SCN-20060323-001

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BRITISH BOARD OF FILM CLASSIFICATION
ACCOMMODATION COMMITTEE

Minutes of the meeting held on 9 February 2006
At 3 Soho Square, London W1D 3HD
at 10.00 am

Present: Imtiaz Osman
Natasha McFadzean
Ian Sutherland

1. Apologies for Absence

There were apologies for absence from W McMahon.

2. Progress report

- NM reported that MWB could provide 4 serviced offices on Oxford Street and had confirmed that viewing in these offices would be allowed. IT would need to go and check their internet connections to test access to C.I.S. SL had indicated that this would not be a problem but would confirm after he and SH had tested the connections.
- Subject to IT giving clearance, negotiations to start on hire of 4 offices for 3 days a week beginning May.
- IS reported that there was lots of space available in the vicinity but more information was required from IT as to specifications for housing digitisation project. IO reported that digitisation project evaluation would be done in April and a pilot run would be made on the suppliers premises between June to August. Full details would be made available by DLH after evaluation of bids.

3. Any other business

There being no further business, the meeting was closed.

SCN-20060323-002

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BRITISH BOARD OF FILM CLASSIFICATION
ACCOMMODATION COMMITTEE

Minutes of the meeting held on 11 January 2006
At 3 Soho Square, London W1D 3HD
at 10.00 am

Present: Imtiaz Osman
Natasha McFadzean
Ian Sutherland

1. Apologies for Absence

There were apologies for absence from W McMahon.

2. Space requirements

- IO informed NM and IS that Council Members had authorised recruitment of nine additional staff. In view of the limited space available on the premises, permission had been given to use serviced offices in the short term. NM pointed out that training of new examiners could only be done in the meeting room and therefore all meetings would have to be held at outside locations. She also noted that as most of the examiners had expressed an interest in working one day a week from home, the new examiners could be accommodated within the premises but they will need to share desks. NM was asked to liase with IServe, ESS and DB with a view to drawing up a viewing plan for examiners. She was asked to include re arrangement of nine day fortnight so that examiner days off are spread evenly during the week.

- IO also reported that the evaluation of the Digitisation project was likely to be completed by May and that a final decision would be taken thereafter. If the decision is to undertake the project in house then an additional 1000 -1500sq ft space would be required to house the equipment and staff. This would require leasing additional premises.

3. Additional Premises

IS was asked to contact Estate Agents to identify suitable premises of at least 2500sq ft within

1 Scope

This International Standard specifies measurement methods and maximum ratings for indoor background sound pressure levels in theatres, review rooms and dubbing rooms.

It applies to noise emitted by heating, ventilating and air-conditioning systems, intrusive noise from the projector(s) associated with the theatre and noise emitted by any other mechanical or electrical equipment in the theatre building. It is intended for application when the background noise is essentially a steady-state sound, without strong time-varying components.

It does not apply to intrusive noise from other sources outside the theatre, such as aircraft, highway traffic, or adjacent theatres, or to noise resulting from the operation of the sound system in the theatre, or the vibration of the theatre, i.e. movement of the building below 20 Hz.

2 Normative references

ISO 266:1975, *Acoustics —*
measurements.

IEC 651:1979, *Sound level r*

3 Test conditions

3.1 The air-handling syste
brought to the noisiest state
screenings, generally "on", v
operating. Any other mecha
ment, such as projector exh
transformers, or the like, w
shall be brought to the nois
during screenings. The proje
ning normally, with film. Po
system shall be turned off.

3.2 Measurement equipn
IEC 651, using a class II oct
third-octave band filter in ac

3.3 The measurement s
"slow" reading.

(informative)

Additional information

A.1 The noise criteria curves are for use in rating indoor noise levels. The curves, if followed as design criteria, do not result in neutral sounding background noise spectra. Many listeners observe that an NC spectrum sounds too "rumbly" and too "hissy", having too much very low-frequency and very high-frequency energy. A constant sloped spectrum at – 5 dB per octave from low- to high-frequencies has been observed as producing a more neutral sounding spectrum and is probably more suitable for design purposes.

