

# design note

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Project	Kingsway Hall Hotel	Project no	L13450
Subject	Planning Statement – Plant Acoustics and Odour Control	Date	1 <sup>st</sup> June 2017
Distribution	Shiva, SLW, RHH Project File		

## Introduction

This design note has been prepared to outline the proposed ventilation strategy to deal with odours, and demonstrate compliance with acoustic requirements.

The following information relating to environmental requirements are embedded within the Mechanical Specification for the project.

## Noise and Vibration Insulation

All systems shall be provided with suitable and adequate vibration and sound insulation, generally in the form of anti-vibration mounts and hangers and purpose built ductwork and plant attenuators.

## Odour Control System

The extract system will be deemed high risk under the definitions as set out by the DEFRA Guide and as such will require a high level of odour control filtration. Such systems as required will be incorporated into the extract hood arrangements to be provided by the kitchen specialist.

Filtration systems shall comprise of electrostatic precipitator units and carbon filter banks in order to reduce exhaust odours to an absolute minimum and provided by the Kitchen Specialist.

## Acoustic Criteria

Acoustic performance is of critical importance to the satisfactory operation of the Hotel. The Contractor is required to provide installations to meet fully with the following scheduled criteria:

## **Noise Emissions from External Plant**

The London Borough of Camden requires noise emission to be controlled in line with the limits set down in Table E of Policy DP28. For typical building services plant the noise emission should be controlled to 5dB below the background noise level, however, if this plant noise includes some acoustic feature such as a distinctive tone or impulsive character, then the limit is made more onerous and reduced to 10db below the underlying background noise level.

## **Building Services Equipment**

The noise generating plant associated with this refurbishment included heat rejection plant and ventilation plant. The precise selections are not known at this stage as these will be subject to final selection by the design and build contractor. The extent of building services plant is not expected to significantly increase as the building already utilises air conditioning and ventilation and will still continue to function as a hotel.

## **Background Noise Levels**

The London Borough of Camden do not specify a particular assessment duration for establishing background noise levels or the noise emission limit for building services equipment. The measurement data obtained from the survey was recorded in 10 minute samples as this provides a good balance between detail and quantity of data over a 48 hour measurement period. The methodology in BS 4142:1997, however, requires that a 5 minute assessment period be used at night and an hourly period be used during the daytime. In practice it is expected that the difference in noise level between these two sample periods at night is negligible.

Given the consistent nature and character of the prevailing background noise level, the lowest background noise level, is considered to be suitable for setting a noise limit for the building services plant serving the hotel and this has been taken to be 57dBL<sub>A90</sub>.

## **Nearest Noise Sensitive Neighbours**

The nearest neighbouring facades to the new plant enclosure are the numerous neighbours surrounding the rear of the hotel generally between 10 and 15m from the rear roofs of the hotel.

## **Noise Emission Limit**

The requirement on noise emission in Policy DP28, is a limit of 5dB below the underlying background noise level. Based on the lowest measured background noise levels of 57dBL<sub>A90</sub> during the survey a noise emission limit of 52dB L<sub>pA</sub> is determined.

These limits assume that the proposed building services plant does not have any particular acoustic feature or distinctive character. If the final selections are to possess any acoustic features then this limit will need to be made 5dB more onerous ie 47dB<sub>L<sub>PA</sub></sub>.

This limit is to apply at 1m from the window of any neighbouring property when all hotel plant is operating simultaneously. Once specific plant selections are known then the achievement of this limit can be confirmed.

### Attenuation of external (to plant and equipment) noise within the development

The plant and equipment shall be designed to achieve the following attenuation of external noise levels, in conjunction with the building fabric.

Room	External Intrusion Noise Level
	Full Service Grade
Guestroom Daytime (07:00 – 23:00) Night-time (23:00 – 07:00)	35dB L <sub>Aeq</sub> , 16h 30dB L <sub>Aeq</sub> , 8h/40dB L <sub>Amax</sub> (fast) *
Meeting/function rooms	32dB L <sub>Aeq</sub> , 5min
Bar/restaurant/breakout	38dB L <sub>Aeq</sub> , 5min
Executive lounge	35dB L <sub>Aeq</sub> , 5min
Lobby/reception/guest corridors	42dB L <sub>Aeq</sub> , 5min
Toilets/Employee changing	40dB L <sub>Aeq</sub> , 5min
Fitness centre	40dB L <sub>Aeq</sub> , 5min
Spa	38dB L <sub>Aeq</sub> , 5min
Offices	38dB L <sub>Aeq</sub> , 5min

**Airborne and structure borne noise limits from building services (including equipment rooms)**

Room	External Intrusion Noise Level, $L_{eq}$
	Full Service Grade
Guestroom	NR25
Guestroom bathroom	NR35
Meeting/function rooms	NR30
Bar/restaurant/breakout	NR35
Executive lounge	NR35
Lobby/reception/guest corridors	NR40
Public Restrooms	NR40
Employee toilets/changing	NR45
Fitness Centre	NR40
Spa	NR35
Offices	NR35
BOH/Service areas	NR40-45

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