



# 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@phoenixfocus.com.au](mailto:technical@phoenixfocus.com.au) or technical director, Mr. Greg Thomson via email: [greg@phoenixfocus.com.au](mailto:greg@phoenixfocus.com.au)

**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.

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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. The following suggested statement can be posted 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.)

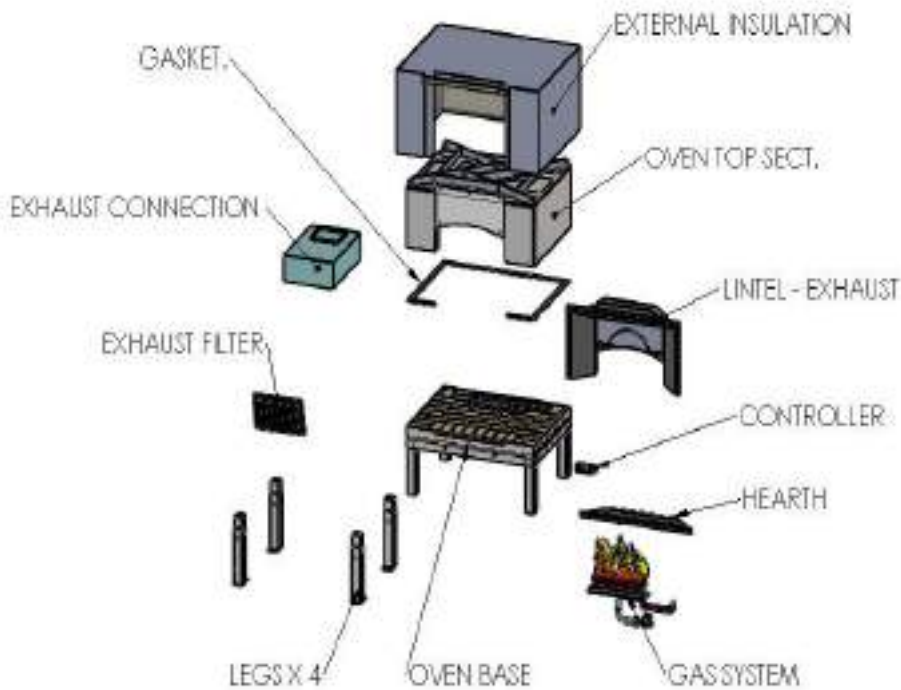


# EQUIPMENT REQUIRED

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 – 2200lbs.) 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.

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.

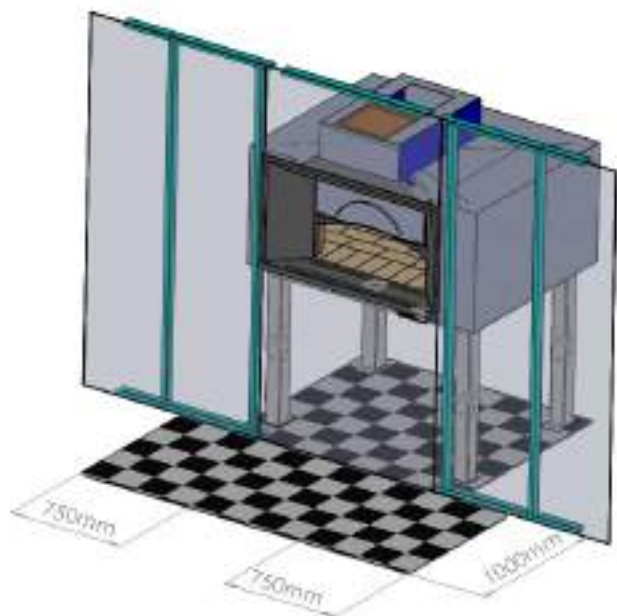
**STAIRS:** There must be sufficient width to install the 'A' frame to move the halves up the stairs. If there are too many stairs or the corridor has corners that are too sharp, or the opening is narrower than 2'6" (700mm), the oven cannot be installed without modifications to the building.

**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) 1000 mm (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.

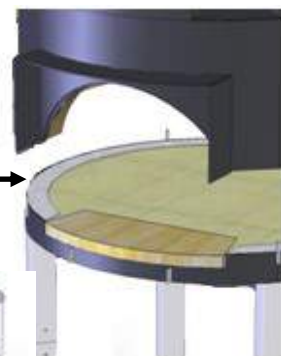
## INSTALLATION PROCESS:

1. Take the Oven to the site. Remove base from the pallets. **Do not remove plywood from top of base. This holds the 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.

Do NOT remove clamps or Plywood from base until ready for assembly with top



WOOL STRIPS



## 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 "Kaogrip" 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.

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 advises 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**)

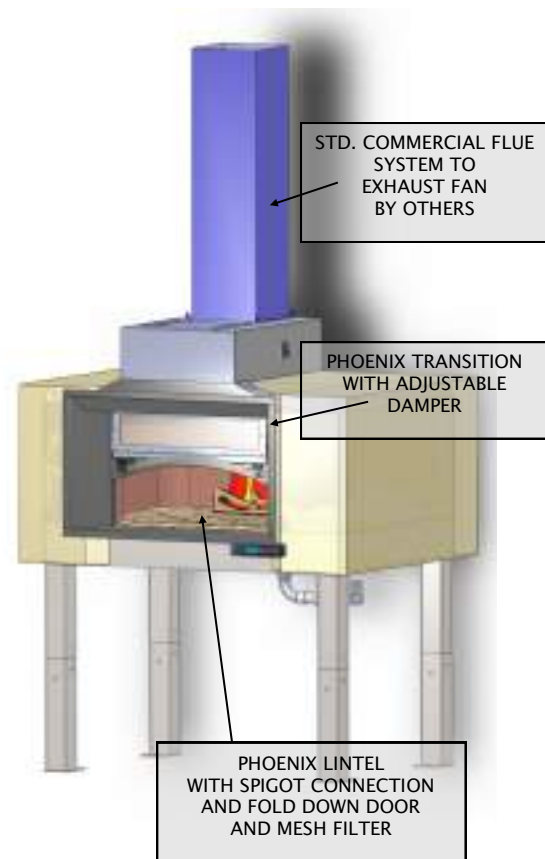
Maximum total flue airflow – 700 litres / second for a single opening.

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

Air flow for canopy method of extraction should be compliant to the canopy manufactures recommendations consistent with canopy size and filter design.

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.*

### Method 1: Direct Connection Flue Systems

#### Use of dedicated Flue & Exhaust Fan (power flue)

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.

