

Carbon Monoxide Alarms

State of Wisconsin Rules

ss. 101.149(2) and (3)

Comm. 62.1200

Comm.21.097



Carbon Monoxide Hazards

- CO, is a colorless, odorless and tasteless, yet highly toxic gas. Its molecules consist of one carbon atom and one oxygen atom, connected by a covalent double bond and a dative covalent bond.
- CO density: .968 (slightly lighter than air)

Loss Data

- According to the Consumer Products Safety Commission (CPSC), more than 2,500 people will die and over 100,000 will suffer from serious injuries over the next ten years due to CO poisoning.
- CO kills by displacing the oxygen in your blood.

CO Alarms: High or Low?

Practically speaking, placing the CO alarm high or low is not a major concern at room temperature.

CO permeates a room much like the scent of perfume dispersing uniformly in all directions and in effect engulfs a room.

When Is CO a Concern?

Most people will not experience any symptoms from prolonged exposure to CO levels of approximately 1 to 70 ppm, but some heart patients might experience an increase in chest pain.

As CO levels increase and remain above 70 ppm, symptoms become more noticeable and can include headache, fatigue and nausea. At sustained CO concentrations above 150 to 200 ppm, disorientation, unconsciousness, and death are possible.

Alarm Thresholds

- 15 PPM for no less than 30 days, or
- 100 PPM for no more than 90 minutes before alarming, or
- 200 PPM for no more than 35 minutes before alarming, or
- 400 PPM for no more than 15 minutes before alarming, and
- All alarms must have a reset button that will re-alarmed if 100 PPM or more is present for at least 6 minutes

Where Do The Rules Apply?

- New licensed tourist rooming houses
- New commercial buildings (residential)
- Existing commercial buildings (residential)



When Does The Owner Need to Comply?

- New commercial – October 1, 2008
- New rental cabins – October 1, 2008
- Existing multifamily and commercial – April 1, 2010

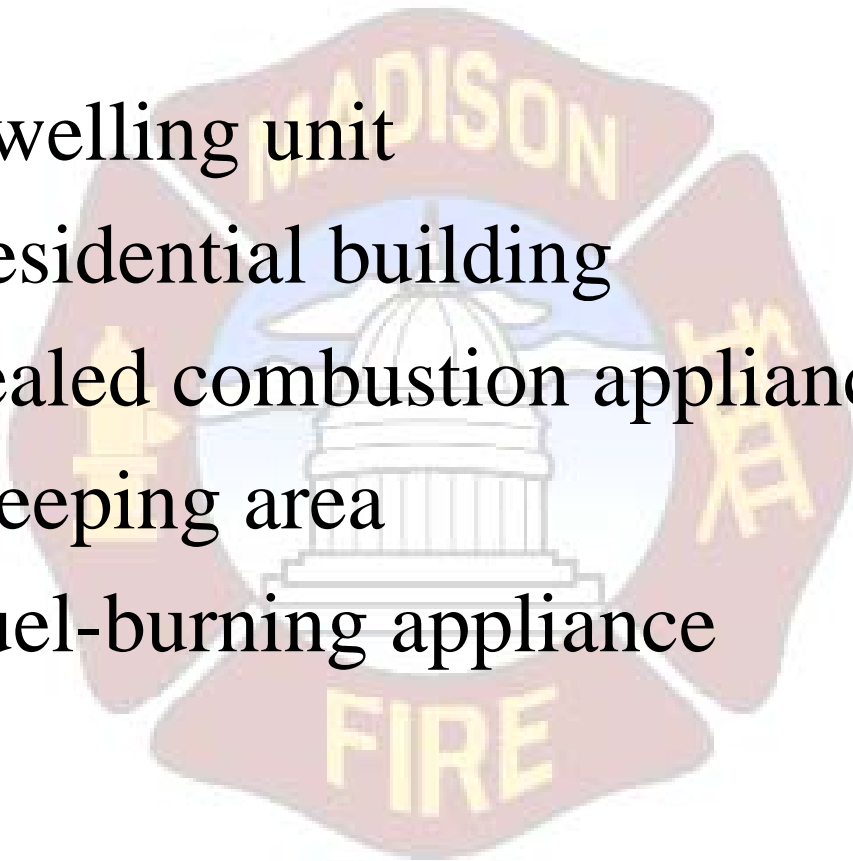


Type of Alarms Required

- Listed and labeled to comply with UL 2034 (or similar mark from an independent product safety certification organization).
- Single and Multiple Station Carbon Monoxide Alarms
- Battery powered, electrical outlet plug-in and/or direct wired to buildings electrical system
- New construction requires alarms powered by the building's electrical system with battery backup
- New construction requires interconnection of the alarms within the unit

Important Definitions

- Dwelling unit
- Residential building
- Sealed combustion appliance
- Sleeping area
- Fuel-burning appliance



CO Alarms Required Where Fuel Burning Appliances Are Present

- Fossil fuels (coal, oil, natural gas, LP gas)
- Carbon based fuels (petroleum and wood) where carbon monoxide is a by-product of combustion
- Stoves, ovens, grills, clothes dryers, furnaces, boilers, water heaters, heaters, fireplaces and stoves (wood)

CO Alarms Are Not Required If . . .

- No attached garage
- No fuel-burning appliances
- Sealed combustion fuel-burning appliances under warranty, or
- Sealed combustion fuel-burning appliances inspected in accordance with Commerce rules.

Installation

- Carbon monoxide alarms shall be installed in accordance with Commerce rules and the directions and specifications of the alarm manufacturer.
- Comm. 62.1200
- Comm. 21.097

Alarms Required In ALL of the Following Places:

- Basement, if basement has fuel-burning appliance
- Within 15 feet of each sleeping area, if the unit has a fuel-burning appliance
- Within 15 feet of each sleeping area, if the unit is adjacent to a unit with a fuel-burning appliance (shared or common walls).

