



## PLANNING & BUILDING SERVICES

### FIREPLACES, INSERTS, & STOVES

#### GENERAL INFORMATION

Permits are required for the installation of all gas, oil, and solid fuel burning appliances. Any gas, oil, or solid fuel burning appliance installed without a permit and approved inspection is considered a code violation and may invalidate your fire insurance policy. Used stoves, fireplaces, or other fuel burning appliances may not be installed in new or existing buildings unless they have been certified. Contact the Spokane County Air Pollution Control Authority for more information (509) 477-4727.

This handout serves as a brief overview on gas, wood, and pellet fireplaces, inserts, and stoves, for more information on specific requirements, please refer to the City of Liberty Lake Building Code.

#### LISTED VS. UNLISTED APPLIANCES

##### Listed appliances:

Appliances which are "approved" or "listed" by approved testing agencies, such as Underwriters Laboratories (U.L.), the International Code Council (ICC), etc., are strongly recommended because these units have been tested and approved under extreme conditions. If you have purchased or are using a "listed" appliance, follow the listing instructions for installation and clearance requirements.

##### Unlisted appliances:

Unlisted appliances are any appliances that are **not** tested as stated in the previous section. Most unlisted appliances, regardless of manufacturer, are required to be 36" away from unprotected combustible walls and materials. Some may require as much as 54". A combustible wall is a wall that contains wood and includes walls that are surfaced with gypsum board, (drywall), or plaster. Heat is transferred directly through these materials to the wood framing. Unlisted appliances may be installed closer than 36" to combustible walls or materials provided the combustible surface is protected by using one of the approved methods listed in Table A (attached). Also see Illustration 1 (attached).

##### Mobile Home installations:

Fuel burning appliances to be installed in mobile homes must be specifically "listed" for that purpose. Do not install unlisted appliances in mobile homes. Permits are required and must be obtained from the City of Liberty Lake Planning & Building Services prior to installation.

## INSTALLATION SPECIFICATIONS

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### **Hearth and floor coverings:**

The hearth slab shall extend at least 16" in front of the fuel loading side of the appliance. Floor protection shall extend 8" beyond the sides and rear of the appliance. In all cases the floor area directly beneath the appliance shall be protected and the minimum clearance from the bottom of the appliance to the floor protection shall be 6" unless a lesser clearance is specified for a listed appliance. The hearth slab and floor protection shall consist of not less than 3/8" thick asbestos, concrete, hollow metal, stone, tile, or other approved non-combustible materials. Combustible floor coverings shall not encroach in the required hearth extension.

Note: Appliances installed in garages shall be a minimum of 18" above the floor.

### **Vent connector:**

The vent connector or stove pipe is the pipe that connects the appliance to the chimney. The minimum clearance from a single wall vent connector to an unprotected combustible wall or ceiling is 18". Pellet Stoves may be vented out a wall, provided that the vent is at least four (4) feet away from an opening window or door.

### **Chimneys:**

Chimneys shall be constructed of masonry in accordance with the International Building Code requirements and the Masonry Institute of Washington or shall be approved factory built assemblies "listed" or "approved" by U.L., I.C.C., or other recognized agencies for use with wood burning or other solid fuel burning appliances. The, "listed" or "approved", chimney assemblies shall be installed in accordance with their listings. The required clearance from the chimney to combustibles will be indicated on each section of chimney. The minimum clearance for a masonry chimney is 2".

Note: Metal liners installed in masonry chimneys or relined chimneys shall be of approved "listed" materials and installed in accordance with the listing.

Chimney height termination: The chimney shall terminate at a point not less than 2 feet above any portion of a structure within a 10 foot radius of the chimney.

Wood burning appliances and existing fireplaces/ chimneys: There are three acceptable methods of connecting a wood burning or other solid fuel burning appliance to a masonry fireplace. (See Illustrations 2, 3 and 4.)

It is never permissible to simply seal off the front of the firebox and run a vent connector into the firebox, terminating it there.

Note: Wood stoves may be connected to existing metal fireplace chimneys only if the "listing" for that chimney allows it. Most do not!

### **Wood burning furnaces:**

Wood burning furnaces must be installed according to their approved "listing". If it is not a listed appliance, check with the City to see if the particular unit is acceptable. "Add-on" furnaces must be listed and approved specifically for that use. Duct systems for all wood or solid fuel burning appliances must, at a minimum, comply with the requirements of NFPA 89-M (Table 2-3). No wood burning appliances can be installed as a primary heating source.

