



# *Massachusetts Carbon Monoxide Regulations (CO)*

Tom Norton  
Norel Service Co., Inc.

## *Facts About CO Poisoning*

### **CARBON MONOXIDE IS...**

- A colorless, odorless, tasteless, invisible, non-irritating toxic gas;
- Called "**Silent Killer**";
- The number one cause of accidental poisoning in America;
- Produced by incomplete combustion;
- Can result from improperly vented or malfunctioning appliances and HVAC equipment.

## *Facts About CO Poisoning*

### **CARBON MONOXIDE IS LIGHTER THAN AIR**

- **CO rises like smoke toward ceilings and upper levels of the structure;**
- **CO gets behind walls and flows through the structure;**
- **CO emerges from electrical outlets;**
- **CO TRAVELS EVERYWHERE QUICKLY AND SILENTLY.**



## *Facts About CO Poisoning*

### **HOW FAST CAN IT KILL?**

**At High Levels – Within 1 to 3 minutes**

**At Lower Levels – Within 30 minutes**

**EXTENDED EXPOSURE AT VERY LOW LEVELS CAUSES  
SERIOUS DAMAGE TO BRAIN, HEART, AND KIDNEYS**

## *Facts About CO Poisoning*

### OSHA CHART OF CO TOXICITY

<b>CO Levels</b>	<b>Inhalation Time and Toxic Symptoms Developed</b>
Low Levels	<i>Serious damage to brain, heart, and kidneys is cause by extended exposure</i>
50 ppm*	<i>The maximum allowable concentration for exposure in any 8-hour period.</i>
200 ppm	<i>Slight headache, fatigue, dizziness, and nausea after 2-3 hours.</i>
400 ppm	<i>Frontal headaches within 1-2 hours, life threatening after 3 hours.</i>
800 ppm	<i>Dizziness, nausea and convulsions within 45 min. Death within 2-3 hours</i>
1,600 ppm	<i>Headache, dizziness and nausea within 20 minutes. Death within 1 hour.</i>
3,200 ppm	<i>Headache, dizziness within 5-10 minutes. Death within 25-30 minutes.</i>
6,400 ppm	<i>Headache, dizziness within 1-2 minutes. Death within 10-15 minutes.</i>
12,800 ppm	<i>Death within 1-3 minutes.</i>

*\* ppm = parts per million*

## *Facts About CO Poisoning*

### **WHO CAN CO KILL?**

Anyone

Most at risk ...

Babies

Pregnant women

Children

Elderly

Pets

Their bodies are  
most susceptible  
to low levels of CO

### **HOW DOES CO KILL?**

With no warning

CO starves your vital organs of oxygen

CO affects your ability to think clearly and respond

**COMMON FLU-LIKE SYMPTOMS  
MAY INDICATE PRESENCE OF CO  
FREQUENTLY ASKED QUESTIONS**

## *Facts About CO Poisoning*

**THE MAJOR SOURCE OF CO (95%) is from HVAC**

Other sources include:

- Ovens;
- Grills;
- Clogged flues;
- Gas clothes dryers;
- Space heaters;
- Vehicle exhaust.



# **CO Legislation Update**

## ***13 States are Coded***

- New York
- New Jersey
- Rhode Island
- Massachusetts
- West Virginia
- Texas
- Pennsylvania
- Oregon
- North Carolina
- Colorado
- Alaska
- Virginia
- Connecticut (Just Passed)
- Codes pending in 20 other states

## ***Metropolitan Areas with Codes***

- New York City
- Chicago, IL
- St. Louis, MO
- Baltimore, MD
- Denver, CO
- Des Moines, IA
- Berkeley, CA
- Toronto, CANADA
- Many Other Pending

**Currently ... Every CO  
Detector must be replaced at 5  
to 6 years from manufacture  
date... regardless of  
manufacturer or technology.**

## *Installation Guide*

### WHY PROPER LOCATION IS ESSENTIAL

Improper installation can:

Cause a delay in response time

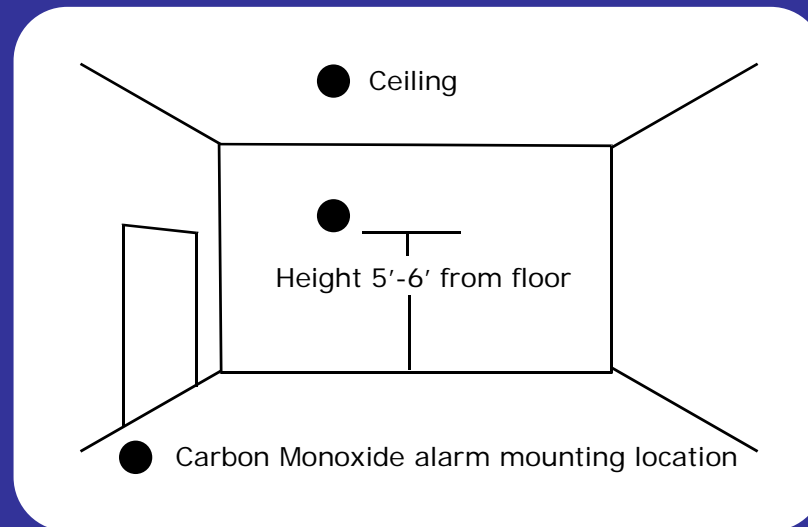
and

Unwanted alarms may cause people to become  
complacent to actual alarms



## *UltraGuard Installation Guide*

### MOUNTING HEIGHTS RECOMMENDATIONS



**REMEMBER:**

**CO IS LIGHTER THAN AIR,  
SO IT RISES**

## *Residential Occupancies Covered*

R-2 through R-5

R-2 Multiple Dwelling Units

R-3 Multiple One and Two Family

R-4 Detached One and Two Family

R-5 Limited Group Residence

## *Installation Guide in Massachusetts*

### **WHERE TO INSTALL SENSORS – Option 1** ***527 CMR 31.04 (1) a & b***

#### **Battery or Interconnected Detectors**

Each level – including habitable portions of basements, cellars and attics, but not crawl spaces

Not more than 10 ft from any bedroom doors

5 ft or higher on wall, or ceiling mount is preferred

Installation shall be in accordance with the manufacturers' instructions

## *Installation Guide in Massachusetts*

### WHERE TO INSTALL SENSORS – Option 2

#### *527 CMR 31.04 (1) c*

### 110 vac, Wireless, or System Detectors

1. Areas or rooms containing Centralized Fossil Fuel burning equipment and all adjacent spaces
2. Adjacent spaces of enclosed parking

Shall be monitored in accordance with NFPA 720, 5.3.9. Such method of monitoring is to be determined at the discretion of the building owner

The retransmission of the signal shall be in accordance with NFPA 720, 5.3.9.3(1) at the discretion of the head of the fire department

## ***Installation Guide in Massachusetts***

### **WHERE TO INSTALL SENSORS – Option 2**

#### ***527 CMR 31.04 (1) c***

### **110 vac Detectors or System Detectors**

3. Carbon Monoxide alarm protection shall also be installed in any dwelling unit that contains fossil fuel burning equipment in accordance with 527 CMR 31.04 (1) (a) and (b)

## ***Installation Guide in Massachusetts***

### **Alternate Dates**

**Owner must provide written notification to the  
head of the fire department by  
May 15, 2006**

**And the installation must be completed by  
January 1, 2007**

# ***Installation Guide in Massachusetts***

## ***527 CMR 31.00***

- **WHERE NOT TO INSTALL SENSORS**
- Within 5 Feet Of Cooking Appliances
- Within 5 Feet Of Furnace
- Less Than 5 Feet From Bathroom
- Near an Open Window/Door
- In Wet/Humid Areas Such as Bathrooms
- In Extremely Hot or Cold Rooms
- Near Areas Where Cleaning Chemicals Are Stored

*Questions ?*