Alarms Required In ALL of the Following Places:

- In each room that has a fuel burning appliance and that is not used as a sleeping area. The alarm must be installed not more than 75 feet from the fuel burning appliance.
- Again, alarms must be installed in accordance with “the directions and specifications of the manufacturer” of the alarm.

Alarms Required In ALL of the Following Places:

- In each hallway (common use), leading from a unit that has a fuel-burning appliance, in a location that is within 75 feet from the unit, if there is no electrical outlet within this distance, the owner shall place the carbon monoxide alarm at the closest available electrical outlet in the hallway.

Alarms Required “Throughout”

- “. . . shall be throughout the entire building where a portion of the building includes a residential building.”
- “throughout” = 15 ft. of sleeping areas, adjacent unit sleeping areas, hallway and rooms with fuel-burning appliances

Manufacturers' Directions

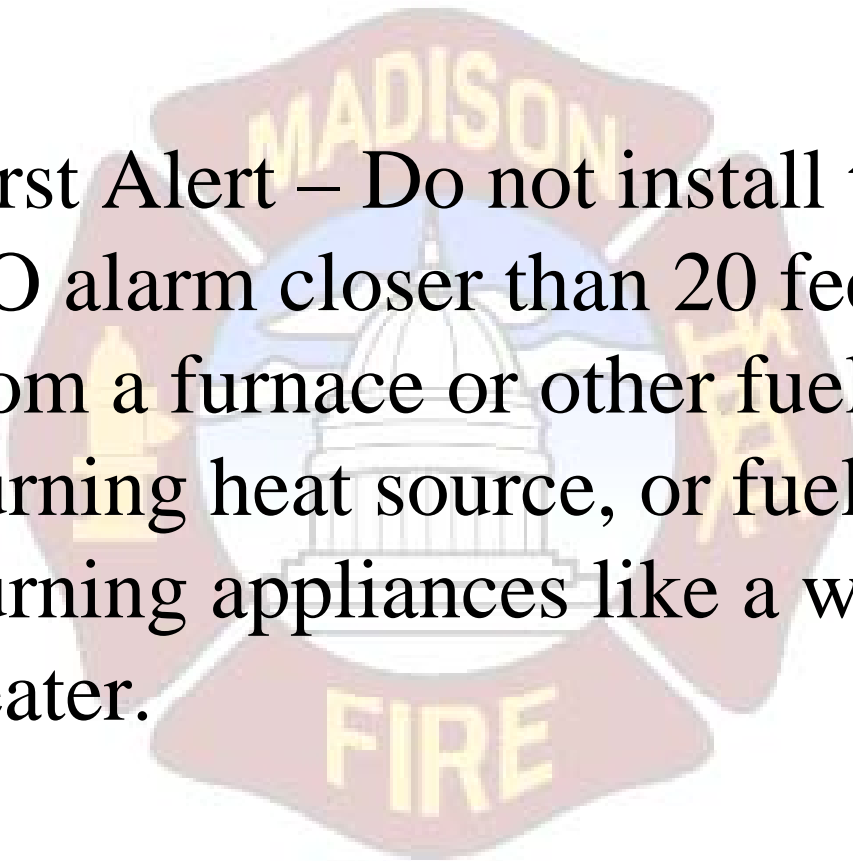
Do NOT . . .

- Kidde – Do not install in kitchens, garages or furnace rooms that may expose the sensor the substances that could damage or contaminate it.
- First Alert – Do not locate this CO alarm in garages, kitchens, furnace rooms or any extremely dusty, dirty or greasy areas.

Manufacturers' Directions

Do NOT . . .

- First Alert – Do not install this CO alarm closer than 20 feet from a furnace or other fuel-burning heat source, or fuel-burning appliances like a water heater.



Where To Install CO Alarms

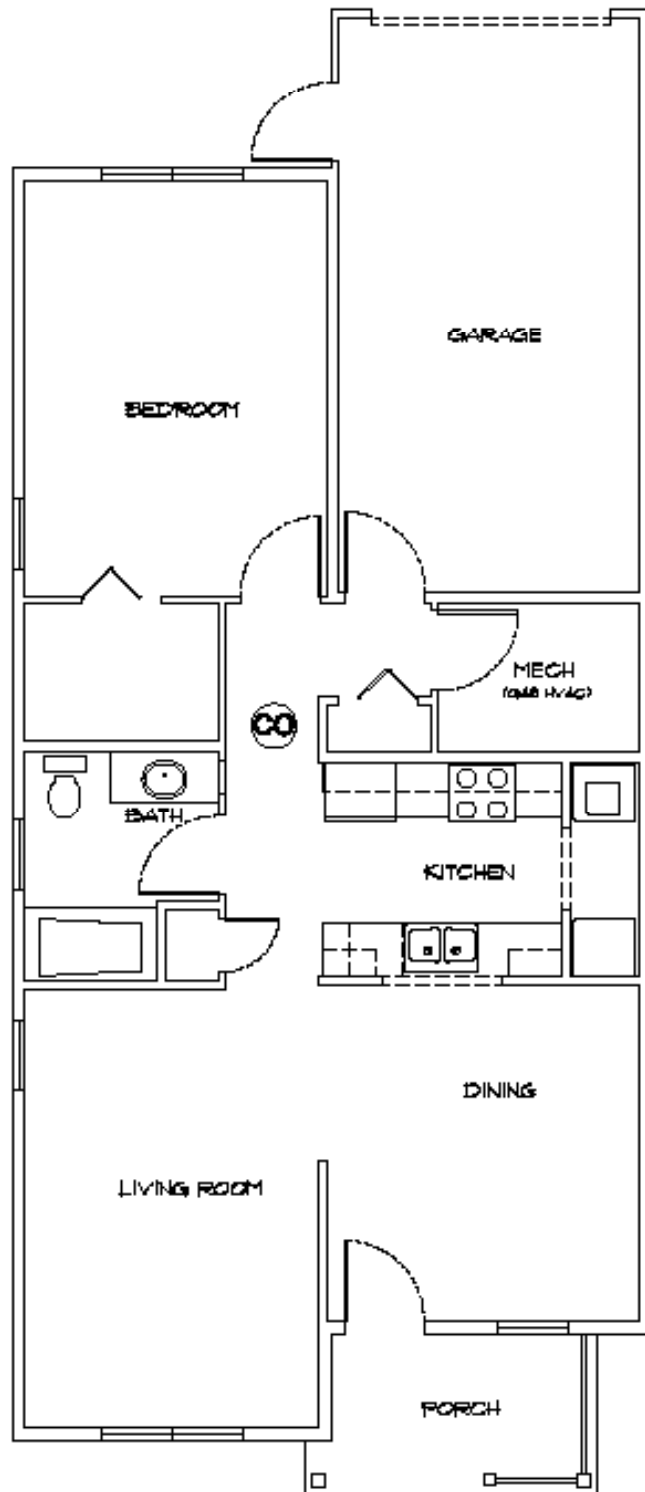
- First Alert - “... centrally located outside of each separate sleeping area in the immediate vicinity of the bedrooms.”
- Kidde - “... in or near bedrooms and living areas.” and “...on each level of your home.” and “...not in the basement or furnace room.”

