



Installation & Operation Manual

Stone Hearth Ovens—Gas & Wood Fired



**DO NOT DISCARD
KEEP THIS MANUAL WITH OVEN AT ALL TIMES**

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INTRODUCTION

This guide provides detailed installation information for the Installation & Operation of Phoenix Ovens' in a commercial construction situation.

For additional information or assistance please contact our technical department via email: technical@phoenixovens.com or technical director, Mr. Greg Thomson via email: greg@phoenixovens.com

WARNING: Improper installation, adjustment, alteration, service or maintenance can result in property damage, injury or death. Read the installation, operation and maintenance instructions thoroughly before installing or servicing this equipment.

RETAIN THIS MANUAL WITH THE OVEN AT ALL TIMES FOR FUTURE REFERENCE.

CONTACT DETAILS

PHOENIX OVENS PTY LTD
(ABN 81 150 166 439)
PO Box 1258 SPRING HILL, QLD, AUSTRALIA 4006
Phone: +61 458 772 253
Phone: +61 468 424 789
Email: Admin@Phoenixovens.com
Web: www.phoenixovens.com

Additional copies of this manual can be supplied, please contact our office or your local representative.

STANDARDS

The Phoenix Oven has been designed and manufactured to comply with relevant codes.....

AS/NZS 60335 (#5200-0145-01A')
RoHS & W.E.E.E. Compliant

EN 298 with reference to the "Gas Appliance Directive" (GAD 90/396/EEC)

EN 126

Directive 91/155/CEE

SAFETY INFORMATION & WARNINGS

WARNING: Improper installation, adjustment, alteration, service or maintenance can result in property damage, injury or death. Read the installation, operation and maintenance instructions thoroughly before installing or servicing this equipment

It is recommended that this oven be installed only by professional personnel as specified herein.

IMPORTANT: Consult your local gas supplier for a statement outlining the procedure to be followed in the event you smell gas.
Post the statement in a prominent location near the oven.

FOR YOUR SAFETY

Never use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid or similar liquids to start or 'freshen up' a fire in this oven. Keep all such liquids well away from the oven when in use.

A MAJOR CAUSE OF OVEN RELATED FIRES IS FAILURE TO MAINTAIN REQUIRED CLEARANCES (AIR SPACES) TO COMBUSTIBLE MATERIALS.

IT IS VERY IMPORTANT THAT THIS OVEN BE INSTALLED ONLY IN ACCORDANCE WITH THE INSTRUCTIONS CONTAINED IN THIS MANUAL.

NOTE: Installation of the exhaust system should comply with local and national codes.

The minimum mantle extension areas to be covered with relationship to the door opening of the oven for combustible floors. At least the following areas shall be specified (See Page 7):

- ▶ 750 mm (30 inches) to each side of the door opening.
- ▶ 1000mm (39 inches) in front of the door opening.

WARNINGS:

1. Do not pack required air spaces with insulation or other materials.
2. If this oven is not properly installed, a fire may result. To reduce the risk of fire, follow the installation instructions contained in this manual refer to pg. 8
3. Please read this entire manual before you install the oven. Failure to follow instructions may result in property damage, bodily injury, or even death.
4. The oven flue should be inspected at least four times a year to determine if creosote buildup has occurred. If creosote has accumulated, it should be removed to reduce risk of fire.
5. Do not use products not specified for use with this oven.
6. Do not construct a large fire near the oven mouth. If flame spills out of the oven opening, you are over firing. Over firing can create a hazardous situation.



SECTION 1

INSTALLATION



DESCRIPTION OF PHOENIX OVEN

The Phoenix Oven utilizes wood or gas or a combination of both to perform regular baking of foods in particular pizza. The basic oven is available in various different sizes.

The oven comprises a ¼”(5mm) mild steel outer skin of two sections, top and base. The base includes four SHS legs supporting the floor of the pizza oven. The refractory lining of the base utilizes 'High Alumina' bricks as the hot face. The floor is insulated by a layer of vacuum form board sheet.

The top section of the pizza oven has a steel outer shell as mentioned. The inside hot face cavity is made of ceramic castable. The castable used is rated by a factor of two to withstand the hottest possible burning in a naturally aspirated timber or gas fired environment.

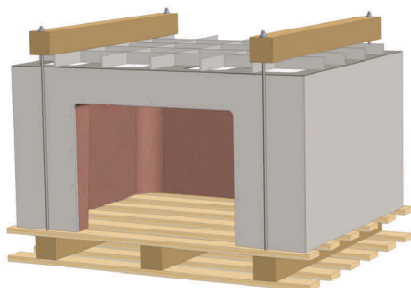
Externally the oven is covered in a further 50mm (2”) of ceramic wool to act as a further insulating barrier. Typical cold face temperature is 45°C (110°F) with a typical internal temperature of 450°C (850°F).

It is important to allow 25mm (1”) air gap between the outer face of the insulation and any adjacent wall or cladding.

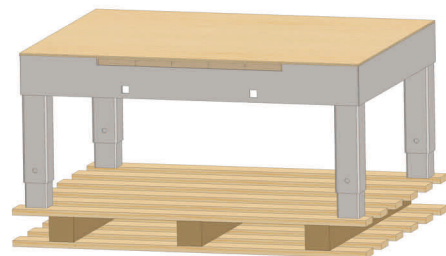
Typically the oven is then ”built in” using an architectural wall such as brick or firecheck plasterboard (refer to the installation instructions in this manual). The oven has been designed to operate reliably and safely in all environments. Phoenix Ovens have a standard training course for oven operators available on request.

IDENTIFICATION OF PARTS

OVEN TOP (as shipped.)



OVEN BASE (as shipped.)

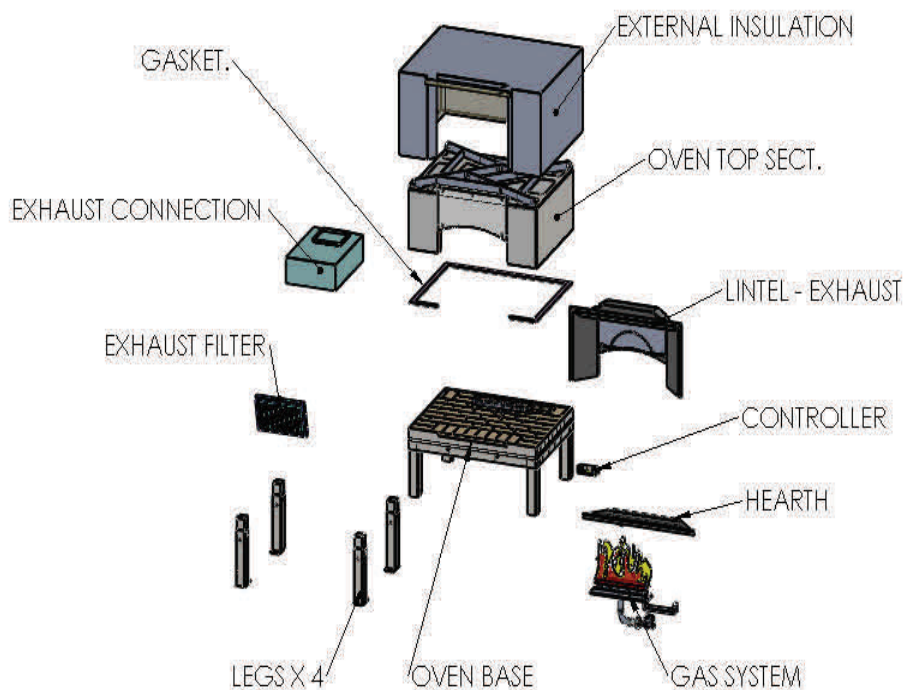


EQUIPMENT REQUIRED

The following equipment will be required in order to lift, maneuver and position the oven:

- ▶ Pallet trolley
- ▶ Lifting frame
- ▶ Chain block/winch 2 tonne.
- ▶ D shackles 75mm / 3inch, 2 off.
- ▶ Wire/StrapSling 2 tonne.
- ▶ 2 x 1000-kg chains or wire
- ▶ Sling 3 metres long.
- ▶ Long blade knife
- ▶ Glue pot and brush

Exploded View of Flametree Model Oven



Oven Legs	4
Oven Base assemble	1
Gas System	1
Hearth	1
Lintel with swing door	1
Oven vTop Assemble	1
External Insulation	1
Exhaust transition with damper.	1
Gasket	1
Controller	1
Exhaust filter	1

PRELIMINARY CHECKS

The oven is transported by truck, ship or plane to its destination. The oven comes in two halves, top and bottom weighing between 1100kg - 1800kg (2500 - 4000lbs.) and 400 - 1000kg . (880 – 2200.lbs) respectively. *The consignment document is a good check to establish oven weight.*

Once on the ground, the method of installation is dependent on the difficulties of site access. If there is sufficient width and no stairs, the oven can be moved by pallet trolley to its desired location.

A mobile 'A' frame or scaffold is then assembled to lift the top section. The base is then wheeled in on the pallet trolley and placed underneath (Diagram 4).

In the cases where there are narrow corridors and stairs, both halves of the oven must be individually placed on their side on a pallet trolley and moved through the narrow passages.

