

01536 410795



Ref: MDR/J2049a

4<sup>th</sup> November 2011

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For the attention of Mr T Bale

Dear Sirs

**Re: The Old Bank, 36 High Street, Rothwell, Restaurant Conversion - Kitchen Extract Ventilation System - Noise Assessment**

Further to your instruction a noise survey in accordance with BS4142:1997 was undertaken for the kitchen extract ventilation system for the proposed restaurant.

The noise survey details were as follows:-

- 1) The subject noise source was the proposed new kitchen extract ventilation system, which will have external vertical discharge located on the flat roof of the cold store at the rear of the building. The survey noise measurement location was at the side access gates to the kitchen location at the rear of the building. The closest noise critical windows are those of the houses overlooking the rear of the site and to the side of the site. The approximate distance from the proposed ventilation discharge to the windows of either houses is 10m. Please see attached site plans. We understand that the proposed ventilation system is intended to operate from the premises opening time up to 23.00 hrs at night 7 days per week.
  
- 2) The noise survey was undertaken on Wednesday 2/11/11, from 22.00hrs to 23.00hrs. The weather conditions were reasonable for noise measurement purposes, some light rain and a slight variable wind.



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- 3) The instrumentation used for the survey was a precision grade CEL Casella type 63X real time analyser and a CEL Casella type 110/1 calibrator. The calibration was checked before and after the measurement period and seen to be correct. Copies of the current measurement instrumentation calibration certificates are available upon request.
- 4) The background level was measured at the side access gates. The lowest  $L_{A90}$  value measured over a 15 minute period was 41.5dB. The background noise level was created primarily by road traffic in the locality.
- 5) The maximum level recorded at the measurement location for the entire survey period was 60.3dB  $L_{Amax}$ .
- 6) The noise level from the proposed extract ventilation system discharge measured at the nearest residential window should be designed to be typically 10dB below the 41.5dB lowest  $L_{A90}$  measured to avoid any ventilation system noise nuisance at the nearest residential windows in the locality.

### Noise Mitigation Measures

We understand that the kitchen extract ventilation system will have a multi-stage filtration and odour control system, typically an Airclean Kitchavent unit, with the extract airflow created by typically a Vent Axia ETP56012 eTurboProp fan. We have assumed the filtration/odour control unit and the extract fan will be located inside the kitchen area, with a 560mm diameter ductwork system exiting through the cold store flat roof at the rear of the building. Assuming a fan duty of  $2.37\text{m}^3/\text{s}$  @ 500Pa, which is typical for a 560mm fan on a kitchen extract system, the ductwork vertical discharge above the flat roof would be typically 500mm diameter to achieve a good efflux velocity. The horizontal distance from the proposed discharge point to the nearest house windows is approximately 10m. We have calculated the extract ventilation system noise unsilenced as 73dBA at 10m and applying a normal cylindrical podded silencer to the discharge ductwork would reduce the discharge noise to 32dBA at 10m.

For the extract air fan discharge fit a standard cylindrical podded silencer, 560mm dia x 2240mm long to attenuate the discharge.

Please see the attached ventilation system fan noise calculation filtration and fan data..

In addition to the duct silencers to control the fan noise to the exterior, we recommend that fans are fitted with acoustic flexible connectors and the ductwork system is supported on ant-vibration mountings.



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**Conclusion**

The calculated noise level of the proposed kitchen extract system equates to 32dBA outside the nearest residential windows 10m away. The measured ambient noise level in the locality was 41.5dBA. The proposed ventilation systems should not create a noise nuisance outside any residential windows in the locality.

When the extract ventilation system design is finalised the fan silencing should be checked to ensure the silencing is correct for the fan and system.

We trust the noise survey report meets with your satisfaction, however should you have any queries, please do not hesitate to contact us. Assuring you of our close co-operation at all times, we remain.

Yours faithfully

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