



## Hanover House -Montpelier.

Hanover House  
Montpelier  
Cheltenham  
GL50 1SD

**Full plans application to revert upper parts into 4 residential flats including internal alterations**

## APPENDIX A

- 1 Acoustic Attenuation
- 2 Odour Control Measures
- 3 Engineered Fire Solution

# ACOUSTIC ATTENUATION



Addendum to RSK acoustic report. 298355-RSK-RP-01-(00)

During the site survey, the kitchen extraction system was operating whilst RSK conducted a site walkover inside and outside the building. The kitchen extract fans were only just audible in rooms above the kitchen during lulls in traffic and not at all on upper floors (where it is expected a short distance between these rooms and the top of the duct). Noise from this specific source at street level was not audible, nor was this perceived in the context of external ambient noise levels.

However, when other fixed plant noise was noted, for example from the outlet embedded facing Montpellier Arcade, this source was measured and incorporated into the noise model/assessment.

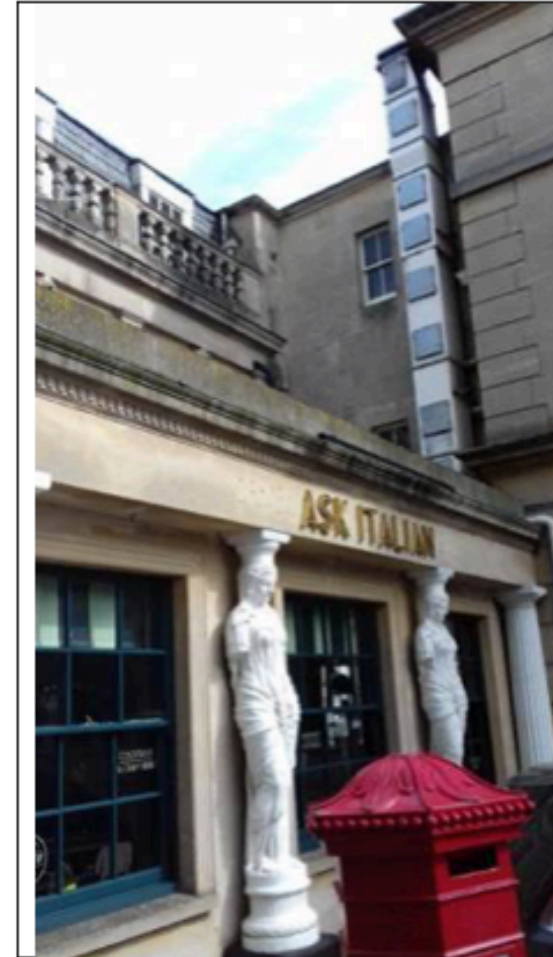
Notwithstanding the above, the assessment methodology assumed a very conservative scenario with a variety of noise sources occurring simultaneously with the additional consideration of noise penalties for those audible plant items that subsequently resulted in higher glazing specifications.

Based on the modelling of separate noise sources, the highest level of façade mitigation is to Flat 2 F1 bedroom (facing the kitchen extract) with 24 dB reduction due to averaged night-time noise levels (mainly pub noise).

Based on the table above, which does not include noise from the kitchen extraction system deemed operational during daytime hours (restaurant opening hours), the contribution from the extract system should have been equal or greater than 56 dB at the closest sensitive window (Flat Two Studio, at 4.6m from the extract) in order to change the prescribed noise reduction (24 dB).

In order to achieve 56 dB at 4.6 metres distance, noise emissions from the top of the extraction system should have been 69 dB at 1 metre from the extraction system (assuming standard point source propagation). A level of this magnitude is 14 dB higher from measured ambient noise levels at ground floor on the west façade of the building facing the car park area (measurement AT-02 taken between 1300-14.30 and summarised in Table 5.5 of the noise report) and therefore, unlikely not to be perceived from street level during lulls. A noise emission level of 69 dB LAeq,T at 1 metre from an extraction system is deemed excessive and unlikely to represent current emission levels from this source.