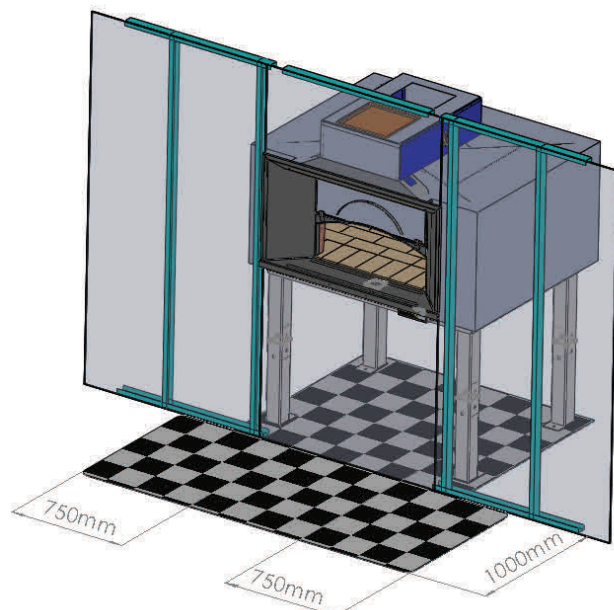
ELEVATOR/LIFT: The oven half will fit into a standard elevator (Diagram 1). Note: We recommend you check elevator load capacity before moving oven.

STAIRS: There must be sufficient width to install the 'A' frame to move the halves up the stairs. If there are too many stairs or the corridor has corners that are too sharp, or the opening is narrower than 2'6" (700mm), the oven cannot be installed without modifications to the building.

TIMBER FLOOR: Investigation must be made to ensure it will support the oven. For installation purposes, we utilize thick sheets of ply to spread the weight of the oven when we transport it over any surface, which may be damaged by the wheels of the pallet trolley.

The minimum mantle extension areas to be covered with relationship to the door opening of the oven for combustible floors. At least the following areas shall be specified:

- 1) 750 mm (30") to each side of the door opening.
- 2) 1000mm (39") in front of the door opening.



INSTALLATION PROCEDURE

Prior to installing oven it is important to visit the installation site to determine if there are doorways narrower than the oven in an upright position (normal).

If there are no narrow doorways, the oven can be kept in the horizontal plane i.e. not put in the vertical plane to go through doorways.

The oven has been designed to fit through any standard doorway on its side and to fit in any standard elevator.

INSTALLATION PROCESS:

1. Take the Oven to the site. Remove base from the pallets. ***Do not remove plywood from top of base. This holds the fire-brick floor in position until the oven is in position to have the top section assembled to the base.***
2. Carefully remove the equipment stored beneath base and store in a secure location. This equipment will be required later for assembly.
3. Lift TOP section from truck to pallet trolley using hotel crane or mobile crane and place on pallet trolley. NOTE if the oven must go through narrow doorways you need to place it on the trolley on its side plane. When lifting the TOP, lift from top edge of the oven to enable this heavy item to be lifted onto its side.
4. Move TOP to kitchen location.
5. Now lift base onto its side on the pallet trolley. DO NOT REMOVE PLYWOOD FROM TOP OF BASE.
6. Remove legs from oven base to reduce its horizontal width (if necessary). Carefully move this section of oven to kitchen location.

IN KITCHEN

1. Assemble lifting frame in kitchen area where space permits. The WHOLE oven can be moved in the kitchen area later on the pallet trolley.
2. Utilizing lifting points, lift the top to the horizontal plane. Place on the ground. Re-lift oven utilizing lifting points.
3. Lift oven to maximum height leaving a clear space underneath of 4' (1150mm) to enable base of oven to fit beneath.
4. Lift the base of the oven to a horizontal position and place on pallet trolley. NOW Remove plywood from top.
5. Move base under elevated top section
6. Place strips of ceramic wool (supplied) beneath the top of the oven wherever the top touches the base. Position wool strips so that they remain hidden when the two halves of the oven are together.
7. The oven is then covered externally in ceramic wool 50mm (2") , using the wool and glue provided.
8. Now that the oven is assembled it is time for the service connection, ductwork and architectural work to proceed.

Exhaust Design



NOTE: Because of residual build-up in the flue, it is highly recommended that the flue be inspected after three (3) months and a cleaning schedule be implemented as required. Failure to properly maintain the flue, may result in flue failure and fire hazard.

Exhaust Design

The following section is for your guidance in establishing a design to suit your Exhaust duct design requirements.

Oven exhaust design should be carried out by a qualified, engineering consultant with knowledge of local authority requirements. The following information is supplied as a guide only.

Whichever exhaust system is to be used it is a primary consideration to allow access to the complete system that will allow regular cleaning and service to the whole exhaust system.

In the case of solid fuel (wood burning) ovens, this is critical consideration as there may be build up of creosote and ash which can become a fire hazard.

All Phoenix Ovens utilize a proprietary exhaust design which under normal operation runs cooler than more conventional oven systems, This eliminates the need for water sprays and additional “make up air”).

Additionally, Phoenix Ovens are fitted with a mesh filter at the entry to the exhaust transition. This can be easily accessed by kitchen personal for regular cleaning. The performance of the filter is monitored by the interlock system.

Flue Material

Check your local authority requirements. (Generally min 0.9mm Galv. steel or min 0.55mm S/S). Seams should be triple folded or fully welded.

Also available and highly recommended are a variety of specialised proprietary flue systems including stainless steel twin and triple skinned products. *(Your local mechanical contractor should advise you of available systems)*

Phoenix Ovens advise to use best available material and ensure it is installed correctly to comply with local codes. (for construction, mounting, joining and clearances to combustible materials).

Recommended Flue size

300mm square or equivalent cross-sectional area in round or rectangular section. This can vary depending on fan capacity etc. Engineering principals should be adhered to. Some jurisdictions will specify exhaust velocity which will require different calculations to obtain correct sizing.

Nominal airflow required.

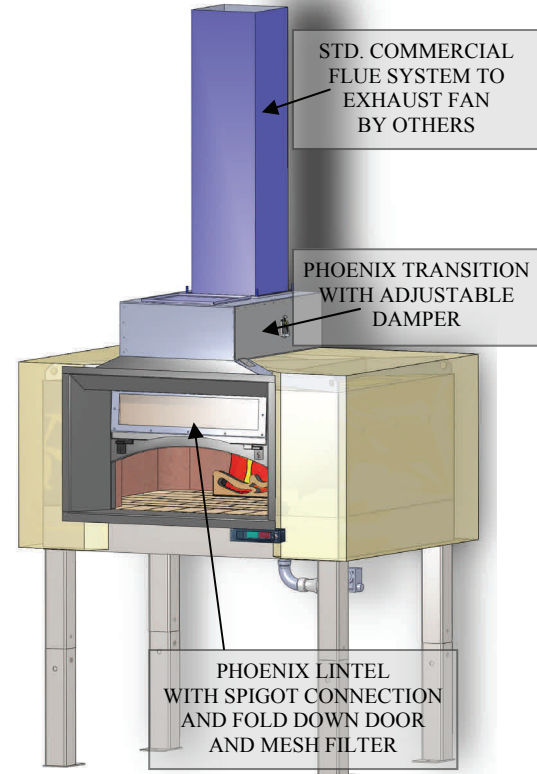
150Pa Static Pressure (available at oven transition)

Maximum total flue airflow - 700 litres / second for a single opening.

Maximum total flue airflow - 1000 litres / second for multi-door ovens.

The oven flue can be connected to any exhaust system with a much higher flow rate by controlling the suction utilising a damper.

Connection to common or community systems should be carefully planned so that solid fuel exhaust is not common with grease duct. Local authority approval should be obtained.



The following methods are to be used ONLY as a guide.

There are typically three (3) methods of exhaust ductwork for a Phoenix Oven. These methods are using:

1. Directly connected power flue using dedicated flue and exhaust fan.
2. Directly connected power flue using existing flue and exhaust fan (common or communal share system.)
3. Canopy method - Oven exhaust and spillage is captured by conventional overhead kitchen canopy system.

NOTE: *Because of the residual build-up in the flue, it is highly recommended that the flue be inspected after three (3) months and a cleaning schedule be implemented as required. Failure to properly maintain the flue, may result in flue failure and fire hazard.*



Direct Connection Flue Systems.

Method 1 – Use of dedicated Exhaust Fan (power flue).

Dedicated oven system.

For ovens that will be using solid/wood fuel, we recommend the use of a dedicated flue for the oven connecting to a dedicated fan.

Fan Selection: Should be made by the exhaust design team to supply correct specification to the system, accounting for size, length, height etc. (Biflacted air cooling vents are recommended on most designs.)

Method 2 – Use of Existing System

In some instances it is possible to connect the oven exhaust to an established kitchen exhaust duct. These are generally available in kitchens that have canopy systems in place for other appliances. Ovens connected to "communal systems should be "Gas Only" fired. Solid fuel burning ovens should not be connected to communal flue systems.

Professional advice should be sought to ascertain the compatibility of the existing system to accept the additional load of the oven system inclusion.

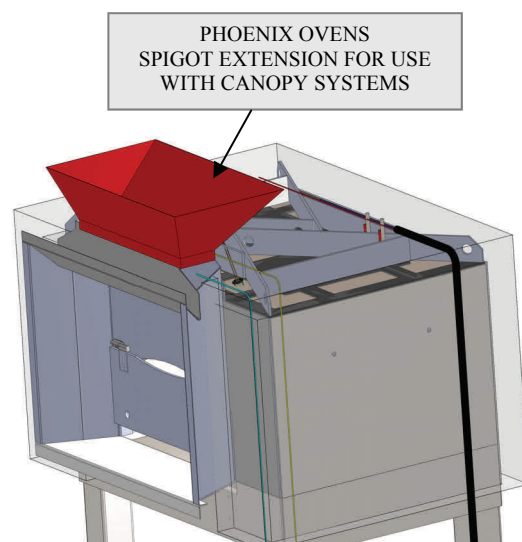
It should also be acceptable to local certifying engineers.