So, what is an owner to do? Follow Comm. rules or manufacturer?

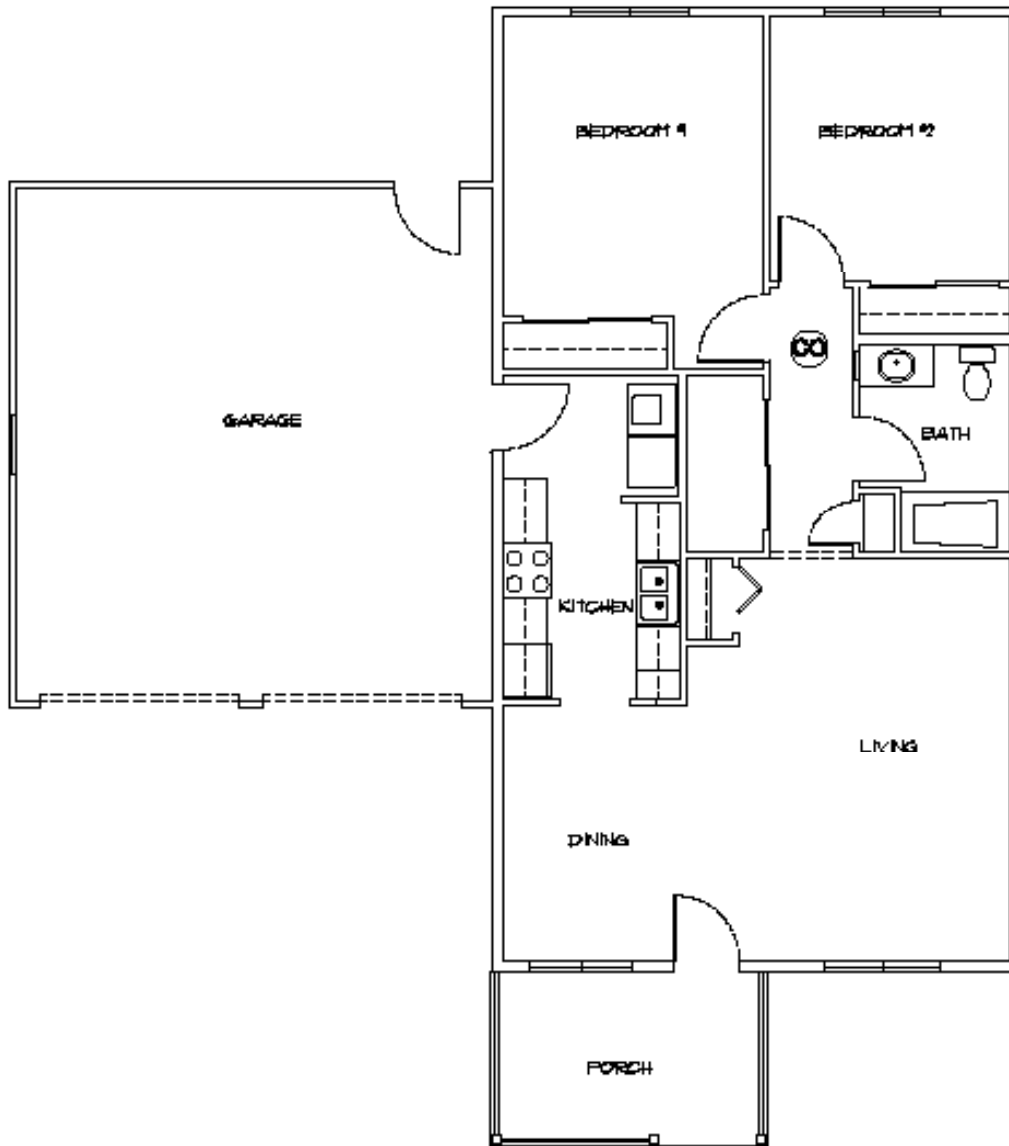
- Install Co alarm in the room with a fuel-burning appliance if the CO alarm can be at least, 20 feet away from the appliance.
- CO alarms shall be within 75 feet of all fuel-burning appliances.
- If CO alarm cannot be installed more than 20 feet from the appliance, install alarm on the living area side of the door to the room.

