

Carbon monoxide is a colourless, odourless, and tasteless gas that is toxic when inhaled, and can be fatal depending on concentration levels and exposure time. Note that although carbon monoxide will be present in poor combustion process that creates smoke (as described above), it is not necessary for smoke to be present while high levels of carbon monoxide are being created. An example of this takes place when a wood fire has reduced down to the coal state and the draft starts to reduce as less heat is available to keep the chimney warm. Some level of carbon monoxide is being generated in all stages of the combustion process regardless of the fuel.

Several precautions can be taken to minimize the risk of carbon monoxide poisoning occurring.

- The first is to run the furnace in the most efficient manner possible to reduce the levels of carbon monoxide being generated. Using well seasoned dry wood and establishing the correct operating draft as laid out in these operating instructions will help limit CO emissions.
- Building Pressure - if the combustion air for an appliance (as with this wood furnace) comes from within the building that the appliance is located there will be a tendency for the internal building pressure to become negative. There must be adequate mechanical ventilation supplied to the building to neutralize the building pressure otherwise there is a risk of reversing the flow of exhaust flue products back into the building. These flue products may not only come from the wood furnace but also from other combustion appliances in the building. The Hybrid Wood Furnaces come supplied with a 4" (10 cm) vent for direct connection to outdoor combustion air. Although the wood furnace still relies on room air for the secondary burn process the connection of outdoor primary combustion air to the furnace will help reduce the amount of mechanical ventilation required to prevent negative building pressures.
- Smoke Alarms and Carbon Monoxide Detectors - Smoke alarms and carbon monoxide detectors are not only important tools for protecting the inhabitants of a building but they are mandated in many jurisdictions. Although these items should be located on every level of a building there are two locations that are of prime importance. The first is in the sleeping areas of the building, and the second is in the location to where the combustion process is taking place. Check with local codes for details of alarm/detector requirements.

8.3 CONTROL SYSTEM - WOOD FURNACE

Control of the woodburning section of the furnace is by adjustment of the primary air control located on the top rear right corner of the CHMF150/200. This control operates in two set positions - "Full Open" allowing maximum combustion air delivery to the fire box and "Closed", providing minimum primary air to the fire box to assist the development of secondary or gasifying burn in the top of the fire box (Note that secondary combustion air enters through two inlets on the front of the furnace either side of the ash lip tray and is not adjustable).

! WARNING

IN NO WAY SHALL THE PRIMARY AIR CONTROL SYSTEM BE ALTERED TO INCREASE COMBUSTION AIR FLOW GREATER THAN THE FACTORY PRESET MAXIMUM.

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In the automatic mode the adjustment of primary air is accomplished using a shutter connected to a small servo motor. The control circuitry will energize the motor if it detects the room thermostat is calling for heat and the high limit sensor in the supply plenum has not been surpassed (greater than 250°F (121°C)). The primary air shutter will be fully opened and will remain so unless the room temperature has been satisfied or too much heat is detected in the plenum.