With regards to the most exposed window between Flat Four's dining room and the extraction system, a highest noise reduction of 19 dB (excluding the likely contribution from the extraction system) has been calculated (59 dB daytime – 40 dB limit). The lowest mitigation option A (Table 7.4) for the dining room windows has provision for an acoustic performance of 32 dB Rw+Ctr for glazed elements; this level of reduction by the glazing/ventilators would be more than sufficient to mitigate any potential noise the kitchen extraction system, albeit in our view, the impact of the extraction unit would be negligible



The outlet from the kitchen extraction system is situated on the inner building façade facing the shopfront, with the top of the duct being approximately at 3 metres from the window of Flat Four Two Bed (dining room window on 2<sup>nd</sup> floor) and approximately 4.6 metres from the nearest window of Flat Two Studio (bedroom in first floor).  
The small window embedded on the western façade and closest to the duct would be part of the common areas (fire lobby) and away from any sensitive use.

Receptor	Road noise contribution, LAeq,TdB(A)			Fixed Plant contribution, LAeq,T dB(A) (roof condenser units, flue outlet and extraction vent on north façade)		Pub noise contribution, LAeq,T dB(A)		All sources contribution, dB(A) + 3 dB penalty		Road noise, dB(A)
	Daytime	Night-time	Night-time LAFmax	Daytime	Night-time	Daytime	Night-time	Daytime	Night-time	Night-time max
Flat Two Studio (first floor bedroom)	50	39	62	38	38	50	51	56	54	62
Flat Four Two-Bed (second floor dining room)	51	n/a	n/a	41	n/a	54	n/a	59	n/a	n/a

To achieve the required noise reduction of 32 dB Rw+Ctr secondary glazing in proposed and is detailed on drawings P400-404

The proposed secondary glazing achieves a noise reduction of 44 dB Rw which is more than double the attenuation required by the acoustic survey.

The proposals to relocate the extract terminal to roof level away from the facades will further reduce the acoustic effect of the extract.

# ACOUSTIC ATTENUATION

## Separating Floors

The separating floors, between both flats/flats and flats/restaurant will require acoustic isolation to meet the Building Regulations. These are applied to the existing floorboards which are retained and overlaid.

Details are drawing P400

## Ventilation Plant

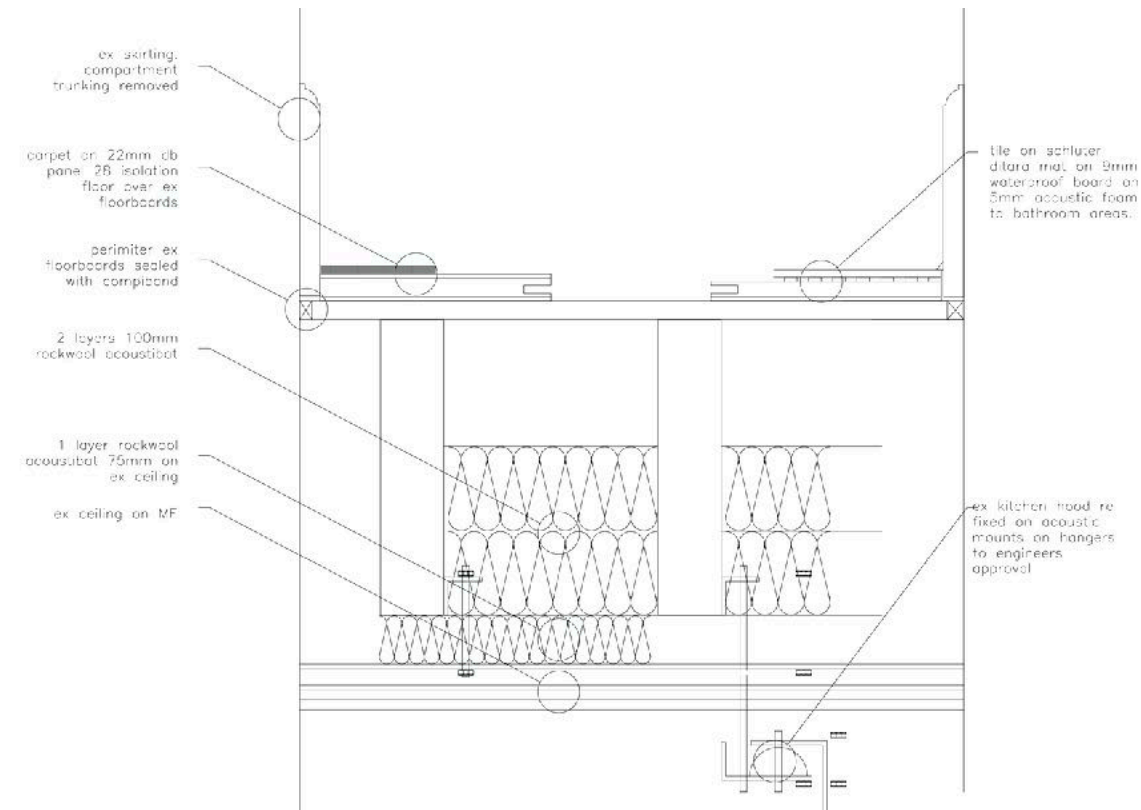
Currently the kitchen ventilation extract hood is solidly mounted through the first floor and as part of the works the bolts that hold it in place will be removed. The existing ceiling forms a fire compartment for the restaurant and kitchen separating it from the upper floors.

