



LIFESTYLE ENVIRONMENTAL LTD
VENTILATION & MECHANICAL SERVICES

UNIT A16, CRADLEY ENTERPRISE CENTRE,
MAYPOLE FIELDS,
CRADLEY
HALESOWEN
WEST MIDLANDS, B63 2QB

SYSTEM DESIGN CRITERIA

HVAC SERVICES

FOR

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86 Cross St, Manchester M2 4LA

System description & design criteria.

Pizza Oven Gas Burner Flue

A Gas fired pizza oven is to be positioned in the front of house kitchen at the ground floor level. This oven utilises an internal Gas Burner to heat the internal dome and surface of the cooking area for Pizza cooking. The burning of gas will create by products such as carbon dioxide and carbon monoxide. This is required to have a twin wall insulated stainless steel flue from the gas burner to discharge to atmosphere. In light of the previous building developments omission of the approved internal riser route to roof, this flue must run to the outside of the building and discharge above the roof line by a minimum of 1000mm. The route selected is onto the 'Four Yards' elevation, and flue is to be powder coated externally matt black to be in keeping with other matt black services running on this elevation. Internally the flue will run from the burner spigot on top of the oven, horizontally with suitable access points for cleaning along the route, along with a pressure stabiliser. The flue system is to be fan assisted due to the number of bends and route of the flue required to suit internal layout and the building, with a Flueboost 800 fan located internally. This fan is specifically selected as it is designed to not only provide the 200CFM [95l/s] minimum ventilation required by the oven manufacturers recommendations but is also designed to accommodate the potential high temperatures of the air being transferred. In line with the noise assessment recommendations this fan will also have an acoustic attenuator on the discharge side, design in line with the acoustic report by Noico Ltd, this will be of stainless steel construction and also powder coated matt black. The flue will be fixed internally and externally in line with flue regulations, it will also include a base end cap with drain which is also removable for regular maintenance and cleaning by a specialist contractor.

The flue is to discharge 1000mm above the roof line, to atmosphere vertically.

The fan has been selected to meet the pizza oven manufactures burner recommendations and is to be interlocked with the gas solenoid valve serving the oven, without the fan running and not in fault the gas valve will not open. The fan operation will be controlled by the HVAC Control Panel via an automatic timeclock set to the operational times of the restaurant and will be interlocked with the fire alarm.

Fan, and silencer are to be located internally and access for maintenance through a series of hatches where required over the accessible WC area.

The EMAQ assessment has been undertaken and with the oven being the sole piece of equipment rendered the project as a small kitchen, point of discharge is above the roof line and away from the openable windows in the below façade. This flue will contain a mixture of gas burner combustion by products, fresh air make up / dilution. The nature of pizza cooking does not pose a high risk of grease or odour generation, and the client have PPM schedules for regular flue cleaning to minimise the build up of carbon within.

All details of the Midtherm HT-S flue, Fluboot 800 fan and associated service routes can be found on the submitted design drawings, along with all plant and acoustic data, including noise suppression on the discharge of the fan.

Ventilation

The ground floor has high level openable windows around the entire perimeter which are to be retained, the use of these will allow sufficient air movement, along with the main doors to allow for make up air to the above mentioned oven burner and for the low level of occupancy on the ground floor.

The basement has a full fresh air and extract system, along with a separate WC extract system. The previous installation had louvres installed [high level within the basement] discharging onto low level on the 'Four Yards' elevation. These have been proposed to be re-used to prevent further openings in the building fabric. The existing are to be removed and replaced with new [sizes like for like], with a powder coat finish.

The basement ventilation is designed to provide suitable extraction for the prep and wash up areas, while providing fresh air make up to these areas and the dining area at 80% of the total extract volume. This also covers the fresh air requirement for the dining space. The supply air system is served with an inline duct electric heater, which will modulate around a set point [off coil] based on the incoming air temperature.

These systems are connected with solid galvanised ductwork to the aforementioned louvres, and fans have inline attenuators designed by Noico Ltd in accordance with the noise assessment. The supply air system is also complete with F7 filtration.

The WC Extract is a separate system and connected to its own discharge louvre onto four yards.

All fans will be controlled via the HVAC control panel automatic timeclock, and will have speed control for commissioning, and will be interlocked with the fire alarm.

Gas Interlock

The ground floor oven burner is complete with a merlin 1200S gas interlock and solenoid system as supplied by S and S Northern Panels and is linked to supply and extract fan current monitoring within the HVAC Control Panel and is operated by a key, this panel is located in kitchen. A manual gas knock off button / EM.Stop is located on the wall next to the rear fire escape of the kitchen.

Heating & Cooling.

The ground floor is served by 2no. single split Toshiba R32 air conditioning DX systems. The indoor units will be standard cassettes hung from the slab, and copper refrigerant pipework will run to the condensing units. These will automatically be controlled via internal temperature sensors around an automatic set point, and operation during the trading hours of the restaurant only.

The condensing units, in lieu of an internal riser to the roof will be located internally within the ground floor demise, specifically within 3 window recess areas onto the 'four yards' elevation. The front of these window recess will be covered with bespoke timber louvres to allow the required air flow around each condensing unit. These louvres will have hinged access for service and maintenance and be painted to suit planning and design requirements. The basement is a single split ducted fan coil unit, also R32 refrigerant and piped to the relevant condensing unit which will serve all dining areas in the basement via galvanised insulated ductwork, discharging via diffuser grilles.

Controls Description

All ventilation and heating controls are designed to be fully automatic and operate around a timeclock set to the operational hours of the restaurant – TBC.

All fans are linked to a Hand/Off/Auto switch which is designed to be left in Auto and operate with the timeclock, turning to Hand will run fans 24/7 and off will turn fans off.

The HVAC control panel is complete with fire alarm normally closed link and upon fire alarm activation the panel will shut down all plant.