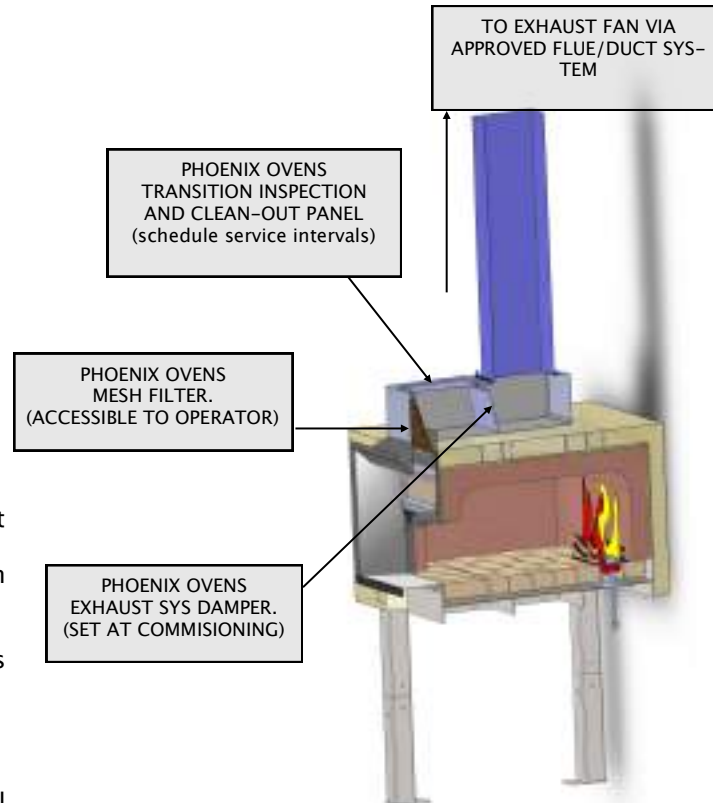
**Fan Selection:** Should be made by the exhaust design team to supply correct specification to the system, accounting for size, length, height etc. (Biflacted air cooling vents are recommended on most designs)

### 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.



### Flue Transition

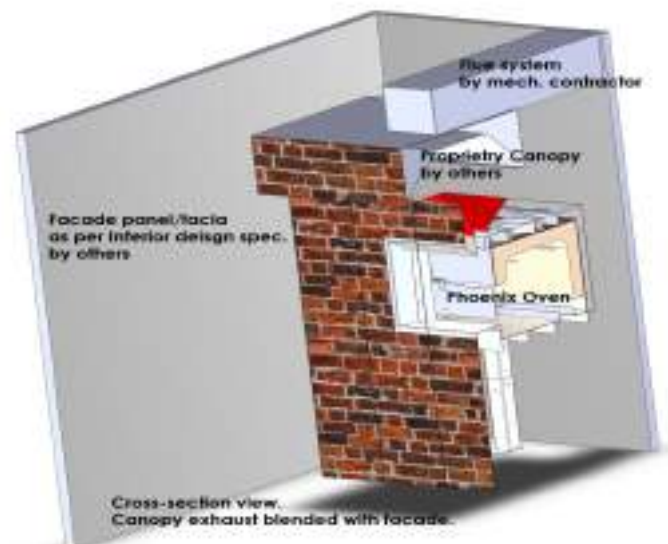
Most Phoenix Ovens are supplied with a Flue Transition.

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.



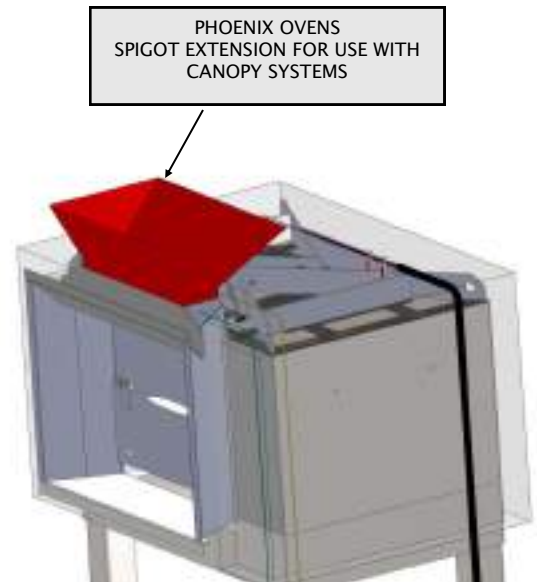
### Method 3: Canopy Method

By using a standard 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 I.D. requirements.

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

Phoenix 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.

Canopy maintenance and service is std. Procedure in all commercial kitchens. Canopy specifications vary by make and model. Generally canopy should extend 250mm each side of door and 300mm forward. The canopy can be blended into the architecture or be stand alone. Phoenix Ovens can supply "funnelled" spigot extension to increase the canopy performance at the oven door.



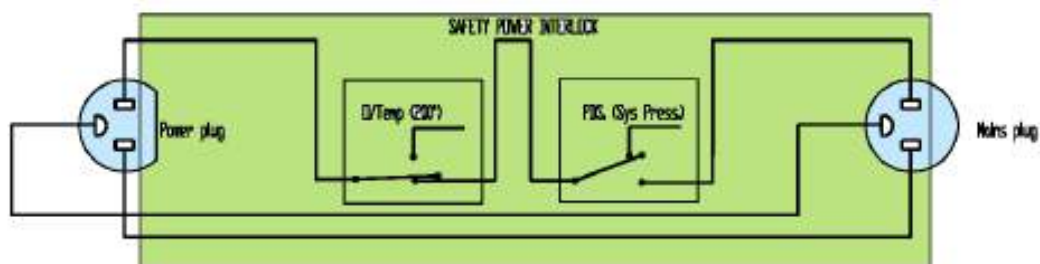
### Interlock System: Gas System Safety

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 standard power supply lead and to the Phoenix 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).



