

# CITY OF MILPITAS

Building & Safety Department  
455 E. Calaveras Blvd.  
Milpitas, CA 95035  
408-586-3240  
[www.ci.milpitas.ca.gov](http://www.ci.milpitas.ca.gov)



## EXISTING BRICK, MASONRY & PRE-CAST FIREPLACE RECONSTRUCTION

### 1. PERMIT INFORMATION:

- The repair or reconstruction of existing fireplace chimneys and fireboxes requires a building permit.
- A Permit may be issued only to a State of California Licensed Contractor with the proper license classification or the Homeowner.
- If the work is performed by the Homeowner personally or by his/her workers, and an inspection indicates the work cannot be completed satisfactorily, then a licensed contractor must perform the work.
- If the Homeowner hires workers, State Law requires the Homeowner to obtain Worker's Compensation Insurance. Proof of this insurance is required prior to inspection.

### 2. INSTALLATION REQUIREMENTS:

- Building Codes:** All work must comply with the 2013 California Residential Code (CRC) or 2013 California Building Code, 2013 California Electrical Code (CEC), 2013 California Mechanical Code (CMC), 2013 California Plumbing Code (CPC), 2013 California Energy Code, 2013 California Green Building Code and 2014 Milpitas Municipal Code (MMC).
- Only gas fireplaces, pellet-fueled wood heater or E.P.A. certified wood-burning appliances may be added to or replace wood-burning appliances in existing buildings (MMC II-15.2.02). A "wood burning appliance" is defined as a fireplace, wood heater, or pellet-fired wood heater or a similar device burning solid fuel used for aesthetic or space-heating purposes (MMC II-15.3.08).
- The conversion of a gas fireplace to burn wood shall constitute the installation of a wood burning appliance and shall be required to comply with the above paragraph (MMC II-15.2.03).
- A wood burning appliance shall comply with MMC II-15.2.02 if (1) it is **reconstructed**, (2) additions, alterations or repairs are made to the appliance that require opening up immediately-adjacent walls, or (3) the residential unit or commercial building in which the appliance is located is renovated, and the renovation includes opening up walls immediately adjacent to the appliance. (MMC II-15.2.04)
- The following are the minimum requirements for rebuilding a brick, masonry or pre-cast fireplace. All work shall be in compliance with CRC Section R1001.
  - Tear down the damaged section past the problem area. There must be a minimum of 24" of existing reinforcing bars exposed above the existing chimney to tie in the new work. If no reinforcing bars are found you must continue to tear down until reaching the foundation or until the existing rebar is exposed for 24". The void between the exterior and firebox must be completely filled prior to starting of "Shoulder" and "Chimney" reconstruction.
  - If restarting from foundation, drill 5/8" by 8" deep holes in existing foundation and install four (4) 1/2" diameter (#4) full length steel reinforcing bars for chimneys up to 40 inches wide. For chimneys more than 40 inches wide, two additional #4 bars shall be installed for each additional 40 inches in width or fraction thereof. Rebar shall be installed in existing foundation with approved epoxy and the Building Inspector shall observe installation of the epoxy.

- Vertical reinforcement shall be placed within ¼” ties placed in the bed joints at a minimum of every 18 inches of vertical height. Two such ties shall be installed at each bend in the vertical bars.
  - Vertical reinforcement shall be placed in the concrete, or between wythes of solid masonry, or within the cells of hollow unit masonry, and grouted in accordance with CRC Section R6091.1. Grout shall be prevented from bonding with the flue liner so that the flue liner is free to move with thermal expansion.
  - Chimney must be anchored at each floor, ceiling or roof line unless constructed completely within the exterior walls. Two 3/16” by 1” straps shall be embedded a minimum of 12 inches into the chimney. Straps shall be hooked around the outer vertical reinforcing bars and extend 6 inches beyond the bend. Each strap shall be fastened to a minimum of four floor ceiling or floor joists or rafters with two ½” bolts.
  - Chimneys shall extend at least 2 feet higher than any portion of a building within 10 feet, but shall not be less than 3 feet above the highest point where the chimney passes through the roof.
  - Chimneys shall have a concrete, metal or stone cap, sloped to shed water, a drip edge and a caulked bond break around any flue liners in accordance with ASTM C 1283.
  - All chimneys shall have an approved spark arrester in accordance with CRC Section R1003.9.2.
- Installation of gas appliances shall be in accordance with the manufacturer’s installation instructions and the appliances listing.
- Masonry fireplace hearths and hearth extensions shall be constructed of concrete or masonry, supported by noncombustible materials, and reinforced to carry their own weight and all imposed loads. No combustible material shall remain against the underside of hearths and hearth extensions after construction. The minimum thickness of hearth extensions shall be 2 inches, unless the firebox opening is raised at least 8 inches above the top of the hearth extension, then an extension not less than 3/8” thick brick, concrete, stone, tile or other approved noncombustible material is permitted. Hearth extensions shall extend at least 16 inches in front of and at least 8 inches beyond each side of the fireplace opening. Where the fireplace opening is 6 square feet or larger, the hearth extension shall extend at least 20 inches in front and at least 12 inches beyond each side of the fireplace opening. Hearth extensions of listed factory-built fireplaces shall be in accordance with their listing.
- Exposed combustible mantels or trim may be placed directly on the masonry fireplace front surrounding the fireplace opening providing such combustible materials are not placed within 6 inches of a fireplace opening. Combustible material within 12 inches of the fireplace opening shall not project more than 1/8 inch for each 1 inch distance from such an opening.

