

Crematory Manufacturing and Service, Inc.



“...around the world”

Installation Manual

CMS Millennium III Cremator

MILLENNIUM
ADVANCED CREMATORY TECHNOLOGY

The information in this manual contains instructions and illustrations of building requirements, off-loading, placement and positioning of the equipment, hot air duct installation, and fuel and electrical connections.

Please review these instructions carefully with any contractors involved in the installation prior to the arrival of the equipment.

The cremator installation should be consistent with the manufacturer's recommendations, any special corporate compliance issues that may differ from the manufacturer's recommendations, and in accordance with local building, electrical, and fire codes.

Please forward any questions regarding the installation instructions to:

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I. Building Requirements

The Millennium Cremator should be installed in compliance with the manufacturer's recommendations in the instruction manual that follows. Additionally, all local codes and regulations must be followed.

A. Foundation

The Millennium Cremator should be supported on a 4", level slab of concrete capable of supporting 22,000 pounds. (See Drawing S-118.)

B. Make-Up Air

A continuous supply of air is required for efficient operation. There should be an air inlet measuring 24" x 36". For best results locate a louvered opening in the wall of your building close to the rear of the cremator.

NOTE: For an additional cremator, increase the air inlet opening to 48" x 72" or add a second air inlet of equal size.

C. Clearances

The cremator must be placed in a location using the guidelines below. (See Drawing S-118.)

1. The ceiling height of the room must be at least 9' to allow a 1' 10^{1/2}" clearance from the top of the cremator to the ceiling.
2. A minimum clearance of 3' from the wall is recommended on the control panel side for service and removal of the ash compartment.
3. A 4" minimum clearance is required from the hot air duct to any combustible material.
4. The sidewall, opposite of the push control side, should be positioned at least 1" from combustibles.
5. The loading area in front of the cremator must be a minimum of 7'.
6. A 30" minimum clearance from the rear of the unit is required for servicing.

II. Shipping

The Millennium Cremator will be shipped via flatbed trailer with section(s) of hot air duct. There will be some miscellaneous loose items shipped inside the cremator. These items will be removed and assembled by an authorized CMS technician during startup.

The cremator and hot air duct section(s) are wrapped with a weather protective material before shipping. If upon arrival, the equipment cannot be housed, a canvas tarp will be needed to protect the exterior of the cremator from inclement weather. In addition, the cremator must be elevated at least 4" above the ground.

III. Dimensions and Weight

<u>Cremator -</u>		<u>Hot Air Duct - (per section)</u>	
Height:	7' 1 ^{1/2} "	Width:	33 ^{3/8} "
Width:	5' 4" at posts 5' 0" wall to wall	Length:	5' 0"
Length:	15' 0"	Weight:	820 lbs.
Weight:	18,000 lbs. (approx.)		

IV. Off-Loading

The Millennium Cremator will be delivered to the installation site at a pre-arranged date and time. You will be notified forty-eight hours prior to delivery to confirm arrival time and arrange off-loading of the equipment. A rigging crew and/or crane service should be present upon the arrival of the equipment.

Methods of Off-Loading

A. Crane

The cremator should be removed from the trailer as follows:

1. A four-point cable connection is required. Connect the cables to the four lifting eyes located on top of the cremator and secure. (See Drawing S-119.)
2. Raise the cremator to clear the trailer bed and have the truck pull out from under the load.
3. Once inside the building, move the cremator into final position using rollers or 2" steel pipe underneath. (2" pipe needs to be 6' long.)

NOTE: The crane must be capable of lifting 10 tons and capable of connecting the hot air duct sections, according to your building design. We recommend consulting your contractor in advance to arrange for proper unloading of the equipment.

B. Fork Lift

A ten-ton forklift with a fork distance to extend at least 6' is required.

1. Side off-loading is required. Determine the balance point **BEFORE** lifting the cremator.
2. Raise the cremator to clear the trailer bed and have the truck pull out from under the load.
3. Once inside the building, move the cremator into final position using rollers or 2" steel pipe underneath. (2" pipe needs to be 6' long.)

V. Positioning the Cremator

It is recommended that the exact location of the cremator be marked on the floor. Be sure to check that the proper minimum clearances will be maintained before removing the roller and lowering the cremator.

A. Alignment with Hot Air Duct Opening

1. Locate the hole for the hot air duct by using the floor plan in the installation instructions provided. (See Drawing S-118.)
2. Minimum dimension requirements in the floor plan must be kept.

NOTE: The hot air duct opening on top of the cremator is always located in the left rear.

