

DEALER SERVICE BULLETIN

Number: DSB17-0016

Date: 11/15/2017

Supersedes: SMB09-0031

Title: Condensing Furnace Termination
Screening

PRODUCT CATEGORY:

Residential Furnaces

****Informational Only****

MODELS AFFECTED:

CARRIER			BRYANT			PAYNE		DAY & NIGHT
58DX	58HDX	58MTB	320AAV	399AAZ	352MAV	398AAV	399AAZ	398AAV
58DXA	58MCA	58VUA	321AAV	340AAV	353AAV	398AAW	490AAV	398AAW
58DXC	58MCB	58VCA	398AAV	340MAV	355AAV	398AAZ	PG9MAA	398AAZ
58SX	58MXA	58MVP	398AAW	345MAV	355BAV	398BAZ	PG9MAB	398BAZ
58SXA	58MXB	58MVB	398AAZ	350AAV	355CAV	399AAV	PG9YAA	399AAV
58SXB	58MEB	58MVC	398BAZ	350AAV	359AAV	399AAW	PG9YAB	399AAW
58SXC	58MSA	58UVB	399AAV	351DAS	359BAV		PG9MTA	399AAZ
58HDV	58MTA	PG9YAA	399AAW	352AAV	PG9YAA			
CARRIER		BRYANT			PAYNE			
59SC2	59TP5	912S			925T		PG92S	
59SC5	59TP6	915S			926T		PG95S	
59SP2	59TN6	922S			986T		PG95X	
59SP5	59MN7	925S			987M		PG96V	

Serial Number(s); All

SITUATION:

The condensing gas furnaces produced by Carrier are Canadian Standards Association (CSA) design-certified as Category IV furnaces under the current edition of the American National Standards Institute (ANSI) Z21. 47 Standard for Gas-Fired Central Furnaces. The furnaces are certified as non-direct vent (single-pipe), direct vent (2-pipe) or both direct and non-direct vent, depending on the furnace model. The related accessories, including vent termination kits, are also CSA design certified for use on specific model furnaces.

The National Fuel Gas Code, ANSI Z223.1/NFPA 54 (NFGC) requires all furnaces to be installed within the terms of their listing and the manufacturer's installation instructions. This includes the methods of venting and terminating the vent of a condensing furnace. The installation instructions for Carrier furnaces only reference the current concentric vent kits manufactured for Carrier or a termination using a factory accessory termination bracket and field-supplied fittings constructed from approved materials.

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The Z21.47 standard, NFPA 54 and Carrier do not require screens in the vent termination. Carrier does use a type of screen on the intake pipe. The screen is referred to as the combustion air disk assembly and is located either in the combustion air intake box of a direct-vent system or in the intake air elbow on non-direct vent systems. The exceptions to this are that some larger models do not use a combustion air disk in some direct-vent applications.

Screens in the intake are permitted as an option in the intake and exhaust elbows, as shown in Service Manager Bulletin, SMB 87-17. This bulletin was originally written for the first generation condensing furnaces, but is still considered an active bulletin for all current condensing furnace models. As noted in the bulletin, there are risks associated with using screens on the intake and exhaust terminations. The risks are considered operational risks, not safety-related risks. These risks include and are not limited to:

- Air intake frost up or icing
- Vent termination freeze-up or icing
- Nuisance pressure switch trips

Any of these situations could result in erratic performance or a no-heat situation.

If a system problem occurs from using screens in the termination, there are no other factory kits or accessories available to correct the problem. It will be necessary to remove the screens at an expense other than Carrier.

SOLUTION:

For Condensing Vent Terminations:

Construct a round screen as shown in Fig. 1. The dimensions in parentheses are for a 3-inch termination elbow. The screen mesh size must not be smaller than $\frac{1}{2}$ " x $\frac{1}{2}$ " and may be constructed from metal or hard plastic materials.

Insert the screen in the outlet of the vent. Orient the mesh in a diamond pattern similar to Fig. 1. The diamond pattern will allow water droplets to drip down and reduce the potential for ice to form on the screen.