A.2 The NC rating of a space does not represent the spectrum of the background noise; valuable information about the "quality" of the noise in a space is missing from any single number rating. It can be useful to retain records of the complete spectrum, since there exist methods to further characterize the noise, such as the RC method, which can yield more information. In particular, spectra with narrow band concentrations of energy sound "tonal"; subjectively, they might be increased in rating by as much as 8 dB relative to the continuous spectrum, depending upon how far above the average spectrum the tonal component lies.

A.3 Too little noise in a theatre or review room can be a problem as well as too much. With too much noise, detail is obscured and, ultimately, intelligibility suffers. With too little noise, intermittent intrusive noise may become audible and annoying; therefore, it is advisable to use reasonable background noise levels to mask intrusive noise sources.

A.4 Dubbing studios are advised that if the background noise levels in studios are much lower than those in theatres, low-level sounds which are audible in the dubbing studio can be inaudible in theatres because of masking.

A.5 As a guide to whether high levels of vibration are present, measurement of the "linear" weighting of a Type 1 sound level meter compared with the octave band sound pressure level can provide useful information; if the level of linear measurement exceeds the logarithmically added sum of the band levels from 31,5 Hz to 16 kHz by more than 3 dB, then vibration which is detectable by the audience is present.

A.6 As a practical matter, large diameter microphones are useful for measuring the sometimes very low theatre noise levels due to their low self-noise, but large diameter microphones also show relatively strong diffraction effects at high frequencies. To obtain an adequate spatial average of high frequencies, the microphone should be rotated at least about a line perpendicular to the floor and a line perpendicular to the side walls to obtain the average reading at each location for the high-frequency bands.

evels.

rred octave band centre frequencies
Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz,
Hz and 16 kHz.

tave band measurement equipment
er than octave band or switchable
ment, measurements may be made
nds and converted to octave bands
ddition of three bands (one at the
re and the two surrounding it).

sound pressure level, L, is then:

$(10^{L_1/10} + 10^{L_2/10} + 10^{L_3/10})$

sound pressure level of the first
ctave;

sound pressure level of the second
ctave;

sound pressure level of the third
ctave.

4.3 Plot the spectrum resulting from the recorded measurements on octave band noise criteria graph paper such as that shown in figure 1. The point of the highest excursion of the background noise spectrum compared to the noise criteria (NC) curves is the NC rating.

NOTE 1 The original NC curves (see 5.1) have been extrapolated to the 31,5 Hz and the 16 kHz octave bands for the purposes of this International Standard.

5 Sound pressure level classifications

5.1 Dubbing rooms, review rooms and premier showings (see A.3 and A.4) shall have a minimum rating of NC-20 and a maximum rating of NC-25.