In addition the fans are to be re supported on anti vibration mounts within the hood as set out in the survey report.

The hood will be re fixed using isolation mounts to the underside of the kitchen ceiling on unistrut .

Details are drawing P400

These overlay flooring detail are compliant with Building Regulations robust details including EFC1,EFC2, EFS3 and achieve impact reduction of 52dB and airborne transmission isolation of 58dB.



Existing kitchen hood fixings to be removed and hood re fixed to ex kitchen ceiling.



Selectagaze system proposed

Primary Glass Thickness	Secondary Glass Thickness	Rw dB values for Selectagaze Ltd Secondary Glazing Systems*																				
		S10 HS	S15 HS	S20 VS	S25 VS	S31 LO	S41 SHC	S41 DSH	S41 LO	S40 FL	S44 SHC	S45 DSH	S45 SHC	S45 LO	S46 FL	S50 SHC	S55 DPL	S60 TVS	S80 HS	S85 HS	S90 VS	S95 VS
		50mm cavity																				
6mm	4mm Toughened	39	39																			
6mm	6mm	39	39			41	39	41	41													
6mm	6.4mm	39	39			41	39	41	41													
6mm	6.4mm Acoustic	40	40			42	40	42	42													
6mm	6.8mm	40	40			42	40	42	42													
6mm	6.8mm Acoustic	40	40			42	40	42	42													
6mm	7.5mm					42	40	42	42													
6mm	8mm Toughened					43	41	43	43													
6mm	8.8mm					43	41	43	43													
6mm	8.8mm Acoustic					43	41	43	43													
6mm	9.5mm					43	41	43	43													
6mm	10mm Toughened					43	41	43	43													
6mm	10.8mm Acoustic					44	42	44	44													
6mm	10.8mm					44	42	44	44													
6mm	11.5mm					44	42	44	44													
6mm	12mm Toughened					44	42	44	44													

Rw Correction Factors (based upon laboratory scenarios)	
acoustic tiles on 3 No sides - low spec glass	+2 dB
acoustic tiles on 3 No sides - high spec glass	+1 dB
acoustic vent 4000 open	-2 dB
trickle vent 4000 open	-3 dB
trickle vent 8000 open	-5 dB

Values have been interpolated and extrapolated from Rw values achieved at Taylor Woodrow on 21 to 22 March 2006.