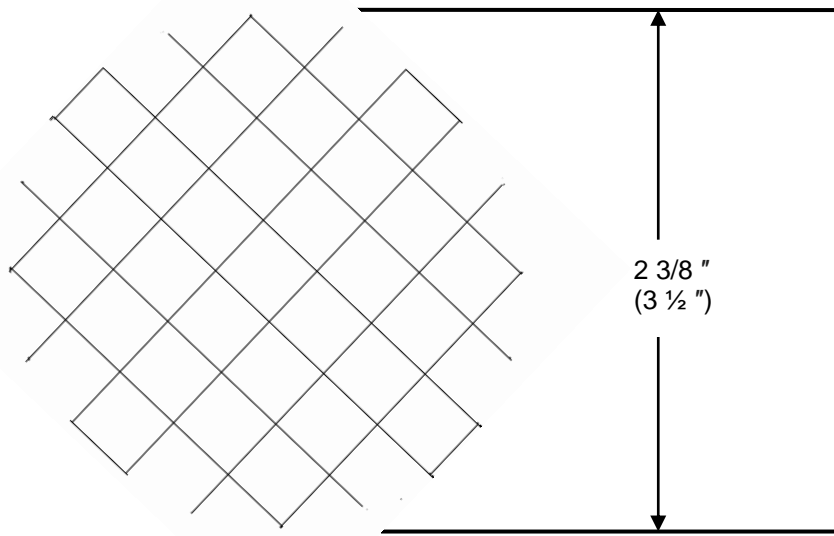


Figure 1

For 2-pipe Vent Terminations:

For 2-pipe Vent Terminations, the intake elbow requires more screened surface area to offset the potential for frost to form on the intake screen, which will occur when outside ambient temperatures are below freezing with high relative humidity. The intake elbow will require a screen cylinder approximately 6 ½ inches long for a 2-inch termination or a 10-inch long cylinder for a 3-inch termination. See Fig. 3.

Construct a round screen as shown in Fig. 1. The dimensions in parentheses are for a 3-inch termination elbow. The screen mesh size must not be smaller than ½ " x ½ " and may be constructed from metal or hard plastic materials.

Insert the screen in the outlet of the vent. Orient the mesh in a diamond pattern similar to Fig. 1. The diamond pattern will allow water droplets to drip down and reduce the potential for ice to form on the screen.

Construct the cylinder as in Fig. 2. The dimensions in parentheses are for a 3-inch termination elbow. The screen mesh size must be the same size as used for constructing the exhaust screen.

Roll the flat screen around a piece of PVC pipe in the direction of the 7 ½ " or 11 ½ " dimension to form the basic cylinder. Insert the open ends of the mesh through the first row square mesh opening and fold over. This will keep the cylinder together.

Fold the cut ends of the mesh that look like tabs on the cylinder to form the bottom of the cylinder. It is not necessary to wire the tabs together.

Temporarily insert the open end of the cylinder into the intake elbow. If the cylinder fits inside the elbow, the cylinder can be wire tied to the elbow to secure the cylinder in place. Drill (2) one eighth inch holes on opposite sides of the vent elbow. Thread a short piece of wire, preferably stainless steel wire, through each hole.

Pull one end of each wire through the screening on the cylinder. Twist the ends of each wire together to secure the wires in place. Trim off any excess wire.

If the cylinder fits over the intake elbow, the cylinder can be held in place by the termination bracket (when used). Remove the screw that holds the termination bracket around the intake air elbow. Spread the bracket apart slightly. Slide the open end of the cylinder up between the intake air elbow and the termination bracket. Re-install the screw in the termination bracket.

If the termination bracket is not used, drill (2) one eighth inch holes on opposite sides of the vent elbow. Thread a short piece of wire, preferably stainless steel wire, through each hole. Pull one end of each wire through the screening on the cylinder. Twist the ends of each wire together to secure the wires in place. Trim off any excess wire.

When completed and installed, the termination screening should look similar to Fig. 3. It is important the length of the cylinder is as long as or longer than the length shown in the drawing.

