



ACOUSTIC



DESIGN • COMFORT • INSULATION

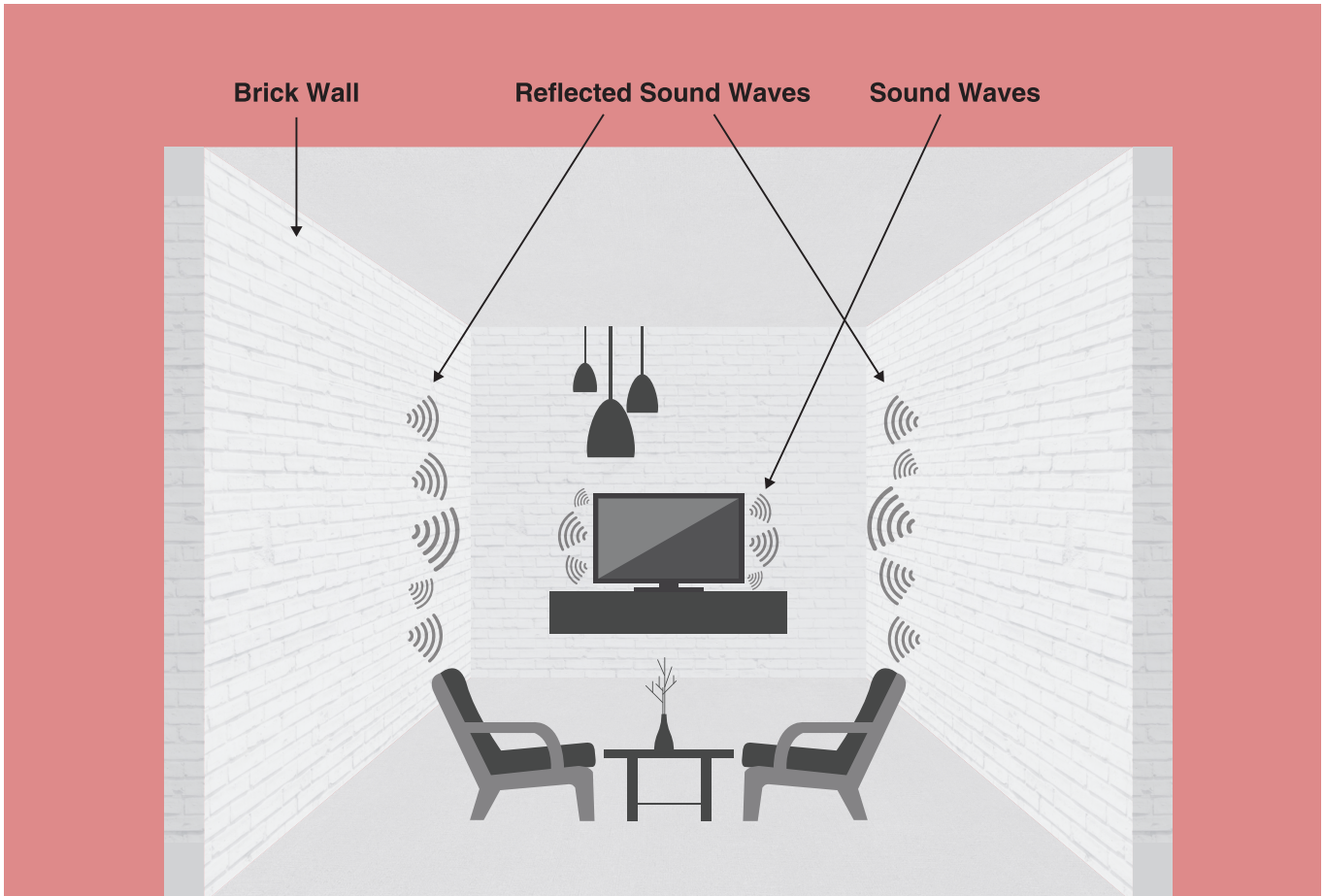
DESIGN YOUR ACOUSTIC COMFORT

INBRICK SYSTEMS®

INSIDE WALL INSULATION

BRICKS & RCC BLOCK SOME SOUNDS

Building walls are generally made of brick or RCC. When sound waves hit any material that is as closed cell as brick or RCC, a major part of the sound is reflected, while some part is absorbed and some passes through. This usually depends on the frequency of the sound. The sound which is reflected back from the surface causes reverberation and echo. Hard materials like RCC and brick are good reflectors of sound.



NRC IS THE KEY

Noise Reduction Coefficient (NRC) and Absorption Coefficient value of materials define the amount of sound absorbed and the proportion of sound absorbed by the surface versus that which is reflected back. NRC value is the average NRC of the material at four different frequencies (250, 500, 1000 & 2000 Hz). Material with open cell structure absorbs more sound while that with closed cell structure reflects more.

