

## Clearances for chimney connectors — technical data sheet for client use

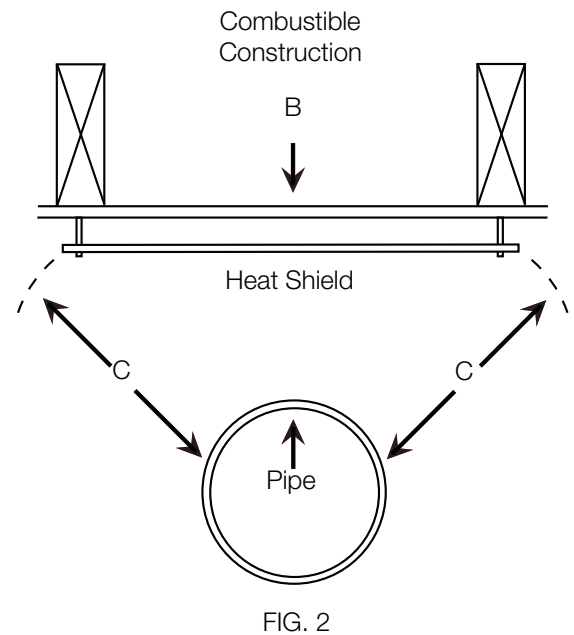
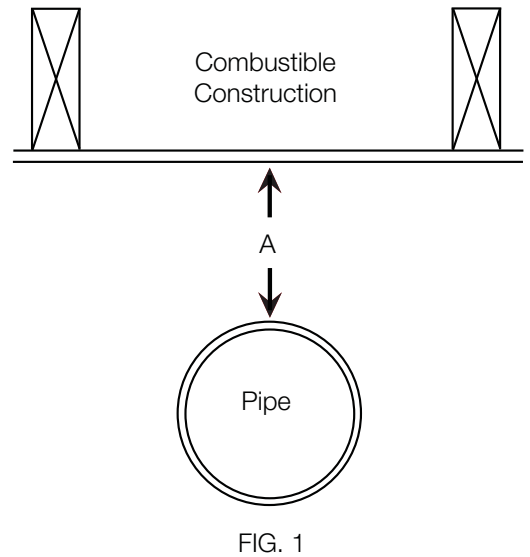
When a combustible wall or ceiling is exposed by a single wall chimney connector or vent connector from a heated device, safe practice requires that clear space (“A” in Fig. 1) be provided between the pipe and the wall/ceiling.

DISTANCE “A” REQUIREMENTS FOR FIG. 1	MINIMUM CLEARANCE* IN
<b>RESIDENTIAL HEAT DEVICES</b>	
Gas appliances without draft hoods	18”
Electric, gas and oil incinerators	18”
Oil and solid-fuel appliances	18”
Unlisted gas appliances with draft hoods	9”
Boilers and furnaces equipped with listed gas burners and with draft hoods	9”
Oil appliances listed as suitable for use with type L vents	9”
Listed gas appliances with draft hoods	9”
<b>COMMERCIAL — INDUSTRIAL-TYPE APPLIANCES — LOW HEAT</b>	
Gas, oil and solid-fuel boilers, furnaces and water heaters	18”
Ranges, restaurant types	18”
Oil unit heaters	18”
Unlisted gas unit heaters	18”
Listed gas unit heaters with draft hoods	6”
Other low-heat industrial appliances	18”
<b>COMMERCIAL — INDUSTRIAL-TYPE APPLIANCES — MEDIUM HEAT</b>	
All gas, oil and solid-fuel appliances	36”

\*These clearances apply unless the heating device’s listing specifies a smaller or larger clearance. The listed clearance takes precedence over above distances.

Clear space “A” can be reduced to distance “B” if heat shield protection is installed as in Fig. 2. Distance “C” is equal to the clear space “A.”

WHEN REQUIRED CLEARANCE “A” IS:	36”	18”	9”	6”
<b>FOR THE TYPE OF PROTECTION, THE CLEARANCE “B” IS:</b>				
Sheet metal, 28 gage spaced out 1 inch on noncombustible spacers	18”	9”	4”	2”
Masonry wall, 3-1/2 inches thick, spaced out 1 inch and tied to protected wall	18”	9”	4”	2”
Sheet metal, 22 gage on 1 inch wire reinforced, mineral wool batts and spaced out 1 inch	12”	3”	2”	2”
Tested and listed wall protectors or shields and spaced out per directions	Installed per manufacturer directions and listing			



**ILLUSTRATION IS NOT DRAWN TO SCALE**

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### CONNECTOR CLEARANCE TO COMBUSTIBLE CONSTRUCTION

Wood and many other cellulosic materials will ignite at temperatures below their reported ignition temperatures if they are exposed to moderate heat (generally above 212°F) over a long period of time. Wood heated in this way can undergo a chemical change to form charcoal and charcoal is capable of igniting spontaneously. Care must be taken to guard against surfaces above 212°F contacting or radiating heat to combustible materials. One area where this danger is commonly encountered is in heat-producing appliances and their associated vent systems. For the purpose of this guide, gypsum drywall and plastered wood stud construction should be considered as combustible materials.

- First, the appliance itself in which combustion takes place.
- Second, the connector which joins the appliance with the chimney or vent.
- Third, there are the chimney and vent pipes which convey fuel gases to the outside atmosphere.

In order to prevent possible ignition, it is necessary to maintain adequate clearance between these components and the surrounding combustible materials. Clearance provides for air circulation, which will dissipate heat that could cause a fire.

While providing clear space around the heating appliance is obvious, clearance around the connector is frequently overlooked. Examples of minimum clearances required between single wall metal connectors and combustible materials are listed in Figure 1. You should also check the appliance for a testing laboratory label, which may indicate clearances different from Figure 1's list. The testing laboratory label distances take precedence.

If the clear space between the connector and combustible material is smaller than the required minimum, installing a heat shield may compensate for the reduction. Figure 2 illustrates several heat shield options and the reduced

clearance needs. The shield provides an insulating effect by reducing the rate of heat transfer to the combustible materials. Nevertheless, air space must be maintained between the shield and the heat producing appliance on one side and between the shield and the combustible material on the other side. Usually, the heat shield is located one inch away from the combustible material by using noncombustible spacers such as ceramic blocks. There should also be approximately one inch of space around the perimeter of the shield for cooling air circulation.

As an alternative to heat shields, listed gas and oil venting material may be used as a vent connector on appliances that are listed for Type B (gas) or Type L (oil) venting systems. In those cases, the clearances should be in accordance with the minimum listed for the venting material.

Connectors should never pass through a floor, ceiling, fire wall, or fire partition. Penetrations of fire walls and rated fire partitions should be avoided by using a chimney or vent located on the same side as the heating appliance. For passage through floors or ceilings, only a chimney or vent should be used. Routing connectors through combustible walls or partitions should be avoided. However, with special precautions, connectors for listed gas and oil appliances, residential-type and low-heat appliances can be safely installed. The special precautions are:

- For listed gas and oil appliances, use either a listed venting material or a single-wall metal pipe guarded by a ventilated metal thimble.
- For residential-type appliances, use listed factorybuilt chimney sections, or the safeguards for low heat appliances.
- For low-heat appliances, the combustible materials should be cut away a distance sufficient to provide the clearances in Figure 1.

Connectors for medium and high heat appliances should never pass through a combustible wall or partition.

#### Sources:

NFPA Standard No. 211, Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances.  
Underwriters Laboratories Inc., Gas and Oil Equipment Directory, "Floor Protectors and Wall Shields."

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