Table A\*

**TYPE OF PROTECTION FOR RADIANT APPLIANCES**

**REQUIRED CLEARANCES FROM COMBUSTIBLE MATERIAL**

	Above	Sides & Rear	Vent Conn.
1) None	36"	36"	18"
2) 4" Brick Spaced Out 1"	30"	18"	12"
3) No. 28 Mfg. Std. Gauge Steel Sheet on 1/4" Insulating Millboard Fastened Directly to the Wall	24"	18"	12"
4) No. 28 Mfg. Std. Gauge Steel Sheet Spaced Out 1"	18"	12"	9"
5) No. 28 Mfg. Std. Gauge Steel Sheet on 1/8" Insulating Millboard Spaced Out 1"	18"	12"	9"
6) 1/4" Insulating Millboard Fastened Directly to the Wall	36"	36"	18"
7) 1/2" Wonderboard Spaced Out 1"	30"	18"	12"
8) Homasote NCFR Spaced Out 1"	18"	12"	9"

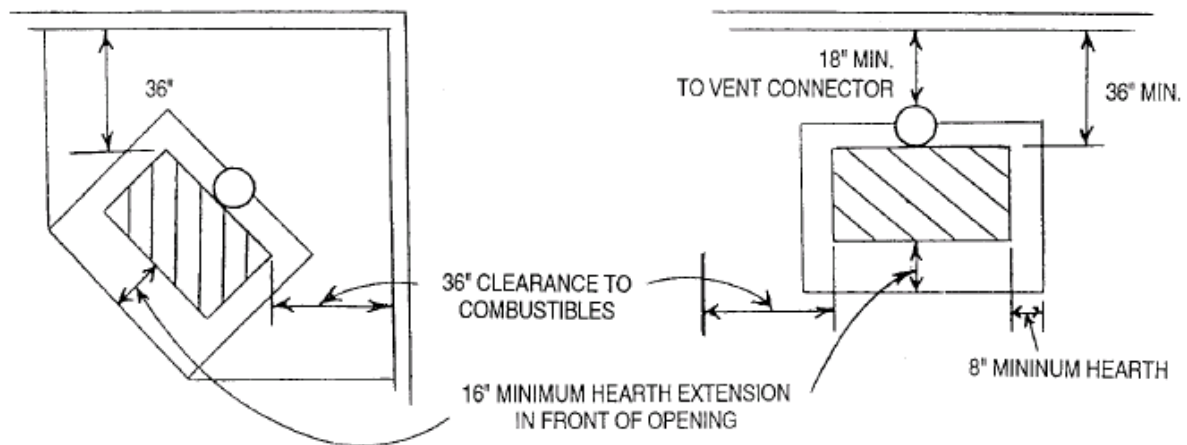
**TYPE OF PROTECTION FOR CIRCULATING HEATERS**