B. Leveling the Cremator

1. Remove all packaging from the cremator.
2. Place level at the points noted in Drawing S-119. The cremator must be level within $\frac{1}{8}$ " front to back and side-to-side.
3. If leveling is necessary, the cremator needs to be raised at the jack points. (See Drawing S-120.) Steel shims, 6" x 4", of assorted thickness should be placed under the sides of the cremator approximately 20" from the front or rear of the unit.
4. Once the cremator is on the floor or leveling shims, re-check level.

VI. Installing the Hot Air Duct

The CMS Hot Air Duct consists of all stainless steel material with a $4\frac{1}{2}$ " refractory lining. Each section is no more than 5' in length by $33\frac{3}{8}$ " in diameter depending on your requirements. A minimum of 13' of hot air duct is required. If additional sections are needed, please let us know your requirements prior to manufacturing.

These sections can be connected together on the ground and lifted as a complete assembly; then they should be placed through the hole in the roof and onto the cremator. They can also be installed one section at a time depending on the crane capabilities. Each section of hot air duct comes with one gasket and eight connection bolts. The gasket fits between each section over the refractory lining and under the base section between the hot air duct and the unit. Your Millennium III also comes with a spark arrestor screen that bolts on the top of the hot air duct after it is installed. The spark arrestor is bolted on the top of the unit over the duct opening for shipping.

NOTE: Once installed, the top of the hot air duct should extend three feet above the hole in the roof and away from any structure, including the roofline, by at least 15'.

- A. Be sure that the opening in the roof has been prepared for the hot air duct. Refer to Drawing S-118 and Drawing S-121 for details. The opening must be at least 42" in diameter to allow for a minimum of 4" clearance from any combustible material.
- B. Raise the assembled section and position it over the opening in the roof.
- C. Lower the hot air duct through the opening until the bottom section rests on the hot air duct receiver plate of the cremator.
- D. With the thermocouple hole facing the rear of the cremator, align flange holes to bolt together.

NOTE: If additional intermediate hot air duct sections are required to complete your installation, bolt the sections in the same manner as outlined above.

VII. Electrical and Gas Supply Connections

Unless prior arrangements are made, the gas and electrical hook-ups to the machine need to be made prior to the CMS service technician's arrival. The following are the requirements for the Millennium III.

A) Fuel Connection

1. Natural Gas

A 2" fuel supply line is required from the gas meter to the cremator. This system also requires a gas pressure regulator to allow a consistent gas flow of 12" to 18" inches of water column pressure with a flow rate of 2116 cubic feet per hour (CFH) when the cremator is in operation. When idle, the static gas pressure must be regulated to 18" water column. (See Drawing S-121 and S-123.)

2. Liquid Propane Gas (LPG)

A 2" fuel supply line is required from the second stage regulator to the rear of the cremator. This system also requires a gas pressure first stage regulator and a 1,000-gallon storage tank outside the crematory building. The gas pressure required is similar to the Natural Gas requirement, however, the fuel line between the first and second stage regulators can be reduced to $\frac{3}{4}$ ". (See Drawing S-121 and S-124.) If the temperature drops below 40°F, a vaporizer will be needed to operate your cremator efficiently. If the LPG tank is underground, a vaporizer is not required. For multiple installations, contact the factory for requirements. Second stage regulator must be sized to flow 920 CFH vapor at 18" water column pressure.

NOTE: If the regulator is installed inside the building, it must have a vent line to the outside.

B. Electrical Connection - Domestic and International

The standard electrical service for the Millennium III cremator is 230 volt, 50/60 HZ, single phase, 30-amp service. CMS units can operate on different voltage if required. (See Drawing S-122A.)

230 volt, three phase, 50 HZ

380 volt, three phase, 50 HZ

460 volt, three phase, 60 HZ

The electrical service to the cremator must be supplied with #8 gauge copper wiring (enclosed in approved conduit) and run from an acceptably sized fused disconnect switch or circuit breaker located within 15' of the cremator. For service and maintenance, the switch should be "lockable" in the "Off" position. An Earth Ground should be connected to the Ground Lug mounted on the panel inside the electrical control box in the rear compartment of the unit.

WARNING: Do not attempt to operate the cremator after completing the electrical connection!! The CMS service technician will make the final adjustment and start up of your new Millennium. If you have any questions or concerns, please feel free to call.