Maintenance of Alarms

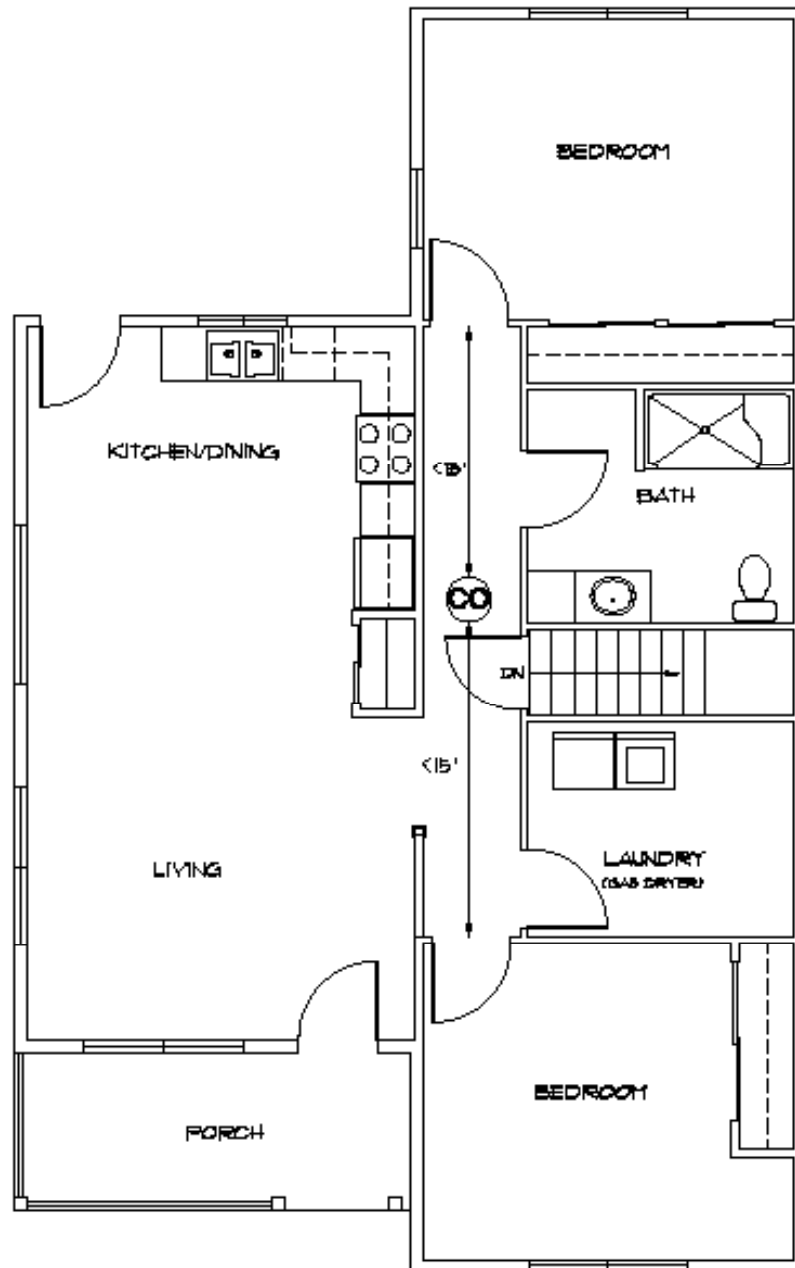
- Owner shall maintain alarms.
- Tenant must notify the owner if alarm is not functional or has been removed by a person other than the occupant. The owner of the residential building shall repair or replace the nonfunctional or missing carbon monoxide detector within 5 days after receipt of the notice.