9) None	36"	12"	9"
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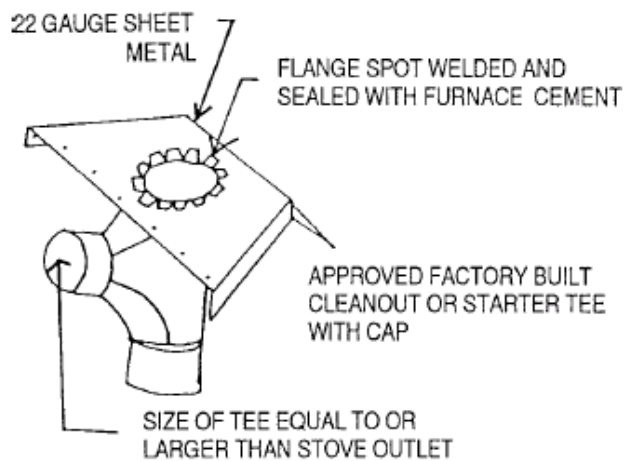
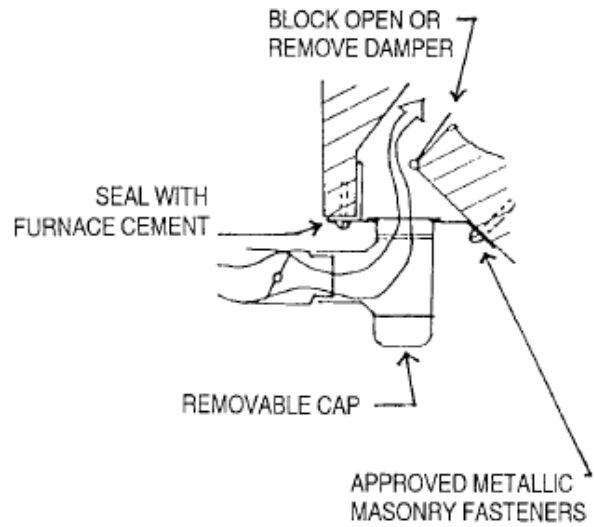
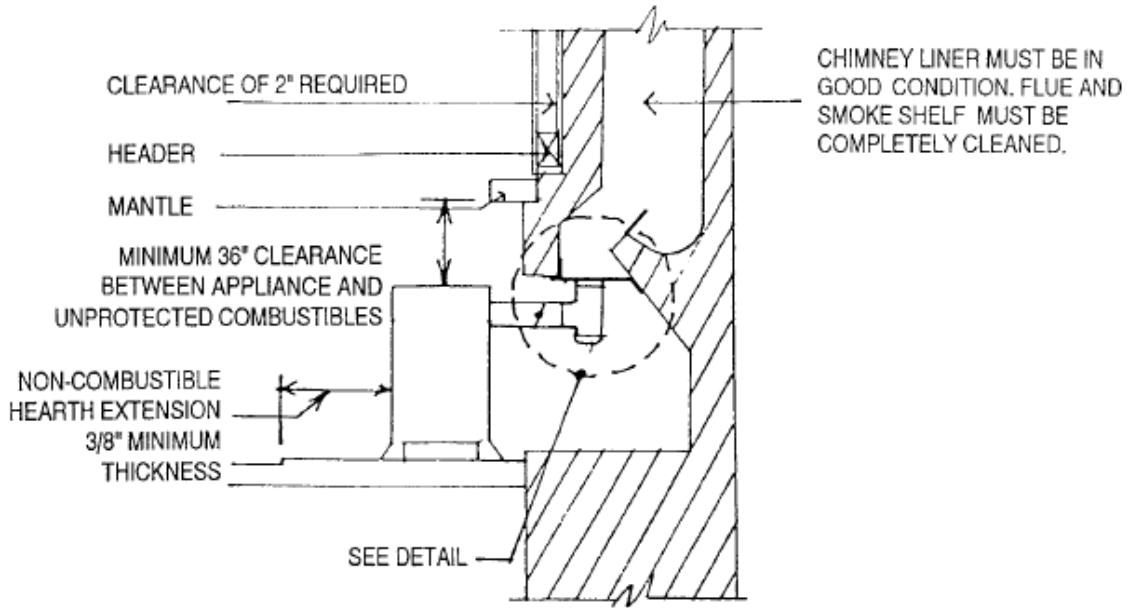
*NOTE: All required spacers must be non-combustible.*

\* Using a combination of the above types of protection will not provide for additional clearance reduction.

