



City of Milpitas

Office of Building Safety

DESIGN GUIDELINE FOR

RESIDENTIAL SMOKE AND CARBON MONOXIDE ALARM



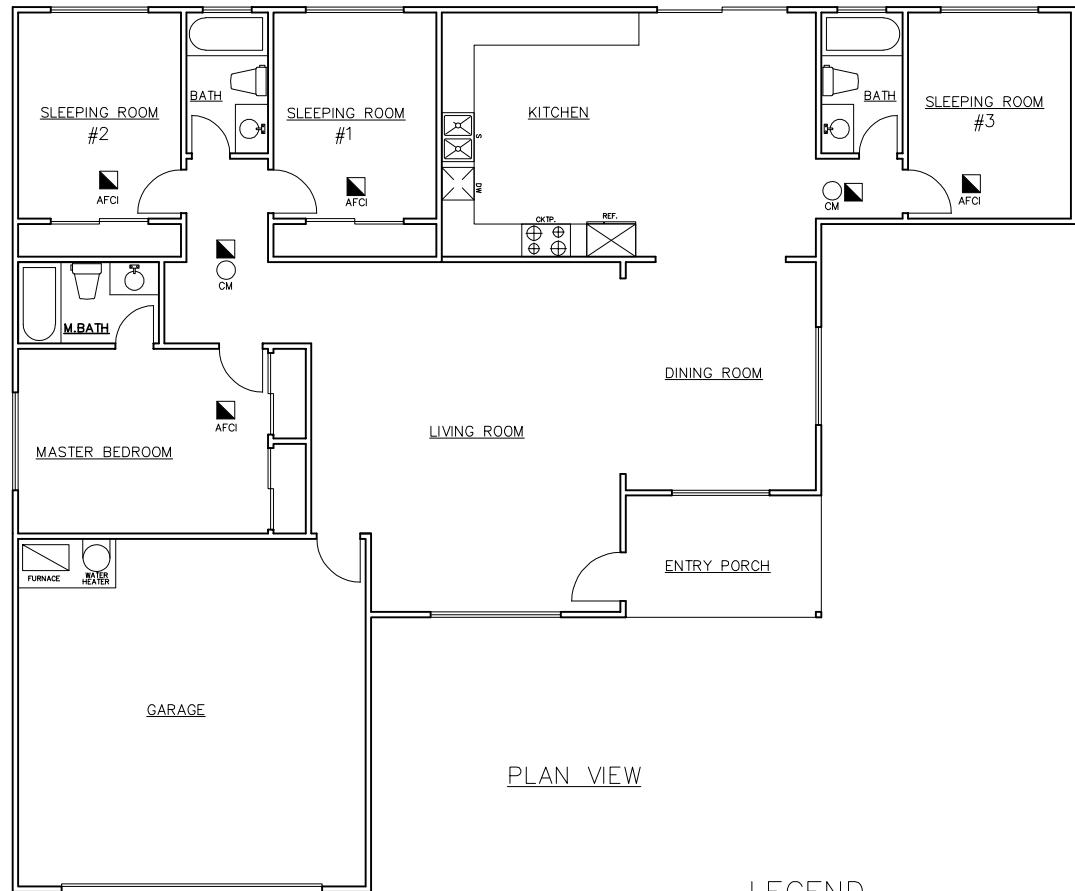
455 E. Calaveras Blvd.
Milpitas, CA 95035
408-586-3240

www.milpitas.gov

FEBRUARY 2023

BASED ON 2022 CALIFORNIA CODES

- One smoke alarm must be installed inside every room used for sleeping purposes. per CRC R314.3
- One smoke alarm must be installed centrally located outside of each separate sleeping area in the immediate vicinity of bedrooms. If there are multiple bedrooms grouped together on the same floor, one smoke alarm in the hallway outside of the bedrooms meets the requirements. If there are one or more rooms separating bedrooms, an additional smoke alarm must be installed in the hallway outside of the bedroom to meet the requirements.
- If there are removable ceiling panels, install the smoke alarm on the wall.
- Do not install alarms in or near kitchens, bathrooms, or garages - where conditions might set off nuisance alarms routinely.
- Do not install near a window, outside door, or within 3 feet of forced-air register.
- The smoke alarm should be installed on the bottom of a floor joist if the ceiling has no drywall or plaster. It should never be placed on the ceiling between the joists.
- On floors without bedrooms, install alarms near the stairway leading to the floor above, in or near dens, living rooms, family rooms, and other living areas. National Fire Protection Association also suggests installing alarms in dining rooms, utility rooms, and hallways. In open stairways (no doors at top or bottom), install smoke alarm near top of stairs.
- In the hallway and in the room open to the hallway in dwelling units where the ceiling height of a room open to a hallway serving bedrooms exceeds that of the hallway by 24 inches or more.
- Always install smoke alarms according to the manufacturer's directions. If you have any question Please call the Building and Safety Department at 408-586-3240.