# BUILDING IN

The oven can be surrounded in any form of fire resistant building material including Brick, stainless steel, colorbond (sheet metal) 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 panels for service both above and below the oven.**

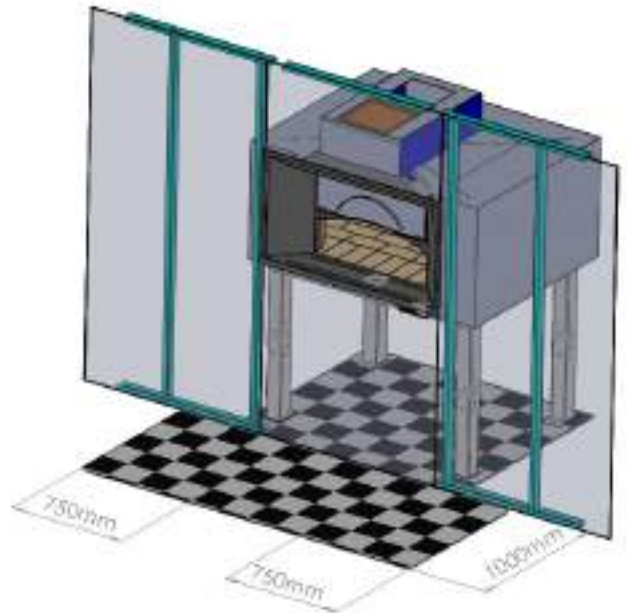
1. Above the oven for flue maintenance and scheduled clean outs.
2. Below the oven for gas system servicing.

Access for technician should be min. 600mm X 600mm.

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).

Ventilation area required min. 0.01M<sup>2</sup> (usually area below hearth is hidden and open to air flow).

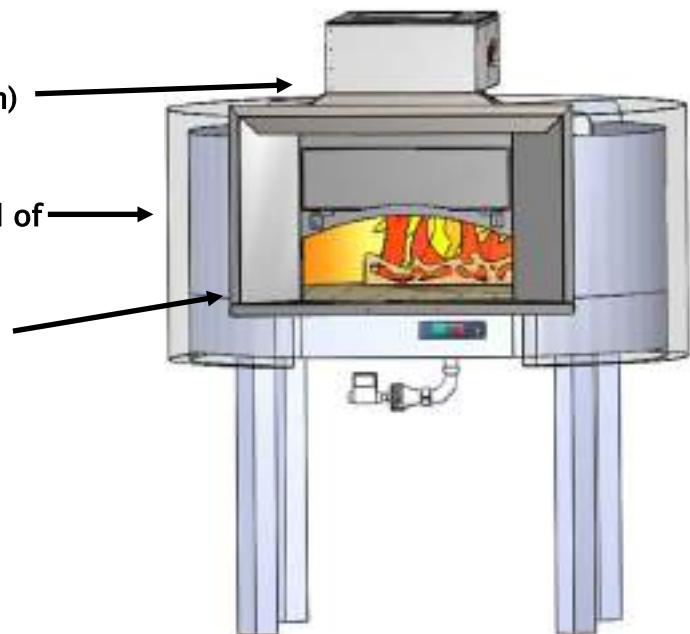


## **IMPORTANT!**

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

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

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



# GAS 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  $\frac{3}{4}$  inch (19mm) supply gas line for final connection.

Please ensure gas supply line is sufficiently sized to handle the gas load.

NOTE:           Maximum supply pressure : Nat Gas; 6.0kPa   LPG/Propane; 6.0kPa  
                  Working pressure                       : Nat Gas; 1.0kPa   LPG/Propane; 2.75kPa

***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



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)
  - ▶ Allow Five (5) minutes before RESET attempt

# CONTROL FALUTS & INDICATORS

## BURNER FAILURE INDICATION CODES

### AL DBC = 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.)

### AL TC = 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 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 center 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.



# INSTALLATION CHECKLIST

When the initial installation is complete, please read through the following checklist to make sure the oven is safe for commissioning.

✓	TASK DESCRIPTION
	Legs fastened sufficiently to floor (if applicable) oven is stable in position
	Outer ceramic wool insulation complete and glued to exterior steel surface
	25mm Air Circulation Gap between insulation wool and cladding evident ( <i>Refer to Building In</i> )
	Gas control cabinet and Burner(s) mounted firmly in position ( <i>Refer to Connection of Gas System</i> )
	Gas Burner Shroud(s) firmly in place
	All Gas fittings tight and correctly connected ( <i>Refer to Connection of Gas System</i> )
	Check the thermocouple cable is positioned into the pre-drilled location (approx. middle of oven floor) and secured with provided bracket. Check cable is free from loose threads and is not in contact with any other cabling.
	All electrical components correctly installed – Mains Electricity Supply sufficient earthed and in accordance with local regulation ( <i>Refer to Connection of Gas System</i> )
	Check the Exhaust Duct installation is compliant with local regulation ( <i>Refer to Exhaust Design</i> )
	Check that the exhaust spigot extension is correctly positioned above the oven door inside the flue canopy area. Insert mesh particle filter and rest on bracket.
	Measure the exhaust flow rate. Check the air flow required from the relevant oven drawing/technical sheet, air flow requirements vary depending on the oven design, number of doors. Typically single door ovens will require 700L/sec, 2 door ovens 1000L/sec (150Pa. Static pressure). The measurement should be taken outside the oven door but before the exhaust spigot intake.
	Check that there is sufficient access and ventilation both below and above the Oven for maintenance and inspection ( <i>Refer to Building In</i> )
	Check that the Stainless Steel Hearth & Lintel is fitted correctly, perfectly level with the floor bricks for a smooth finish.
	Check that the gas system interlock sensor (wire loom) is positioned into the top of the exhaust spigot.
	Check the pressure differential sensor (plastic tube with copper) is connected correctly.
	Check that all wiring and cabling is routed correctly ( <i>Refer to Connection of Gas System</i> )
	Connect electrical power leads and spot light wiring to control module as per labeled sockets.
	Check that the area below and surrounding the oven is clean, tidy and free of debris.
	Ensure that ONLY non-combustible materials are used in the construction of any façade surrounding the oven, including the areas closest to the oven steelwork, e.g. doors and windows.
	Check to ensure that suitable fire extinguishing equipment is close at hand.

# COMMISSIONING

## GAS SYSTEM OPERATION

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 (red display on control system) 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 three 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.

PRE-HEAT SCHEDULE:	<b>Day ONE:</b>	SV setting at 80°C (175°F).
	<b>Day TWO:</b>	SV setting at 180°C (350°F).
	<b>Day THREE:</b>	SV setting at 250°C (480°F).

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

**NOTE:** Always switch on the exhaust fan before operating the oven, it is critical to ensure adequate air flow in the flue at all times. The oven is fitted with a safety sensor to disable the gas system should the fan not be operational.