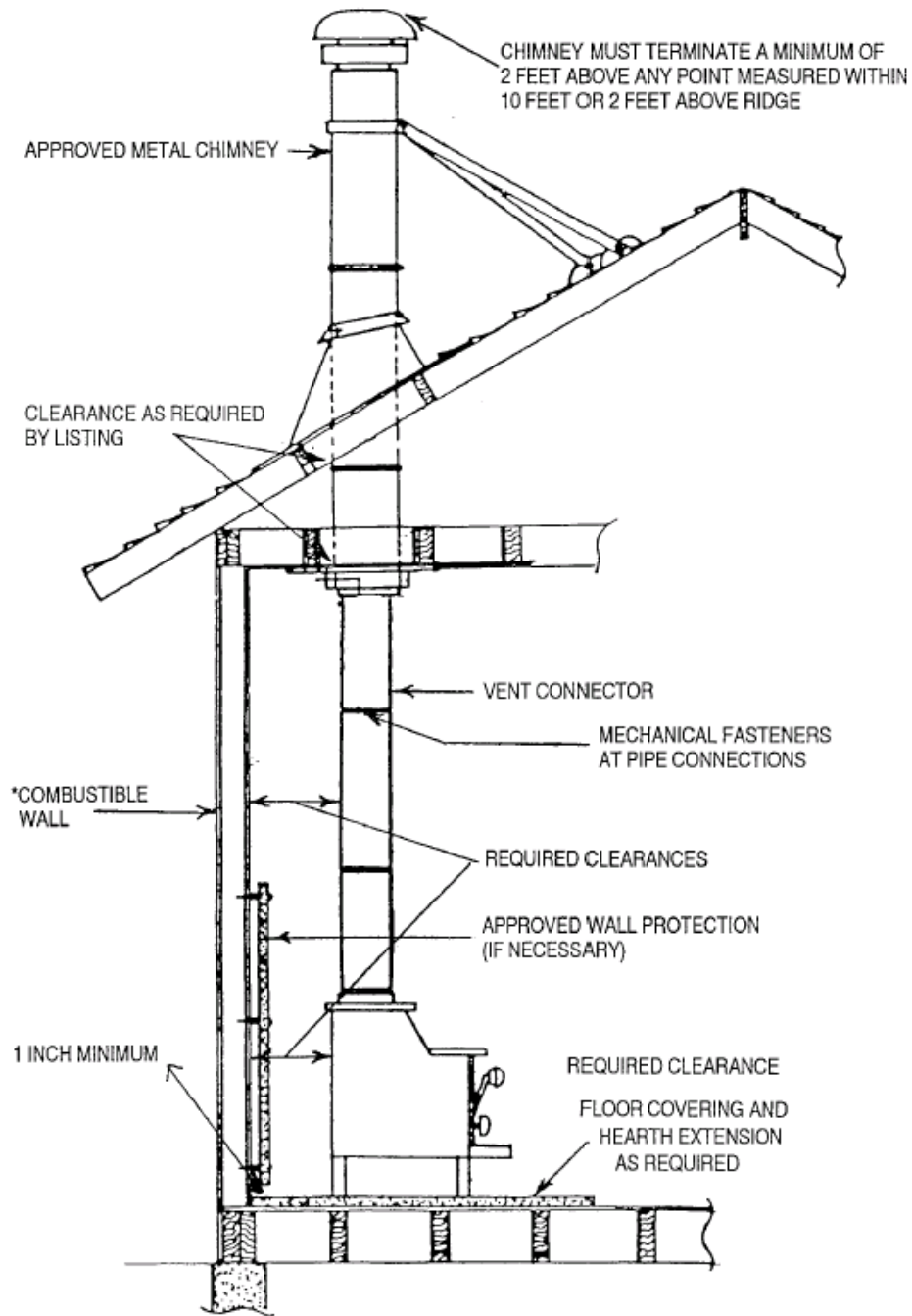
UNPROTECTED INSTALLATIONS  
(illustration 1)



APPROVED CHIMNEY CONNECTION  
(illustration 2)