5.2 First-run theatres shall have a maximum rating of NC-30.

5.3 Subsequent-run theatres shall have a maximum rating of NC-35.

5.4 Levels beyond NC-45 will result in poor audio reproduction.

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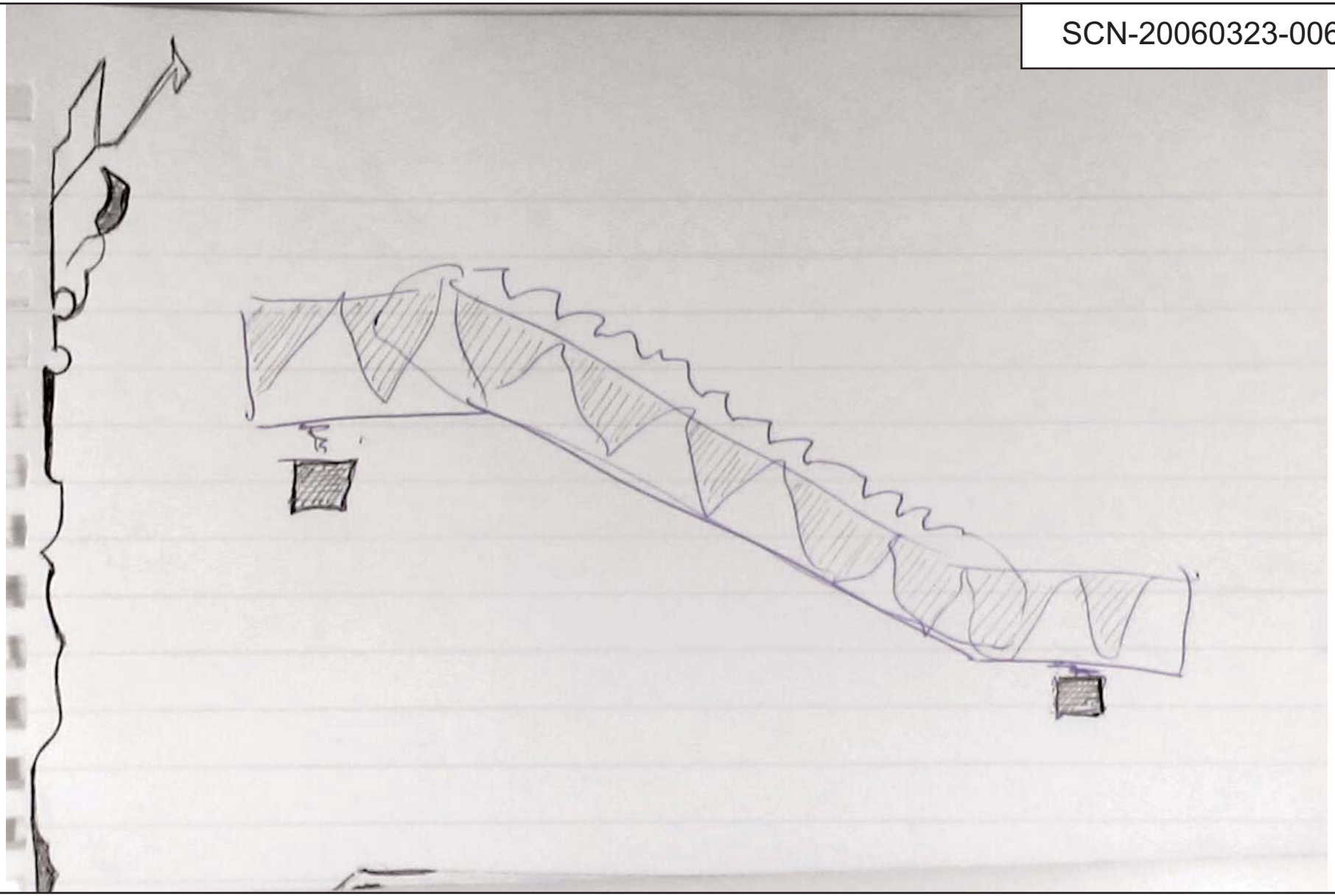

Record of Evidence : Presented on 23/03/2006

Introduction

Noise control in and around buildings is treated in this code of practice on an objective and quantifiable basis as far as is currently possible. For many common situations, this code suggests criteria — such as reasonable sleeping/resting conditions — and proposes noise limits that will normally satisfy these criteria for most people. However, it should be borne in mind that people vary widely in their sensitivity to noise, and the limits suggested may have to be adjusted to suit local circumstances. Moreover, noise limits refer only to the physical characteristics of sound and cannot differentiate between pleasant and unpleasant sounds. Important though psychological factors may be, it is not practicable to consider them here.

Attention is drawn to the fact that measures taken to control sound may also impinge on fire precautions and other health and safety requirements; all such requirements should be considered together at an early stage of the design.

1 Scope

This British Standard gives recommendations for the control of noise in and around buildings, and suggests appropriate criteria and limits for different situations. These criteria and limits are primarily intended to guide the design of new or refurbished buildings undergoing a change of use, rather than to assess the effect of changes in the external noise level. It covers room acoustics for simple situations, but not the design of buildings where the acoustics are critical, such as auditoria.

This code of practice does not cover vibration control, except where it is evident in the form of radiated sound.