○ ONE BEDROOM
— NOT TO SCALE

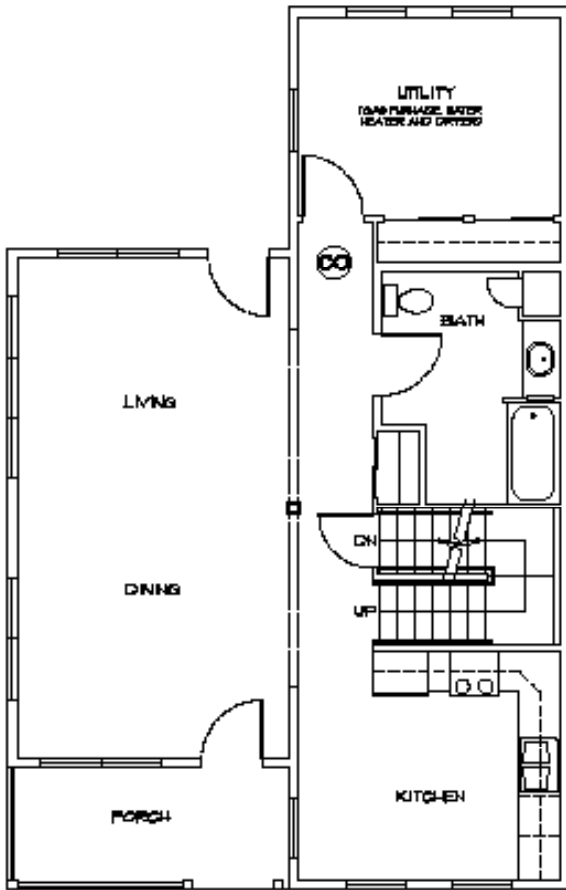


00 TWO BEDROOM UNIT
NOT TO SCALE

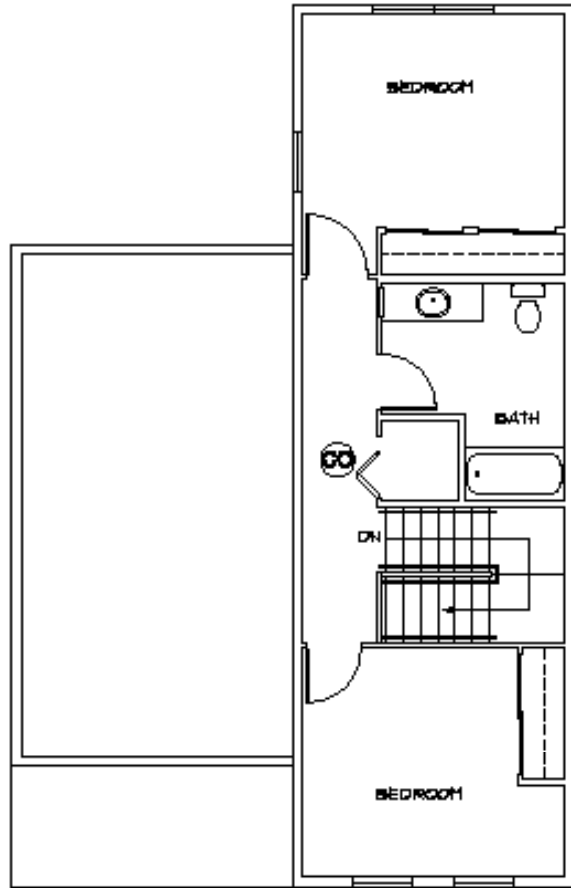


NOTE: IF BEDROOM DOORS MORE THAN 30' APART TWO CO ALARMS REQUIRED


TWO BEDROOM UNIT WITH GAS DRYER
 NOT TO SCALE