LEGEND

SMOKE DETECTOR

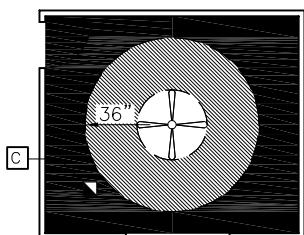
CM CARBON MONOXIDE ALARMS

A SMOKE DETECTOR & CARBON MONOXIDE LOCATIONS

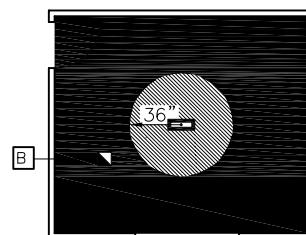
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City of Milpitas
 Office of Building Safety
**LOCATION OF SMOKE DETECTOR & CARBON MONOXIDE ALARM
 INSTALLATION WITHIN A RESIDENCE**

**SHEET
 1
 OF 3 SHEETS**



PLAN VIEW



PLAN VIEW

Smoke detectors shall not be installed closer than 20 feet to cooking appliance with an exception Ionization smoke alarms with an alarm-silencing switch shall be permitted to be installed less than 10 feet horizontally from a permanently installed cooking appliance. Photoelectric smoke alarms shall not be installed less than 6 feet horizontally from a permanently installed cooking appliance. CRC R314.3.3(4)

Smoke detectors installed between 6 feet and 20 feet along a horizontal flow path from a stationary or fixed cooking appliance shall be listed for resistance to common nuisance sources from cooking.

Smoke detectors shall not be installed within 36 inch horizontal path from a door open to a bathroom containing a shower or tub. CRC R314.3 (5)

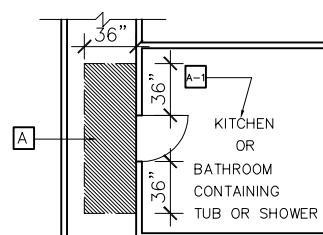
Smoke detectors shall not be installed within 36 inch horizontal path from the supply registers of a forced air heating or cooling system. CRC R314.3.3(6)

Smoke detectors shall not be installed within 36 inch horizontal path from the tip of the blade of a ceiling-suspended (paddle) fan. CRC R314.3 (7)

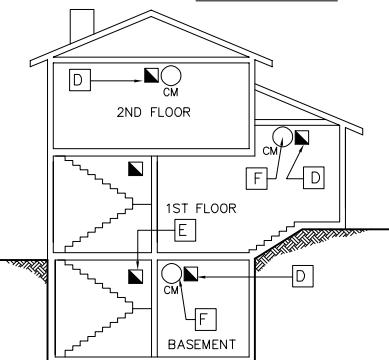
Smoke detectors should be installed in each story within a dwelling unit, including basements but not including garages and uninhabitable attics. Where stairs lead to other occupied levels, a smoke alarm or smoke detector shall be located so that smoke rising in the stairway cannot be prevented from reaching the smoke alarm or smoke detector by an intervening door or obstruction. CRC R314.3 (8)

Smoke detectors should be installed in enclosed common stairwells of apartment complexes and other multiple-dwelling complexes.

Carbon Monoxide Alarms shall be installed in existing or new dwellings having a fuel-fired appliance, fireplace or an attached garage with an opening communicating with the dwelling as follows: **outside each separate sleeping area in the immediate vicinity of bedroom(s) and on every occupiable level of a dwelling unit.** If there is a fuel-burning appliance located with a bedroom or its attached bathroom, an alarm shall be located within the bedroom. CRC R315.3



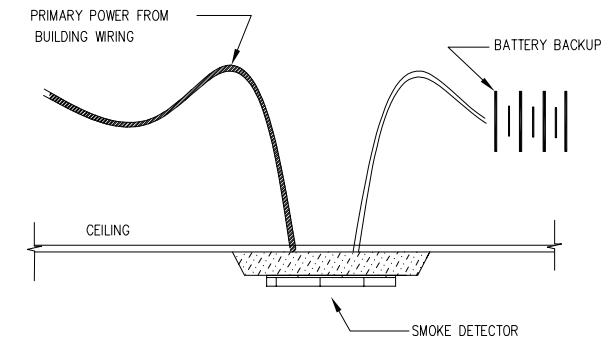
PLAN VIEW



SECTION

LEGEND

- NO SMOKE DETECTOR SHALL BE INSTALLED IN THIS AREA
- THE ACCEPTABLE AREA FOR INSTALLATION OF SMOKE DETECTOR ON WALLS OR CEILING
- SMOKE DETECTOR
- CM CARBON MONOXIDE ALARMS
- ✖ CEILING FAN.
- SUPPLY REGISTER



- In new construction required smoke alarms shall receive their primary power from the building wiring and shall be equipped with a battery backup. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection. In all sleeping area alarms connected to the building electrical system must have the outlet protected by a AFCI (arc-fault circuit-interrupter) combination type breaker. These breakers detect abnormal arcing in a circuit, which can cause overheating and lead to electrical fire. CRC R314.6
- In new construction required smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.
- If the new construction, is an addition to an existing building, only the new smoke alarms in the addition must meet the requirements for new construction. Smoke alarms in the existing building may be battery powered and do not have to be interconnected if the construction does not require the removal of the interior wall or ceiling finishes exposing the framing.
- Never connect a smoke alarm to a circuit that can be turned off from a wall switch or through the operation of a ground-fault circuit-interrupter (GFCI).