50mm cavity

\*See attached Selectagaze drawings in Appendix A illustrating secondary glazing systems listed above

DRAWN	DATE	ISSUE	AA	AB	AC	AD	AE	AF
S. THOMPSON	23.06.21	C.N.	15/042	16/058	16/072	17/003	18/036	21/008
DESCRIPTION: Rw dB values for selectagaze Systems								
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SHEET NUMBER			OF 4 SHEETS			PROJECT NAME		
DS-056			DS-056-AF			ISSUE AF		

Acoustic performance of secondary glazing

## ODOUR CONTROL MEASURES



Ducted Solutions, a specialist ventilation design / installation company have surveyed the existing installation and made recommendations. Their report forms part of the application documents.

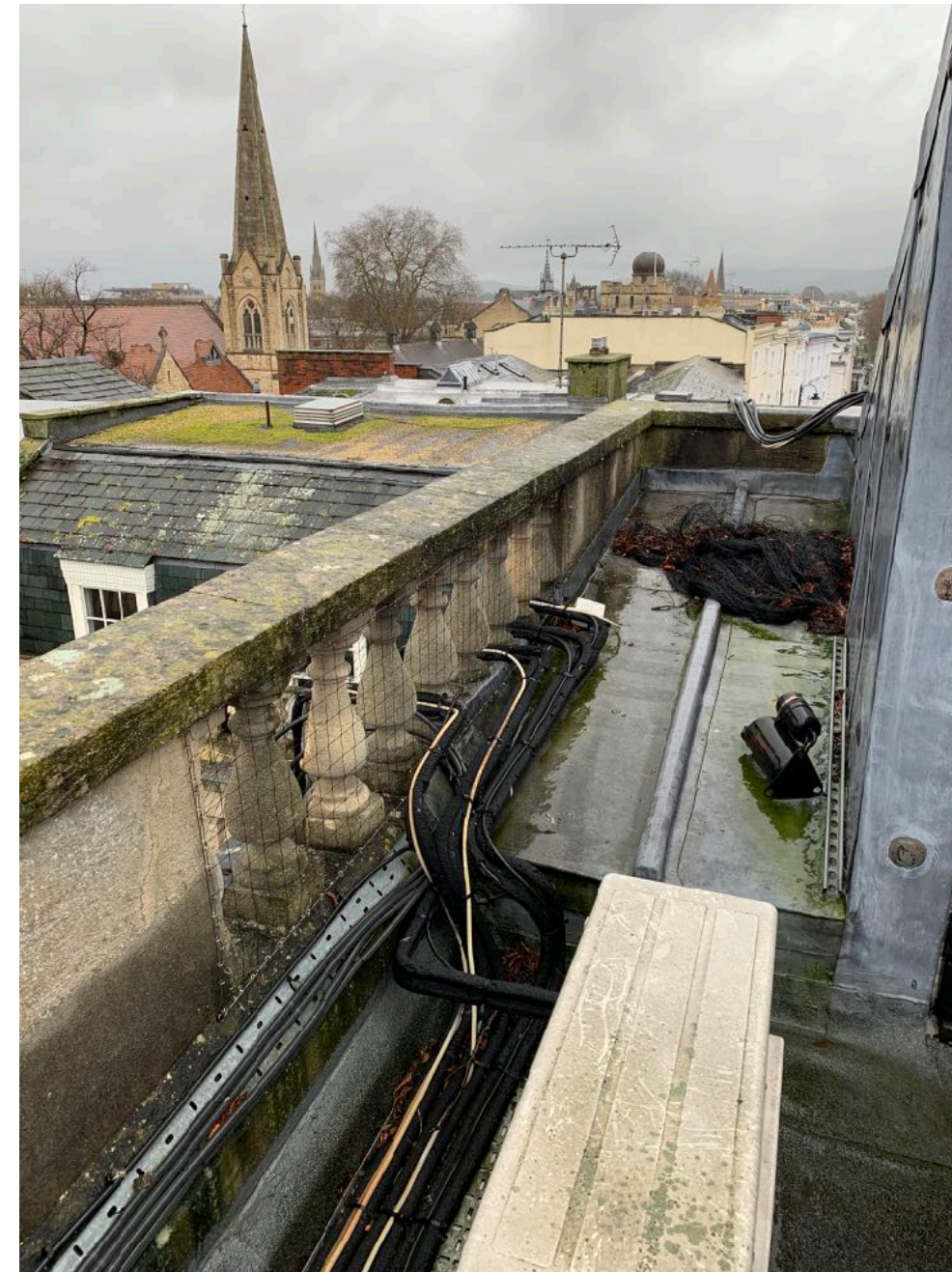
Their recommendations are:

