



# City of Milpitas

Office of Building Safety

## DESIGN GUIDELINE FOR RESIDENTIAL SMOKE AND CARBON MONOXIDE ALARM

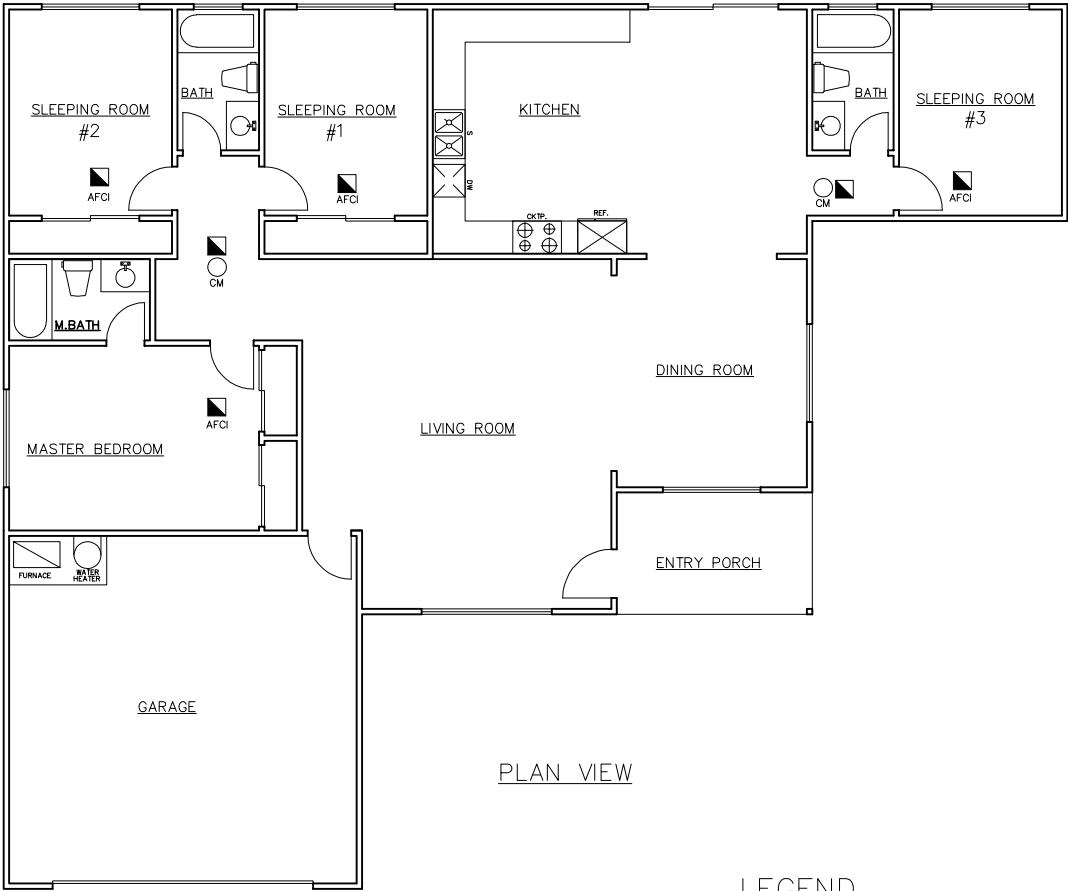


455 E. Calaveras Blvd.  
Milpitas, CA 95035  
408-586-3240  
[www.milpitas.gov](http://www.milpitas.gov)

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.



PLAN VIEW

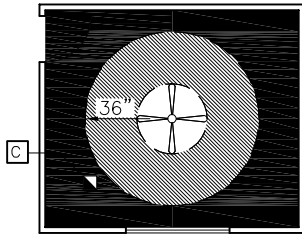
LEGEND

-  SMOKE DETECTOR
-  CARBON MONOXIDE ALARMS

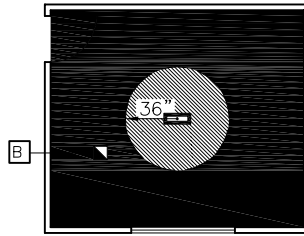
A SMOKE DETECTOR & CARBON MONOXIDE LOCATIONS

VER	DATE	BY
1	FEB 2023	VP

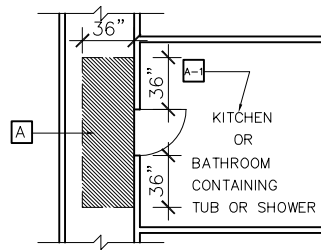
City of Milpitas  
Office of Building Safety  
LOCATION OF SMOKE DETECTOR & CARBON MONOXIDE ALARM  
INSTALLATION WITHIN A RESIDENCE