## 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.**

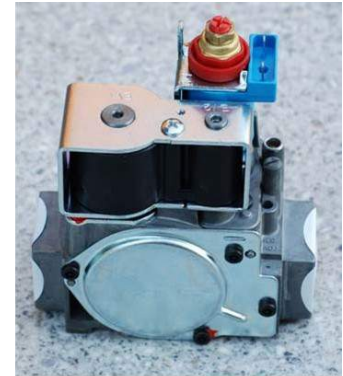
- ▶ To start the fire, find a flattened cardboard box.
- ▶ Place your larger pieces of hardwood on the outer extremities of the box and place kindling and softwood on the inside with newspaper under the kindling.
- ▶ Light the kindling.
- ▶ Once the kindling is satisfactorily alight, push the whole lot 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.
- ▶ **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.

# GAS FLAME ADJUSTMENT

## GAS VALVE

SIT SIGMA 845  
Double Solenoid  
Modulating

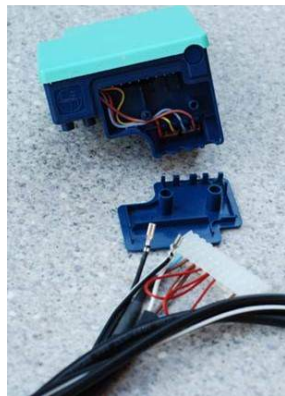


## FLAME MANAGEMENT PACK

SIT DBC 579  
full integration with  
SIGMA 845 gas valve

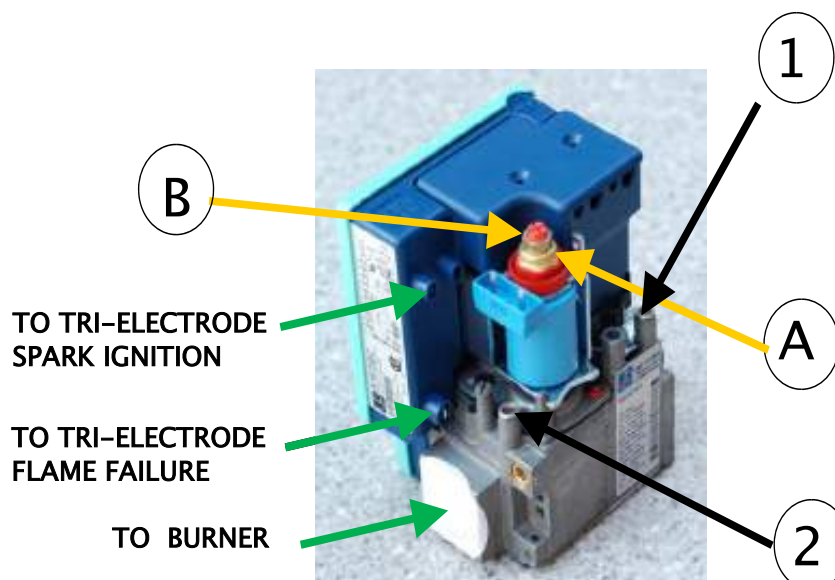
### Features:

- 3 auto start attempts
- 5 second ignition, 90 sec. delay
- Flame failure, non volatile lock out = no gas flow
- Clips to all SIT Sigma family valves



**TEST SUPPLY PRESSURE:** loosen screw (1), attach meter/hose. Open all gas supply valves and taps on main feed to oven. Test before start up and after start up.

- ▶ Natural Gas: 1.3—6.0 kPa (must not exceed 6.0 kPa as may damage to gas valve)
- ▶ LPG/Propane: 2.75—6.0 kPa



# GAS FLAME ADJUSTMENT

**HIGH FIRE:** Test working pressure—loosen screw (2), attach meter/hose.

- ▶ Natural Gas: 1.0 kPa
- ▶ LPG/Propane: 2.75 kPa

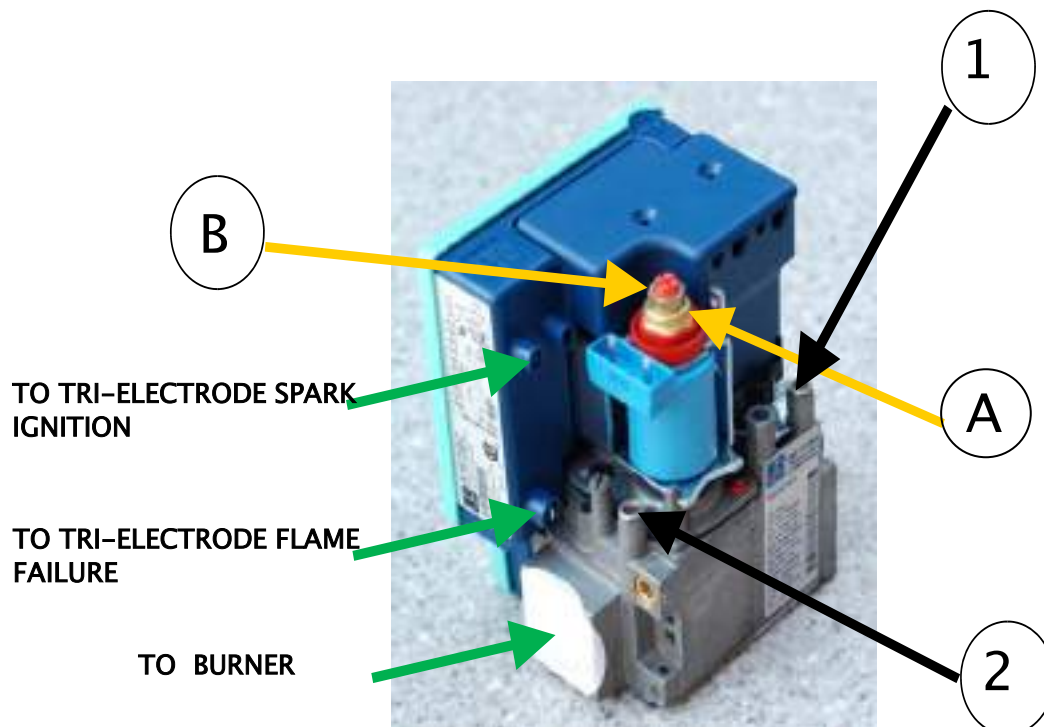
Check with oven running (Hi flame will operate when the PV is 50C° below the set temp)  
Adjust pressure at 10mm Brass Nut (A) Turn CLOCKWISE to INCREASE pressure.