Canopy Method

By using std. Kitchen canopy equipment, this type of oven will perform perfectly and the exhaust system will be safe and familiar to most contractors. The only negative of this method is that designers are often not able to include the overhead fixture into the specific architecture.

As with the direct connection systems, it is not appropriate to mix exhaust from wood/solid fuel ovens with other systems (ie greaseduct). Dedicated system from canopy to exhaust fan is recommended.

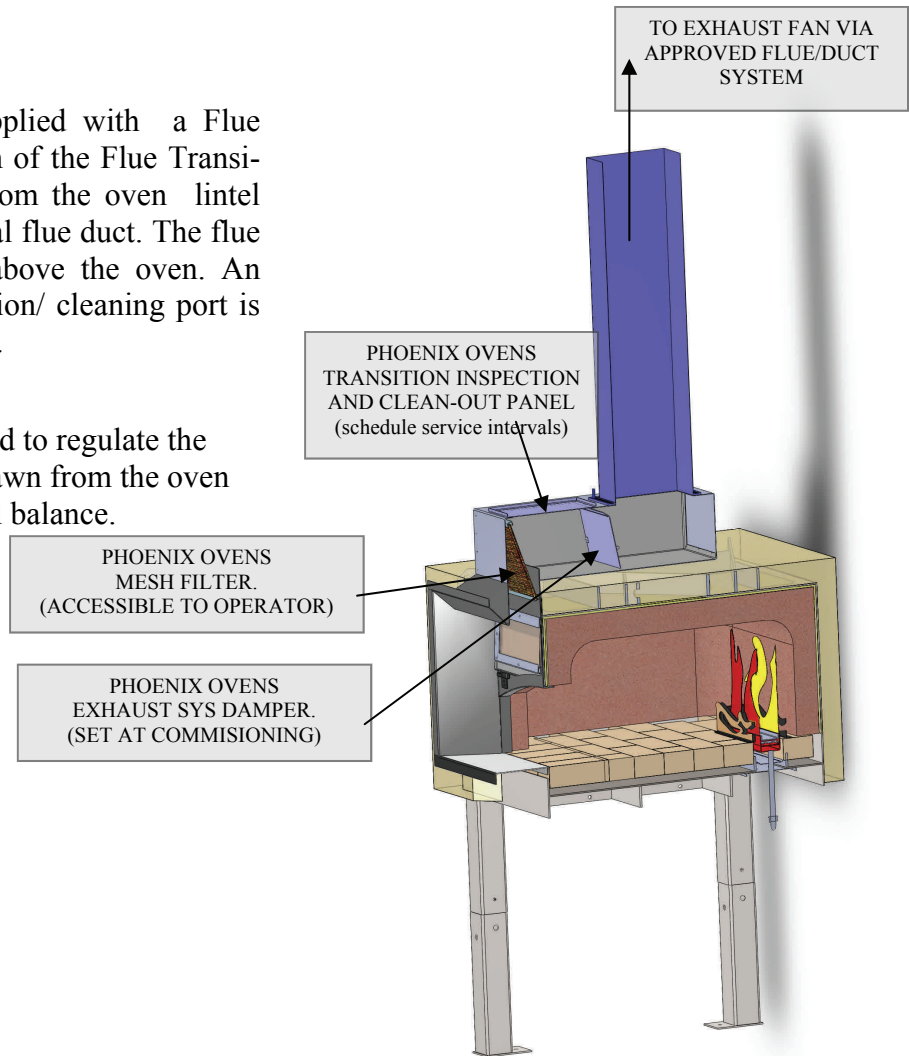
Phoenix Ovens can supply a special spigot for the oven lintel to enhance a canopy operation. There is no transition or filter required. The interlock system is still appropriate for use with canopy systems.



Flue Transition

Most Phoenix Ovens are supplied with a Flue Transition. The main function of the Flue Transition is to form a transition from the oven lintel spigot to a standard commercial flue duct. The flue connection point is directly above the oven. An integrated damper and inspection/ cleaning port is included in the transition piece.

The System Damper is designed to regulate the amount of air allowed to be drawn from the oven to achieve a correct operational balance.



Interlock System -

Phoenix Ovens: Gas System Safety Interlock.

The Phoenix gas system is compliant with all required CE gas directives (EN 60335-1) For additional safety, Phoenix Ovens are fitted with a Power Interlock device that monitors:

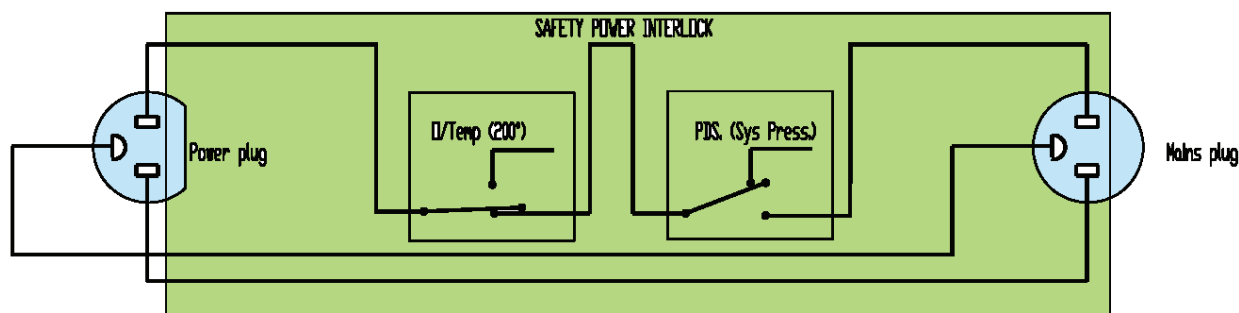
1. The temperature of the exhaust gas entering the flue system.
As this is normally quite cool at $<100^{\circ}\text{C}$ if there is a problem with the system (flue, particle filter or over firing) the temperature in this area will quickly rise and the interlock device will cut the electrical power to the gas control system. This will cause a non-volatile lock out situation where the gas will not re-light until the controls are manually reset. (turned on). The interlock device will automatically reset when the temperature situation is controlled.
2. The pressure difference (PD) inside the supplied exhaust transition.
This insures the fan extraction system is operating at all time that the gas system is active. If the fan fails or PD drops below 60Pa. the interlock will cut the electrical power to the gas control system. This will cause a non-volatile lock out situation where the gas will not re-light until the controls are manually reset. (turned on). The interlock device will automatically reset when the exhaust flue situation is rectified.

The interlock device is a stand alone module that connects to the mains power by std power supply

lead and to the Phoenix Ovens control module by special cables supplied.

This interlock device meets the additional requirements of many national and local authorities.

The interlock module also contains the 230-12V transformer that powers the internal spot light for the oven. This makes the connections to the oven very safe by keeping all 230-240V wires and plugs below the oven and the only power connection above the oven is the 12V spotlight. (High voltage connections above an oven can be very dangerous to service personal and are prone to damage from hot components).



When the interlock device is proved (Exhaust is ON and Temperature SAFE) electrical power is supplied to the control module and there will be lights at the LED display panel on the controller.

If power is interrupted, Exhaust failure or over-temperature, No lights will appear on the LED display.

When the system returns to "Normal" (flue operation and temperature correct) the LED light will turn ON.

The oven can be re-started by pressing the "ON/OFF" button on the control panel.

BUILDING IN

The oven can be surrounded in any form of fire resistant building material including Brick, stainless steel, colorbond (sheetmetal) corrugated iron, Plasterboard or Fibro-Cement.

External temperature would normally be 80-100°F(30-40°C).

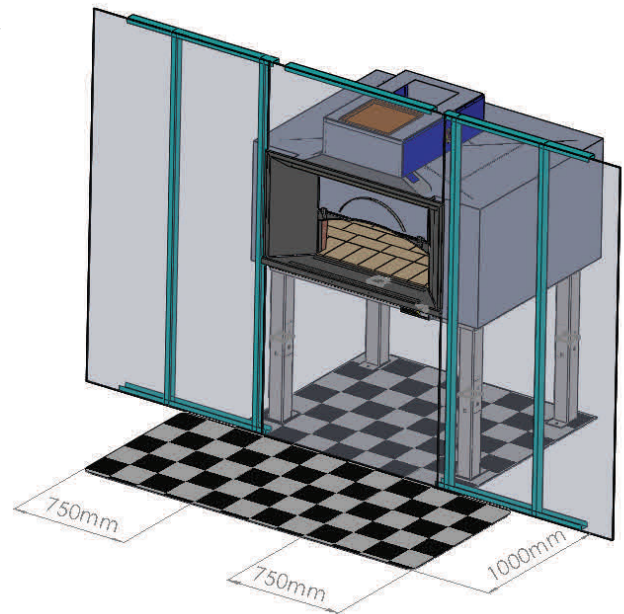
The **minimum** mantle extension areas to be covered with relationship to the door opening of the oven for combustible floors. At least the following areas shall be included:

- 1) 750 mm (30") to each side of the door opening.
- 2) 1000mm (39") in front of the door opening.