### 3. **SMOKE ALARMS, CARBON MONOXIDE ALARMS & SPARK ARRESTER:**

- In single family and multi-family residences (including townhomes, condominiums and apartments), installation of smoke alarms, carbon monoxide alarms and spark arresters is required prior to the final inspection as follows:

**Smoke Alarms** shall be listed and labeled in accordance with UL 217 and installed in accordance with the provisions of the code and the household fire warning equipment provisions of NFPA 72. Systems and components shall be California State Fire Marshal listed and approved. Alarms shall be tested and maintained in accordance with the manufacturer's instructions. Alarms that no longer function shall be replaced. Conventional ionization smoke alarms that are solely battery powered shall be equipped with a ten-year battery and have a silence feature. **Alarms installed in one and two-family dwellings shall be replaced after 10 years from the date of manufacture marked on the unit, or if the date of manufacture cannot be determined.** (CRC R314)

**Smoke detection systems.** Household fire alarm systems installed in accordance with NFPA 72 that include smoke alarms, or a combination of smoke detector and audible notification device installed as required for smoke alarms, shall be permitted. The household fire alarm system shall provide the same level of smoke detection and alarm as required for smoke alarms. Where a household fire warning system is installed using a combination of smoke detector and audible notification device(s), it shall become a permanent fixture of the occupancy and owned by the homeowner. The system shall be monitored by an approved supervising station and be maintained in accordance with NFPA 72.

**Location. Smoke alarms shall be installed in each sleeping room, outside each separate sleeping area in the immediate vicinity of the bedrooms and on each story of the dwelling.** In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level. Apartment complexes and other multiple-dwelling complexes shall have a smoke detector installed in the common stairwells. For R-3.1 occupancies (Residential Care Facilities), refer to CBC Section 907.2.11.2. The installation of smoke alarms and smoke detectors shall also comply with the following requirements:

1. Smoke alarms shall not be located where ambient conditions, including humidity and temperature, are outside the limits specified by the manufacturer's published instructions.
2. Smoke alarms shall not be located within unfinished attics or garages or in other spaces where temperatures can fall below 40°F or exceed 100°F.
3. Where the mounting surface could become considerably warmer or cooler than the room, such as a poorly insulated ceiling below an unfinished attic or an exterior wall, alarms shall be mounted on an inside wall.
4. Smoke alarms shall be installed a minimum of 20 feet horizontal distance from a permanently installed cooking appliance, except Ionization smoke alarms with an alarm-silencing switch or Photoelectric smoke alarms shall be permitted to be installed 10 feet or greater from a permanently installed cooking appliance and Photoelectric smoke alarms shall be permitted to be installed greater than 6 feet from a permanently installed cooking appliance where the kitchen or cooking area and adjacent spaces have no clear interior partitions and the 10 foot distances would prohibit the placement of a required smoke alarm or smoke detector. Smoke alarms listed for use in close proximity to a permanently installed cooking appliance can be installed in accordance with their listing.
5. Smoke alarms shall be installed not less than a 3 foot horizontal distance from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by the code.
6. Smoke alarms shall not be installed within a 36 inch horizontal path from the supply registers of a forced air heating or cooling system and shall be installed outside of the direct airflow from those registers.
7. Smoke alarms shall not be installed within a 36 inch horizontal path from the tip of the blade of a ceiling-suspended (paddle) fan.
8. Where stairs lead to other occupied levels, alarm shall be located so that smoke rising in the stairway cannot be prevented from reaching the alarm by an intervening door or obstruction.
9. For stairways leading up from a basement, alarms shall be located on the basement ceiling near the entry to the stairs.
10. For tray-shaped ceilings (coffered ceilings), alarms shall be installed on the highest portion of the ceiling or on the sloped portion of the ceiling within 12 inch vertically down from the highest point.
11. Smoke alarms installed in rooms with joists or beams shall comply with the requirements of NFPA 72, Section 17.7.3.2.4.
12. Heat alarms and detectors installed in rooms with joists or beams shall comply with the requirements of NFPA 72, Section 17.6.3.

