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**Proposed Roof Mounted  
Ventilation Equipment**

**Holiday Inn, Suffolk Wharf  
Camden, London**

**Building Services External  
Environmental Noise Assessment**

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## **1. INTRODUCTION**

- 1.1 Acoustics Plus Ltd (APL) is an independent firm of multi-disciplinary acoustic engineers. APL is engaged by both private and public sector clients.
- 1.2 APL has been instructed by the Applicant, Splendid Hotel Group, to consider and advise upon the noise implications of its proposal to install ventilation equipment at roof level.
- 1.3 A number of items of plant and ventilation equipment will be located on the main roof.
- 1.4 We understand the Local Planning Authority (LPA) will require further information on noise levels from the proposed installation in order to fully assess the potential noise impact upon the surrounding neighbourhood.
- 1.5 This report provides the response to the LPA, on behalf of the Applicant.

## **2. BASELINE SITUATION**

- 2.1 The Application Site (the "site") is situated at Suffolk Wharf, Camden. This site is situated between The Grand Union Canal and Jamestown Road.
- 2.2 The site, once completed, will comprise an area on the roof designated for mechanical services. APL has been provided with extensive drawings of the proposed mechanical services layout at roof level (see Appendix 1).
- 2.3 It is understood that the roof area containing the ventilation equipment will be bounded on all sides by a wall, providing screening to the adjacent areas.
- 2.4 The proposal is to mount a low noise air water chiller unit, a dry air cooler, kitchen extract, toilet extract and bathroom supply at roof level. The proposed main roof plan including the location of the ventilation equipment can be found in Appendix 1.

- 2.5 Information in regard of the noise levels from the proposed ventilation equipment has been provided by Anson HVAC and EMEC Consultants (copy of the data sheets is provided in Appendix 2). The units are itemised below:

Main Roof

- (a) Kitchen Extract CFD200 - STD
- (b) Bathroom Supply MAX Model 3
- (c) Toilet Extract Fan 512
- (d) Chiller Unit Climate RCUE 180 AG
- (e) Dry Air Cooler for Combined Heat and Power system

### 3. NOISE OUTLINE

- 3.1 In order to produce an environmental noise assessment, consideration must be given to the prevailing background noise in the locality of the proposed installation.
- 3.2 Measurements in relation to background noise were provided by Dr John Anani from Environmental & Consumer Services of London Borough of Camden (see Appendix 3).
- 3.3 The particulars of the measurement exercise were not presented.
- 3.4 The measurement of background noise was presented as follows:

$L_{A90}$  percentile level (dB re 20 $\mu$ Pa)

- 3.5 The measurement obtained during the exercise was noted as 45 dBA (see Appendix 3).
- 3.6 Information regarding the noise levels not to be exceeded by the proposed installation was provided by the LPA (London Borough of Camden):

*"The noise level at the residential window should be 40 dB or less to meet our planning noise conditions/requirements."*

- 3.7 The noise level of the roof mounted units was established from the data sheets provided (Appendix 2) as detailed. Octave band data was obtained from the noise curves included.

Main Roof

- (a) Kitchen Extract (silenced) CFD200 – STD  $L_p$  69 dBA @ 3m
- (b) Bathroom Supply MAX Model 3  $L_w$  89 dB
- (c) Toilet Extract Fan 512  $L_p$  67 dBA @ 1m
- (d) Chiller Unit Climate RCUE 180 AG  $L_p$  51 dBA @ 10m
- (e) Dry Air Cooler  $L_p$  65 dBA @ 1m

#### **4. CALCULATIONS**

- 4.1 In order to predict the noise impact of the proposed ventilation systems, consideration has been given to noise egress from the roof mounted condenser and fan units.
- 4.2 The calculation exercise utilised information provided by Anson HVAC and EMEC Consultants (copy of the data sheets is provided in Appendix 2).
- 4.3 Throughout the calculation exercise, guidance and formula were extracted from the publication “Noise Control in Building Services” (published by SRL).
- 4.4 The total attenuation was calculated by considering distance attenuation to the nearest noise sensitive façade and also attenuation provided by diffraction from the roof perimeter wall to below.
- 4.5 For the purposes of this calculation exercise, a nominal diffraction effect of –8dB was assumed. This attenuation was assumed from a knowledge of the theory behind the Maekawa formula and the layout of the site, in particular the proposed location of the equipment.
- 4.6 Noise leaving the roof area was propagated to the nearest noise sensitive façade using point source propagation. Although not accurately measured, a distance of thirty five metres (35m) was used for calculation purposes and is judged as appropriate. This was approximated from detailed drawings.

- 4.7 The calculation exercise provided the following results at a distance of 35m:

Source	L <sub>p</sub> dBA @ 35 metres
All ventilation equipment on	38

Table 2 – Results at 35m

- 4.8 In order to comply with the requirements of the LPA, any noise from the proposed installation of roof mounted ventilation equipment should not exceed a level of 40 dBA (the lowest measured background noise over a 24 hour period less 5dB) at the nearest residential façade.

## **5. CONCLUSION AND RECOMMENDATIONS**

- 5.1 The foregoing assessment represents a worst case scenario as it is based on all ventilation equipment operating simultaneously. Further, the background noise provided by the London Borough of Camden is likely to be a night-time level. It is unlikely that all ventilation equipment will operate simultaneously throughout the night.
- 5.2 The results indicate that under a worst case scenario, the proposed installation will meet the requirements imposed by the LPA.
- 5.3 Given the findings of the assessment exercise, we are of the opinion that further mitigation measures will not be necessary. A number of mitigation measures were specified prior to the production of this assessment. These measures have been incorporated into the scheme.