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**

**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*

<table>
<thead>
<tr>
<th>TYPE OF PROTECTION FOR RADIANT APPLIANCES</th>
<th>REQUIRED CLEARANCES FROM COMBUSTIBLE MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Above</td>
</tr>
<tr>
<td>1) None</td>
<td>36&quot;</td>
</tr>
<tr>
<td>2) 4&quot; Brick Spaced Out 1&quot;</td>
<td>30&quot;</td>
</tr>
<tr>
<td>3) No. 28 Mig. Std. Gauge Steel Sheet on 1/4&quot; Insulating Millboard Fastened Directly to the Wall</td>
<td>24&quot;</td>
</tr>
<tr>
<td>4) No. 28 Mig. Std. Gauge Steel Sheet Spaced Out 1&quot;</td>
<td>18&quot;</td>
</tr>
<tr>
<td>5) No. 28 Mig. Std. Gauge Steel Sheet on 1/8&quot; Insulating Millboard Spaced Out 1&quot;</td>
<td>18&quot;</td>
</tr>
<tr>
<td>6) 1/4&quot; Insulating Millboard Fastened Directly to the Wall</td>
<td>36&quot;</td>
</tr>
<tr>
<td>7) 1/2&quot; Wonderboard Spaced Out 1&quot;</td>
<td>30&quot;</td>
</tr>
<tr>
<td>8) Homasote NC FR Spaced Out 1&quot;</td>
<td>18&quot;</td>
</tr>
</tbody>
</table>

TYPE OF PROTECTION FOR CIRCULATING HEATERS

9) None 36" 12" 9"

NOTE: All required spacers must be non-combustible.

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

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UNPROTECTED INSTALLATIONS

(Illustration 1)

36" CLEARANCE TO COMBUSTIBLES

16" MINIMUM HEARTH EXTENSION IN FRONT OF OPENING

8" MINIMUM HEARTH

TO VENT CONNECTOR

36" MIN.
APPROVED CHIMNEY CONNECTION

(illustration 2)

CLEARANCE OF 2" REQUIRED
HEADER
MANTLE
MINIMUM 36" CLEARANCE BETWEEN APPLIANCE AND UNPROTECTED COMBUSTIBLES
NON-COMBUSTIBLE HEARTH EXTENSION
3/8" MINIMUM THICKNESS
SEE DETAIL

CHIMNEY LINER MUST BE IN GOOD CONDITION, FLUE AND SMOKE SHELF MUST BE COMPLETELY CLEANED.

22 GAUGE SHEET METAL
FLANGE SPOT WELDED AND SEALED WITH FURNACE CEMENT
APPROVED FACTORY BUILT CLEANOUT OR STARTER TEE WITH CAP
SIZE OF TEE EQUAL TO OR LARGER THAN STOVE OUTLET

BLOCK OPEN OR REMOVE DAMPER
SEAL WITH FURNACE CEMENT
REMOVABLE CAP
APPROVED METALLIC MASONRY FASTENERS
APPROVED CHIMNEY CONNECTION
(Illustration 3)

CHIMNEY MUST TERMINATE A MINIMUM OF
2 FEET ABOVE ANY POINT MEASURED WITHIN
10 FEET OR 2 FEET ABOVE RIDGE

APPROVED METAL CHIMNEY

CLEARANCE AS REQUIRED
BY LISTING

*COMBUSTIBLE WALL

VENT CONNECTOR
MECHANICAL FASTENERS
AT PIPE CONNECTIONS

REQUIRED CLEARANCES

APPROVED WALL PROTECTION
(IF NECESSARY)

1 INCH MINIMUM

REQUIRED CLEARANCE
FLOOR COVERING AND
HEARTH EXTENSION
AS REQUIRED

*NOTE: SHEET ROCK IS CONSIDERED A COMBUSTIBLE MATERIAL
APPROVED CHIMNEY CONNECTION
(Illustration 4)

2 FEET

10 FEET

MASONRY CHIMNEY
(USE TYPE "S"
MORTAR)
WITH FLUE LINER

2" AIRSPACE BETWEEN CHIMNEY AND
COMBUSTIBLE MATERIAL

LISTED THIMBLE THROUGH WALL

MINIMUM FLUE AREA

VENT COLLAR

VENT CONNECTOR - 1/4" UPHILL SLOPE

WALL PROTECTION
(IF NECESSARY)

FLOOR PROTECTION

CLEAN OUT

36"

6"

12"

CHIMNEY REINFORCING AND ANCHORAGE:
(4) #4 VERTICAL BARS
STRAP ANCHORS AT FLOOR AND ROOF LEVELS
(MASONRY VENEER TIES MAY BE SUBSTITUTED
ON EXISTING CONSTRUCTION AT 2 FEET ON CENTER)
### International Code Council (ICC) Requirements for Masonry Fireplaces