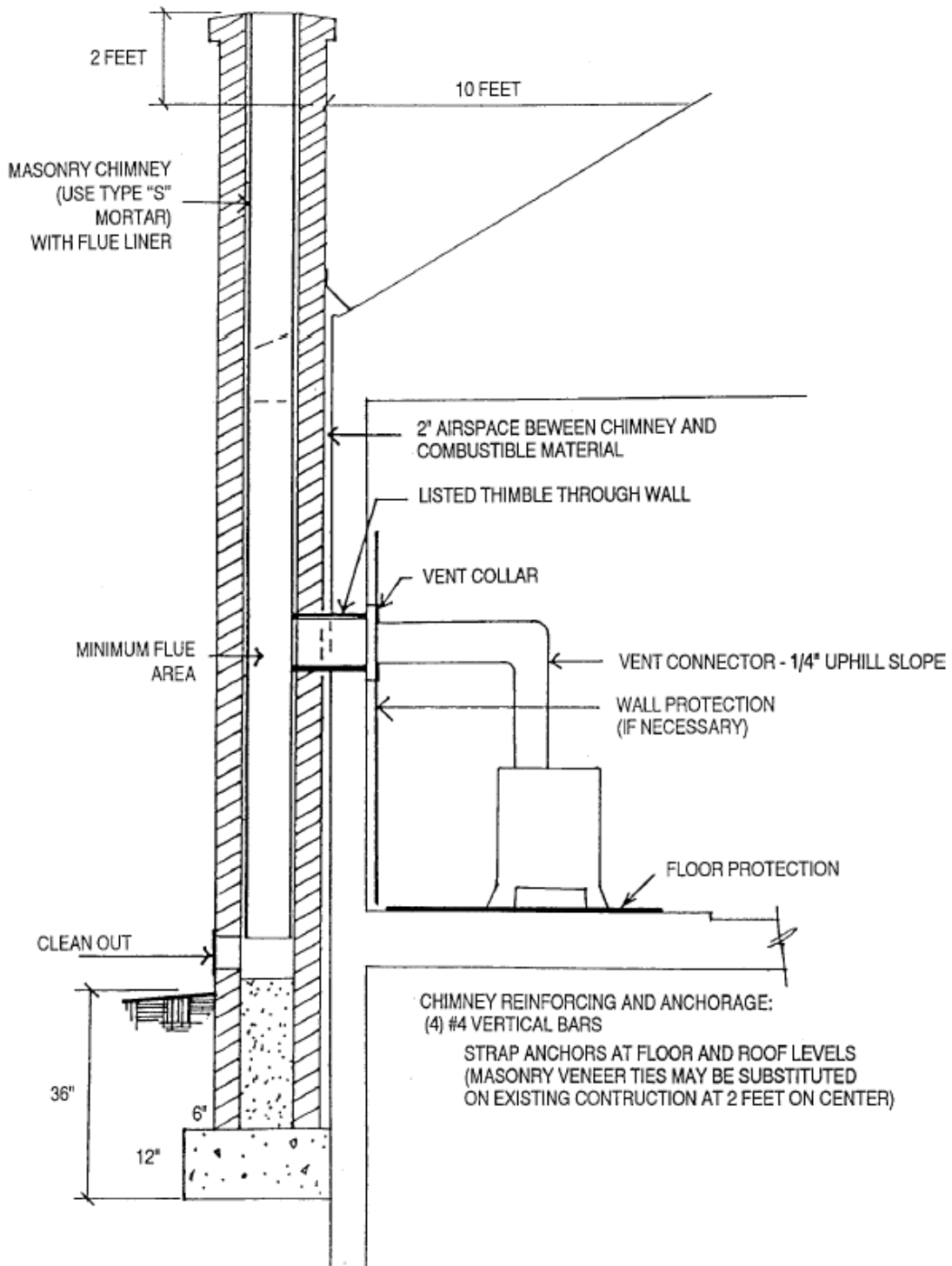


APPROVED CHIMNEY CONNECTION  
(illustration 3)



\*NOTE: SHEET ROCK IS CONSIDERED A COMBUSTIBLE MATERIAL

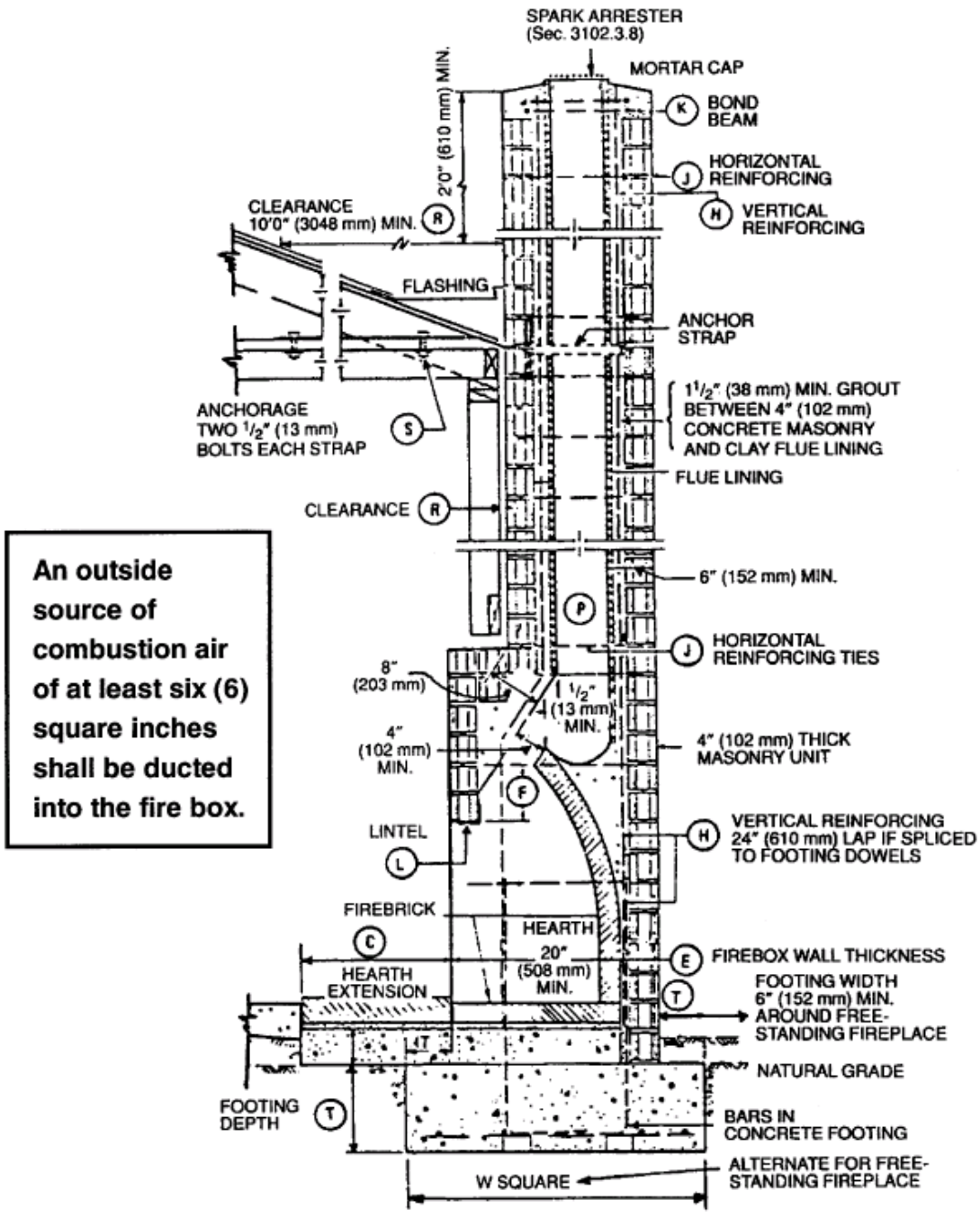
APPROVED CHIMNEY CONNECTION  
(illustration 4)