In all instances of design and construction it is necessary to allow access for service above and below the oven.

1. Above the oven for flue maintenance and scheduled clean outs.
2. Below the oven for gas system servicing.

It is important to allow some ventilation to the below oven area for proper gas system function. Ventilation should come from the area of the room that the oven is operating. (ventilation through a side or rear wall from other room is not acceptable)



Access for technician should be min. 650X500mm.

Ventilation area required min. 0.01M² (usually area below hearth is hidden and open to air flow).

IMPORTANT:

An air gap of 25mm (1") is to be provided external of the oven and 50mm (2") of "superwool" insulation.

The air gap above the oven should be 14" (350mm) clearance to combustibles from the top.

Where the façade meets the oven at the door way, non combustible material should be used.

GAS SYSTEM OVERVIEW

SYSTEM OVERVIEW

The Phoenix Oven uses a “double row” ribbon flame burner to heat the oven. The gas supply to the burner is controlled by SIT (Italy) components and flame management system (Gas valve “845—Sigma”. Flame Management “DBC—579”).

The temperature control interface is proprietary to Phoenix Ovens and allows simple setting of oven temperature and over temperature cut off. The system controls the oven temperature by modulating the flame to maintain a constant oven temperature.

SYSTEM SPECIFICATIONS

The thermal input of the gas system is adjustable according to oven size between 60 Mega Joules' (57,000 BTU's) and 130 Mega Joules' (123,000BTU's) . These inputs are dependent upon the gas pressure and jet/orifice sizes as detailed in the specification sheet. The burner is controlled by a system that monitors the oven temperature by a sensor (thermocouple) located in the oven floor, which is connected to a digital temperature controller which in turn signals to the Flame Management Pack (DBC 579) which will drive the Combination Gas Valve (845-Sigma).

A high voltage spark energized from the Flame Pack, (DBC 579) (which also controls the Flame Failure System), ignites the burner. This Flame Pack will also immediately close the main valve (Combination Gas Valve.) in the event of a fault causing flame failure. (No gas will flow) The igniter assembly includes 3 probes. 1 for flame ignition, 1 for flame sensing and 1 for earthing. When the pre-determined temperature “set point”(SV) is reached, the gas supply to the burner is reduced towards 'low flame' until the oven temperature begins to drop below the 'set point'(SV). It will then go towards 'hi flame' keeping the oven at the desired temperature.

The equipment is fully adjustable for use with Natural gas or Propane Gas. Conversion between the 2 gases is achieved by changing the changing jet/orifice sizes and The Phoenix Oven controller needs to be re-programmed or replaced to make necessary adjustments for the different gas pressures. See more information on the specification sheet supplied in this manual. **All work required for conversion must be carried out by approved persons and comply with all local codes and regulations.**

The system is fitted with an emergency manual isolation valve. This is prior to the Main valve (Combination Valve)

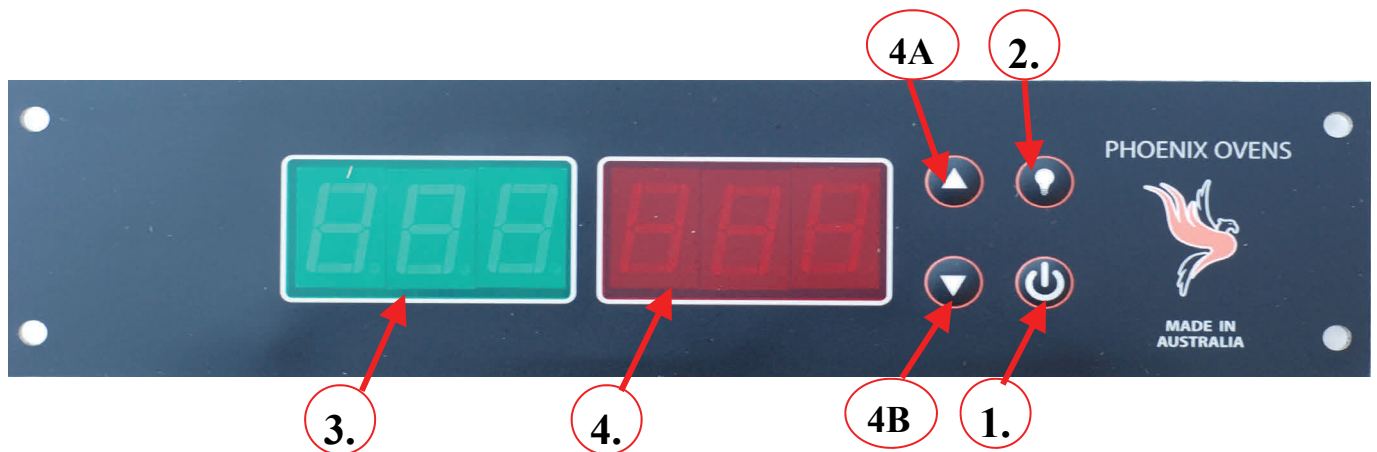
CONTRACTORS RESPONSIBILITY

All equipment comes ready to operate. **Always check for correct set up for local gas supply.** The only requirement is mains electricity 230-240V and a ¾ inch (19mm) supply gas line for final connection. Please ensure gas supply line is sufficiently sized to handle the gas load.

All work required for installation must be carried out by approved persons and comply with all local codes and Regulations in force at time of installation.

OVEN CONTROL COMPONENTS & FUNCTIONS

PHOENIX OVENS CONTROL PANEL



1. **CONTROL BUTTON (ON/OFF) & FLAME FAILURE RESET OPERATION**
2. **OVEN INTERNAL LIGHT (ON/OFF)**
3. **“PV” Present Value OVEN TEMPERATURE (BURNER FAILURE INDICATION CODE.)**
4. **“SV” Set Value OVEN TEMPERATURE (BURNER FAILURE INDICATION CODE.) ADJUST OVEN TEMPERATURE HIGHER BY PRESSING “4A”
ADJUST OVEN TEMPERATURE LOWER BY PRESSING “4B”**

CONTROL FALUTS & INDICATORS

BURNER FAILURE INDICATION CODES

Fault States:

- ▶ 579 DBC Alarm Fault
- ▶ The mains supply relay for the 579 DBC is turned off and the gas modulating valve is turned off. The PV digits are set to “**AL**” (short for ALARM), the SV digits show “**DBC**” and all digits flash on and off.
- ▶ If the Power button is pressed the controller clears the DBC Alarm fault flag and enters the Power Off state.
- ▶ The oven light can be toggled on or off with the light button. (#2.)

THERMOCOUPLE FAULT:

The mains supply relay for the 579 DBC is turned off and the gas modulating valve is turned off. The PV digits are set to “**AL**” (short for ALARM), the SV digits show “**TC**” (Thermocouple abbreviated) and all digits flash on and off.

If the Power button is pressed the controller clears the thermocouple fault flag and enters the Power Off state.

The oven light can be toggled on or off with the light button.(#2.)

Power Outage / Brown Out

In the event of a power outage or brown out condition while the controller is operating, when the power supply resumes the controller will default to the Power Off / Standby state.

CONNECTION OF GAS SYSTEM

IMPORTANT: *This work should be carried out by an approved Gas Technician.*

For the gas system of this oven, air must be able to enter beneath the oven for satisfactory combustion. Ensure primary air is available from beneath the oven.

Confirm with Phoenix Ovens or their distributor that the gas equipment set-up supplied is correct for the type of gas being used.

1. Mount the thermocouple probe (twisted end) into hole near to centre of the underneath side of the oven base. Lightly secure with screw retainer.
2. Connect interlock temperature capillary to top of lintel.
3. Connect interlock PD plastic tube to transition. Keep plastic tube away from hot surfaces and don't allow tight bends or kinks.
4. Connect electrical power leads and spot light wiring to interlock device and control module as per labeled sockets.
5. Check that the exhaust filter is correctly positioned above the oven door inside the flue canopy area.
6. Connect to reticulated gas supply at the 19mm ($\frac{3}{4}$ ") flare fitting to the isolation valve fitted to the oven leg.
7. Connect isolation valve to SIT control using braided $\frac{3}{4}$ " hose supplied.
8. Check all gas / mechanical and electrical connections to all equipment.
9. Ensure burner is located firmly.
10. Check gas flow logic - opening all relevant manual valves.
11. Check the adjustment of the "primary air regulator" on the inspirator connected to the base of the burner. Initial setting should be about half way between fully open and fully closed.
12. After the "warm up period" set out in Commissioning section below, this primary air should be adjusted to achieve clear burning flame in the oven.
 - ▶ On NG it should be blue at the base with light yellow tails,
 - ▶ On Propane, the flame will be mostly light yellow. Deep yellow to orange is NOT correct and will deposit soot on the roof of the oven.

There must be adequate ventilation beneath the oven to feed air to the gas flame.

The gas control system comes fitted with a standard plug for a wall socket. (Always unplug the system while any work or inspection is carried out.)

Test operation of the exhaust flue system. **This must be fully operational before any fire can be ignited inside the oven.** The exhaust is often connected to the oven operation by an interlock system. Check with exhaust installers to be sure of operation procedure.

NOTE: There may be a damper in the flue that may need adjusting. The flue suction should be adjusted to ~600l/s (1300cfm) however it should be sufficient to not allow smoke into the kitchen during normal operation.