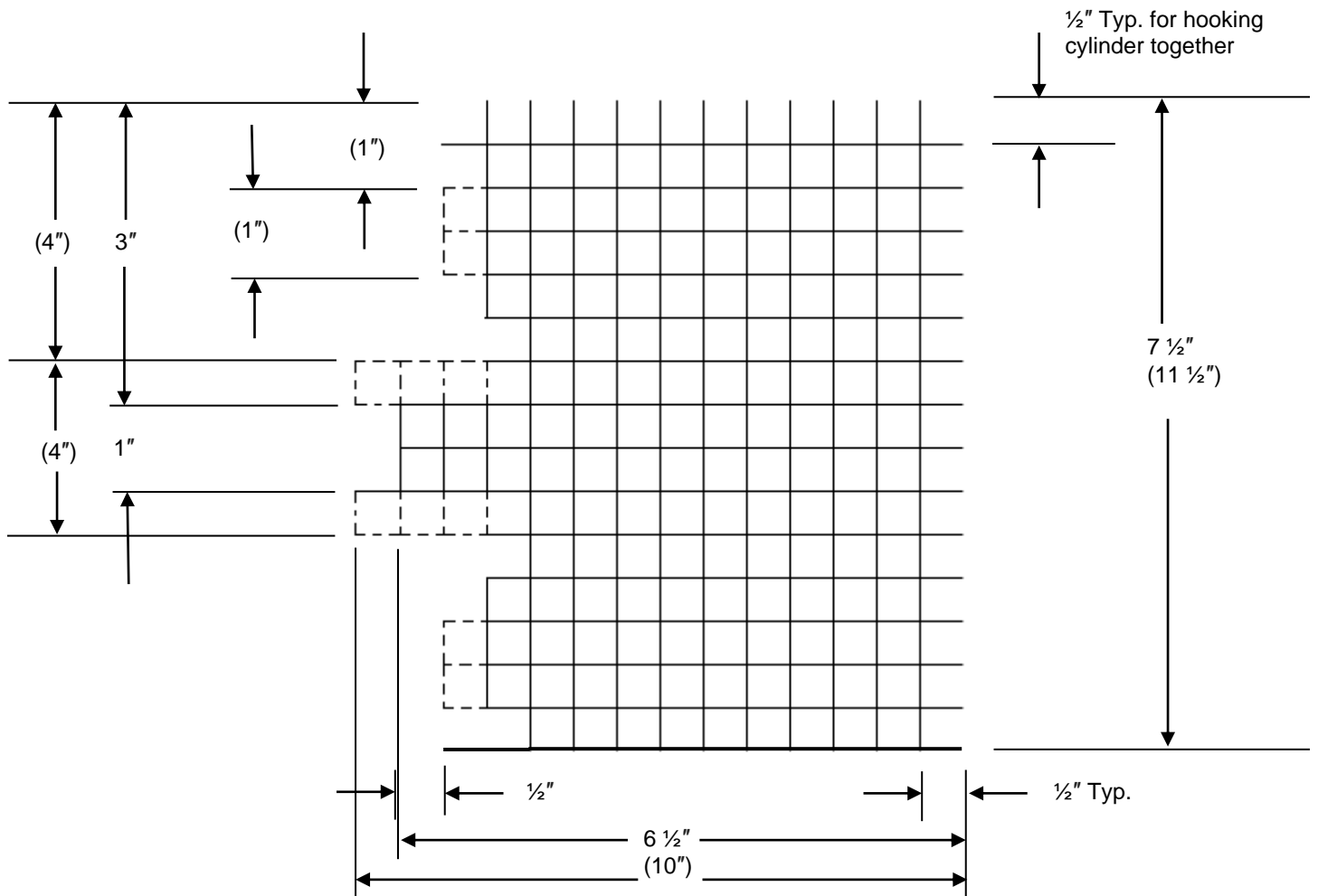


Figure 2

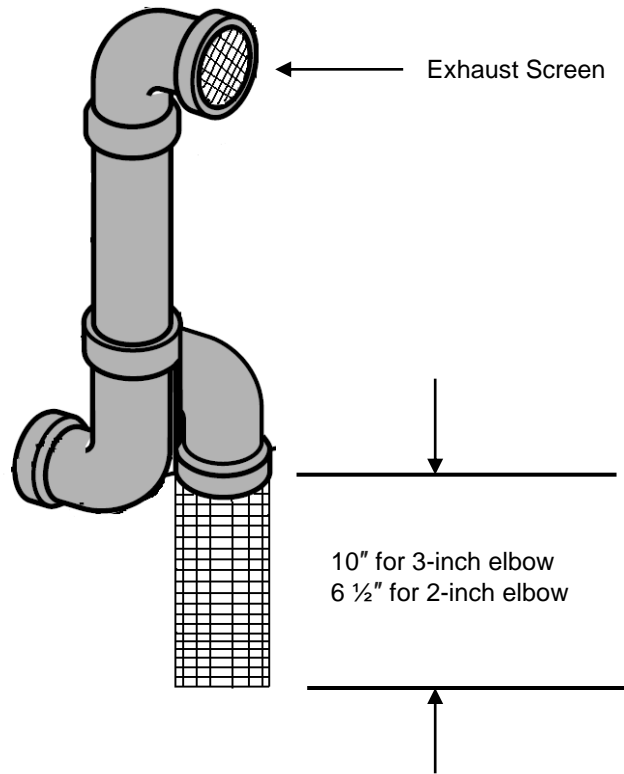


Figure 3

Warning: Do not perform any of the servicing instructions provided in this Service Bulletin unless you are a trained and qualified technician. Observe all precautions in the instructions, equipment tags, labels, and observe all other safety precautions that may apply. Failure to follow this warning could result in property damage, personal injury or death.