

CITY OF MILPITAS

Building & Safety Department
455 E. Calaveras Blvd.
Milpitas, CA 95035
408-586-3240

www.ci.milpitas.ca.gov



RESIDENTIAL ELECTRICAL PANEL (SERVICE OR SUBPANEL)

1. PERMIT INFORMATION:

- The installation of a new electrical panel or modifications to an existing panel requires an electrical permit.
- The new electrical panel must be installed in the same general location as the current electrical panel, otherwise plans must be submitted and approved and the permit obtained in person from the Permit Center, 455 E. Calaveras Blvd.
- If the new electrical panel exceeds 200 amps, plans must be submitted and approved and the permit obtained in person from the Permit Center.
- 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).
- Equipment must be installed in accordance with it's listing and the manufacturer's installation instructions [CEC 110.3(B)].
- If a new panel is being installed and the existing service is less than 100 amps, the service panel must be upgraded to a minimum 100 amps [CEC 230.79(C)].
- Disconnecting means and overcurrent protection shall be installed in accordance with CEC Article 230.70, and Article 240.24.
- The service disconnecting means shall be installed at a readily accessible location (as defined in CEC Article 100) either inside or outside of a building or structure or inside nearest the point of entrance of the service conductors [CEC 230.70(A)(1)].
- The building main service disconnect and/or disconnects shall be installed on the first floor level of the building [MMC II-6-2.03(4)].
- Panels shall not be installed in bathrooms [(CEC 230.70(A)(2) and 240.24(E)].
- Panels must be protected from physical damage (garages) [CEC 240.24(C)].

- Panels are not to be installed in vicinity of easily ignitable material, such as inside clothes closets [CEC 240.24(D)].
- There shall be a min. 30” wide x 36” deep clear working space in front of the panel [CEC 110.26].
- New circuit breakers must be listed and approved for installation in the panel [CEC 110.3(B)].
- Each circuit in the panel must be identified with a circuit directory that is located on the face or inside of the panel door [CEC 408.4].
- Grounding and bonding of the electrical service is required when the water piping is replaced. Grounding and bonding shall comply with the California Electric Code. Grounding shall consist of a continuous grounding electrode conductor ran from the service panel to a grounding electrode and to the cold water pipe. **The underground water service shall not be used as the sole grounding system; it must be supplemented with an additional electrode** (CEC 250.53(D)(2)). Grounding of the main water line must occur within the first 5 feet of water piping into the building. All grounding electrodes that are present at each building served shall be bonded together (CEC 250.50).
- In conformance with CEC Section 210.12(B), listed arc-fault circuit interrupters, combination type, shall be installed for all 120 volt, single phase, 15 and 20 amp branch circuits supplying outlets installed in family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas when: (Policy BDP-EL05)
 - Any electrical service panel containing branch circuits supplying any of the above areas is being replaced.
 - Any electrical subpanel containing branch circuits supplying any of the above areas is being replaced.
 - Any modification is made to the branch circuits that supply any of the above areas.

