)
- Once the END CAPS have been attached and the entire Return Air Box is assembled, secure the END CAPS to the box using the provided rivets (pre-drill holes with a 9/64" drill bit and use rivet gun) or use (field supplied) sheet metal screws. (Fig. 6)



INSTALLATION TIP: It is important to use 3 rivets or sheet metal screws on EACH SIDE of EACH END CAP (12 per END CAP) to securely support the weight of the heating/cooling equipment. When properly assembled, this Return Air Box can support up to 300 lbs.

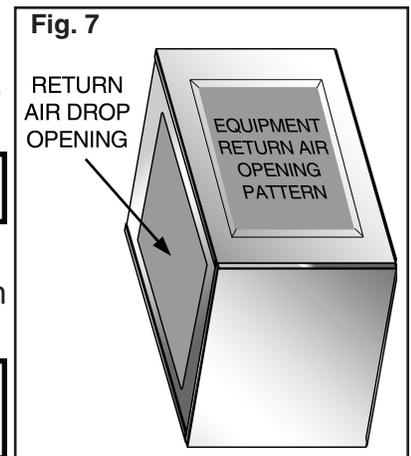
- Once assembled, place the Return Air Box so that SIDE 1 is in accordance with the requirements of the installation application. *SIDE 1 is where the Return Air Drop connection will be made.*
- Determine the *bottom return air opening* dimensions for the equipment being installed directly onto the Return Air Box. Use a permanent marker to trace this pattern onto the TOP of the Return Air Box. Trace a second pattern *inside* the first, one inch smaller than the first pattern. Create lines connecting the corners of the inside and outside patterns. This will notate the flanges to be used for the equipment installation. (Fig. 7)
- Carefully cut out the **INSIDE PATTERN**. Next, carefully cut along the lines that connect the corners of both patterns. This will create 4 separate (1 inch) flanges for the opening. Bend each flange upward at a 90° angle. *The flanges should fit into the return opening of the equipment.*
- Following the equipment manufacturer's guidelines for installing the equipment, place the appropriate equipment onto the TOP of the Return Air Box. Secure the equipment to the Return Air Box using field supplied rivets or sheet metal screws. Silicone may be used in addition to rivets or screws.



INSTALLATION TIP: While this Return Air Box has been designed to support up to 300 lbs., field supplied shims or supports may be necessary to ensure proper leveling of equipment.

- Once the equipment has been installed and is in place, determine the *exact* location and alignment of the return air drop, as it will be connected to both the Return Air Box and overhead ducting.

INSTALLATION TIP: The flanged pieces inside of SIDE 1 provide a MAXIMUM RETURN AIR OPENING of 17" h X 24.5" w. This pattern is available starting at 1/2" from the bottom and 1 1/2" from the sides of the Return Air Box



- Continue the assembly of the return air drop as per the manufacturer's installation instructions.

For details regarding Hamilton's furnaces, air handlers, coils, and return air drops, prior to purchase, please contact our Customer service department or visit our web site where you can download the installation manuals and specifications for all Hamilton's products. To purchase Hamilton products, contact your local home center.