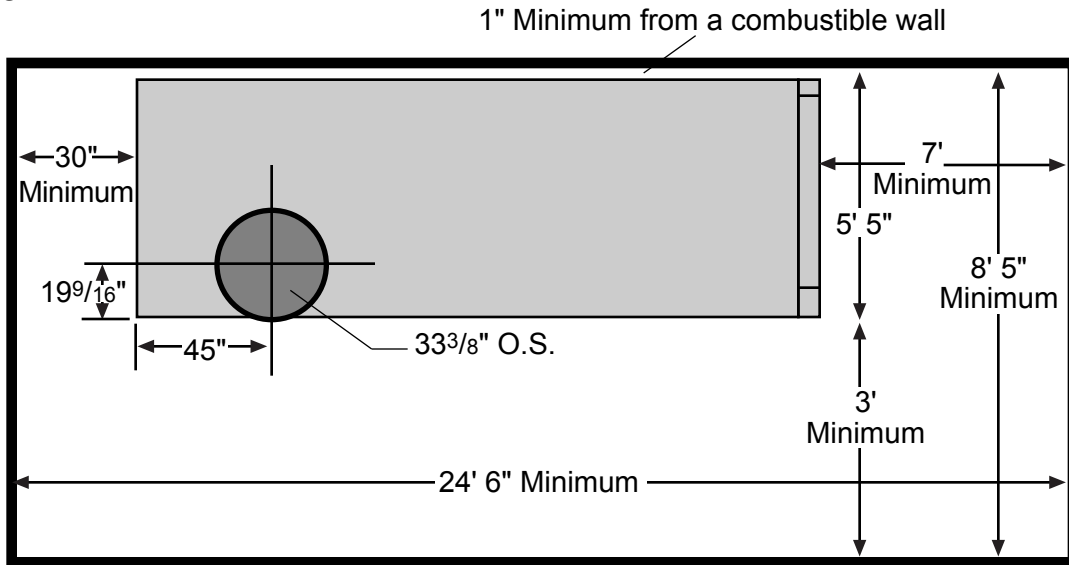
PRE ARRIVAL CHECK LIST

- _____ 1. 4" slab that is able to support 22,000 lb. minimum
- _____ 2. Make-up air vent 24" x 36"
- _____ 3. 2" fuel line to location of unit
- _____ 4. Gas regulator capable of flowing 2116 CF @ 18" W.C. (propane 920 CF)
- _____ 5. Electrical service of 220 volts on a 30-amp circuit required for domestic use.
- _____ 6. Electric service disconnect within 15' of unit
- _____ 7. 8' high opening to move unit through
- _____ 8. Roof flashing order for stack (need to accept 33³/₈" O.D. stack)
- _____ 9. 4" minimum clearance for stack from any combustible material
- _____ 10. Crane scheduled

