

Noise Control on Buildings

Sayed.Maha boob basha
B.E., (Civil Engineering),
Saveetha School of Engineering
Saveetha School of Medical and Technical Sciences,
Chennai
Chennai – 602 105, TN, India

Mr.k.prabin
Associate Professor, Civil Engineering
Saveetha School of Engineering
Saveetha School of Medical and Technical Sciences,
Chennai
Chennai – 602 105, TN, India

ABSTRACT:

Buildings ' acoustic design issues involve the main issues such as site noise considerations. In any heavily populate area, sufficient activities take place at once during the day or day to generate every sorts of sounds across the audible spectrum of human hearing. The planes take off and land, the movement of traffic along roads, the repair of roads by construction crew, the bark of dogs, music blares, the sound of sirens and the mowing of lawns, etc. For these standards, the information contained in this article on library acoustics is intended as a source. The design would be reviewe in light of agree acoustic programmatic necessary with the improvement of the architectural and engineering design of the proposed action.

Keywords : Noise control, Acoustics , Building design.

INTRODUCTION:

Sound and noise waves in air result from physical disturbance of air molecules, e.g. When a truck is driving a building or pulling out guitar strings. noise wave connected and arrive a listener by numerous direct through and indirect path. The listener inside ear contain organs vibration in response to these molecular disturb, transforming

the vibration into electrical potential that change sense by the brain, enabling hearing to take place. A sound wave typically consists of vibrations at different frequencies unless it is a pure tone. Ripple was created in the water like as the effect of a rock on a pond that are analogous to the sound of air. The frequency is basically the number of waves that move at the air sound speed, passing one point in a second. One wave per second is the frequency of one hertz (Hz). A frequency of 1,000-hertz is a kilohertz (kHz).

1.REDUCING db LEVEL IN BUILDINGS

1.1 SOUND ABSORPTION

Sound absorption characteristics are in all materials. Sound energy that is not absorbed should be transmitted or reflected. Sound absorption coefficient is described as a material property of sound absorption within a certain frequency range. The noise reduction coefficient (NRC), which is essentially a type of average coefficient of sound absorption from 250 Hz to 2, the primary speaking frequency range, is used as sound absorbs in buildings. Theoretically ranges from fully absorbed (NRC= 1.0) through to fully reflective (NRC= 0.0) NRC. In library, the addition of sound absorbing material to a room usually

becomes an internal design issue. Attractive and reliable

1.2 AIR BORNE SOUND TRANSMISSION

It deals with the site's interior design as to how sound controls from room to room and from door to indoor as well. Sound transmission also decreases sound energy when passing through any building element. Each material has different loss of transmission and different sound diffusion. The high dense materials more the floor's weight and is more resistant to passed through it. Decoupling is other sound control case. A frame resilient dry wall connect break the sound wave path of vibrate cause it to stop. This is the most effect the method of control the most tough to block strong and strong and low frequency.

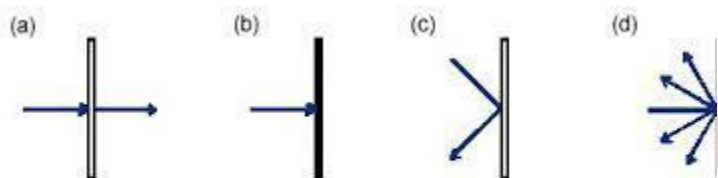


FIGURE 1. Sound/Surface Interaction: (a) transmission, (b) absorpti (c) reflection, (d) diffusion

SPECIALY CONSTRUCTION MATERIAL FOR SOUND ...

There is plenty of special material available for sound control These are designed to offer advantages over traditional material and are designed for use where noise level control is of great concern. While the starting construction, many material could be use or install after, some of the general examples are list here.

- Mineral fiber protection was a verity type of denser type of protection that develops sound proofing as if the density is high than that of traditional fiber glass, making it more impact in stop sound transmission from one room to another room.

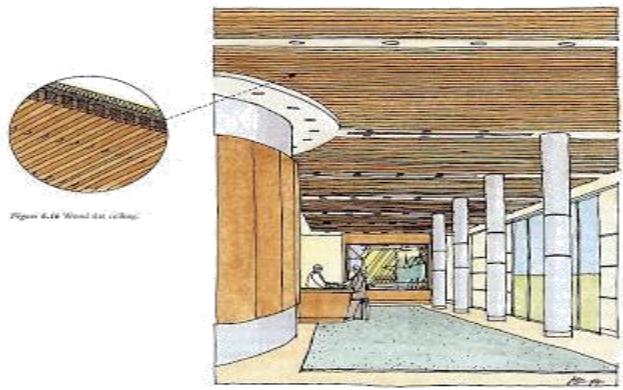
- Limp mass dense vinyl sound barrier is available to cover flat surfaces. The sheets are flame retardant easy to installed within plastics caps. These are also available for easy installation with adhesive backrest.

- FLOORS UNCOUPLER AN BE USED ...
Uncoupling the floor was an effective way of reducing sound transmission between the existing floor level and the new floor level.

- Resilient channel is pieces of the metal that could be mounted on the gypsum board or another type of dry all to hide sound transmission. Drywall is the isolated framing so that less sound is transmitted.

NOISE FUNDAMENTALS

Quantitative information is well documented on the effect of airborne noise on humans. If enough to loud, noise could adversely impact people in a number of ways, e.g. noise could interfere with human activities like that sleep, speech communication and the needed stage of concentration. It can also cause annoying and hearing problems, damage and other psychological problems. While it is possible to study these effects on individuals on an average or statistical basis, all of the stated effect of noise on individuals is very significant. The number of noise types was used to quantify the impact of noise on different and the method considered aspects like as the loudness duration of the occurrence and the change in noise level over time.