**Carbon Monoxide Alarms:** An approved carbon monoxide alarm listed as complying with UL 2034, approved and listed by the California State Fire Marshal, installed and maintained in accordance with NFPA 720 and the manufacturer's instructions shall be installed if they do not already exist in existing dwellings or sleeping units having a fossil fuel-burning heater or appliance, fireplace or an attached garage as follows: **outside each separate dwelling unit sleeping area in the immediate vicinity of bedroom(s) and on every level of dwelling unit.** Carbon monoxide detection systems that include carbon monoxide detectors and audible notification appliances, installed and maintained as required for carbon monoxide alarms and NFPA 720 shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075. (CRC R315)

**Power supply:** Smoke and carbon monoxide alarms shall receive their primary power from the building wiring and shall be equipped with a battery back-up. Smoke alarms with integral strobes that are not equipped with battery backup shall be connected to an emergency electrical system. Smoke alarms shall emit a signal when the batteries are low. Smoke and carbon monoxide alarm wiring shall be directly connected to the permanent building wiring without a disconnecting switch other than as required for overcurrent protection. Smoke and carbon monoxide alarms are permitted to be solely battery operated (carbon monoxide alarms can also be plug-in with battery back-up) in existing buildings where no construction is taking place; in existing areas of buildings undergoing alterations or repairs that do not result in the removal of interior walls or ceiling finishes exposing the structure unless there is an attic or crawl space available which could provide access for building wiring without the removal of interior finishes; where repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck; or when work is limited to the installation, alteration or repairs of plumbing or mechanical systems or the installation, alteration or repair of electrical systems which do not result in the removal of interior wall or ceiling finishes exposing the structure; and, for carbon monoxide alarms, when other power sources recognized for use by NFPA 720 are used.

**Interconnection:** Where more than one smoke or carbon monoxide alarm is required to be installed within an individual dwelling or sleeping unit, the alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit, except interconnection is not required in buildings that are not undergoing alterations, repairs or construction of any kind; where alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure unless there is an attic or crawl space available which could provide access for interconnection without the removal of interior finishes and no previous method for interconnection existed; where repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck; or when work is limited to the installation, alteration or repairs of plumbing or mechanical systems or the installation, alteration or repair of electrical systems which do not result in the removal of interior wall or ceiling finishes exposing the structure. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

**Spark arresters:** When a permit has been issued and the value of the work exceeds \$1,000, a spark arrester must be installed on all fireplace chimneys, if one does not already exist, per MMC Section II-3-2.06. Spark arresters shall be constructed in conformance with CRC Section 1003.9.2.

#### **4. ENERGY REQUIREMENTS:**

CEnC Section 150.0(e) Installation of Fireplaces, Decorative Gas Appliances and Gas Logs:

1. If a masonry or factory-built fireplace is installed, it shall have the following:

- A. Closeable metal or glass doors covering the entire opening of the firebox; and
- B. A combustion air intake to draw air from the outside of the building, which is at least 6 square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device; and

EXCEPTION to Section 150.0(e)1B: An outside combustion-air intake is not required if the fireplace will be installed over concrete slab flooring and the fireplace will not be located on an exterior wall.