**LOW FIRE:** Test working pressure—loosen screw (2), attach meter/hose.

- ▶ Natural Gas: 0.35 kPa
- ▶ LPG/Propane: 1.10 kPa

Check with oven running (Low flame will operate when the PV is 10–20C° above the set temp,  
when PC is >25C° above the set temp the flame will shut off until the PV = Set temp)  
Adjust pressure at Red Plastic screw (B) Turn CLOCKWISW to INCREASE pressure.

- ▶ **SECURE SCREWS WHEN ADJUSTMENTS COMPLETE AND CHECK FOR LEAKS**



# GAS BURNER ADJUSTMENTS

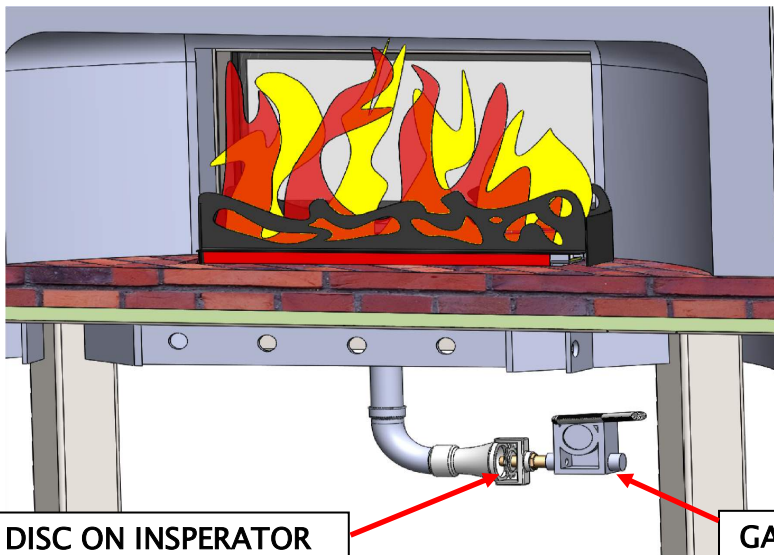
Normal operation of the burner will produce a slightly yellow flame at the tips and blueish flame close to the burner. There will not be any black smoke.



If the flame is too yellow it will produce black smoke which will be noticeable on the roof of the oven.



To adjust the mixture (gas-air) there is a disc that is part of the insperator which can be adjusted to allow more or less air to the burner. The insperator is located under the oven between the gas valve and the burner.



ADJUSTABLE DISC ON INSPERATOR

GAS VALVE

To make cleaner flame (more **blue**) turn/screw the disc towards the gas valve. This allows more air into the mixture.

To make the flame richer (more **yellow**) screw the disc towards the burner.

Different gas types and mixtures will produce different colours. Propane (LPG) is more yellow. Natural Gas is Bluer. Butane and Synthetic gas is often red.

If air adjustment does not stop smoking problem. Gas pressure and/or jet size should be tested by a technician.

## SECTION 2

# OVEN OPERATION



# OPERATION OF OVEN & COOKING

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 or water** as this will wear and/or damage the floor 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.

## USING WOOD ONLY *As per the pre-heat schedule (p.18)*

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 60–120 minutes. *Using a gas system can reduce this time.*
4. 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.

*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 controlled by the size of the fire or 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 minimum 175°C (350°F).

**Operating Temperature:** Optimum temperature for pizzas is approx. 350°C (660°F). 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.

**Pizza Rotation:** 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.

## FINISHING FOR THE DAY

When you have finished for the day simply spread the coals inside the oven to burn out and cool. 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 inside the oven however 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.

## MAINTENANCE (refer Regular Flue Maintenance pg. 22)

**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.**

### **CLEANING THE PARTICLE FILTER PANEL**

- ▶ There is a particle filter located just above the oven door/mouth.
- ▶ This filter is very easy for the operator to access from standing in front of the oven and reaching up into the exhaust spigot, always do this when the oven is cool ie. Start of day before switching on.
- ▶ Remove the filter by adjusting the angle and gently pulling down, no special tools are required.
- ▶ Removal and washing of the filter panel can be done daily or once a week (recommended minimum).
- ▶ The SS area between the door/mouth and spigot also requires regular cleaning by kitchen staff.

## GAS SYSTEM OPERATION

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** (SV) temperature (**red** display on control system) 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** (refer to Commissioning schedule on pg. 18).

**Operating Temperature:** Optimum temperature for cooking pizzas is approx. 350°C (660°F). If pizzas do not cook in around five minutes, either the oven is too cool therefore increase the SV temperature, add a wood fire or you need to adjust the damper in the flue (excessive draw). The gas flame modulates between 'low flame' and 'hi flame' keeping the oven at the desired SV temperature 250–340°C (500–650°F).

The present value (PV) temperature (**green** display on control system) is measured via a thermocouple which is positioned in the middle of the oven, approx. 10mm from the brick floor surface. The PV readout will therefore be slightly lower than the brick surface and much lower than the air and roof temperatures. Once the oven reaches the SV temperature the pizzas can be placed in the oven with or without trays within 200mm (6") of the flame.

If you also have a wood fire in the oven and 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 ignite the burner.

**Pizza Rotation:** 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 the pizzas around to suit this. Most restaurants place the pizza directly on the brick floor 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.

## FINISHING FOR THE DAY

When you have finished for the day, simply turn off the control system (#1) and spread the coals if you have used a wood fire (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.**

## MAINTENANCE (refer Regular Flue Maintenance pg. 22)

**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.**

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- ▶ Remove the filter by adjusting the angle and gently pulling down, no special tools are required.
- ▶ Removal and washing of the filter panel can be done daily or once a week (recommended minimum).
- ▶ The SS area between the door/mouth and spigot also requires regular cleaning by kitchen staff.
- ▶ The oven casing is Mild steel with some stainless steel anchors.
- ▶ The oven legs are galvanized.
- ▶ The oven lintel & hearth/mantle are typically stainless steel.
- ▶ The gas system components standard industrial components (various non-ferrous metals) and standard electrical components.



# REGULAR FLUE MAINTENANCE

The Phoenix oven is designed to reduce the risk of fire in the flue system. By following a regular cleaning and maintenance schedule you can greatly guard against the risk of a flue fire.

