PROPOSED VENTILATION SYSTEM AT
DOMINO'S PIZZA

Unit 1, Howard Town Mill, Victoria Street, Glossop. SK13 8AQ

Prepared by DOMINO'S PIZZA GROUP and in conjunction with
SUMMIT DESIGN LTD

Date; 18.8.11

Rev A	Attenuator notes added at 5.80	29.9.11

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1.0 INTRODUCTION:

This document has been prepared by Domino's Pizza Group in conjunction with Summit Design Ltd who are specialists in HVAC Design, manufacture and Installation.

The information contained within this document should be used as supporting information when applying for Change of Use Planning Approval and is based on the '*DEFRA Annex B – Guidance on the control of odour and noise from Commercial* Kitchen *Exhaust system – Jan 05'*. This follows feedback from various Local Authorities who use Annex B as a guide when referring to the extract system as part of the application process.

Annex B advises that the aim of any ventilation/extraction is to ensure that no nuisance, disturbance or loss of amenity is caused by odour, fumes, food droplets or noise, to nearby properties.
Additionally, the visual appearance of the flue may be important and the flue itself may require a separate planning permission. Enquiries should be made to the Local Authority Planning Department regarding this matter.
A suitably qualified and experienced person with specialist knowledge of ventilation schemes should undertake the design and installation of a ventilation system.
Designing and installing appropriate ventilation systems may involve considerable expense.
In circumstances where the end user of the premises is unknown, or where the specific type of food to be cooked is unknown, the installation should be designed to achieve the highest level of odour control in order to cater for a worst case scenario.
There are many different types of odour abatement available (carbon filters, electrostatic precipitation, high dilution and high velocity extraction) however not all types are suitable for all cooking methods. In each case, grease filters must be installed.

2.0 PREAMBLE TO DOMINOS SPECIFICATION

Please note that Domino's Pizza produces very little grease and the extract system is predominately removing heat and gas combustion fumes. All work is carried out in accordance with the latest relevant British (or Irish regulations where applicable) and European Standards, statutory Regulation and Byelaws together with the following publications:
CIBSE Codes and guides to current practice
Water Authority ByeLaws
HVCA – DW143 Practical Guide to Ductwork Leakage Testing
HVCA DW144 Specification for Sheet Metal Ductwork
HVCA DW172 Guide to Good Practice for Kitchen Ventilation Systems
HVCA – RUAG70 Guide to Good Practice Refrigeration
The Building Regulations
Gas Safety (Installation and Use) Regulations 1998

All plant, ducts, pipe cables etc. shall be adequately protected against accidental damage corrosion and external environment and shall be capable of safe decontamination and removal in the future without disturbing other services. Pipes and ducts shall be adequately sized, kept as short as practicable, leak-proof with a minimum number of joints and have provision for routine maintenance. All facilities shall be designed to prevent the ingress or egress of rodents, vermin, and insects.

The duct will be fixed to the shell of the unit using anti-vibration fixing mounts and under no circumstances will flexible ductwork be used other than the fan connections

The HVAC contractor shall supply the client with system design drawings, prior to manufacture and installation

For projects in England and Wales, the HVAC contractor shall also demonstrate compliance with Building Regulations Approved documents L2A & L2B. This will include:

(a) Provision of details of the efficiency and controls of heating , cooling and ventilation systems in accordance with Non-Domestic Heating, Cooling and Ventilation compliance Guide (2006)
(b) Provision of commissioning certificates including air leakage tests on the ductwork

Fire/smoke dampers shall be installed in all fire compartment walls to Building Control requirements

The HVAC contractor shall ensure that externally the ductwork conforms to the supplied drawings in terms of its route, height and termination. These drawings will have formed part of our Planning Approval and must not be deviated from without express permission from the DPG Project Manager

Upon completion of the installation, all shall be fully tested and proved including airflows. The contractor shall produce an Operating and Maintenance Manual which shall contain details of all equipment supplied, a record drawing of the complete mechanical services installation and copies of all Test Certificates. It shall contain a Maintenance Schedule based on the manufacturer's recommendations.

3.0 INFORMATION ON PREMISES AND TYPE OF DOMINOS OPERATIONS

The proposed unit is within a re-development of an existing site; and is approximately 1250 square feet.

For your information, Dominos produce approx. 100 meals on average per day and the method of preparation and cooking is through hand preparation and dry baking.

Dominos meal types served are Pizza and oven bakes side dishes

The proposed hours of operation of the business and ventilation plant will be in accordance with the hours stated in the approved Change of Use

4.0 PLANS AND DRAWINGS

Please refer to Hattrells drawing number 4650-P02H of the proposed premises which is scaled at 1:50 and shows the indicative internal and external arrangements and location of the ventilation system. Please refer to this drawing for elevations of the unit.

A schematic drawing produced by the HVAC Designer will be provided at a later date.