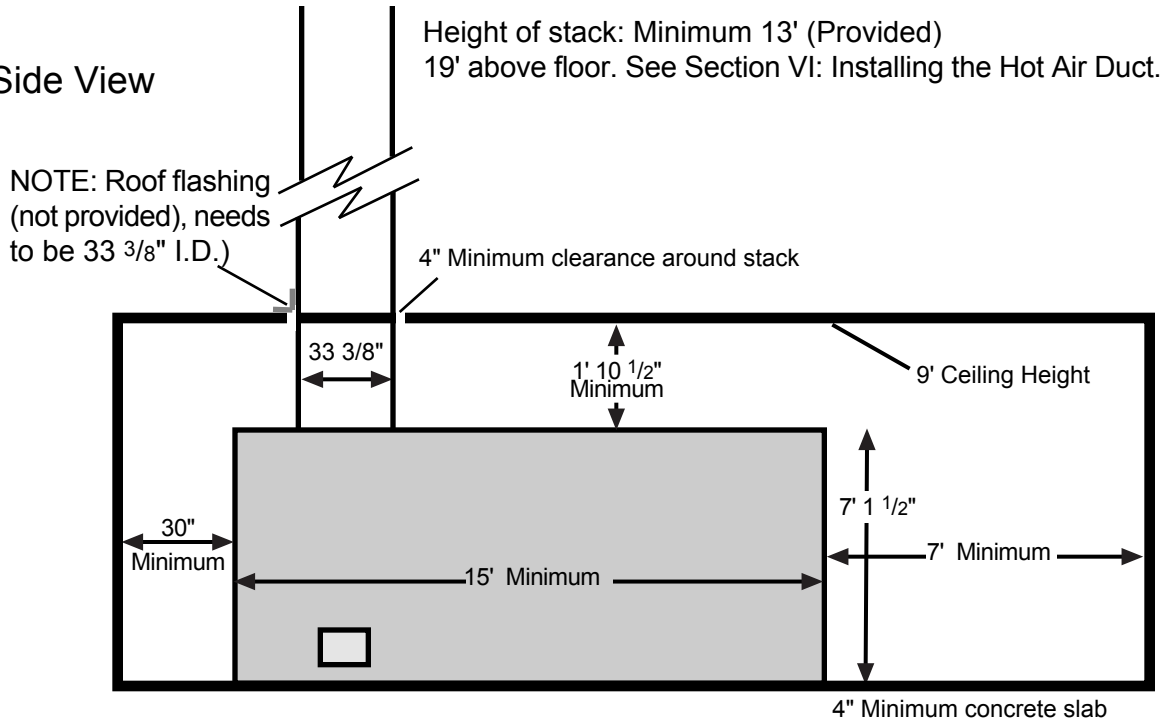
Drawing #S118

Floor Plan and Elevation

Top View



Side View

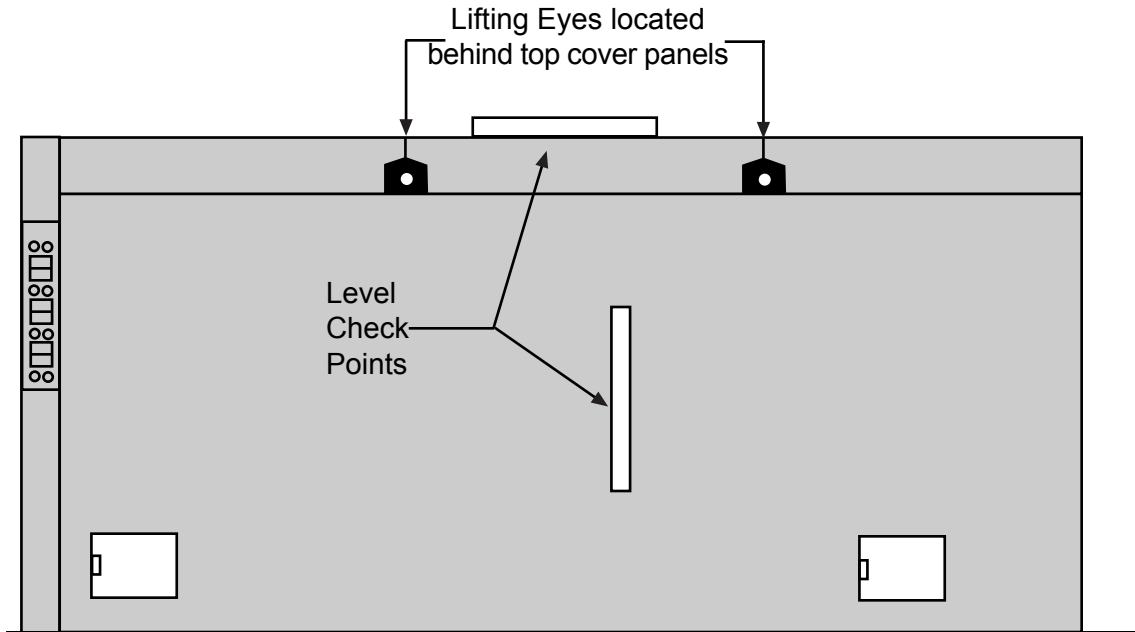


- NOTES: 1. Room entrance must be a minimum of 6' wide and 8' high to accept unit.
 2. Unit may be located any place within room as long as minimums are maintained.
 3. Control panel may be on either left or right side whichever customer prefers.
 (3" side minimum is on control panel side.)

