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LIVERPOOL CITY COUNCIL 24 HOUR CITY STRATEGY AND CITY CENTRE LIVING POLICIES - AN OVERVIEW OF THE NUISANCE AND HEALTH IMPLICATIONS OF NOISE.

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1. INTRODUCTION

The City Centre Living policy is encouraging the re-population of the city centre which has the effect of bringing residents into direct contact with major noise sources including those of transportation and entertainment. The City Council is encouraging the conversion of warehouses and empty offices for this purpose. This will pose significant problems to the Environmental Health Service (EHS) in undertaking its statutory duties in respect of nuisance legislation and it will conflict with fundamental planning guidance which requires the separation by distance of noise producing and noise sensitive sources. In assessing planning applications the EHS and the planning department give consideration to Planning Policy Guidance (PPG) 24, "Planning and Noise". It indicates that where it is not possible to provide adequate separation then mitigation measures should be applied through planning conditions.

Noise surveys, carried out both by the EHS and by consultants acting for developers, have indicated that in the city centre area in general it will not be possible to achieve the internal noise levels recommended by national and international guidance without the employment of mitigation measures. During the day city centre noise levels tend to be dominated by high traffic volumes, particularly due to buses. Other contributions come from the general "comings and goings" of people. At night high noise levels are maintained; by traffic including taxis and by noise escape from commercial premises. In the early hours noise levels appear to be dominated by the "comings and goings" associated with late night bar and club activity. The impact of "comings and goings", whilst difficult to express numerically, should not be underestimated. It has been sufficient even at planning appeal stage to refuse permission for pub/bar development on the grounds of its potential impact. Whilst there is published guidance for dealing with transportation sources, very little is available for dealing with noise from pubs and clubs.

The daytime operations of traffic alone are in the majority of city centre locations sufficient to place the city centre into Noise Exposure Categories C and D.

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The guidance given for both of these categories tends to deprecate residential development. The night time noise sources associated with mixed use serve only to exacerbate the situation.

2. MITIGATION PROPOSALS

2.1 Residential Developments

2.1.1 Insulation

For residential premises mitigation will generally require that the building envelope is treated to resist the passage of sound. In the main this will require treatment of the windows, as walls and roofs of traditional construction are likely to provide satisfactory levels of insulation. In this respect it is preferable to have secondary glazing fitted with panes of different thickness and a gap between the panes of a minimum of 200 mm. All gaps around the frame should be well sealed and the reveals should be lined with an absorbent material. Where it is not possible to achieve this specification (e.g. because the window reveals will not permit such a gap) then a reduced gap may be permitted or the use of standard thermal double glazing. On rare occasions (say because of overriding building conservation concerns where the original design of window must be retained) it may be permissible to incorporate 6mm glass into the original frames.

2.1.2 Ventilation

Given that the glazing has a key role in the sound insulation of the building envelope it is imperative that the windows remain closed. Careful consideration must then be given to the ventilation requirements of the premises. Requirement F1 of the Building Regulations states that "there shall be adequate means of ventilation provided for people in the building". In particular it requires that provision is made for both rapid ventilation (to rapidly dilute, when necessary, pollutants and water vapour produced in habitable rooms) and background ventilation (to make available over long periods of time a minimum supply of fresh air for occupants and to disperse where necessary residual water vapour). These aims are normally most readily achieved by a window of opening area of 1/20 Th. of the floor area and air bricks respectively. However this option will not be available to a property which is to be sound insulated. The Building Regulations permit alternative means of ventilation to be employed; one form of which is mechanical ventilation. It will still be necessary for such a system to be treated acoustically in order that it does not provide an acoustic path into the dwelling which might compromise the insulation of the remainder of the facade. Whilst there are a number of ways of providing a suitable mechanical ventilation system perhaps the most established method is that indicated in the Noise Insulation Regulations 1975. This system was originally installed in houses eligible for grant assistance following new road construction. It involves, briefly, the installation into all habitable rooms of a ventilator unit (containing a fan) and a permanent ventilation opening or openings allowing the passage of air between outside and inside. All units must of course be acoustically treated. The Noise Insulation Regulations

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themselves provide a full specification covering air flow rates, controls and acoustic treatment. An advantage of the system is that it permits simple occupier control of ventilation in each habitable room. Other systems can include whole house or whole building central air handling units and ducts distributing air to individual accommodation units. Expert advice should be sought on the advantages and disadvantages of the various systems. Developers should be aware however that some form of mechanical ventilation will be required which meets the performance requirements, both acoustic and air handling, indicated in the Noise Insulation Regulations 1975. Air bricks and simple passive ventilators alone are not considered to be sufficient.