## International Code Council (ICC) Requirements for Masonry Fireplaces

ITEM	LETTER*	UNIFORM BUILDING CODE REQUIREMENTS
Hearth slab thickness	A	4" (102 mm)
Hearth extension (each side of opening)	B	8" (203 mm) fireplace opening <6 sq. ft. (0.56 m <sup>2</sup> ) 12" (305 mm) fireplace opening ≥6 sq. ft. (0.56 m <sup>2</sup> )
Hearth extensions (front of opening)	C	16" (406 mm) fireplace opening <6 sq. ft. (0.56 m <sup>2</sup> ) 20" (508 mm) fireplace opening ≥ sq. ft. (0.56 m <sup>2</sup> )
Hearth slab reinforcing	D	Reinforced to carry its own weight and all imposed loads.
Thickness of wall of firebox	E	10" (254 mm) common brick or 8" (203 mm) where a firebrick lining is used Joints in firebrick 1/4" (6 mm) max.
Distance from top of opening to throat	F	6" (152 mm)
Smoke chamber of edge of shelf Rear wall - thickness Front and sidewall - thickness	G	6" (152 mm) 8" (203 mm)
Chimney Vertical reinforcing	H	Four No. 4 full-length bars for chimney up to 40' (1016 mm) wide. Add two No. 4 bars for each additional 40' (1016 mm) or fraction of width or each additional flue.
Horizontal reinforcing	J	1/4" (6.4 mm) ties at 18" (457 mm) and two ties at each bend in vertical steel.
Bond beams	K	No specified requirements.
Fireplace lintel	L	Non combustible material.
Walls with flue lining	M	Brick with grout around lining. 4" (102 mm) min. from flue lining to outside face of chimney.
Walls with unlined flue	N	8" (203 mm) solid masonry.
Distances between adjacent flues		4" (102 mm)*
Minimum effective flue area (based on area of fireplace openings)	P	Round lining - 1/12 or 50 sq. in. (32,258 m <sup>2</sup> ) min. Rectangular lining - 1/10 or 64 sq. in. (41,290 m <sup>2</sup> ) min. Unlined or lined with firebrick - 1/8 or 100 sq. in. (64,516 m <sup>2</sup> ) min.
Clearances Woodframe Combustible material  Above roof	R	2" (51 mm) (See Figure 8.)  6" (152 mm) min. to fireplace opening. 12" (305 mm) from opening when material projecting more than 1/8" for each 1" (25 mm) 2' (610 mm) at 10' (3048 mm) (See U.B.C. Table 31-B.)
Anchorage Strap Number Embedment into chimney Fasten to Bolts	S	3/16" x 1" (4.8 mm by 25 mm) 2 12" (305 mm) hooked around outer bar w/6" (152 mm) ext. 2' x 4" (51 mm by 102 mm) ties crossing a min. of 4 joists Two 1/2" (13 mm) diameter
Footing Thickness Width	T	12" (305 mm) min. 6" (152 mm) each side of fireplace wall
NOTE: * See Figure 5 for letter references. Steel reinforcement shown is required in Seismic Zones 2, 3, and 4. See "Chimneys, Fireplaces and Barbecues" for additional information.		