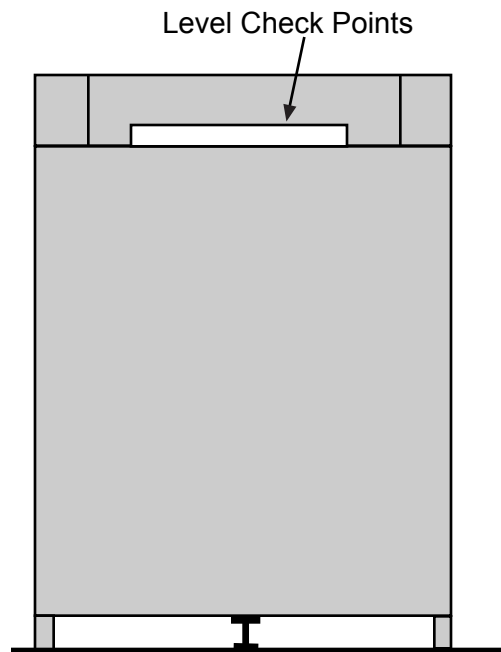
Drawing #S119

**Level Check Points
Lifting Eye Locations**

Side View



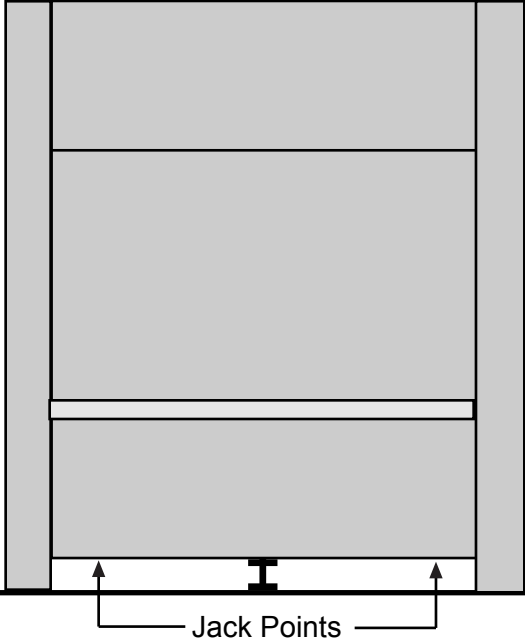
Rear View



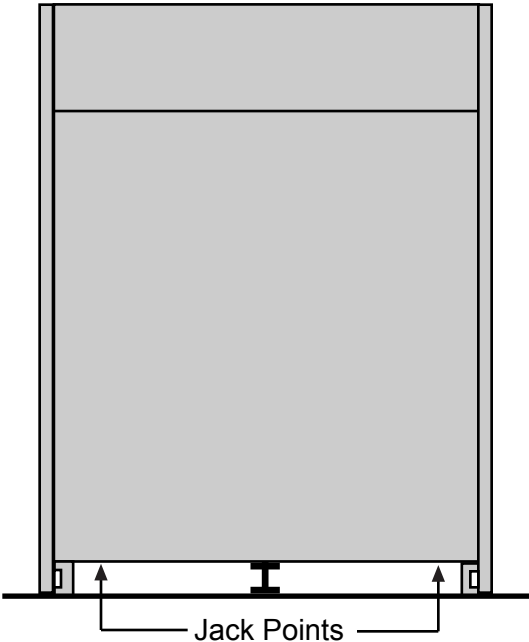