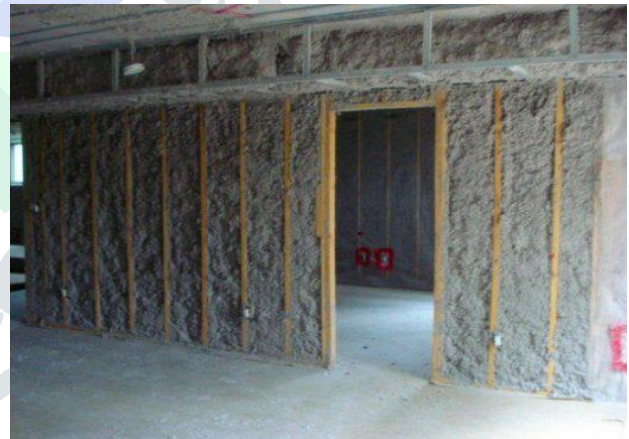
5. ROOM ACOUSTICS.

Because sound persistence in poor acoustic rooms with more reflected sound levels creates useless background noise and speech impairment. Rooms have a high reverberation time, which requires more time when sound Physical characteristics are hearing direct and reflected sound in an acoustic room. Speech intelligibility and noise control absorbed in background was the main issue in libraries, and was reduced step - by - step.

Therefore, in order to achieve acceptable acoustic characteristics in the meeting and presentation room, the location and extent of sound absorbing material, reduction The shape of the room when drawing up principles for acoustic library spaces also focuses on reverberation and speech - interference .The reverberation time in speech will be less enough to readily understand the syllable of part of the permit speech. Reverberation in musical sound is needed, so reverberation in musical functions was preferred longer. Intelligibility of speech would be created in a room where reverberation time exceeds 1.5 sec but might be accept to listen to music. Complains that the musicians are too dead, if a room has a time of reverberation of less than a second the intelligibility of speech shall be assessed. In construction, there are different methods for noise and sound control.

Sound Insulation

An unwanted sound intrusion is a television in the next room, a loud neighbor walking on the floor above, or a jet flying over. In order to reduce intrusive noise, measures are often needed. Sound transmission in buildings is reduced by means of sound barriers, which is one of the most important acoustic techniques. This form of sound reduction is referred to as sound isolation. TL loss was determined as middle solid material panel which decrease the absorption of sound energy from one building to another. Building materials reduce high - frequency noise as low - frequency sound. The force needed to vibrate the wall is greater when the wall's mass or weight is high. For the transmission decrease in wall is high at all frequency compare to a lighter panel. More thickness of the wall and isolating 1 side of the proposed action from the other is another way to increase the transmission loss of construction.



NOISE CONTROL OF MECHANICAL AND ELECTRICAL SYSTEM.

Noise and vibration of mechanical and electrical equipment is a major concern when designing a building. The electrical power generates noise and vibration, so that due consideration during design should be taken into account. design sequence of any building project is given below.

SPACE PLANNING

Space planning in noise control techniques is expensive. Evite room and house location close to room for mechanical equipment and room for electrical transformers. If this place is inevitable, it is mandatory to introduce expensive sound insulation ideas such as floating. A floating floor consists of a 2nd concrete slab and an insulating layer by layer on a neoprene pad.

7. CONCLUSION

Pollution comes from numerous sources in developing areas, some of which are essential activities to the safety, safety and welfare of urban residents, as well as siren noise, waste collection and construction equipment operation of emergency vehicles Other sources, such as traffic, derive from people's movement and good, activities that are essential to a city's viability as a place to live and do business. All these and another noises - produce activity for the city is necessary, the noise these producing isn't desire. The chapter outline the potentials significant effect of noise that can result from the propose construction. Noise analys is conceive and conduct in order to find and quantify every such potential effect from the construction and is detail in this chapter and consists of three part.

1 A screening analysis to find where the traffic generated by the proposed action might have a characteristic effect of the noise.

2 Deep analys at every location where the traffic generate by the construction can have significant adverse impact on noise to find the magnitude of the more in noise levels

3 Analysis to find the level of building attenuation needed to sure that the level of inside noise in buildings proposed meet the capable inside noise criteria.

REFERENCES

- [1] A comprehensive list of downloadable articles about the Probe studies may be found by following the Probe menu item on www.usablebuildings.co.uk Probe articles used here are BORDASS W.[1] And LEAMAN A., Buildings in Use' 97 from Feedback to Strategy: how buildings actually work. London, Commonwealth Institute, 1997, 25 Feb LEAMAN A., Probe 10: Building Services Journal, 1997, May, pps. LEAMAN A. 21-25, BORDASS W.COHEN R. And STANDEVEN M., Sample Occupant Surveying, Buildings in the Used' 97: how reality buildings work.in the London Commonwealth Institute (LCI), 1997, Feb
- [2] .F. Asdrubali, "New Sustainable Noise Control Materials Acoustic Properties Survey," Proc. of Euro noise 2006, Structure Session Sustainable of Materials for the Noise Control, Tampere, Finland, 30 May–1 June 2006.
- [3]. www.ecoinvent.ch
- [4]. V. Desarnaulds et Al., "Sustainability of acoustic materials and acoustic characterization of sustainable materials", Proc. of ICSV12, Lisbon, Portugal, 2005
- [5]. <http://cig.bre.co.uk/envprofiles>.
- [6]. <http://www.pre.nl/eco-indicator99/default.htm>
- [7]. <http://www.natureplus.org>
- [8]. http://ec.europa.eu/environment/ecolabel/index_en.htm