**Dwelling Construction under the International Residential Code (IRC)  
and the International Mechanical Code (IMC)**



**An outside source of combustion air of at least six (6) square inches shall be ducted into the fire box.**

NOT TO SCALE

**BRICK FIREBOX AND CHIMNEY—  
SECTIONAL SIDE VIEW ON CONCRETE SLAB**

**FIGURE 5—TYPICAL MASONRY FIREPLACE**



Dwelling Construction under the International Residential Code (IRC)  
and the International Mechanical Code (IMC)

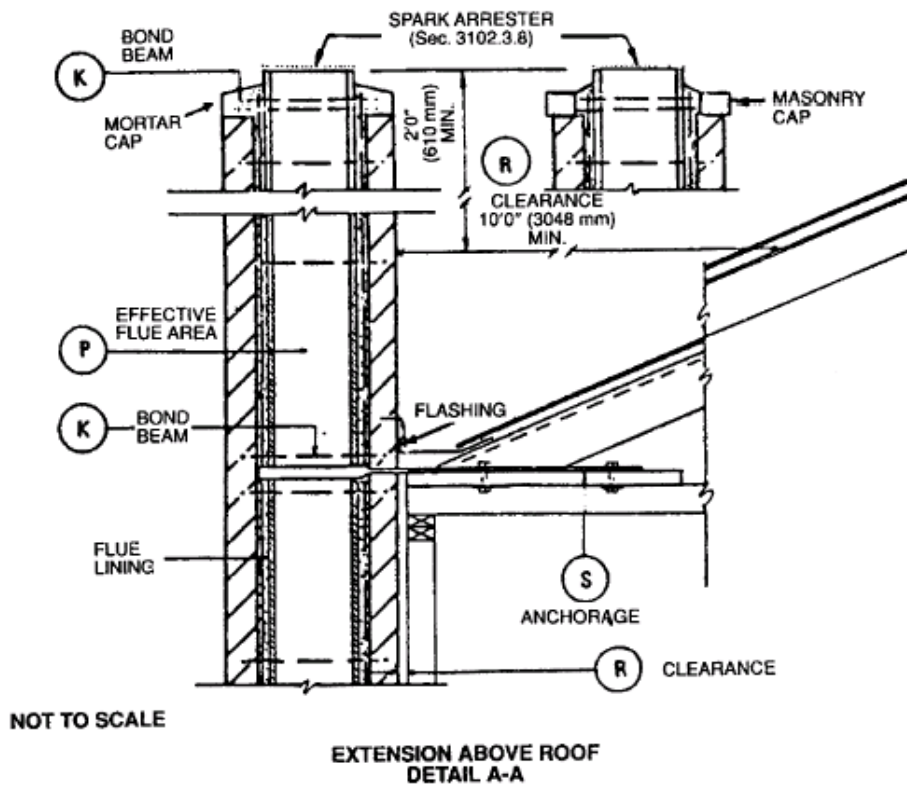
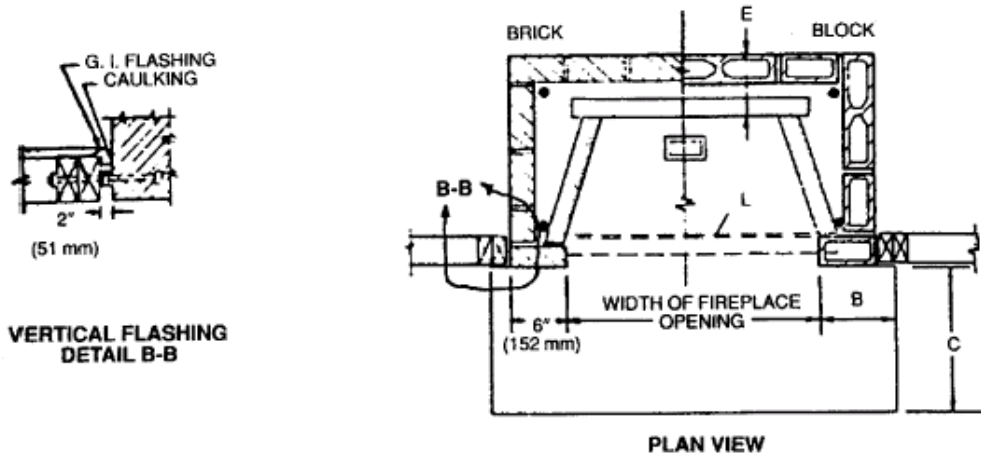


FIGURE 5—TYPICAL MASONRY FIREPLACE—(Continued)