Proceed with start up procedure outlined in 'Commissioning'

COMMISSIONING

SYSTEM OPERATION & DESIGN

With the gas, electricity and exhaust system connected as described earlier the oven system can be started simply by pressing the “Control” button (#1).

The **set value** temperature can then be adjusted to control the oven temperature.

FIRST FIRING: If this is the first time that the oven has been fired it is very important to **warm the oven slowly for several days**. If the oven is operated at full power at this time, damage will occur to the refractory lining. The refractory must dry out slowly during the initial warm up.

To control the power of the initial warm up fire, use the isolation tap below the oven to set the flame height to a maximum of 70mm. This setting can be left for the first two days of firing.

SCHEDULE: **Day ONE:** SV setting at 80°C (175°F).
 Day TWO: SV setting at 180°C (350°F).
 Day THREE: SV setting at 250°C (480°F).

After day three recommended operating temperature is approx 275–315°C (525-600°F)

PREHEAT FIRING

This is best done with the gas system as outlined in the COMMISSIONING section. If gas is not available:

USING WOOD

The oven must be preheated to thoroughly warm the oven **without** the purpose of cooking. This is best done by making a fire just as you would build any fire for a bbq.

NOTE: Take care not over fire. If flame spills out of the oven opening, you are over firing.

A small fire is ideal for slow preheating. Normally 2 or 3 logs of timber are sufficient.

The best wood to use is a **HARD, DRY AND DENSE TYPE OF WOOD. DO NOT USE ANY WOOD THAT HAS BEEN PAINTED OR CHEMICALLY TREATED.**

To start the fire, find a flattened cardboard box. Place your larger pieces of hardwood on the outer extremities of the box and place kindling and softwood on the inside with newspaper under the kindling. Light the kindling.

Once the kindling is satisfactorily alight, push the whole lot to the position in the oven (either the side or the back) where you normally locate the fire.

This fire of approximately 16” (400mm) diameter should be kept going for 3 DAYS to thoroughly pre-heat the oven prior to use.

SECTION 2

OVEN OPERATION



OPERATION OF OVEN & COOKING

If you are having any problems, please to call the Phoenix office or the local representative.

The **PHOENIX OVEN** only requires wood for satisfactory operation. Some models have the extra facility of a gas burner for those clients that are looking for a more automated cooking system.

The oven cavity is basically self-cleaning. A brush and scraper can be used to sweep debris and food waster from the floor of the oven. A damp mop can be used to wipe the oven floor area to clear ash debris. **Do Not use a very wet mop** as this will wear and/or damage the mantle surface.

The roof and wall area of the oven is self-cleaning by the oven temperature which should exceed 420°C (790°F) from time to time during warm-up periods. If discoloration or contamination should appear, firing the oven to a **high** temperature for a couple of hours should restore these areas to a clean finish.

FIRING UP TO COOK USING WOOD

As per the preheat guide (p.14):

1. Start a small fire in the mouth of the oven with kindling (placed on folded cardboard) and proceed making the fire with larger timbers.
2. Once you have the large timber eg.100-125mm (4-5") diameters, burning, push the fire to the back or side of the oven.
3. From cold, allow the oven approximately 3 hours to heat up initially. Thereafter, warm up should take about 60 minutes. Using gas can reduce this time.

NOTE: Once the oven has been operated daily, the oven will be hot on arrival in the morning and may take as little as one hour to reheat.

The oven temperature is basically controlled by the size of the fire or the 'set point' of the gas system and the draft up into the flue system.

In all circumstances it is recommended that cooking is not attempted until the oven has reached a temperature of 175°C (350°F).

Optimum temperature for pizzas is approx. 350°C (660°F). If there is no temp gauge installed, once the oven has been preheated and has been heated to cooking temperature the oven will reheat in about one hour. If pizzas do not cook in around five minutes, either the oven is too cool (a larger fire required) or you need to adjust the damper in the flue.

The pizzas should be rotated to suit their cooked condition. The chef soon becomes familiar with the radiated and reflected heat conditions in the oven and moves his pizzas around to suit this. Most restaurants place the dough directly on the brick although they

can be placed on trays for time enough to toast the base a little before placing directly onto the brick. Some chefs choose to leave the pizzas on trays for the whole process. This is a decision for the Executive Chef.

As the timber embers reduce, more timber should be placed on the fire. When there appears to be too much ash, simply drag this out and place in your ash receptacle.

Removing ash should always be done with great care as hot embers may be hidden in the ash.

There is, however, a surprisingly little amount of ash compared to the timber entered and most restaurants only clean out once a day, before start-up.

The gas flame will modulate automatically all day. Note the quantity of ash reduces with the better quality of hard wood used.

GAS OVENS

The gas flame modulates between 'low flame' and 'hi flame' keeping the oven at the desired SV temperature 250-340°C (500-650°F).

Once the oven reaches cooking temperature the pizzas can be placed in the oven with or without trays within 300mm (12") of the fire.

If the gas backup jet does not appear to be firing, it may indicate there is sufficient heat from the fire to satisfy the thermostat not to fire the burner.

FINISHING FOR THE DAY

When you have finished for the day, simply turn off the gas at the switch and if you wish, spread the coals. This is not always necessary.

Any size fire can be left burning safely. Some owners put another log on to keep the oven hot. It is safe to leave the fire burning and the gas switched on or off.

The exhaust should be left running for sometime after the oven is switched off to remove excess heat and any exhaust gases still being produced.

The oven required very limited maintenance and comes with a four (4) year structural warranty on the body of the oven. The gas equipment, where installed, comes with a one (1) year warrantee.

Contact Phoenix Ovens should you require the services of an experienced wood fired oven chef for training purposes. Training sessions and all other professional services are charged at standard industry rates.

REGULAR FLUE MAINTENANCE

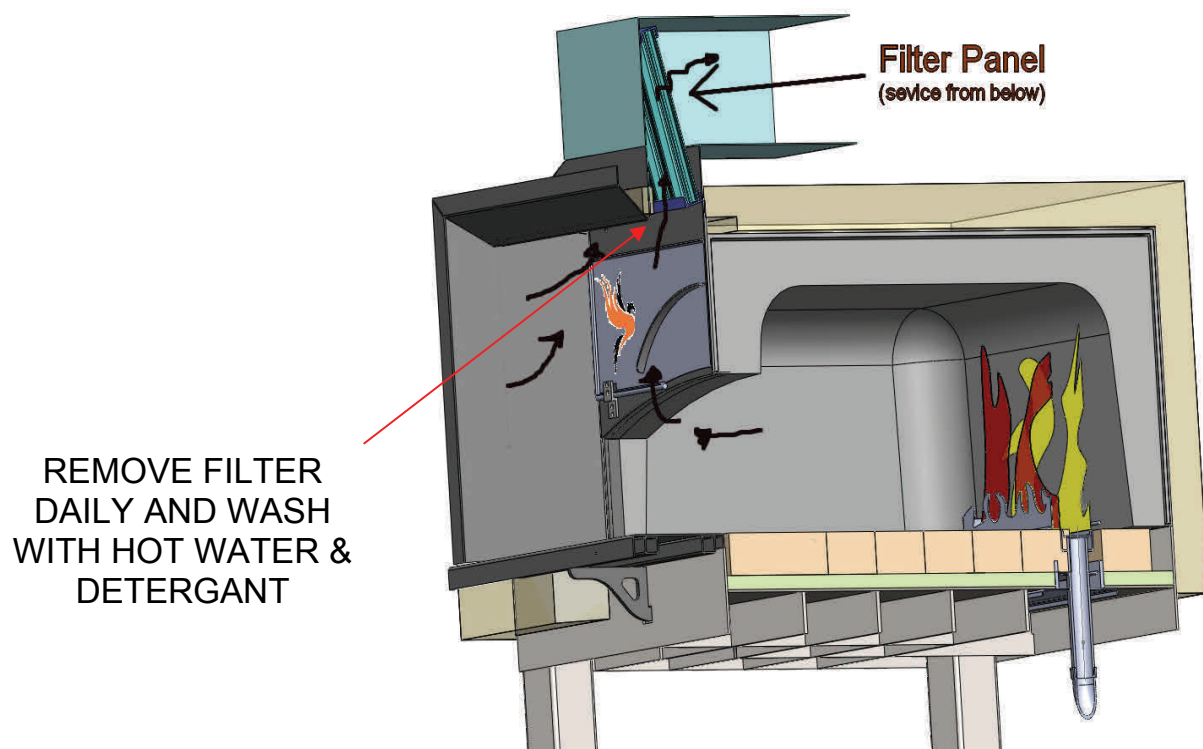
IMPORTANT

IT IS CRITICAL THAT THE FLUE BE CLEANED ON A THREE MONTHLY BASIS TO REDUCE THE DANGER OF FLUE FIRE CAUSED BY THE BUILD UP OF SOOT AND FAT IN THE FLUE.

WITH EXPERIENCE YOU WILL BE ABLE TO CUSTOMIZE A SCHEDULE TO SUIT YOUR PARTICULAR REQUIREMENTS. INITIALLY THREE MONTHLY INSPECTIONS ARE RECOMMENDED. CONTACT PHOENIX OVENS IF YOU REQUIRE MORE INFORMATION ON THIS MATTER.