2 Terms and definitions

For the purposes of this British Standard, the following terms and definitions apply.

2.1

sound pressure

2.3

sound pressure level

L_p

quantity of sound pressure, in decibels (dB), given by the formula:

$$L_p = 10 \log_{10} (p/p_o)^2$$

where

p is the root mean square sound pressure in pascals (Pa);

p_o is the reference sound pressure (20 μPa)

NOTE The range of sound pressures for ordinary sounds is very wide. The use of decibels gives a smaller, more convenient range of numbers. For example, sound pressure levels ranging from 40 dB to 94 dB correspond to sound pressures ranging from 0.002 Pa to 1 Pa. A doubling of sound energy corresponds to an increase in level of 3 dB.

2.4

A-weighted sound pressure level

L_{pA}

quantity of A-weighted sound pressure, given by the following formula in decibels (dBA):

$$L_{pA} = 10 \log_{10} (p_A/p_o)^2$$

where

p_A is the A-weighted sound pressure in pascals (Pa);

p_o is the reference sound pressure (20 μPa)

NOTE Measurements of A-weighted sound pressure level can be made with a meter and correlate roughly with subjective assessments of loudness, and are usually made to assist in judging the effects of noise on people. The size of A-weighting, in 1/3 octave bands, is shown in annex A (see **A.5**). An increase or decrease in level of 10 dBA corresponds roughly to a doubling or halving of loudness.

2.5

percentile level

$L_{AN,T}$

A-weighted sound pressure level obtained using time-weighting "F", which is exceeded for N % of a

ıould be arranged in a circle or oval, rather
ırallel rows facing each other. The ceiling
acoustically hard and low (not more
at least over the table area, to reflect
carpet will minimize noise from chair and
ements, and reverberation should be
l by absorbent materials on the walls.
artitions should be provided in large rooms
e can be reduced when it is not fully
The sound insulation of partitions is
d separately in **7.6.3.1**.

ecture theatres

peakers project sound predominantly in the
irection, so all listeners should have a
e view of the speaker's face. To facilitate
eating may be splayed in a fan shape
e lecturer's dais, extending about 70° either
e centre line. The direct sound reaching the
e audience will be weakened if the
stener path passes over the heads of
g listeners at a shallow angle. The effect
nimized by raising the speaker on a
r, better, by raking the audience seating at
of at least 20°. To reflect the speaker's voice
ehind the speaker should be reflective. For
reason, the ceiling should be reflective and
for simplicity. Carpet should be used on
ınd in large rooms the seats should be
to control reverberation when unoccupied.
essary to control reverberation, addition of
material should first be considered on the
ınd then on the rear side walls.

ies can be used where it is necessary to
ıoise from people outside the theatre
).

mmunity halls

community halls are used for events that
eech and music, they should be designed
, as the requirements are more critical.
eration time could be increased a little
value shown in Table 8 if there are
o be frequent unamplified musical events

levels, noise emanating from the building should be controlled to prevent it causing a nuisance to local residents, as well as to prevent external noise affecting events in the hall.

Although the designer has no control over the level at which music will be played in the room, it would be prudent to inform the client that exposure to high noise levels can be harmful to hearing [5].

Electronic sound limiting equipment can be used to control the level of amplified music.

7.6.8 *Cinemas*

7.6.8.1 *Design limits*

The main objective of the design should be to control noise from adjacent screens, the projection area, the foyer, and outside the cinema. The first of these, controlling noise from adjacent screens, is likely to be the most difficult with modern digital sound systems. As most cinemas are air-conditioned there will be some noise from services. To ensure reasonable listening conditions this should be limited to 35 dBA (see Tables 5 and 6). This will provide some masking of the noise from adjacent screens, but a high performance partition will still be essential. Masonry or lightweight construction may be used, and a typical performance specification for a lightweight wall separating two screens is given in Table 9. Cinema design, however, normally requires specialist acoustic advice.

Table 9 — Typical sound insulation specification for wall separating two cinema screens

Octave band Hz	Sound reduction index R dB
63	38
125	44
250	50
500	61