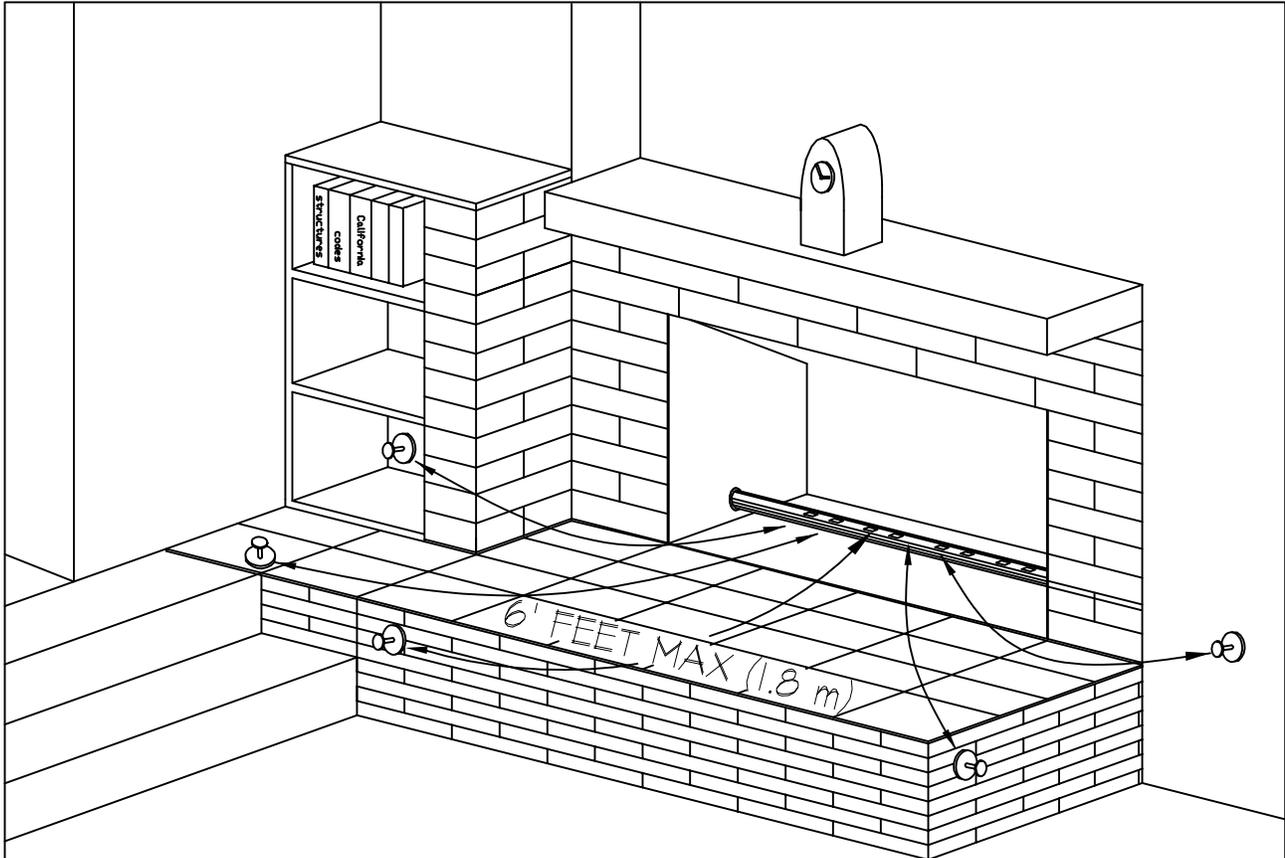
C. A flue damper with a readily accessible control.

EXCEPTION to Section 150.0(e)1C: When a gas log, log lighter, or decorative gas appliance is installed in a fireplace, the flue damper shall be blocked open if required by the CMC or the manufacturer's installation instructions.

2. Continuous burning pilot lights and the use of indoor air for cooling a firebox jacket, when that indoor air is vented to the outside of the building, are prohibited.

## 5. **INSPECTION PROCEDURES:**

- At least three inspections are required. The first inspection is when 24" of existing reinforcing bars are exposed. The next inspection should be scheduled when the new steel and straps are installed. The final inspection should be scheduled after all work is complete. Permits expire 180 days after the last passed inspection. For each inspection, the Permit Card and the Approved Job Copy of the Drawings (if any) must be presented to the inspector. Permits expire 180 days after issuance or last inspection passed, whichever is the latest.



Flanged connection shall be provided downstream from this valve to permit removal of controls. Shut-off valves serving decorative gas appliances shall be permitted to be installed in fireplaces if listed for such use. [NFPA 54:9.6.4.1]

REFER TO CPC 1212.4

Gas utilization equipment, such as gas fire place, connected to a piping system shall have accessible, approved manual shut-off valve with a non-displaceable valve member, or a listed gas convenience outlet installed within 6' of the equipment it serves.

REV.	DATE	BY:	SCALE:
			N.T.S
			DATE:
			APRIL 2009
			DRAWN BY:
			HR

**City of Milpitas**  
 BUILDING AND SAFETY DEPARTMENT  
 GAS SHUT-OFF / FIREPLACE

SHEET  
**1**  
 OF 1 SHEETS