### 5. RECOMMENDATIONS (Refer to DB-24-1001-03 & 04)

- 5.1. Installing of an Ozone Generator in the Kitchen to neutralize odours in the extracted air.
- 5.2. Re-evaluate the existing duct and canopies with access doors open, considering replacement of fixings with anti-vibration mountings.
- 5.3. Replace existing duct fixings on the outside wall with anti-vibration fixings and consider painting the duct to blend in with the building's aesthetics.
- 5.4. Remove the existing extraction fan and extend the duct onto the roof, routing through an existing balustrade with removable spindles.
- 5.5. Install an Electrostatic Precipitator (ESP) to remove grease and smoke from the extracted air.
- 5.6. Install a low-noise fan with additional silencer to minimize noise disturbance.
- 5.7. Mount all new equipment on anti-vibration mountings to reduce noise and structural impacts.
- 5.8. OPTIONALLY – Replace, or Extend the main canopy (Canopy 1) as per 4.7

These works are detailed on the application drawings all being internal to the kitchen and existing ductwork excepting the modification of the extract cowl / termination.

Details of anti vibration mounts under 5.2 are included on drawings



location of extract ductwork extension adjoining staircase

## ENGINEERED FIRE SOLUTION

The LPA requirement for an open plan floor layout requires an engineered fire solution for the second floor.

HH Fire, a firm of fire consultants, have provided advice on the fire compliance of the building and their recommendations are

- 1 Install BS 8458 compliant mist fire suppression system to the second floor open plan unit 4. (BS requires entire floor to be treated)  
This is detailed on the application drawings comprising flush mounted mist heads and mains supplied pressurised mist system linked to LD1 alarm and detection system.

Nozzles depicted here are 72mm dia. and the product brochure supplied as part of the application documentation.

The domestic pump control units are located within the kitchen cupboards.

- 2 install AOV to both staircases.  
These flush roof lights are at roof level and located on the proposed plans
- 3 Form lobby within kitchen to rear escape staircase.
- 4 The existing first floor between the restaurant and offices is an existing compartment floor. The existing FRA shows the second floor as a compartment floor however on inspection during the building works areas of existing lath and plaster that remain may require treatment to ensure that the FD 30 rating is maintained. Specification M60 provides for the installation of a certified intumescent coating in this instance to avoid the need for replacement of the lath and plaster with plasterboard.

### Glass lid Automatic Opening Vent



Glass lid AOV with weather cowl in closed position



Glass lid AOV with weather cowl opened for comfort ventilation



Glass lid AOV fully opened for smoke ventilation



## The iCO Nozzle Technical Datasheet

### Specification

**K Factor:** 1.92

**Temperature rating:** 57°C

**Manufacturer:** HiPro Industries.

**Part Number:** PU002-00

**Max Pressure:** 1020 psi (70 bar)

**Response Type:** Fast (Residential)

**Occupancy Type:** Domestic

**Connection Size:** 3/8" BSP

**Min Spacing:** 2m (6.5ft)

**Max Spacing:** 4m x 4m (13.2 x 13.2ft)

**Colour:** Standard colour white, other colours available on request.

**NOTICE:** The product details indicated are for general reference only and may vary based on the specific product approval and/or application.



## SPECIFICATIONS

The following NBS specifications form part of this application

L10 - Secondary Glazing

L40 - Window Repairs

M60 - Coating Systems



Existing compartment first floor

Patched ceilings second floor to be treated as M60





