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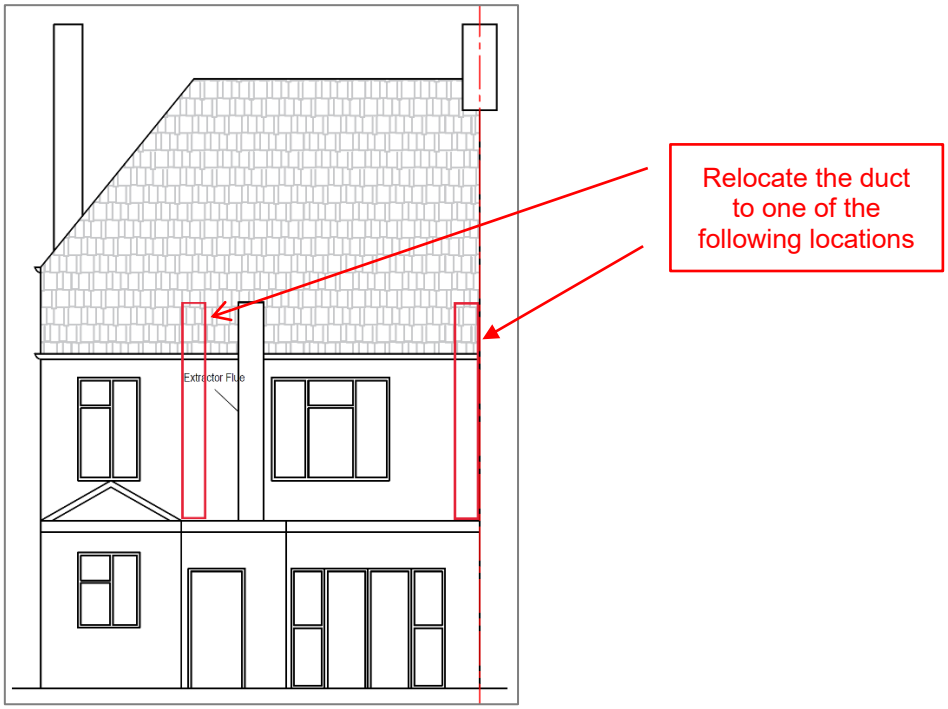
Acoustic Note ph-104267-01 **28th January 2022**
AWDM/2012/21 268 Upper Shoreham Road, BN43 6BF
Ref Docs
[1] 104267.ph.Issue1 Noise Impact Assessment

Acoustics Plus (APL) understands that concern has been raised by Ms Hannah Powell (EHO at Adur & Worthing Councils) with regard to the proximity of the nearest noise sensitive façade to the proposed location of the kitchen extract discharge. The EHO stated:

"I do have one query concerning the assessment of noise of the kitchen extraction system. The report assumes the nearest noise sensitive dwelling is No.270A (flat above the neighbouring unit). However, the report should be assessing the impact of noise at No.268A (flat above application site) as this is the nearest noise sensitive dwelling. Please could the rating level at 268A be calculated?"

The noise impact assessment did not originally consider this dwelling as it is understood that this flat will be the managers flat belonging to the ground floor unit.
Notwithstanding the above and based on the EHO comments, consideration was given to the flat at No.268A.

Given the windows belonging to this flat are signifcantly nearer to the extract discharge than the neighbouring property, the calculation exercise was repeated and is attached. In order to meet the Local Authority noise requirements, the following would need to be implemented.



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The duct relocation would ensure the duct extract discharge is a minimum of 2.5m from the window openings of the habitable room at No. 268A.

The length of the proposed silencer should also be increased from 900mm to 1200mm to maximise the attenuation efficiency of the silencer. For the purposes of this calculation exercise, a Lindab SLU 315 1200mm (50mm insulation) has been utilised.

Finally, the 90º bend within the duct work should be an attenuating bend. An example product is shown below.