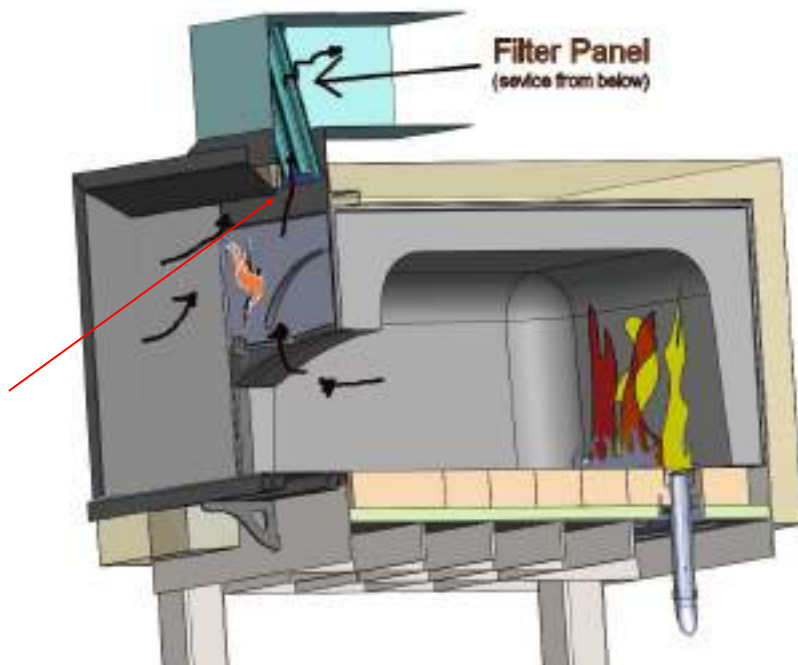
## **IMPORTANT!**

It is critical that the flue be cleaned on a three (3) monthly basis to reduce the danger of flue fire caused by the build up of soot and grease in the flue. With experience you will be able to customize a schedule to suit your particular requirements. Initially three (3) month inspections are recommended. Contact Phoenix Technical Support if you require more information on this matter (technical@phoenixfocus.com.au).

## **CLEANING THE PARTICLE FILTER PANEL**

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- ▶ Remove the filter by adjusting the angle and gently pulling down, no special tools are required.
- ▶ Removal and washing of the filter panel can be done daily or once a week (recommended minimum).

REMOVE FILTER DAILY  
AND WASH WITH HOT  
WATER & DETERGANT



The open area between the oven door and the exhaust spigot entry gives a clear visual inspection / aspect to ensure "over firing" does not occur. Over firing is when flames extend outside the oven door. In traditional ovens this commonly goes unnoticed and flames are drawn directly into the spigot and flue system often with disastrous results. On the Phoenix oven this area is easily cleaned and if over firing is observed there is a swing down door that will quickly contain any flames. This exclusive "break" design between the oven chamber and the flue system results in the air entering the exhaust to be much cooler than other stone hearth ovens.

Phoenix Ovens with Gas or Electric operation are also fitted with additional safety features including a thermal interlock sensor, flue system pressure differential switch and oven OT sensor. These devices are connected in series and mounted inside a separate interlock cabinet below the oven. The gas or electrical system will enter "lock-out mode" if either sensor detect abnormal operation.

# REGULAR FLUE MAINTENANCE

## REMOVING & CLEANING THE FILTER PANEL

**IMPORTANT:** The filter panel will be hot during operation, recommend cleaning to be done in the morning prior to turning the oven on for the day.

**STEP 1:** Locate the filter panel positioned inside the exhaust spigot at the top of the oven door.

**STEP 2:** Gently remove the panel by pushing the filter “up” to dislocate the panel from the centre holding bracket.

*You may want to use a heat protective glove or towel to cover your hand if you are concerned about the panel being hot to touch.*

**STEP 3:** Slide the filter panel down and out of the spigot.

Clean mesh filter in sink with warm soapy water to remove as much soot, grease and debris as possible. The filter can also be placed in commercial dishwasher.

**STEP 4:** Slide filter panel back up into position inside the exhaust spigot making sure to rest on the centre holding bracket. The angled tabs on the side of the panel will position the panel into the required angled location.

*Do not force the panel, if there is resistance look for any obstructions inside the spigot, take care to avoid the thermal interlock sensor probe on the far right of the spigot.*



