# Technical Memorandum

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TITLE : Tenant Design Noise Targets

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This document outlines design targets for incoming tenants based upon the results of a background noise survey undertaken at 120 Holborn. The noise survey was undertaken at third floor level at a position chosen to give readings representative of the noise climate at the closest noise sensitive facades, those of the flat dwellings of high rise properties to the north east.

This document relates only to plant located in the courtyard area though the cumulative noise targets at the residential noise sensitive facades should apply to noise emissions from the whole building. Any changes or additions to roof plant (or otherwise) should also be assessed using the same design criteria.

**Existing Background Noise**

The following table summarises the façade corrected background noise levels for the day and night periods:

| Period | Minimum $L_{A90}$ – dB |
|---|---|
| Day time (0700-2300 hrs) | 45 |
| Night-time (2300-0700 hrs) | 44 |

**Table 1 : Minimum measured background noise levels (façade corrected)**

**Planning Requirements**

In accordance with Camden Council's Planning requirements, cumulative plant noise emissions from the premises will need to be limited in accordance with the following requirements of their policy reference DP28:

| Noise description and location of measurement | Period | Time | Noise level |
|---|---|---|---|
| Noise at 1 metre external to a sensitive façade | Day, evening and night | 0000-2400 | 5dB(A) <LA90 |
| Noise that has a distinguishable discrete continuous note (whine, hiss, screech, hum) at 1 metre external to a sensitive façade. | Day, evening and night | 0000-2400 | 10dB(A) <LA90 |
| Noise that has distinct impulses (bangs, clicks, clatters, thumps) at 1 metre external to a sensitive façade. | Day, evening and night | 0000-2400 | 10dB(A) <LA90 |
| Noise at 1 metre external to sensitive façade where LA90>60dB | Day, evening and night | 0000-2400 | 55dB$L_{Aeq}$ |

**Basis for assessing Tenant design criteria**

Inherent in the building design and operation are plant items (existing and proposed) as provided by the Landlord. The additional contribution to the building noise emissions by the tenant plant needs to be limited so as to ensure compliance with the Camden design targets and Planning policy. In the absence of specific plant details it is proposed to apportion contributions such that the targets are met. The apportionment is based upon the following likely tenant occupation:

Tenant TYPE 1 on floors 1, 2, 4, 7 & 8 (5 N° tenants total) with minimum supplementary condensers (typical of a single 'Comms' room type unit.

Tenant TYPE 2 Major retail tenant (1N° tenant total) with a number of major plant items.

Tenant TYPE 3 Existing Basement tenancy (Bounce bar).

**Tenant Plant Noise Design Criteria**

The following table gives noise criteria for the cumulative plant noise emissions from each tenant. The criteria are rating noise levels in accordance with the principles of BS4142. Where the plant noise requires character correction appropriate measures should be taken to account for this. The limits have been set based on 5 N° TYPE 1 tenants, 1 N° TYPE 2 tenant and 1 N° existing basement tenant.

| Tenant designation | Plant noise limit $L_{Ar}$ | |
|---|---|---|
| | Day time (0700 – 2300hrs) | Night time (2300 – 0700hrs) |
| TYPE 1 | 23 dB | 20 dB |
| TYPE 2 | 30 dB | 27 dB |
| TYPE 3* | 30 dB | 27 dB |

*** Existing tenant plant located in the basement – ducted to courtyard level**

**Table 2 : Tenant plant noise limits to be met 1m from the facades of noise sensitive premises**

**Landlord Noise Control**

Courtyard plant compounds and enclosures will be formed of acoustic louvres provided by the Landlord (EEC Ltd type LA1/27 as per the attached data sheet) and for the purposes of outline assessment are expected to provide up to 10dB of attenuation, though the in situ noise reduction will be dependent on plant type and source noise spectra. The actual reduction should be checked and verified by each tenant.

As a guide and on the general assumption that tenant plant is located on the south extent of the courtyard close to the Landlord demised plant compound (30m away from the residential boundary) and within an acoustic enclosure formed of EEC type louvres LA1/27, the cumulative contribution of plant due to each prospective tenant should be limited to the following levels:

| | | |
|---|---|---|
| TYPE 1 | 56 dB(A) at 1m freefield | 0700 – 2300hrs |
| | 53 dB(A) at 1m freefield | 2300 – 0700hrs |
| TYPE 2 | 63 dB(A) at 1m freefield | 0700 – 2300hrs |
| | 60 dB(A) at 1m freefield | 2300 – 0700hrs |

**Typical plant noise limits at 1m (Total per tenant within LA1/27 type acoustic louvred enclosure)**

Note that these levels are provided as an outline guide and should not be taken as a robust assessment of limiting noise levels. Actual noise levels emitted from the enclosures will depend on plant type, operating and mounting conditions and shall be assessed in detail by each tenant as part of their design.

**Tenant Technical Submissions**

It is recommended that prospective tenants submit technical assessment of their proposed plant noise emissions for review by the Landlords appointed acoustic consultant such that the building noise emissions can be fully coordinated.

# EEC Acoustic Louvres

Environmental Equipment Corporation Ltd

## APPEARANCE

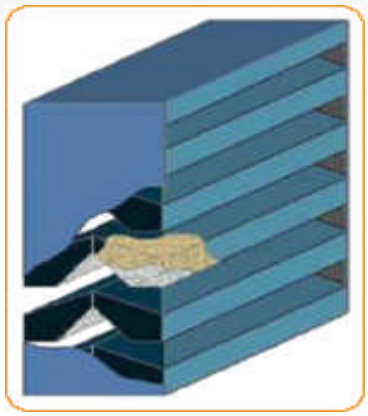
EEC Acoustic Louvres can be manufactured to accommodate the various dimensional and appearance requirements a building project may demand.

The louvres can be designed and constructed to be installed in the exterior fabric of buildings or as complete acoustic enclosures to house noise emitting plant. Also supplied are acoustic louvred fully openable single and double doors.

Special materials and finishes available include stainless steel, anodised aluminium and painted to the complete BS colour range.

Louvres are supplied, in single bank modules (LA1) or back-to-back “chevron” modules (LA2) ranging from 150mm to 600mm deep.

## CONSTRUCTION



Built to the highest quality and specification, all EEC acoustic weather louvres will have outer casings of not less than 1.2mm galvanised mild steel sheet.

The louvre blades and outer faces of the top and bottom support sections will not be less than 0.7mm galvanised mild steel sheet. The inner absorptive faces will not be less than 0.7mm galvanised perforated mild steel sheet.

The acoustic infill will be in-organic, non-hydroscopic, flame, moisture and vermin proof mineral wool with a minimum density of 48Kg/m 3 and packed under compression to prevent voids due to settlement.

## PERFORMANCE

The overall acoustic performance for single and double bank acoustic louvres varies depending on the free area, louvre blade design and the noise spectrum from the attenuated plant item.

Typical SRI figures for standard Acoustic Louvre configurations are presented below

| Frequency - Hz | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K |
|---|---|---|---|---|---|---|---|---|
| LA1 SRI - dB | 6 | 7 | 10 | 13 | 17 | 19 | 13 | 11 |
| LA2 SRI - dB | 9 | 10 | 14 | 20 | 30 | 33 | 32 | 30 |

## AERODYNAMICS

It is generally recommended to avoid excessive regenerative noise from the louvres that air flow pressure losses across the louvres be kept below 20 Pa. This again varies on the final specification of each louvres, however no acoustic louvre should be run faster than 2.5 m/s.

quietly moving forward


NOISE AND VIBRATION CONTROL SPECIALISTS

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