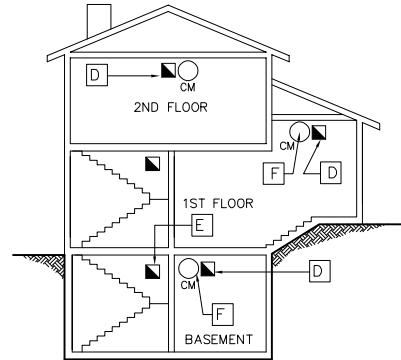
PLAN VIEW



PLAN VIEW



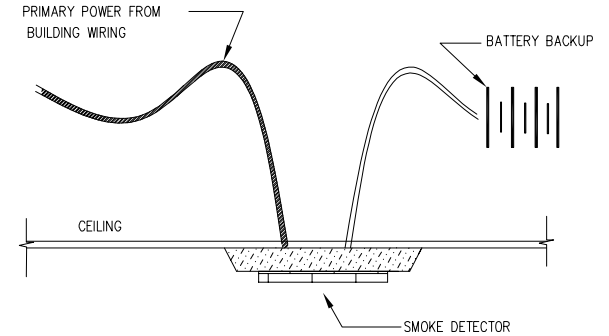
PLAN VIEW



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
- 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

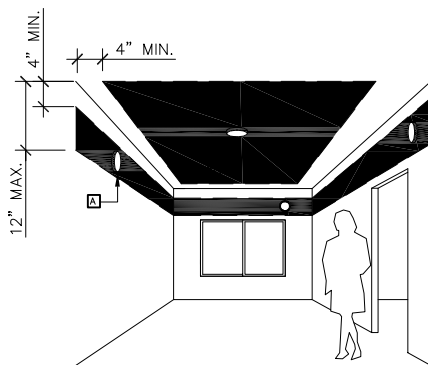
B

ELECTRICAL REQUIREMENTS

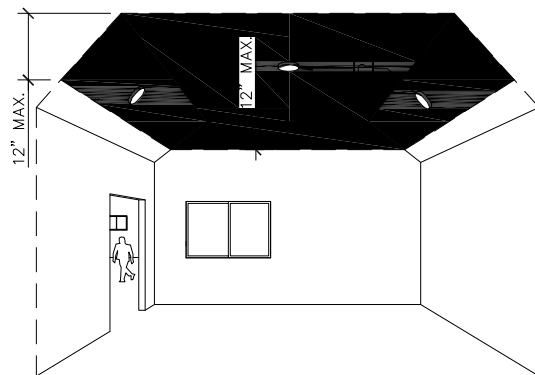
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# City of Milpitas Office of Building Safety LOCATION OF SMOKE DETECTOR & CARBON MONOXIDE ALARM INSTALLATION WITHIN A RESIDENCE

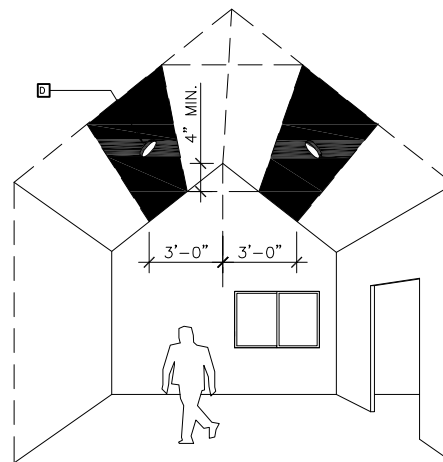
SHEET  
2  
OF 3 SHEETS



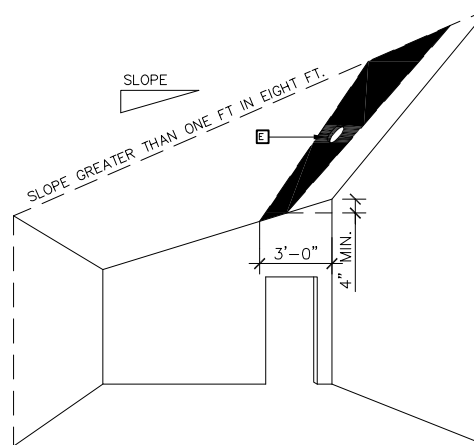
- A** Wall mounted smoke alarms must be placed:
- At least 4 inches down from the ceiling.
  - The bottom of the smoke alarm must not be farther than 12 inches from the ceiling. CRC R314.3.3(10)
- B** Ceiling mounted smoke alarms must be placed:
- At least 4 inches from any wall.
  - Away from any fans 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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1	FEB 2023	VP

# City of Milpitas

## Office of Building Safety

### SMOKE DETECTOR INSTALLATION

### LOCATION OF SMOKE DETECTORS ON WALLS AND CEILINGS

SHEET  
**3**  
OF 3 SHEETS