## SECTION 3

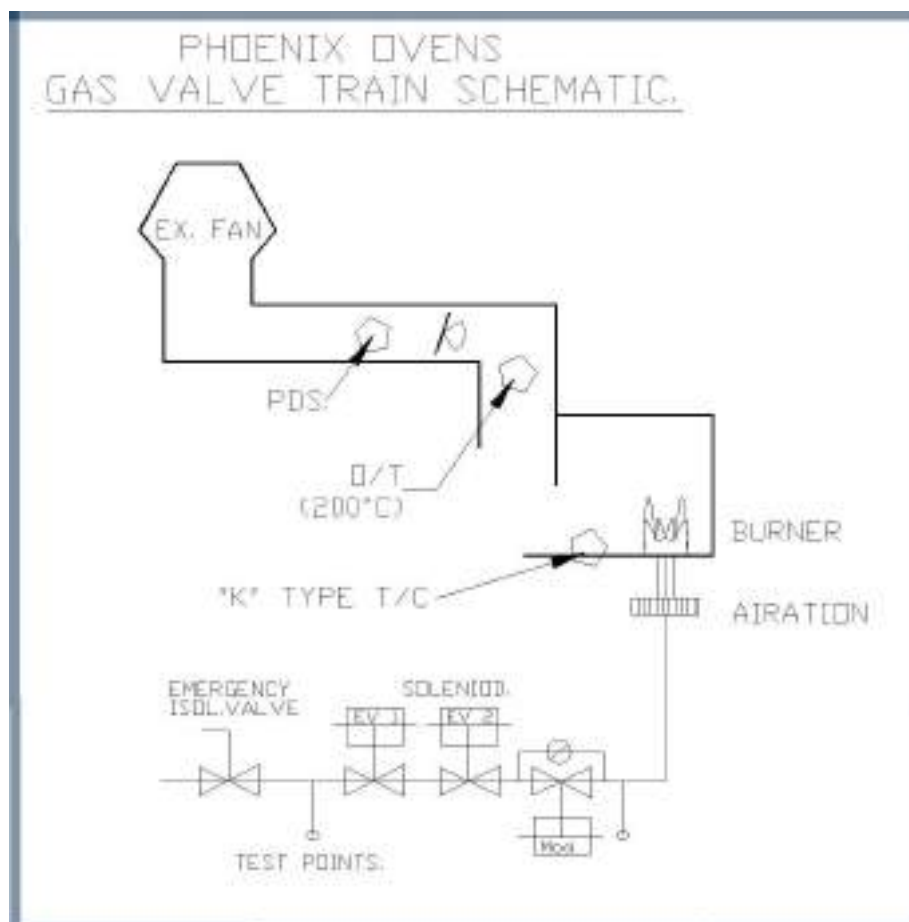
# TECHNICAL REFERENCE



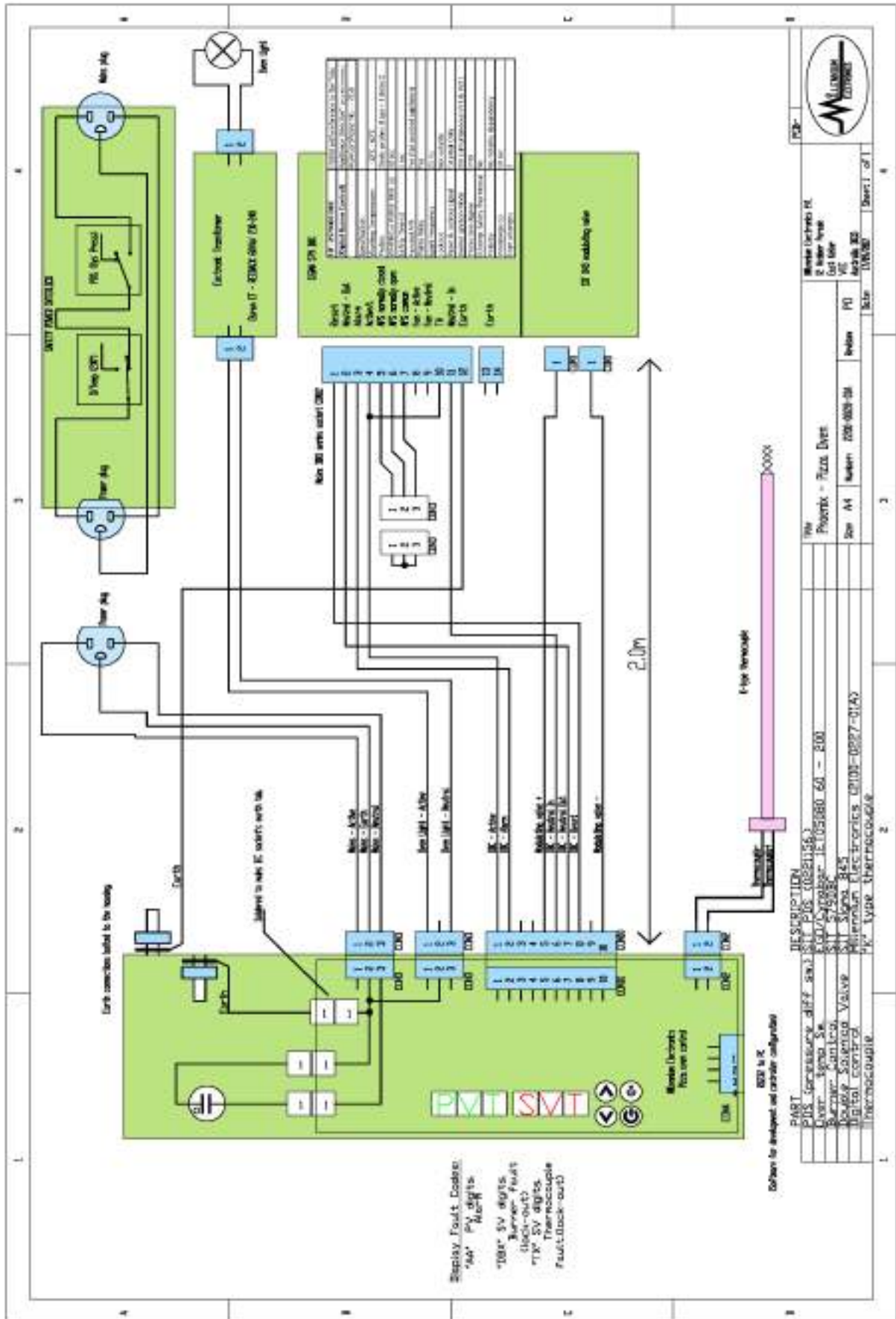
# OVEN MATERIALS

- ▶ 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-borne 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.