Drawing #S120

Jack Points

Front View

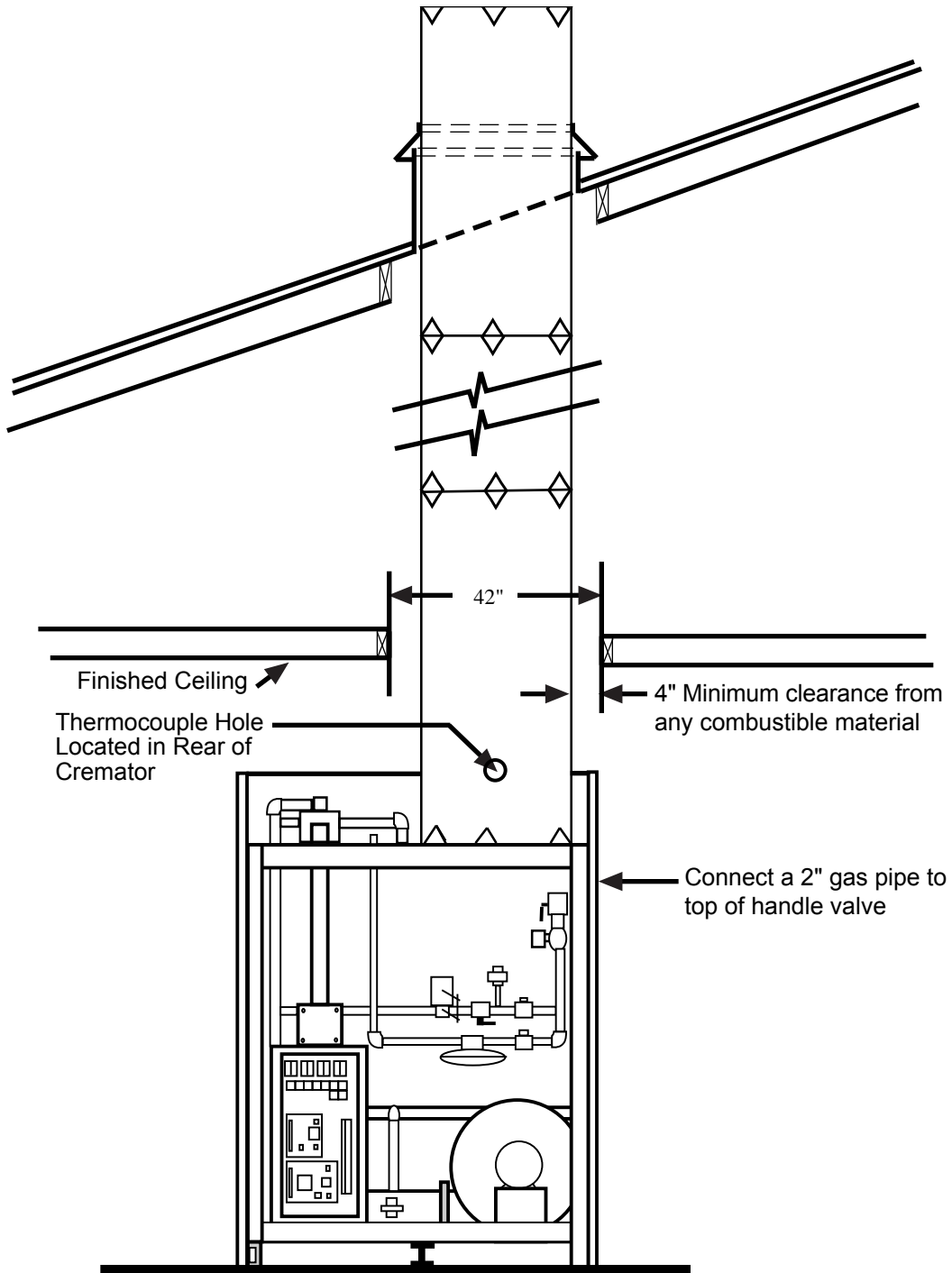


Rear View



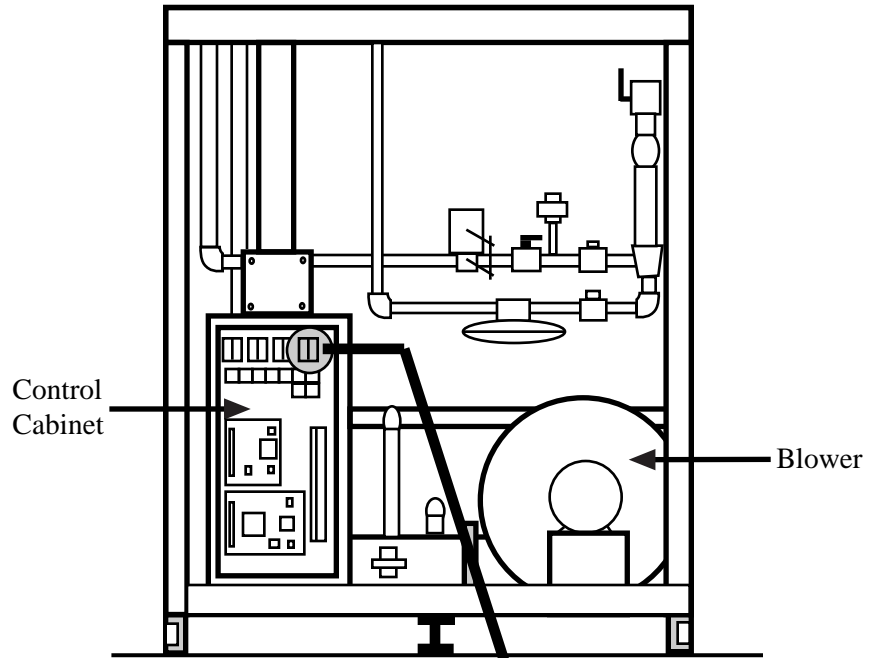
Drawing #S121

Hot Air Duct Installation Fuel Connections