2.2 Mixed Developments

2.2.1 Particular Problems

Whilst it is one thing to insulate properties against external noise it is quite another to insulate against noise arising from other parts of the same building. The trend towards having pubs and bars in the same buildings as residential dwellings gives rise to problems of this type. Part E of the Building Regulations, "Resistance to the Passage of Sound", stipulates requirements for sound insulation for party walls and floors separating dwellings. It emphasises that the specifications provide reasonable levels of insulation against normal domestic noise. Noise arising from pubs and some other commercial uses however, cannot be described as normal domestic noise and as such the party walls and floors must provide insulation in excess of that given in the Building Regulations. There is a practical limit arising from both physical and financial implications to the amount of insulation which can be provided as structure borne noise paths tend to limit the amount of sound attenuation achievable. It is not therefore possible to give a general specification for all circumstances which may arise, and indeed some buildings and arrangements of accommodation will not be suitable for such a mixed use. All that can be done at the earliest planning stages is to indicate to developers, a design criteria for internal noise levels in the dwellings which their proposals will be expected to achieve. A design criteria which the EHS have been employing relatively recently in buildings having mixed use, is that noise generated within the commercial premises must not give rise to noise levels in the dwellings which exceed a Noise Rating (NR) of 30 (based upon the maximum level in each octave band). This level which provides a maximum limit for each component octave band of the sound entering the premises, meets the guidance for bedrooms currently recommended by the World Health Organisation (specified as 35 dBA) but in addition represents an attempt to reduce the likelihood of nuisance arising from low frequency components which might otherwise be permitted by the use of the 35dBA index alone. It should be noted however that there is very little national published guidance concerning the control of such components and so these design criteria are an attempt at control which should provide reasonable internal conditions and yet not be excessively difficult to achieve in practice. It is the EHS's intention to monitor the effectiveness in practice of these criteria.

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2.2.2 Possible Controls

As a guide to developers at the feasibility stage of projects, it is likely that the achievement of these design criteria will require the input of professional advice from competent consultants, as the cost of the necessary noise control measures will not be insignificant. Typical control measures will include the following:

- a) treatment of dwellings as indicated above
- b) insulation of the facade of the commercial premises involving treatment of windows and keeping doors closed (use of lobby systems also)
- c) mechanical ventilation and or air cooling/ air conditioning of the commercial premises to compensate for the lack of natural ventilation and cooling normally provided by openings in the building envelope
- d) provision of additional party wall/ floor insulation over and above Building Regulation performance standards comprising sufficient additional mass and or independent leaf structures to meet the criteria in the dwellings as indicated above and to allow the commercial premises to generate noise at their desired level
- e) the provision of noise limiting devices on all amplification equipment so that desired noise source levels are not exceeded either inadvertently or intentionally and also the provision of devices capable of reducing levels in frequency bands found to cause particular annoyance
- f) considered design of speaker installations
- g) the internal arrangement of accommodation to ensure that noise producing and noise sensitive areas are well separated
- h) the incorporation of vibration isolation and floating construction techniques as and when necessary

The above list is not exhaustive and is offered only as a guide to some of the main considerations which must be addressed. Despite the availability of NR30 design criteria which could form the basis of planning conditions, for some developments the EHS may have serious reservations as to the feasibility of the project. In both the interest of the City Council and the developer, whose long term financial interest may easily be affected, the EHS will insist that an acoustic report is prepared for such projects before the EHS could consider recommending approval.

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The report will be expected to investigate the feasibility of the project and will recommend noise control measures sufficient to achieve the design criteria. It will also be required to investigate the need for air cooling/ conditioning of the commercial part of the premises as there would be further significant financial implications attached to such a need. It should however be noted here that the EHS, when commenting on proposals and reports, will not accept responsibility for the effectiveness of the specified noise control measures in the prevention of potential nuisance; the responsibility for the effectiveness of the design and installation must remain with the developer and his professional advisors. It will be our intention at the end of all our replies to developers and the planning department, to add a caveat to the effect that we must retain our rights under the Environmental Protection Act 1990 in respect of statutory nuisance. The developer should therefore be made aware of the importance of seeking and acting upon competent professional advice, particularly since major sums may be invested in such projects. Developers may take some reassurance however, that should they meet the design criteria set by EHS, then this will in all probability form the basis of a defence of best practicable means for the operator against any potential nuisance action.

Our requirement to comment on all reports will be to satisfy ourselves that the developer has fully addressed the main areas of concern. Actual design specifications will not be checked in detail.

2.3 Commercial Entertainment Premises

There are similar requirements to those above and generally we will require that noise generated within premises is inaudible at the boundary of the premises. Some consultants will argue that this is a technically imprecise requirement yet it is still in common usage around the country. In such cases however numerical levels may be provided.

3. CONCLUSIONS

EHS requirements are that all new residential accommodation in the city centre is provided with window treatment and an alternative means of ventilation and that all clubs and pubs are to have the controls indicated above. It is preferred that these requirements are imposed on all such development in the designated city centre area regardless of the current level of night time activity and regardless of the current proximity of residential development, as there is potential for almost any building in the city centre to be converted to either residential use or to commercial entertainment use.

It is acknowledged that the above conditions are onerous and may possibly discourage some

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developers from investing in the city. Clearly this is not the intention of the conditions but the City Council is mindful of its statutory responsibilities. Such conditions are an attempt to address the conflicting desires of having vibrant city centre activity with residential accommodation in close proximity. In the absence of widely published and widely respected national guidance on the control of entertainment sources, the city council must endeavour to put working conditions on applications which can not be held indefinitely in a pending tray whilst proposals for guidance procedures are debated. Liverpool is not alone in actively promoting such a city centre living policy; the need for national guidance is therefore pressing.