NOTE: PLEASE NOTE EXHAUST FLUE NEEDS TO BE CLEANED AT THREE MONTHLY INTERVALS

- THE PHOENIX OVEN IS DESIGNED TO REDUCE THE RISK OF FIRE IN THE FLUE SYSTEM.
- **THERE IS A PARTICULATE FILTER JUST ABOVE THE DOOR/MOUTH OF THE OVEN. THIS FILTER IS VERY EASY TO SERVICE. REMOVAL AND WASHING CAN BE A DAILY TASK.** (SEE BELOW)
- THE AREA BETWEEN THE DOOR/MOUTH AND SPIGOT FILTER ALSO REQUIRES REGULAR CLEANING.
- THESE TWO FEATURES OFFER AN EXCLUSIVE “BREAK” BETWEEN THE OVEN CAVITY AND THE FLUE SYSTEM.
- BECAUSE OF THIS “BREAK” THE AIR ENTERING THE EXHAUST IS MUCH COOLER THAN OTHER STONE HEARTH OVENS .



SECTION 3

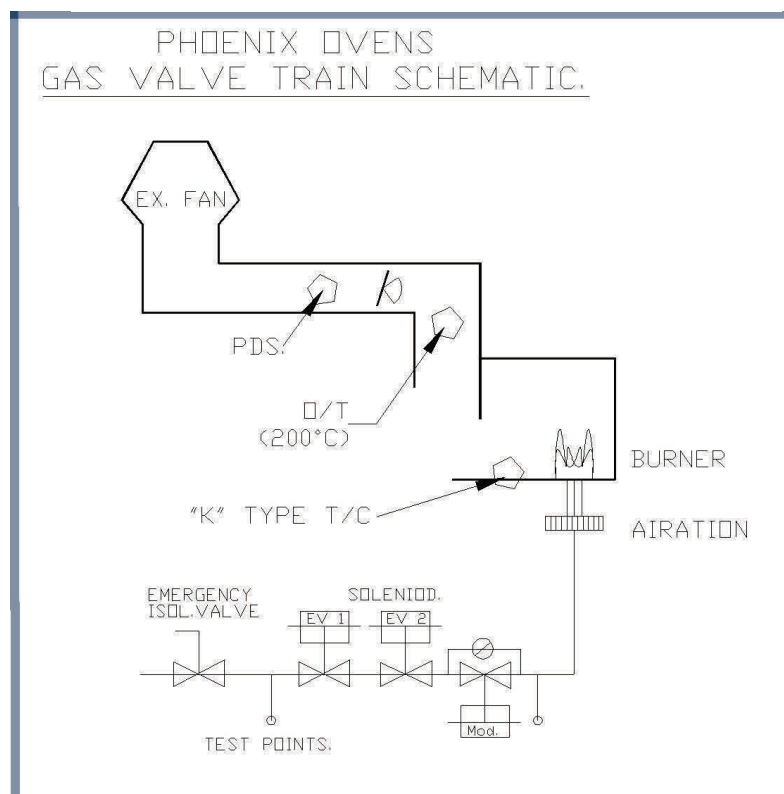
TECHNICAL REFERENCE



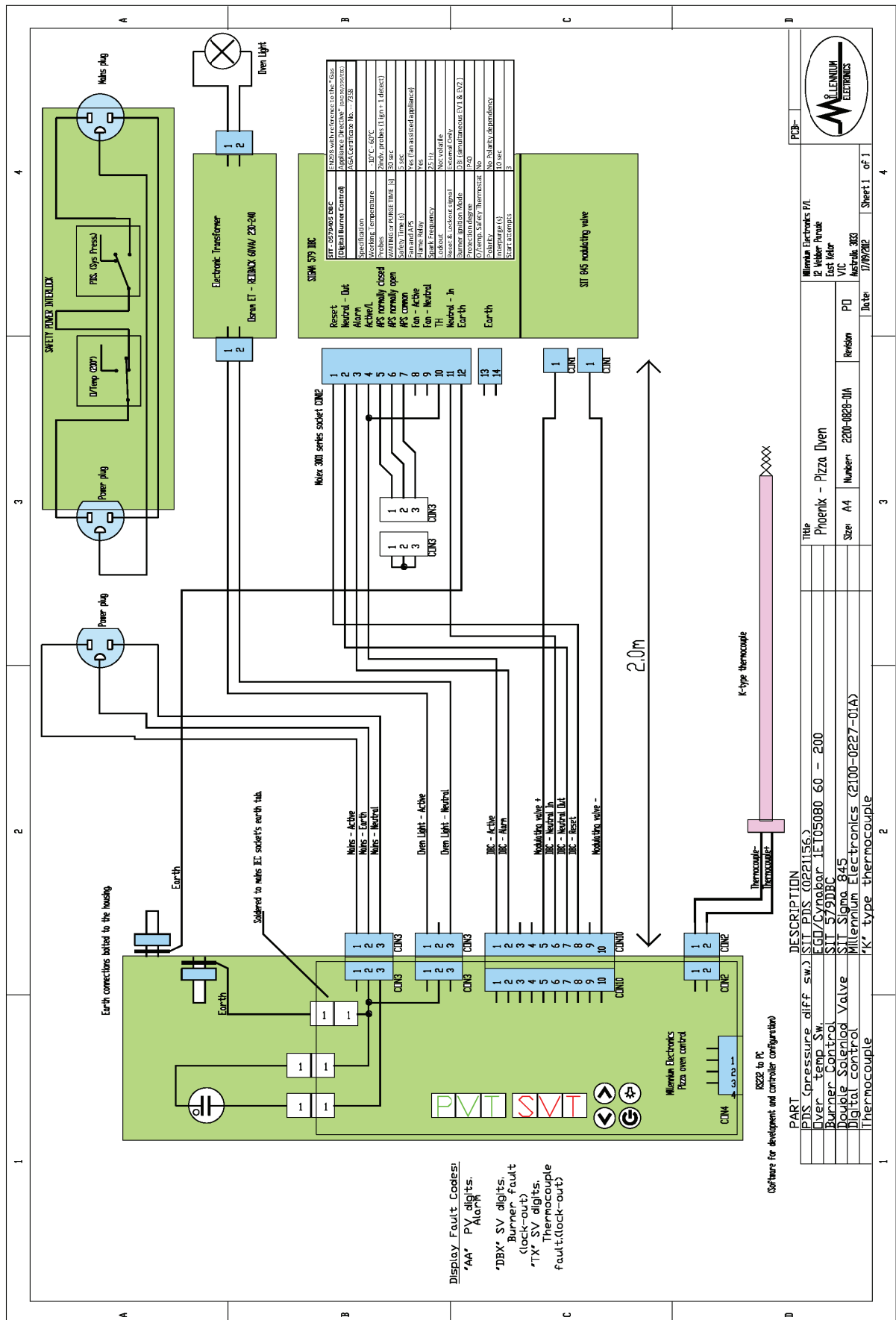
OVEN MATERIALS

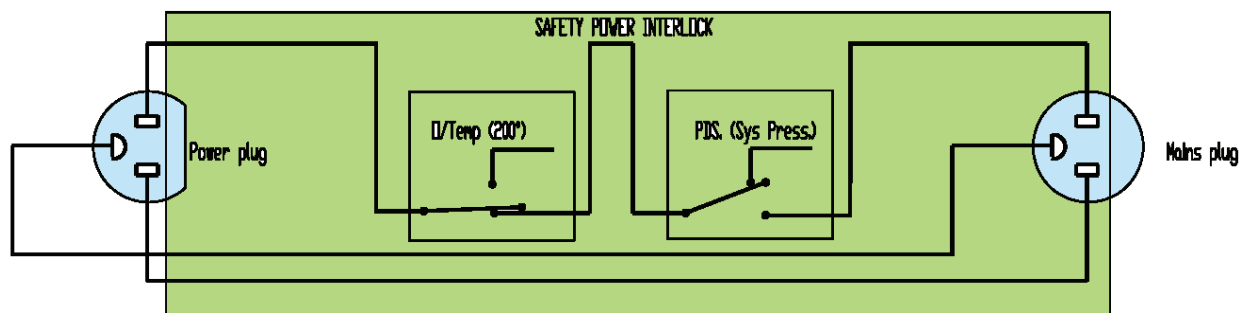
- ▶ The oven casing is mild steel with some stainless steel anchors.
- ▶ The oven legs are galvanized.
- ▶ The oven lintol & mantle are typically stainless steel.
- ▶ The gas system components standard industrial components (various non-ferrous metals) and standard electrical components.
- ▶ The upper oven cavity is "high temperature castable" with ceramic wool (KA) insulation between the steel shell and castable.
- ▶ The outer shell of the oven is covered with 50mm of ceramic (Bio Sol) wool insulation.
- ▶ The oven base is high alumina clay brick with ceramic board insulation to the steel housing.
- ▶ Any glass item that might be incorporated is ceramic glass (5mm NEOCERAM Glass).
- ▶ All of the oven materials are safe to handle providing they are not hot. Use suitable protection for dust and air-born inhalant material.
- ▶ Disposal of any materials should be confirmed with a local authority as to type of disposal method suitable. Debris in the flue is soot. (Creosote, carbon and ash from the cooking oven.)
- ▶ The remains of the wood fire should be handled with care. The ash left in the oven may be hot and it will be dusty. Handle with care.
- ▶ It is recommended to store ash in a sealed container where the ash can be dampened and stored until final disposal is arranged.