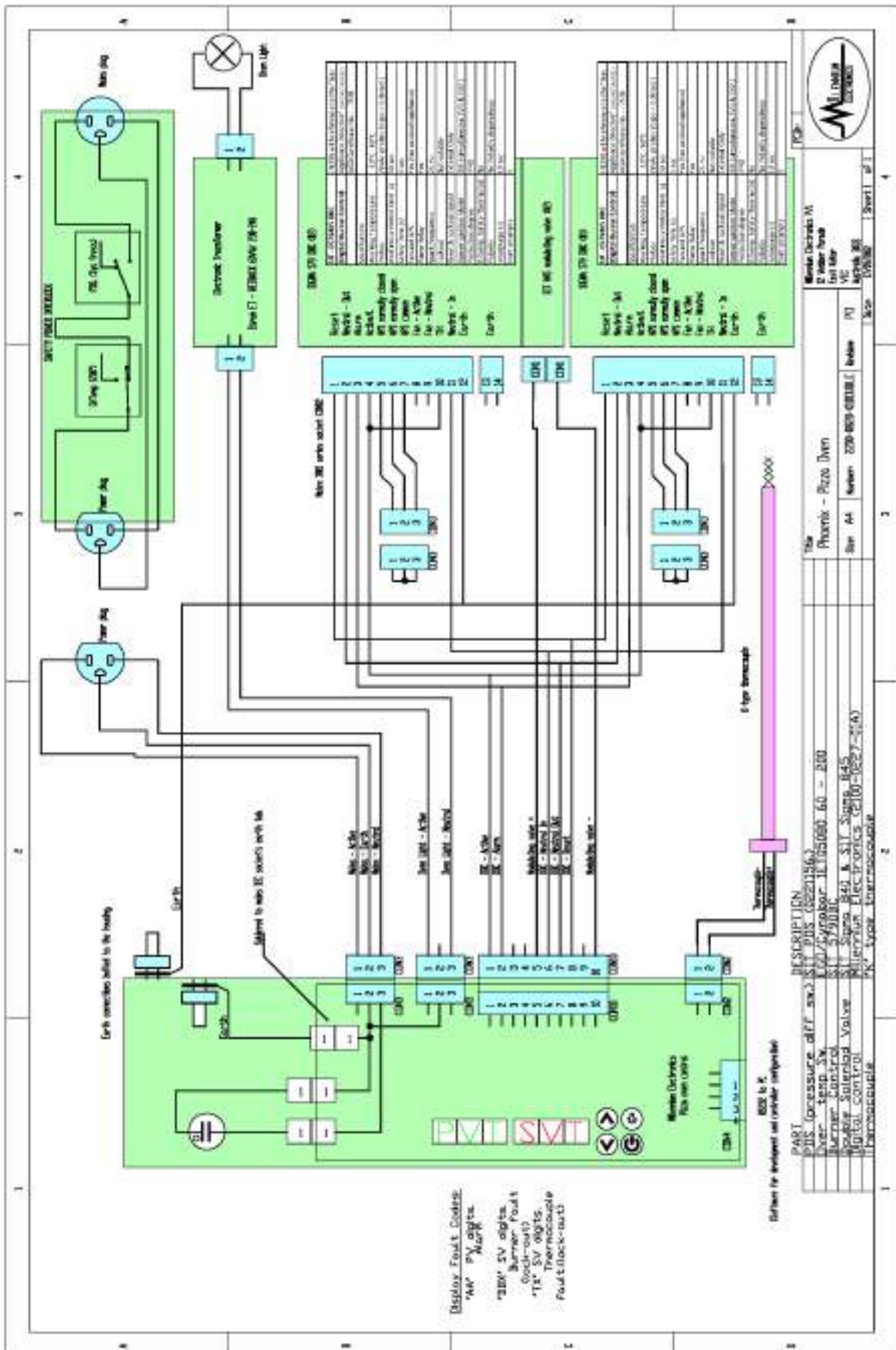
## PHOENIX OVENS: GAS TRAIN SCHEMATIC



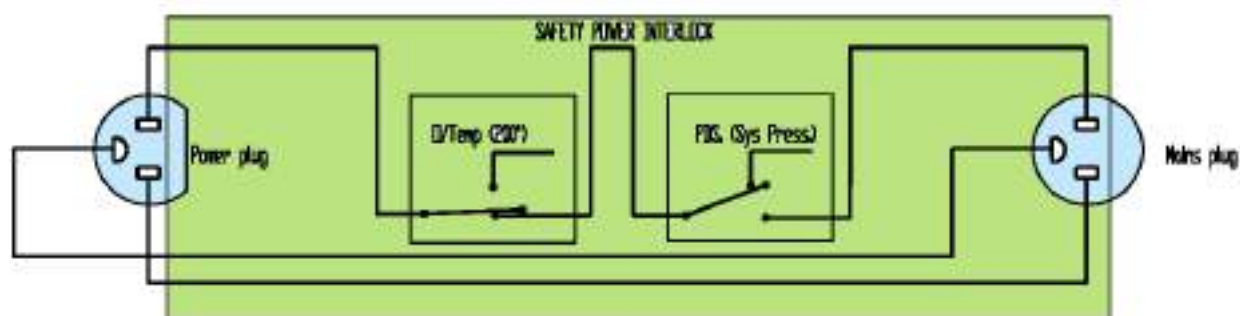
# PHOENIX OVENS ELECTRICAL SCHEMATIC



# PHOENIX OVENS ELECTRICAL SCHEMATIC (2)



## 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 standard power supply lead and to the Phoenix 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 BY PUSHING CONTROL (1.) BUTTON 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)**
  - ▶ **Allow Five (5 ) minutes before RESET attempt.**



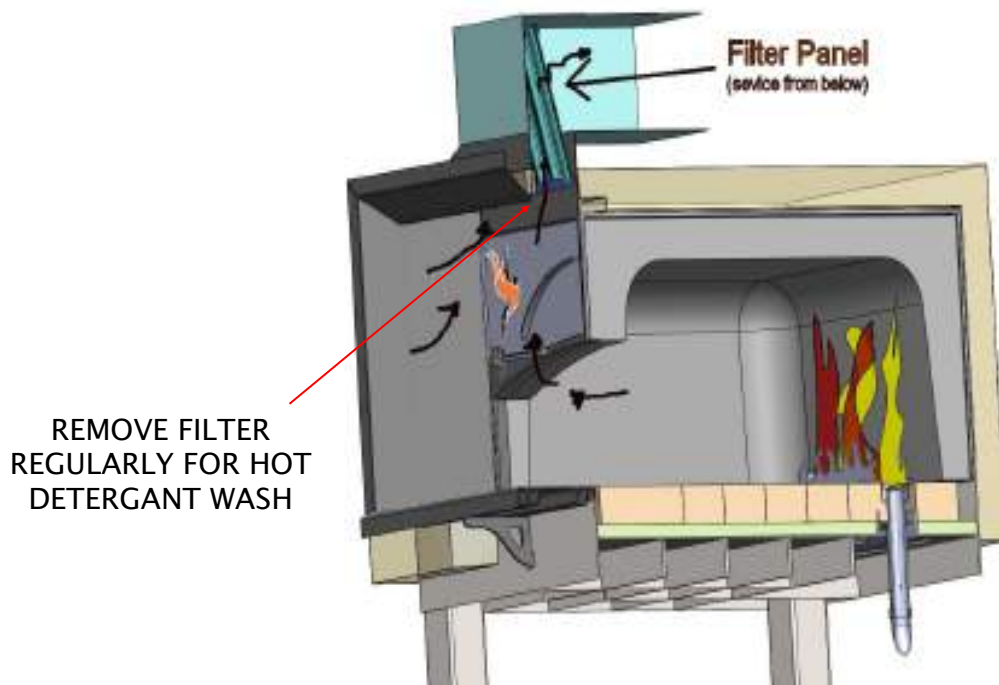
The Phoenix oven is designed to reduce the risk of fire in the flue system. By following a regular cleaning and maintenance schedule you can greatly guard against the risk of a flue fire.

### **IMPORTANT**

It is critical that the flue be cleaned on a three (3) monthly basis to reduce the danger of flue fire caused by the build up of soot and grease in the flue. With experience you will be able to customize a schedule to suit your particular requirements. Initially three (3) month inspections are recommended. Contact Phoenix Technical Support if you require more information on this matter (technical@phoenixfocus.com.au).

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# REGULAR FLUE MAINTENANCE

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*Do not force the panel, if there is resistance look for any obstructions inside the spigot, take care to avoid the thermal interlock sensor probe on the far right of the spigot.*





## 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 PRIME FOCUS PTY LTD (ABN 81 150 166 439)  
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