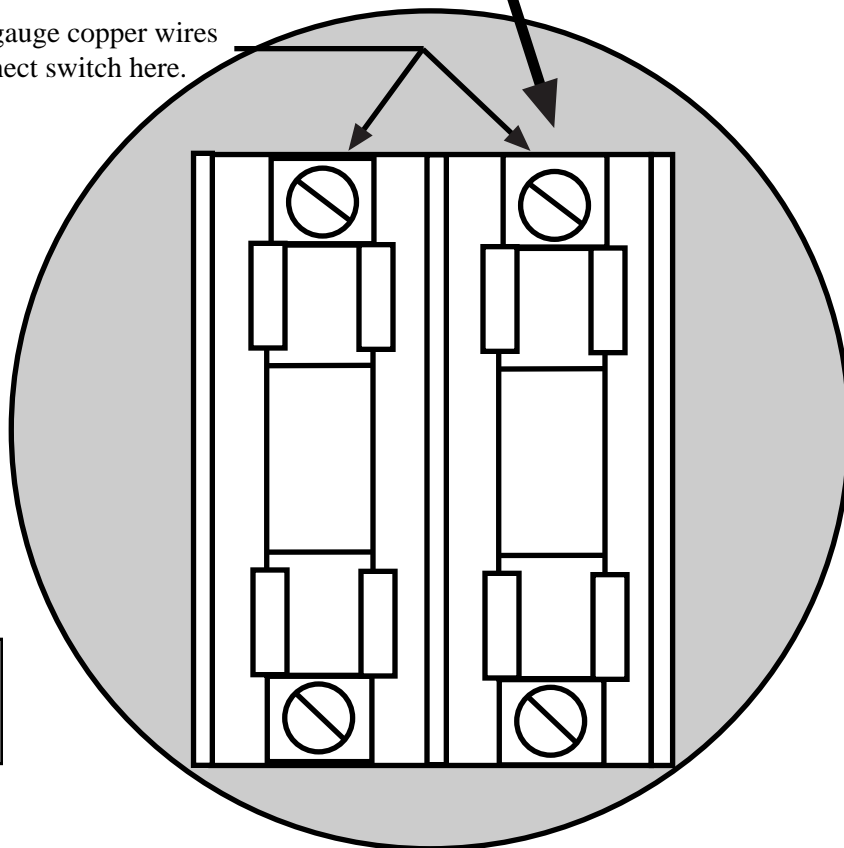
Drawing #S122

Electrical Connections



Electrical Connections

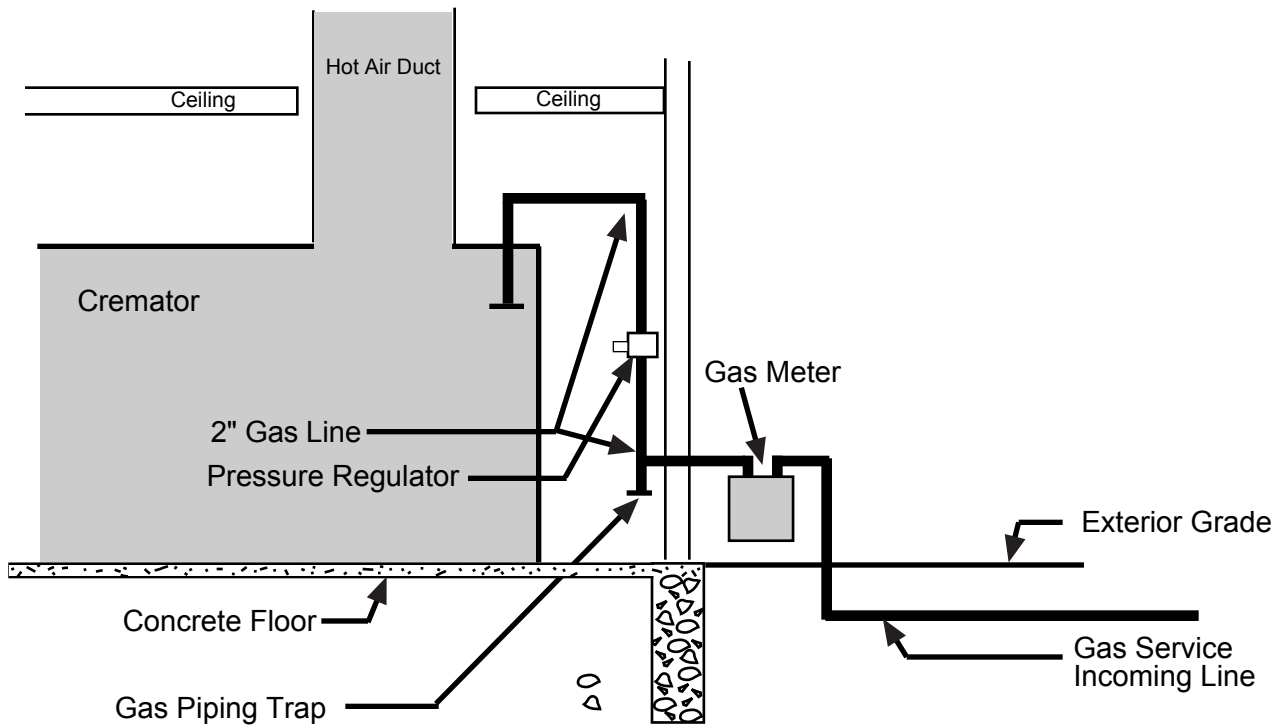
Connect #8 gauge copper wires from disconnect switch here.