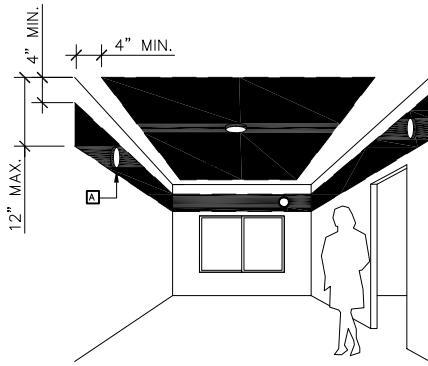
A SMOKE DETECTOR & CARBON MONOXIDE LOCATIONS

B ELECTRICAL REQUIREMENTS

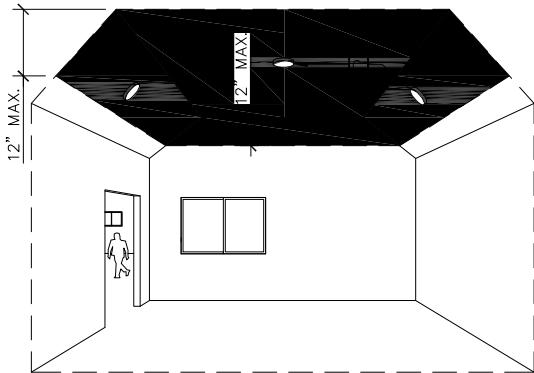
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City of Milpitas
Office of Building Safety
**LOCATION OF SMOKE DETECTOR & CARBON MONOXIDE ALARM
INSTALLATION WITHIN A RESIDENCE**

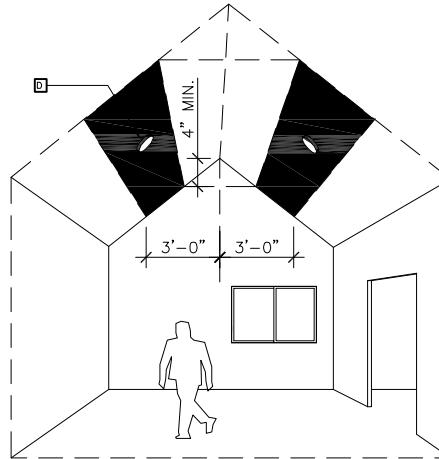
**SHEET
2
OF 3 SHEETS**



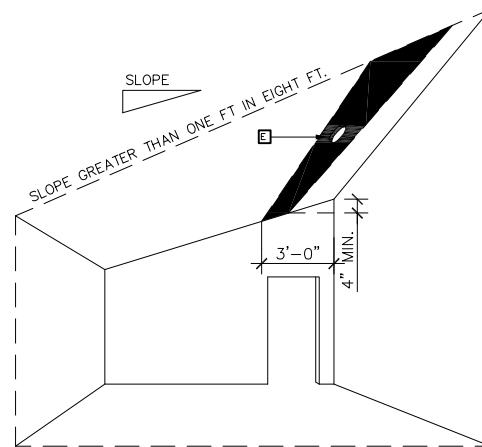
- A** Wall mounted smoke alarms must be placed:
 - At least 4 inches down from the ceiling.
 - The bottom of the smoke alarm must not be farther than 12 inches from the ceiling. CRC R314.3.3(10)
- B** Ceiling mounted smoke alarms must be placed:
 - At least 4 inches from any wall.
 - Away from any fans or vents. (See Sheet 2 for locations)



- C** Ceiling mounted smoke alarms on Tray-shaped ceiling must be placed:
 - on the high ceiling or on the slope ceiling between levels within 12 inch vertically from adjoining high ceiling



- D** Ceiling mounted smoke alarms on Peaked ceiling (vaulted) must be located within 3'-0" horizontally of the peak, but not closer than 4 inches vertically to the peak.



- E** Ceiling mounted smoke alarms on Sloped ceiling having a rise greater than 1 ft. in 8 ft. shall be located within 3'-0" horizontally of the high side of the ceiling but not closer than 4 inches from the adjoining wall surface.

LEGEND

- SMOKE DETECTOR
THE ACCEPTABLE AREA FOR
- INSTALLATION OF
SMOKE DETECTOR
ON WALLS OR CEILING

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SMOKE DETECTOR INSTALLATION
LOCATION OF SMOKE DETECTORS ON WALLS AND CEILINGS

SHEET
3
 OF 3 SHEETS