PHOENIX OVENS: GAS TRAIN SCHEMATIC



PHOENIX OVENS ELECTRICAL SCHEMATIC





Phoenix Ovens: Gas System Safety Interlock.

The Phoenix gas system is compliant with all required CE gas directives (EN 60335-1) For additional safety, Phoenix Ovens are fitted with a Power Interlock device that monitors:

1. The temperature of the exhaust gas entering the flue system.
As this is normally quite cool at <100°C if there is a problem with the system (flue, particle filter or over firing) the temperature in this area will quickly rise and the interlock device will cut the electrical power to the gas control system. This will cause a non-volatile lock out situation where the gas will not re-light until the controls are manually reset. (turned on). The interlock device will automatically reset when the temperature situation is controlled.
2. The pressure difference (PD) inside the supplied exhaust transition.
This insures the fan extraction system is operating at all time that the gas system is active. If the fan fails or PD drops below 60Pa. the interlock will cut the electrical power to the gas control system. This will cause a non-volatile lock out situation where the gas will not re-light until the controls are manually reset. (turned on). The interlock device will automatically reset when the exhaust flue situation is rectified.

The interlock device is a stand alone module that connects to the mains power by std power supply lead and to the Phoenix Ovens control module by special cables supplied.

This interlock device meets the additional requirements of many national and local authorities.

The interlock module also contains the 230-12V transformer that powers the internal spot light for the oven. This makes the connections to the oven very safe by keeping all 230-240V wires and plugs below the oven and the only power connection above the oven is the 12V spotlight. (High voltage connections above an oven can be very dangerous to service personal and are prone to damage from hot components).

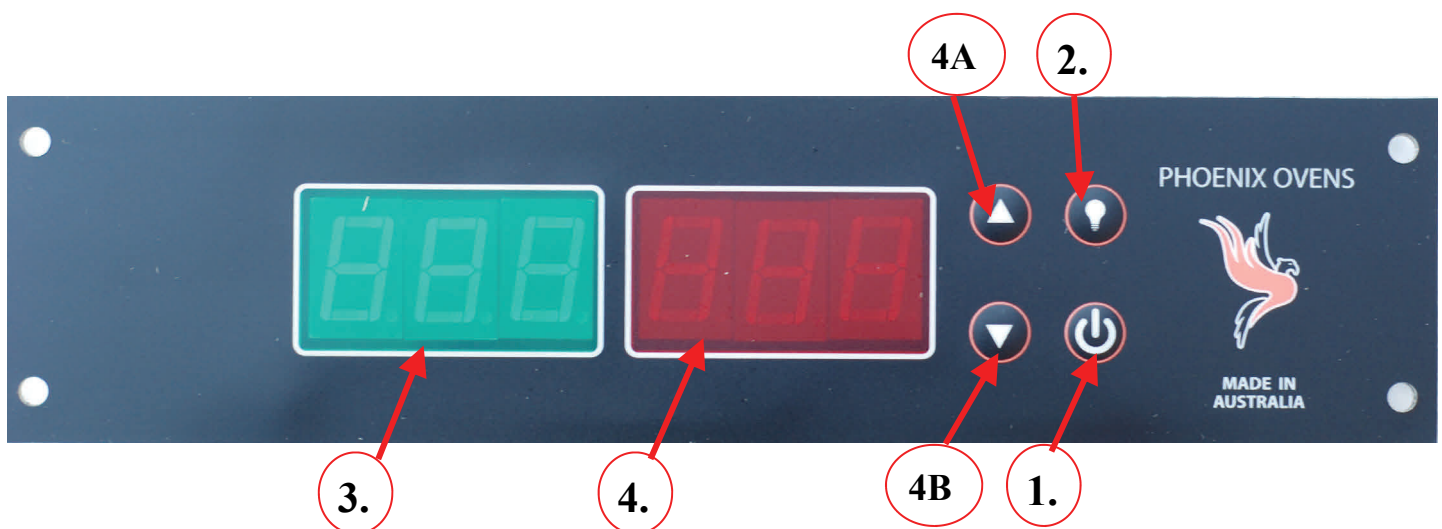
IF YOU SMELL GAS IN THE VICININTY OF THIS OVEN TURN OFF THE KITCHEN GAS SUPPLY AT THE MAIN ISOLATION VALVE (SAFETY STOP) AND HAVE A LISCENCED GAS TECHNICIAN INVESTIGATE THE CAUSE.

IN CASE OF NO POWER (NO LIGHTS) ON THE CONTROL PANEL, THE GAS SYSTEM IS INTERLOCKED TO THE OPERATION AND TEMPERATURE OF THE EXHAUST SYSTEM. (AS1556)

CHECK THE EXHAUST FAN OPERATION. (main switch in rear of kitchen)
CHECK THE EXHAUST FILTER. (blockage of the filter will cause exhaust to overheat) SEE REAR OF SHEET FOR FILTER INSTRUCTION.

The system will need to be manually restarted/reset by pushing control button (1.) when power is restored.

OVERVIEW OF OVEN CONTROL COMPONENTS & FUNCTIONS:



- 1. CONTROL BUTTON (ON/OFF) & FLAME FAILURE RESET OPERATION**
- 2. OVEN INTERNAL LIGHT. (ON/OFF)**
- 3. “PV” Present Value OVEN TEMPERATURE. (BURNER FAILURE INDICATION CODE.)**
- 4. “SV” Set Value OVEN TEMPERATURE. (BURNER FAILURE INDICATION CODE.)**

ADJUST OVEN TEMPERATURE HIGHER BY PRESSING “4A”

ADJUST OVEN TEMPERATURE LOWER BY PRESSING “4B”

The gas burner will take 90secs to ignite after turning on (1.)

The system will automatically attempt three (3) ignitions before shutoff. (Reset required)

REGULAR FLUE MAINTENANCE

IT IS CRITICAL THAT THE FLUE BE CLEANED OUT ON A THREE MONTHLY BASIS TO REDUCE THE DANGER OF FLUE FIRE CAUSED BY THE BUILD UP OF SOOT AND FAT IN THE FLUE.

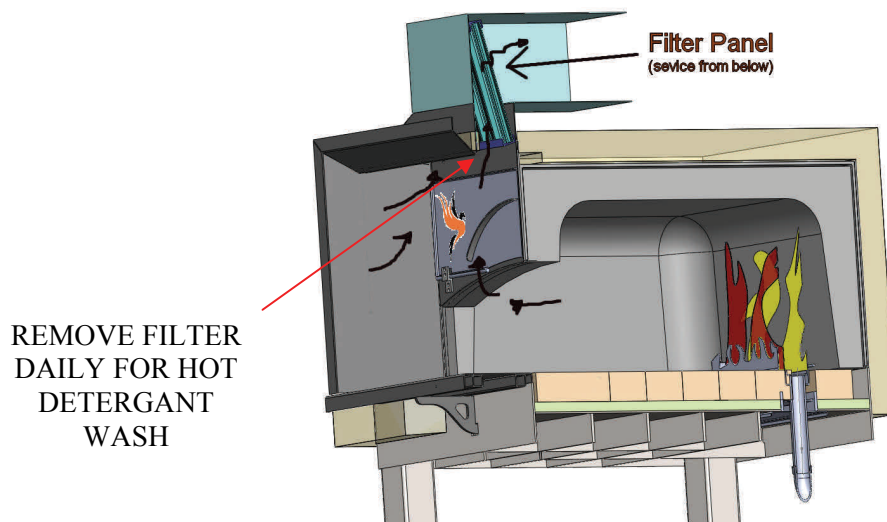
WITH EXPERIENCE YOU WILL BE ABLE TO CUSTOMIZE A SCHEDULE TO SUIT YOUR PARTICULAR REQUIREMENTS.

INITIALLY THREE MONTHLY INSPECTIONS ARE RECOMMENDED.

CONTACT THIS OFFICE IF YOU REQUIRE MORE INFORMATION ON THIS MATTER.

NOTE: PLEASE NOTE EXHAUST FLUE NEEDS TO BE CLEANED AT THREE MONTHLY INTERVALS

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WARRANTY CERTIFICATE

Limited 4 Year Structural Warranty

Property/Project Name:
Date of Purchase:
Installation Contractor:
Phoenix Model No:

Thank you for choosing a Phoenix Oven. The body of the product is warranted by the manufacturer against structural failure and defects in workmanship for a period of four (4) years from the date of purchase, provided the recommended installation procedures have been followed.

In the event of product failure due to defective material or manufacturer workmanship within the four (4) year period, the part may be replaced or corrective action may be taken to repair the product (at the manufacturer's discretion) at no charge to the customer.

The manufacturer will not be responsible for any charges or damages incurred in the removal of the defective parts for repair, or the reinstallation of those parts following repair. This warranty shall be considered void if damage to the product(s) was due to improper installation or use, connection to an improper electrical or gas source, tampering, or if damage was caused by electrical power surge or lightning, wind, fire, flood, insects or any other natural agent.

Gas Systems & Components - Limited 12 Month Warranty

The gas system and control panel of the product is warranted by the manufacturer against defects in workmanship for a period of four (1) year from the date of purchase, provided the recommended installation procedures have been followed.

In the event of product failure due to defective material or manufacturer workmanship within the one (1) year period, the accessory may be repaired or replaced (at the manufacturer's discretion) at no charge to the customer.