3. SMOKE ALARMS, CARBON MONOXIDE ALARMS & SPARK ARRESTERS:

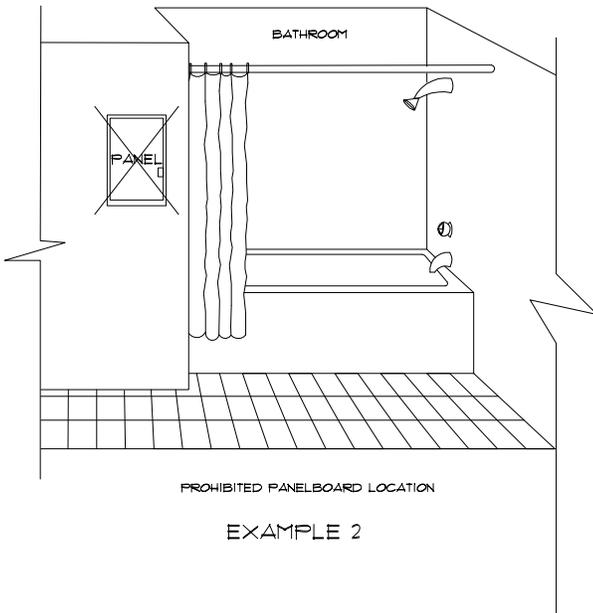
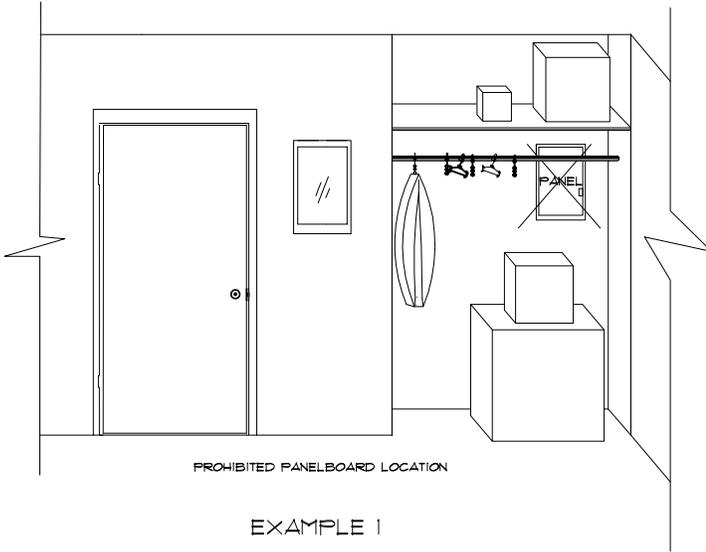
- In single family and multi-family residences (including townhomes, condominiums and apartments), installation of smoke alarms, carbon monoxide alarms and spark arresters on all chimneys is required prior to the final inspection. Refer to the “*Smoke Alarm, Carbon Monoxide Alarm and Spark Arrester Certificate*” attached for detailed information.

4. INSPECTION PROCEDURES

- Two inspections may be required, a rough if the panel is recessed and a final. The utility release inspection should be scheduled when the new panel is installed and ready to be connected by PG&E. 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.

5. QUESTIONS:

- If you have any questions regarding your project contact the Building & Safety Department at (408) 586-3240.



LOCATION OF ENCLOSURES & OVERCURRENT DEVICES

(a) Readily Accessible (See Example 1)

1. Service equipment shall be installed at a readily accessible location outside of the building.
2. Overcurrent devices (breakers) shall shall be readily accessible (either inside or outside) and shall be installed such that the center of the grip of the handle of the switch / breaker is not more than 6'7" above the floor or working platform.

(b) Occupant To Have Ready Access

Each occupant shall have ready access to all overcurrent devices protecting the conductors supplying that occupancy.

Exception : Multiple-occupancy building if electrical maintenance provided by management under continuous management supervision.

(c) Not Be Exposed To Physical Damage
Refer to CEC 240.24C

(d) Not Installed In Vicinity Of Easily Ignitable Material example: Clothes closets
CEC 240.24D

(e) Distribution Panels In Bathrooms
Refer to CEC 240.24E

1. Commercial Applications

Electrical distribution equipment with overcurrent protection is permitted to be located in a bathroom provided all the clearances required in CEC 110.26 are met.

2. Dwelling Units, Hotels and Motels

Overcurrent devices shall not be located in bathrooms.

REV.	DATE	BY:	SCALE:
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			DATE:
			June 2009
			DRAWN BY:
			H.R.

City of Milpitas
BUILDING AND SAFETY
LOCATION OF PANEL ENCLOSURES
WITH OVERCURRENT DEVICE

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 OF 1 SHEETS



SMOKE ALARM, CARBON MONOXIDE ALARM and SPARK ARRESTER CERTIFICATE

This "Certificate" can be signed by the property owner and provided to the Building Inspector prior to final inspection if access to the interior of the dwelling for inspection of the smoke and carbon monoxide alarms is not possible and the permitted work being performed is exterior only (such as re-roofing, re-siding, patio covers, swimming pools and the like).

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.

*** CERTIFICATION ***

I understand the above requirements and certify that I now have smoke alarms, carbon monoxide alarms and spark arrestors installed as required above.

HOMEOWNERS NAME (please print): _____

ADDRESS: _____

SIGNATURE: _____

DATE: _____ PERMIT NO. _____