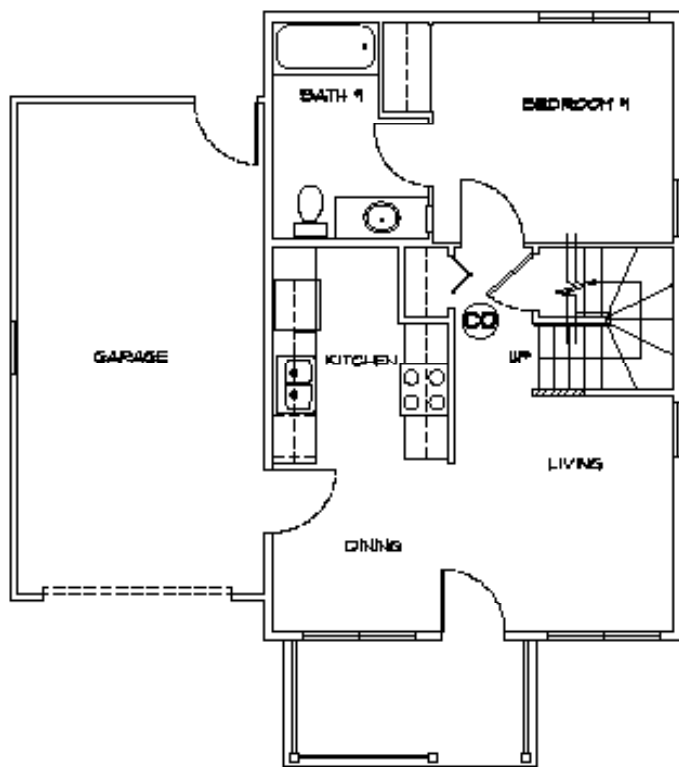


FIRST FLOOR

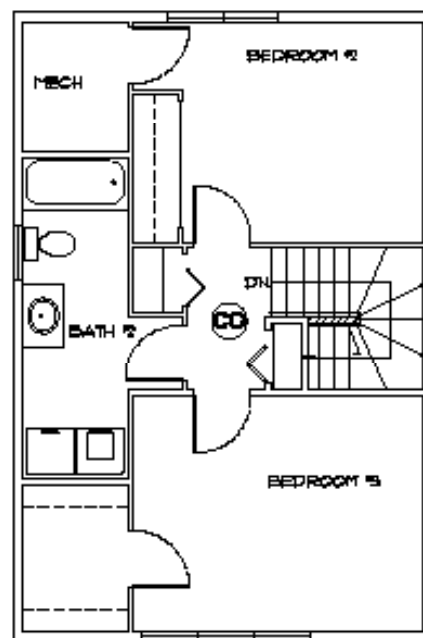


SECOND FLOOR


 TWO BEDROOMS
 NOT TO SCALE

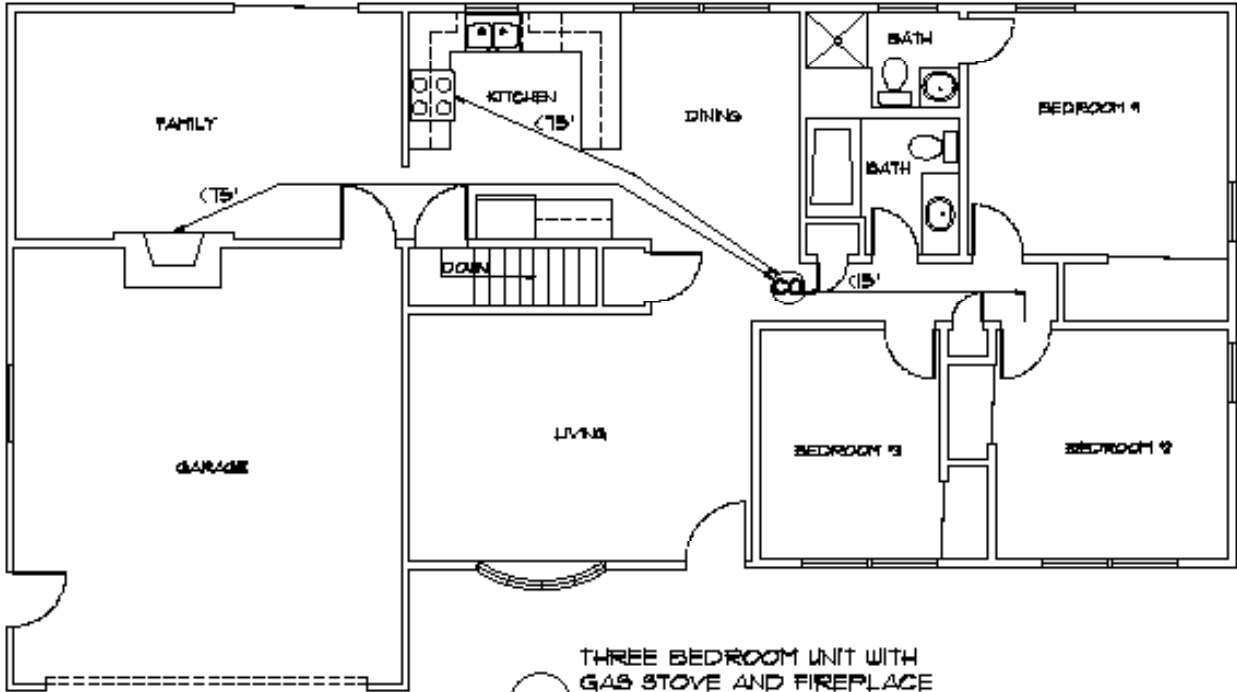


FIRST FLOOR

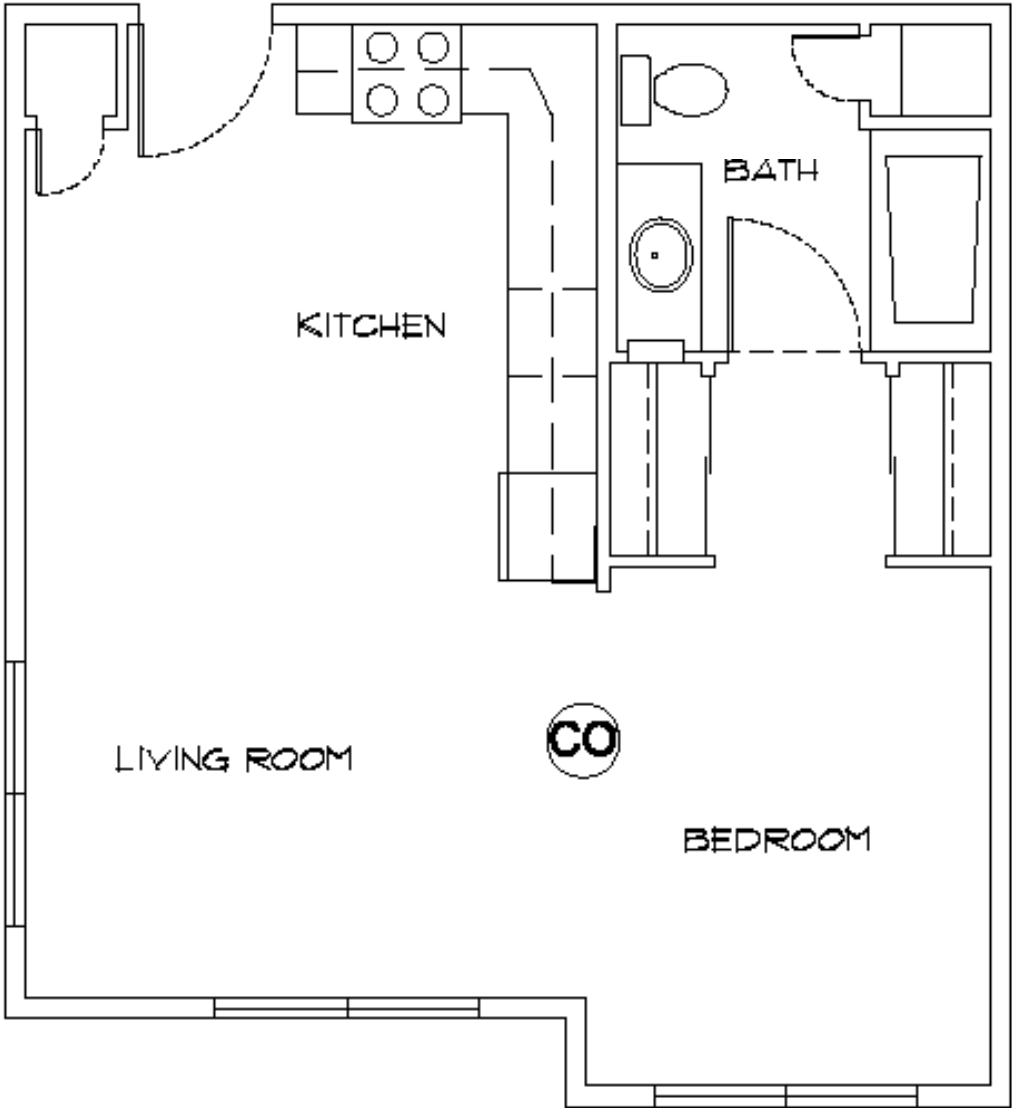