5.0 DETAILED DESIGN OF VENTILATION SYSTEM

5.1 Pre-filters

A copy of the manufacturer's product data sheet should be supplied clearly showing:
- Manufacturer's name = Jasun Filtration
- Filter name and product code = Type 90 Panel Filter
- Dimensions of the pre-filter = 45mmthick (rated airflow 2.0m/s) see data sheets
- Nature of the filter media = Disposable glass fibre media
- Manufacturer's recommendations on the frequency and type of maintenance of the pre-filter having regard to the conditions that it will be used under = 3 Monthly

5.2 Electrostatic precipitators (NOT REQUIRED ON THIS SITE)

5.3 Carbon Filters (NOT REQUIRED ON THIS SITE)

5.4 Odour counteractant or neutralising system (NOT REQUIRED ON THIS SITE)

5.5 Cooker hood

The following information on the characteristics of the cooker hood should be supplied that clearly shows the hood will made of = Stainless Steel construction with all visible joints to be welded, ground and polished and incorporates a gutter around all edges with a plugged drain connection at lowest point. To include 6 no. mesh type grease filters approx. 450 x 450mm.
- Length that the cooker hood overhangs the appliances = 200mm all round
- Face velocity at the cooker hood, expressed in metres per second = 0.25m/sec
- Dimensions of the opening of the cooker hood = 2000x2500

5.6 System Operation

In addition to the specification of the components the following must be provided about the system:

• Extract rate (expressed as m3/s) at the proposed rate of extract = 1.5m3/sec
• Dwell time of the gases in the carbon filtration zone = N/A
• Volume of the kitchen = based on average prep area size of 100 -150cu/m
• Efflux velocity = 6m/s

Note: The system performance is dependent upon the extract rate of the air. Where the rate can be adjusted by the use of dampers or a variable speed fan, then the conditions under which the extract rate can be achieved must be described = Single speed fan – no adjustment

5.7 Flue Design

The height and velocity of the final discharge are the two important factors. Generally, the greater the flue height, the better the dispersion and dilution of odours.

The number of bends in the ducting should be minimised and the ducting should have a smooth internal surface.

Detail of proposal; the ductwork runs from the oven canopy, via the extract fan, to a window in the apex of the roof where it discharges horizontally through a bird/rodent proof grill at high level. Anti vibration mountings are to be used throughout. The extract fan is contained within our unit.

5.8 Noise

Data on the noise produced by the system as a whole should be provided including:

• Sound power levels or sound pressure levels at given distances (the assumptions to this calculation must be clearly stated);
• An octave band analysis of the noise produced by the system should also be provided, where possible.
• Hours of operation of the ventilation system (where this differs from the hours of opening).

This information is site dependent and can only be achieved once the system is installed. Please refer to Appendix 2 for data sheets regarding the fans for more information.

Oven extract duct, fresh air intake duct and Plant Room extract duct will incorporate sound attenuators as noted on the drawing. Attenuators are to be fixed adjacent to fans to minimise noise breakout from the duct. Ducts to be installed on anti-vibration mountings with flexible duct connections

5.9 Maintenance

A schedule of maintenance must be provided including details for:

• Cleaning of washable grease filters; Weekly
• Frequency of inspection and replacement of all filters (grease filters, pre-filters and carbon filters where proposed); Monthly – *Please refer to Appendix 2 for maintenance programme*
• Inspection and servicing of fans; Bi Annually

Please note that the HVAC contractor will provide 12 months spare filters at each new store.

6.0 Additional notes for guidance

The air inlets must not permit pests to enter the kitchen. Fly screens are an example of how this can be achieved.

Sufficient air must be permitted into the premises to replace air extracted. The method for supplying this make-up air should be detailed. The route of the air into the kitchen must not result in its contamination, for example passage through a toilet. Separate provision must be made for ventilation of a toilet.

There must be sufficient access points to permit adequate cleaning of all the ductwork.

Fresh air is introduced via a dedicated air handling unit to supply 80% of the extracted air, fresh air filtered to EU4 – tempered via an low pressure hot water coil is introduced via ceiling mounted diffusers to the Preparation / office and Wash Up areas

APPENDIX 1

COLDROOM AND AIR CONDITIONING COMPRESSORS

TYPICAL AIR CONDITIONING AND COLD ROOM COMPRESSOR DETAILS

AIR CONDITIONING			COLD ROOM	
Model (typical unit)	**Mitubishi Heavy FDC100VNX**		**Model (typical unit)**	**Silensys H49Z-1ph**
Dimensions	**W 970mm D 370mm H 1300mm**		**Dimensions**	**W 1018mm D 392mm H 615mm**
Weight	**105 kg**		**Weight**	**81 kg**
Airflow	**Outdoor 100 CMM**		**Compressor**	**Model CAJ4519Z 1.5HP motor 15.4 MRA 31 LRA**
Current	**5a (24a max)**		**Refrigerant Connections**	**Suction 15.9mm Liquid 9.5mm**
Capacity	**Cool 10 kW Heat 11.2 kW**		**Condenser Fan Motor**	**220-1 Volts/Phase 0.6 Amps each 2800 m3/hr Air Flow**
Noise	**48 dBA @ 1m cooling. 50 dBA @ 1m heating.**		**Watts**	**4-6kW**
Refrigerant	**R410A**		**Electrical Details**	**16 MRA 32 LRA 2215 P.abs**
			Noise	**35 dBA @ 10m**

APPENDIX 2

DATA SHEETS

- JASUN Filtration PLC – Model GF mesh Grease Filters
- Vent-Axia – Black Sabre Slim case sickle fans
- Air Vent Technology – Water heated air handling units
- Jasun Filtration PLC – Type 90 panel Filter