The attenuating bend is made of two duct bends inside one another. The inner bend is made of perforated steel sheet. The clearance between the outer cladding and the inner perforated cladding is filled with sound insulating material. This material is lined with a cloth to prevent entrainment.

Noise egress from duct termination

The methodology utilised to calculate the noise egress from the duct termination is outlined in APL Doc Ref: 104267.ph.Issue1. The calculation has been re-evaluated in light of the information provided above.

Noise leaving the ductwork system at the duct outlet was propagated to the nearest noise sensitive façade using point source propagation.

Source of noise egress	L_p dBA @ noise sensitive façade
Kitchen extract duct discharge	40dB

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The following corrections were accounted for to determine a rating level:

Results	Correction	Relevant clause	Commentary
Acoustic feature corrections	+2dB	9.2	Tonality - 2dB Impulsivity – 0dB Intermittency – 0dB Other – 0dB

In order to comply with the requirements of the LPA, any noise from the proposed installation of mechanical plant should not exceed a rating level of 42dBA at 1m from the nearest noise sensitive façade.

The calculated noise impact rating level is 42dBA. The calculated rating level is at such a level that there is an indication that the specific sound source will have a low impact.

To conclude, the repositioning of the duct combined with additional measures means that the Local Authority noise requirements can be met at the nearest noise sensitive dwelling, now considered to be No.268A.

Your Sincerely,

Phil Huffer B.SC (Hons) MIOA
Principal Consultant

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CONTRACT TITLE:		268 Upper Shoreham Road												
SOUND SOURCE:		Kitchen extract fan												
MAKE & MODEL:		Ruck MPS 450 E4 20												
From:		Exhaust air												
						OCTAVE BAND CENTRE FREQUENCY (Hz)								
OVERALL Lw						63	125	250	500	1k	2k	4k	8k	dBA
1			Fan sound power			75	80	73	65	65	64	60	51	72
2			Grille area	1.000										
3			Lw at grille			75	80	73	65	65	64	60	51	72
4														
5	LENGTH (m)	C or R	x (mm)	x (mm)										
6	4.00	C	400-800			0.28	0.28	0.28	0.40	0.64	0.64	0.64	0.64	
7														
8														
9														
10														
11														
12														
13														
14														
15														
16	Bends (Lined)													
17	NUMBER	TYPE	SIZE (mm)											
18	1	90	0400-0500			0.00	1.00	5.00	16.00	18.00	16.00	17.00	17.00	
19														
20														
21														
22														
23														
24														
25	BRANCHES													
26						0	0	0	0	0	0	0	0	
27														
28														
29	DUCT X-SECTIONAL AREAS													
30														
31														
32	OTHER ATTENUATION													
33	Lindab SLU 315-1200 (50mm insulation)					2	3	8	20	39	16	9	10	
34														
35														
36														
37	END REFLECTION SIZE (m)													
38	0.101 – 0.150					10	6	2	0	0	0	0	0	
39														
40					**Lw LEAVING SYSTEM**	63	70	57	29	7	31	33	23	55
41	Room Volume (m^3)			100000		-36	-36	-36	-36	-36	-36	-36	-36	
42	Mid-Frequency RT (s)			0.05		-13	-13	-13	-13	-13	-13	-13	-13	
43					**REVERBERANT SPL**	14	21	8	-20	-42	-18	-16	-26	6
44	Distance to Listener			2.5		-19	-19	-19	-19	-19	-19	-19	-19	
45	Q=1 in free space			0.086 – 0.220		1	3	5	7	8	8	9	9	
46	Q=2 flush with surface			n/a		0	0	0	0	0	0	0	0	
47	Q=4 junction with 2 surfaces			n/a		0	0	0	0	0	0	0	0	
48					**DIRECT SPL**	45	54	43	17	-4	20	23	14	40
49					**RESULTANT TOTAL SPL**	45	54	43	17	0	20	23	14	40