<table>
<thead>
<tr>
<th>ITEM</th>
<th>LETTER</th>
<th>UNIFORM BUILDING CODE REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hearth slab thickness</td>
<td>A</td>
<td>4&quot; (102 mm)</td>
</tr>
<tr>
<td>Hearth extension</td>
<td>B</td>
<td>8&quot; (203 mm) fire place opening &lt;6 sq. ft. (0.56 m²)</td>
</tr>
<tr>
<td>(each side of opening)</td>
<td></td>
<td>12&quot; (305 mm) fire place opening &gt;6 sq. ft. (0.56 m²)</td>
</tr>
<tr>
<td>Hearth extensions</td>
<td>C</td>
<td>16&quot; (406 mm) fire place opening &lt;6 sq. ft. (0.56 m²)</td>
</tr>
<tr>
<td>(front of opening)</td>
<td></td>
<td>20&quot; (508 mm) fire place opening &gt;6 sq. ft. (0.56 m²)</td>
</tr>
<tr>
<td>Hearth slab reinforcing</td>
<td>D</td>
<td>Reinforced to carry its own weight and all imposed loads.</td>
</tr>
<tr>
<td>Thickness of wall of fire box</td>
<td>E</td>
<td>10&quot; (254 mm) common brick or 8&quot; (203 mm) where a firebrick lining is used.</td>
</tr>
<tr>
<td>Distance from top of opening to throat</td>
<td>F</td>
<td>6&quot; (152 mm)</td>
</tr>
<tr>
<td>Smoke chamber of edge of shelf</td>
<td>G</td>
<td>6&quot; (152 mm)</td>
</tr>
<tr>
<td>Rear wall - thickness</td>
<td></td>
<td>8&quot; (203 mm)</td>
</tr>
<tr>
<td>Front and sidewall - thickness</td>
<td>H</td>
<td>Four 11o. 4 full-length bars for chimney up to 40&quot; (1016 mm) wide. Add two No. 4 bars for each additional 40&quot; (1016 mm) or fraction of width or each additional flue.</td>
</tr>
<tr>
<td>chimney Vertical reinforcing</td>
<td>J</td>
<td>1/4&quot; (6.4 mm) ties at 18&quot; (457 mm) and two ties at each bend in vertical steel.</td>
</tr>
<tr>
<td>Bond beams</td>
<td>K</td>
<td>No specified requirements.</td>
</tr>
<tr>
<td>Fireplace lintel</td>
<td>L</td>
<td>Non combustible material.</td>
</tr>
<tr>
<td>Walls with flue lining</td>
<td>M</td>
<td>Brick with grout around lining. 4&quot; (102 mm) min. from flue lining to outside face of chimney.</td>
</tr>
<tr>
<td>Walls with unlined flue</td>
<td>N</td>
<td>8&quot; (203 mm) solid masonry.</td>
</tr>
<tr>
<td>Distances between adjacent flues</td>
<td>O</td>
<td>4&quot; (102 mm)*</td>
</tr>
<tr>
<td>Minimum effective flue area (based on area of fireplace openings)</td>
<td>P</td>
<td>Round lining - 1/12 or 50 sq. in. (32,258 m²) min. Rectangular lining - 1/10 or 64 sq. in. (41,290 m²) min. Unlined or lined with firebrick - 1/8 or 100 sq. in. (64.516 m²) min.</td>
</tr>
<tr>
<td>Clearances</td>
<td>R</td>
<td>2&quot; (51 mm) (See Figure 8.)</td>
</tr>
<tr>
<td>Woodframe Combustible material</td>
<td></td>
<td>6&quot; (152 mm) min. to fireplace opening.</td>
</tr>
<tr>
<td>Above roof</td>
<td></td>
<td>12&quot; (305 mm) from opening when material projecting more than 1/8&quot; for each 1&quot; (25 mm)</td>
</tr>
<tr>
<td>Anchorage</td>
<td></td>
<td>2&quot; (610 mm) at 10&quot; (3048 mm) (See U.B.C. Table 31-B.)</td>
</tr>
<tr>
<td>S/6&quot; x 1&quot; (4.8 mm by 25 mm)</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>S/12&quot; (305 mm) hooked around outer bar w/6&quot; (152 mm) ext. 2&quot; x 4&quot; (51 mm by 102 mm) ties crossing a min. of 4 joint. Two 1/2&quot; (13 mm) diameter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Footing</td>
<td>S</td>
<td>12&quot; (305 mm) min.</td>
</tr>
<tr>
<td>Thickness</td>
<td>T</td>
<td>6&quot; (152 mm) each side of fireplace wall</td>
</tr>
</tbody>
</table>

**NOTE:** *See Figure 5 for letter references. Stool 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.
Dwelling Construction under the International Residential Code (IRC) and the International Mechanical Code (IMC)

VERTICAL FLASHING DETAIL B-B

PLAN VIEW

STAK ARRESTER
(Sec. 3125.3.8)

CLEARANCE
10'0" (3048 mm)

MIN.

EXTENSION ABOVE ROOF
DETAIL A-A

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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WWW.LIBERTYLAKEWA.GOV