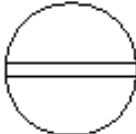
SECOND FLOOR

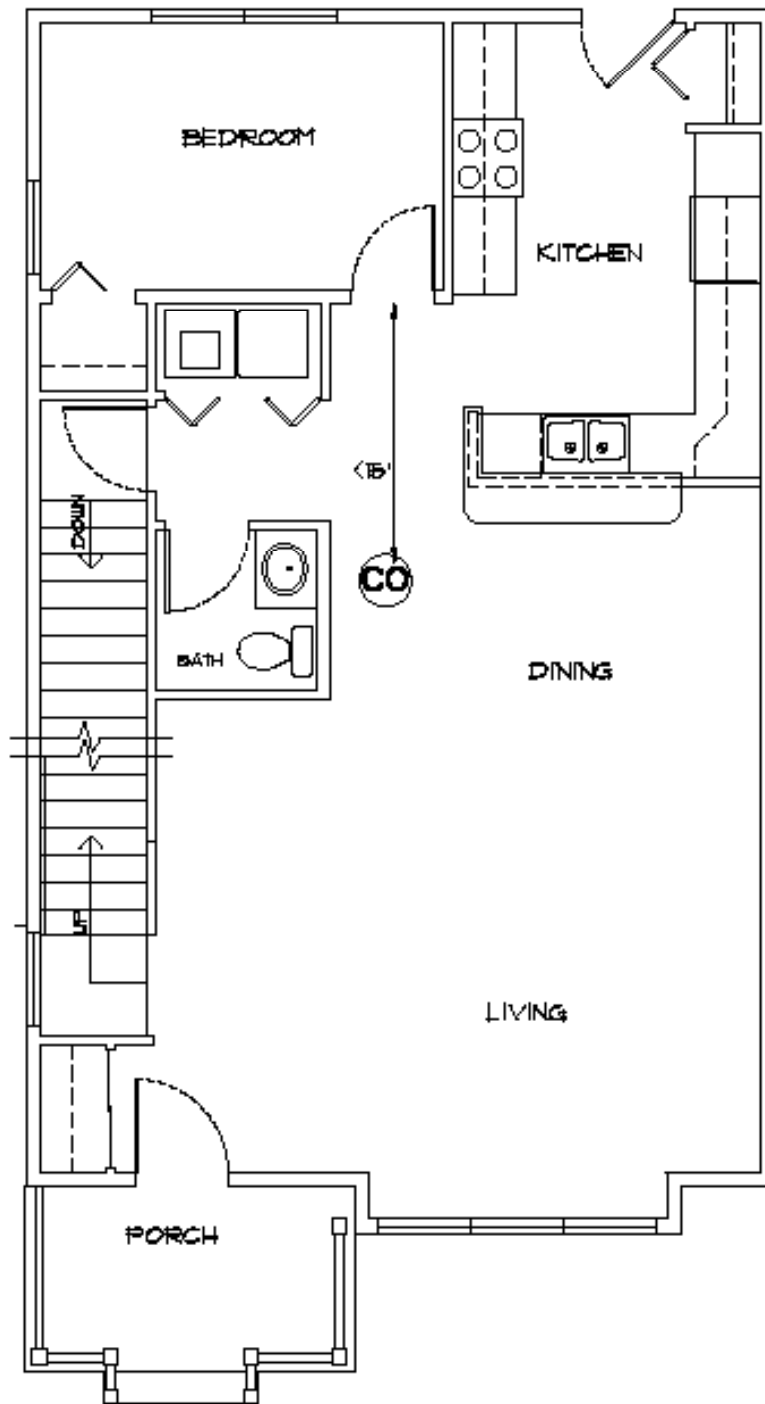
THREE BEDROOM UNIT WITH
 GAS BOILER IN BASEMENT
 NOT TO SCALE



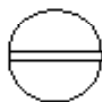
THREE BEDROOM UNIT WITH
GAS STOVE AND FIREPLACE
NOT TO SCALE