Dwelling Construction under the International Residential Code (IRC)  
and the International Mechanical Code (IMC)

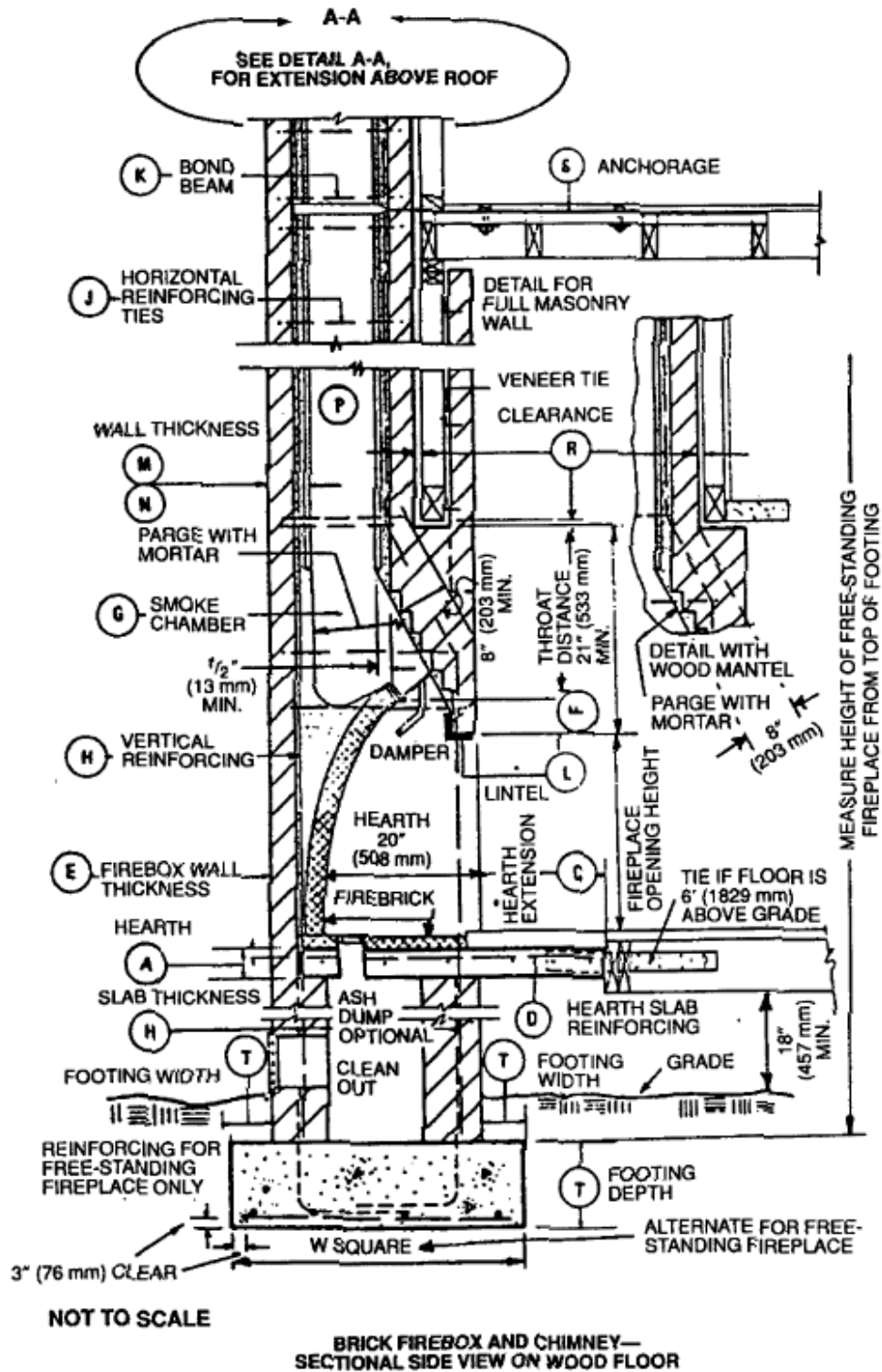


FIGURE 5—TYPICAL MASONRY FIREPLACE—(Continued)

Please note that while every effort is made to assure the accuracy of the information contained in this brochure it is not warranted for accuracy. This document is not intended to address all aspects or regulatory requirements for a project and should serve as a starting point for your investigation.

For detailed information on a particular project, permit, or code requirement refer directly to applicable file and/or code/regulatory documents or contact the City of Liberty Lake Planning & Building Services.

**FOR MORE INFORMATION PLEASE CONTACT:**

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