The manufacturer will not be responsible for any charges or damages incurred in the removal of the defective parts for repair, or the reinstallation of those parts following repair. This warranty shall be considered void if damage to the product(s) was due to improper installation or use, connection to an improper electrical or gas source, tampering, or if damage was caused by electrical power surge or lightning, wind, fire, flood, insects or any other natural agent.

This warranty is in lieu of all other warranties, expressed or implied.

PHOENIX OVENS PTY LTD (ABN 81 150 166 439)
PO BOX 1258 SPRING HILL, BRISBANE, QLD, AUSTRALIA 4006
EMAIL: technical@phoenixovens.com or call +61 458 772 253

ECFIA General MSDS

ECFIA GENERIC MSDS

HIGH TEMPERATURE INSULATION WOOLS

31 01 00

According to 91/155/CEE

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1 . . . IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

. . . Identification of the product

XYZ (commercial name) contains :

CALCIUM-MAGNESIUM-SILICATE (CMS) WOOL

. . . Identification of the company

Identify (name, address, tel, fax):

- The local supplier (could be the sales office dealing with the particular customer)
- The HSE Department at the head office
- An emergency telephone number (optional)

2 . . . COMPOSITION/ INFORMATION ON INGREDIENTS

. . . Description

Ex : XYZ is a needled blanket.

. . . Composition

CALCIUM-MAGNESIUM-SILICATE (CMS) WOOL

(SiO₂ = 60% - 70%; alkali earth oxides [CaO, MgO] = 25% - 40%; ZrO₂ < 10%)

. . . OTHER INGREDIENTS

Eventually report hazard information for other substances in the product if: - the substance is on the list of dangerous substances - the substance is subject to an occupational exposure limit - you wish to draw the attention on a particular substance

This product is made of minerals, none of which is radioactive under the terms of European Directive Euratom 96/29.

In use this product can become contaminated with other materials and working practices should take into account the presence of such contaminants.

3 . . . HAZARD IDENTIFICATION

May cause mild mechanical irritation to skin, eyes and upper respiratory tract.

4 . . . FIRST AID MEASURES

Skin : In case skin irritation rinse affected areas with water and wash gently.

Eyes : In case of serious eye contact flush abundantly with water; have eye bath available.

5 . . . FIRE FIGHTING MEASURES

Non combustible products.

Use extinguishing media appropriate to the surrounding fire.

6 . . . ACCIDENTAL RELEASE MEASURES

Avoid creating dust. Provide workers with respirators if necessary (see section 8). Follow routine housekeeping procedures. Where possible, use a HEPA vacuum to clean up the spilled material. If sweeping is necessary, use a dust suppressant and place materials in closed containers. Do not use compressed air for clean-up. Avoid clean up procedures that could result in water pollution.

7 . . . HANDLING AND STORAGE

Adapt your work practices to limit handling which can be a source of dust emission.

Avoid damaging the packaging and keep closed when not in use.

8 . . . EXPOSURE CONTROL / PERSONAL PROTECTION

. . . Hygiene standards and exposure limits

Industrial hygiene standards and occupational exposure limits vary between countries and local jurisdictions. Check which exposure levels apply to your facility. If no regulatory dust or other standards apply, a qualified industrial hygienist can assist with a specific workplace evaluation including recommendations for respiratory protection. Examples of exposure limits applying (in October 1999) to glass fibers in different countries are given below :

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Germany

0.5 f/ml

TRGS 900, Bundesarbeitsblatt 4/1999

France

1.0 f/ml or 5mg/m³

Circulaire DRT No 95-4 du 12.01.95

UK

2.0 f/ml or 5mg/m³

HSE - EH40 - Maximum Exposure Limit

** Time weighted average numerical concentrations of airborne respirable fibers measured by the conventional membrane filter method or gravimetric concentration of inhalable dust.*

. . . Engineering controls

Review your applications in order to identify potential sources of dust exposure. Local exhaust ventilation, dust collection at source, down draft tables, emission controlling tools and materials handling equipment can all be used to control dust generation and dispersion.

. . . Personal protective equipment

Wear long-sleeved, loose-fitting clothing and gloves to prevent skin irritation.

Goggles or safety glasses with side shields may be worn to prevent eye irritation, especially in case of over head working.

When it is not possible to reduce dust through engineering controls, employees are encouraged to use good working practices together with respiratory protective equipment (RPE). For dust concentrations below the exposure limit value, RPE is not required but FFP2 respirators may be used on a voluntary basis. For short term operations where exposures above the limit value are less than a factor of ten, use FFP2 respirators. In case of higher concentrations, please contact your supplier for advice.

. . . Information and training of workers

Workers should be trained on good working practices and informed on applicable local regulations.

9 . . . PHYSICAL AND CHEMICAL PROPERTIES

Odor

None

Melting point

> 1330°C

Flammability

None

Explosive properties

None

Length weighted geometric mean diameter

> 1.5 µm

10 . . . STABILITY AND REACTIVITY

Upon heating above 900°C for sustained periods, this amorphous material begins to transform to mixtures of crystalline phases. For further information please refer to section 16.

11 . . . TOXICOLOGICAL INFORMATION

. . . Irritant properties

When tested using approved methods (Directive 67/548/EEC, Annex 5, Method B4), fibers contained in this material give negative results. All man-made mineral fibers, like some natural fibers, can produce a mild irritation resulting in itching or rarely, in some sensitive individuals, in a slight reddening. Unlike other irritant reactions this is not the result of allergy or chemical skin damage but is caused by mechanical effects.

. . . Respiratory toxicity

CMS wools have been tested for their biopersistence using methods devised by the European Union. The biopersistence values measured exonerate CMS wools from carcinogen classification under the criteria listed in nota Q of Directive 97/69/EC.

Subchronic inhalation studies on rats with CMS wools at high concentration (150 f>20µm/ml) for 90 days with follow up to one year showed neither sustained inflammation nor cell proliferation. All parameters studied returned rapidly to baseline levels on cessation of exposure.

In a lifetime carcinogenicity test, rats were exposed by inhalation for two years (5 days a week, 6 hours a day) to CMS wool at 200 WHO f/ml. There was neither fibrosis nor carcinogenic response.

After service, CMS wools can contain various crystalline phases including some forms of silica (see section 16).

CMS samples kept at 1000°C for two weeks were not cytotoxic to macrophage-like cells at concentration up to 320µg/cm². In the same test, samples of pure crystalline quartz were significantly active at 20 µg/cm².

12 . . . ECOLOGICAL INFORMATION

No adverse effects of this material on the environment are anticipated.

13 . . . DISPOSAL CONSIDERATIONS

Waste from this product is not classified as "hazardous" or "special" under European Union regulations. Disposal is permitted at landfills licensed for industrial waste. Check for local regulations which may apply. To prevent materials becoming airborne, a covered container or plastic bagging is recommended.

14 . . .TRANSPORT INFORMATION

Not classified as dangerous goods under relevant international transport regulations.

Ensure that dust is not wind blown during transport.

15 . . .REGULATORY INFORMATION

. . . Classification among dangerous substances

Regulatory status comes from European Directive 97/69/EC and its implementations by the Member States.

According to Directive 97/69/EC the fiber contained in this product is a mineral wool belonging to the group of "man-made vitreous (silicate) fibers with random orientation with alkaline oxide and alkali earth oxide ($\text{Na}_2\text{O}+\text{K}_2\text{O}+\text{CaO}+\text{MgO}+\text{BaO}$) content greater than 18% by weight".

Under Directive 97/69/EC all types of man-made vitreous (silicate) fibers are classified as "irritant" despite the fact that testing by the appropriate EU method (B4 in annex 5 of Directive 67/548/EEC) is providing no response and would not result in irritant classification.

Under criteria listed in nota Q of Directive 97/69/EC, CMS wools are exonerated from carcinogen classification because of low pulmonary biopersistence.

. . . Protection of workers

Shall be in accordance with several European Directives and their implementations by the Member States:

(a) Council Directive 80/1107/EEC as amended by Directive 88/642/EEC " on the protection of workers from the risks related to exposure to chemical, physical and biological agents at work ".

(b) Council Directive 89/391/EEC "on the introduction of measures to encourage improvements in the safety and health of workers at work".

(c) Council Directive 98/24/EC "on the protection of workers from the risks related to chemical agents at work".

. . . Other possible regulations

Member States are in charge of implementing European Directives into their own national regulation within a period of time normally given in the Directive. Member States may impose more stringent requirements. Please always refer to any applicable regulation.

16 . . . OTHER INFORMATION

. . . Useful References

Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress for the 23rd time Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances. Official Journal of the European Communities, 13 December 1997, L 343 and any Member State implementation. Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work. Official Journal of the European Communities, 5 May 1998, and any Member State implementation.

. . . Precautionary measures to be taken after service and upon removal

Because high concentrations of fibres and other dusts may be generated when after-service products are mechanically disturbed during operations such as wrecking, ECFIA recommends:

- a) control measures are taken to reduce dust emissions and
- b) all personnel directly involved wear an adapted respirator to minimize exposure and comply with local regulatory limits.

These procedures will ensure compliance with local regulatory exposure standards for free crystalline silica. And because devitrified fibers containing silica mixed with amorphous and other crystalline phases are far less biologically active than free crystalline silica dusts, these measures will provide a high degree of protection

. . . . ECFIA Web Site

For more information connect to the ECFIA web site: www.ecfia.org

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