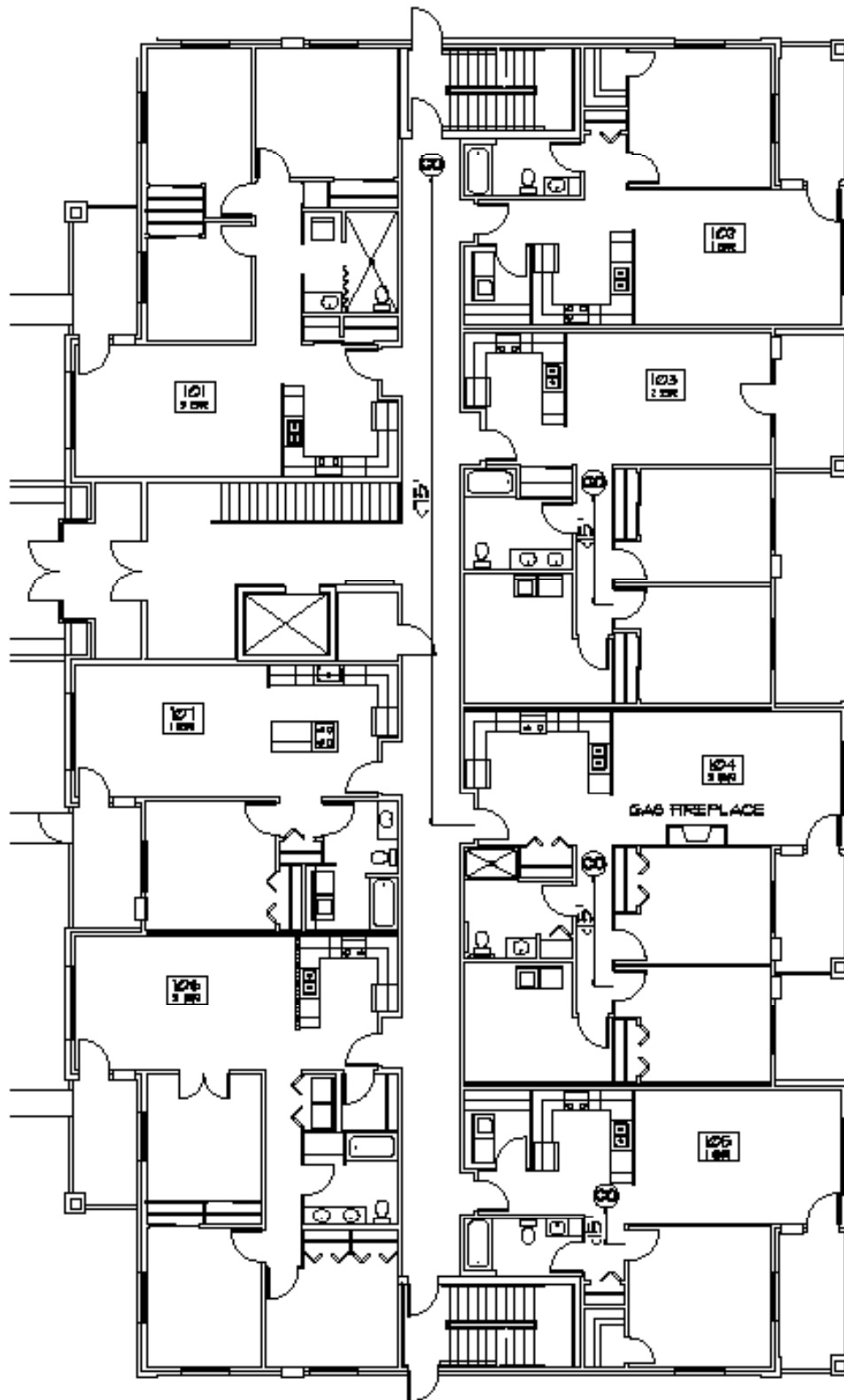
 EFFICIENCY/STUDIO
NOT TO SCALE



UNIT WITH ONE BEDROOM WITH DIRECT ACCESS FROM THE KITCHEN AND GAS FURNACE IN BASEMENT



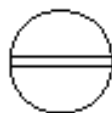
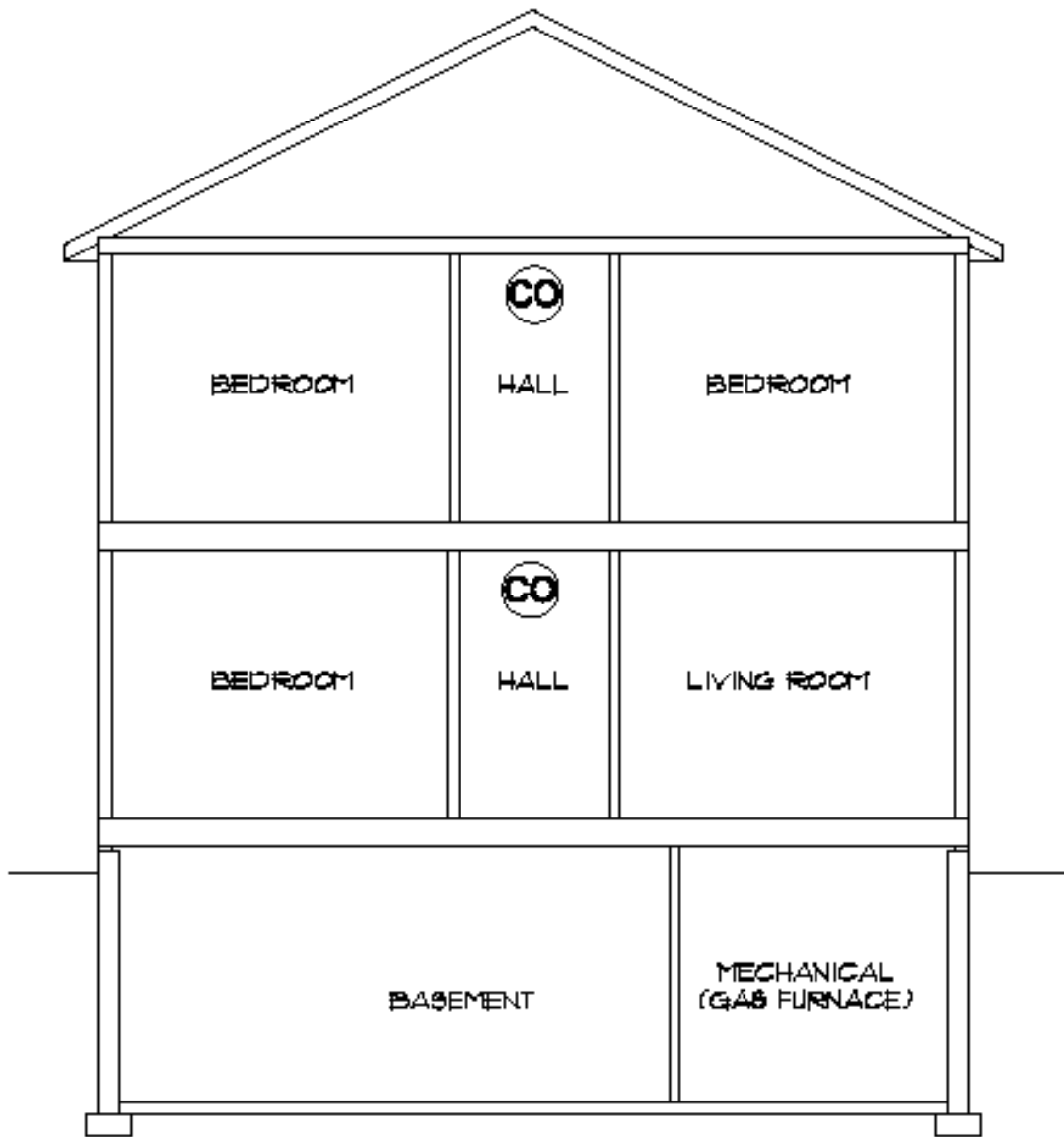
NOT TO SCALE



APARTMENT WITH GAS
BURNING FIREPLACE



NOT TO SCALE



CROSS SECTION SHOWING CO ALARMS

NOT TO SCALE

Q & A



Thanks For Attending!

www.madisonfire.org

Department of Commerce CEUs

1.5 hrs CEU For the following:

Commercial Building Inspector

Commercial Electrical Inspector

UDC Construction Inspector

UDC Electrical Inspector

Dwelling Contractor Qualifier

Master Electrician

Journeyman Electrician