Note: Cremator must be grounded per local codes and regulations.

Drawing #S123

Natural Gas Installation

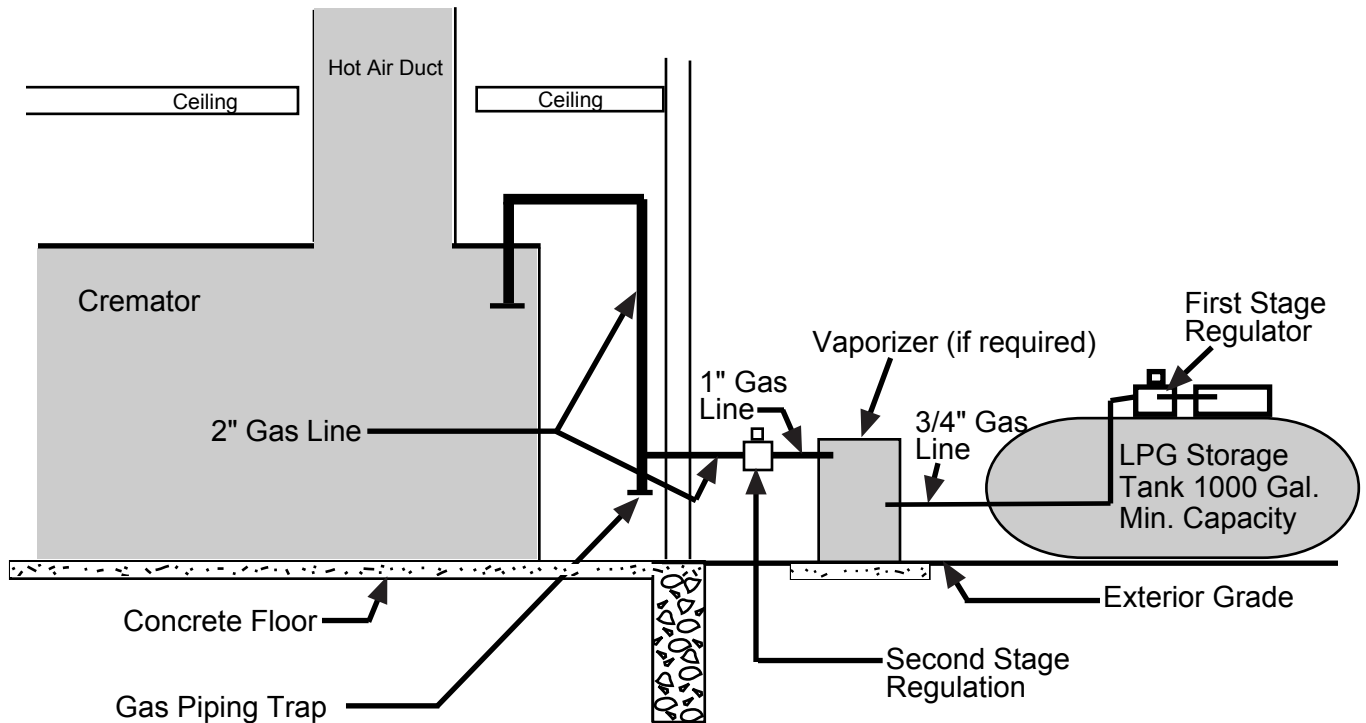


GENERAL NOTES:

1. Local codes and regulations must be followed.
2. A 2" gas line is required from gas meter to cremator.
3. Static gas pressure not to exceed 18" W.C.
4. Operating gas pressure is 12" to 14" W.C. flowing at 2116 CFH.
5. Required pressure regulator has a range of 6" to 28" W.C. with a $\frac{3}{4}$ " orifice.
6. Pressure regulator must be located close to rear of crematory.
7. A gas piping trap must be installed upstream of the gas supply connection to the cremator.

Drawing #S124

Propane (LPG) Installation



GENERAL NOTES:

1. Local codes and regulations must be followed.
2. LPG storage tank and vaporizer location will depend on local regulations.
3. LPG tank must have 1000-gallon capacity minimum (or two 500-gallon tanks).
4. Vaporizer required if temperature is below 40°F for extended periods of time.
5. Operating pressure must be 12" to 14" W.C. flowing at 2116 CFH.
6. Pressure not to exceed 18" W.C.
7. LPG tank may be located below ground. Vaporizer not required if tank is underground.
8. A 2" gas pipe required from second stage regulator.
9. A gas-piping trap must be installed up stream of the gas supply connection to the crematory.