ECHO & REVERBERATION

The reverberation time taken for any closed volume can be defined as a reduction in sound level by 60 db. This time taken for any closed room is different depending on the application. Echo and reverberation are the result of repetition of the sound due to reflection. For reverberation, time difference between the original and reflected sound should be less than $1/10^{\text{th}}$ of a second. For echo, this difference is more than $1/10^{\text{th}}$ of a second. When reflected sound is not absorbed for a long time, it clashes with original and leads to acoustic discomfort.

- **Bricks and RCC are good reflectors of sound**
- **It is important to classify whether the material absorbs or reflects sound**
- **NRC and Absorption Coefficient are important parameters to ascertain that**

INBRICK HELPS STOP ECHO, REVERBERATION & TRANSFER

To stop reverberation and echo, sound absorbing material is required on the interior of the walls. This material helps absorb a major part of the sound while the remaining is reflected or transferred. Sometimes clients want that sound should not transfer outside the room. Hence material selection should comply with the user requirement.

Material Selection is Important

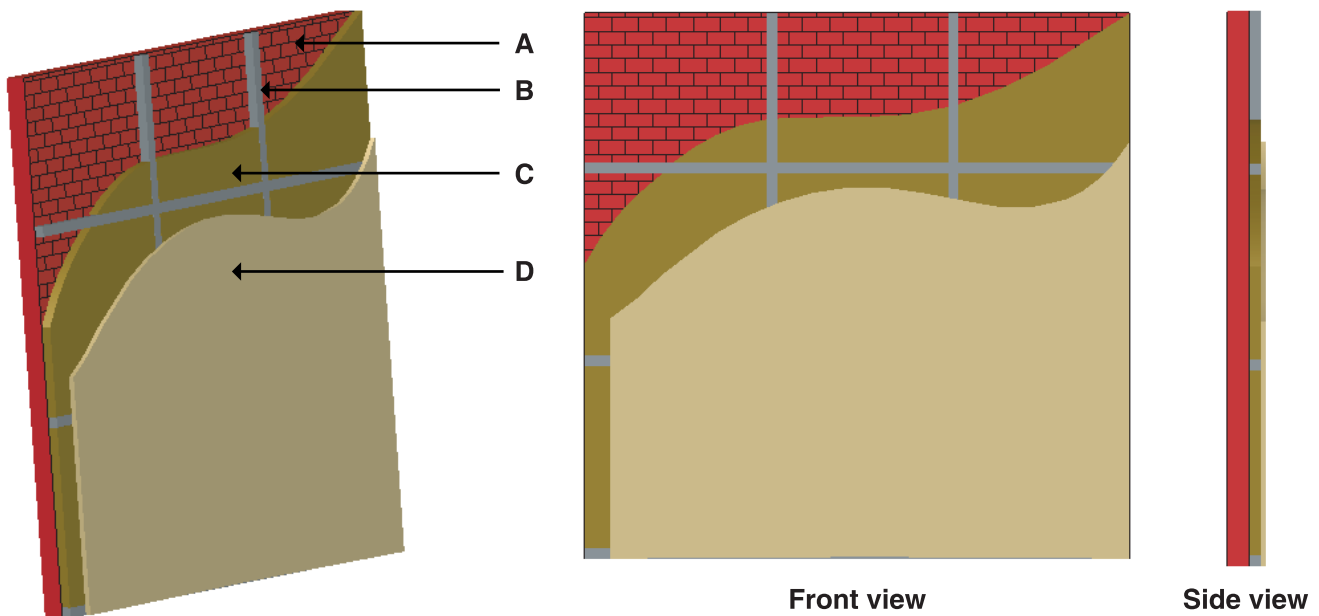
In this system, the selection of materials for inside walls is either for sound absorbing or higher STC value. Insulation material is fixed on the wall through grid work. This is finally covered with finishing material, which could be grooved or perforated plywood, gypsum board, metal, etc. Extra care must be taken while choosing the finishing material - if it is hard, sound absorption material may not be exposed to the sound. This may reduce the acoustic performance. Hence the finishing material can be sound absorbing boards while enhancing the aesthetic value.

Multiple Materials May Be Required

Effective design of this system may require various materials in different combinations. The system can be designed for various purposes: be for a simple acoustic comfort and good sound quality or for preventing sound transfer outside the room. For the latter, an acoustic isolation layer can be used along with acoustically absorbing material. The suggested thickness can vary from 25 mm to 60 mm depending upon the results wished for.

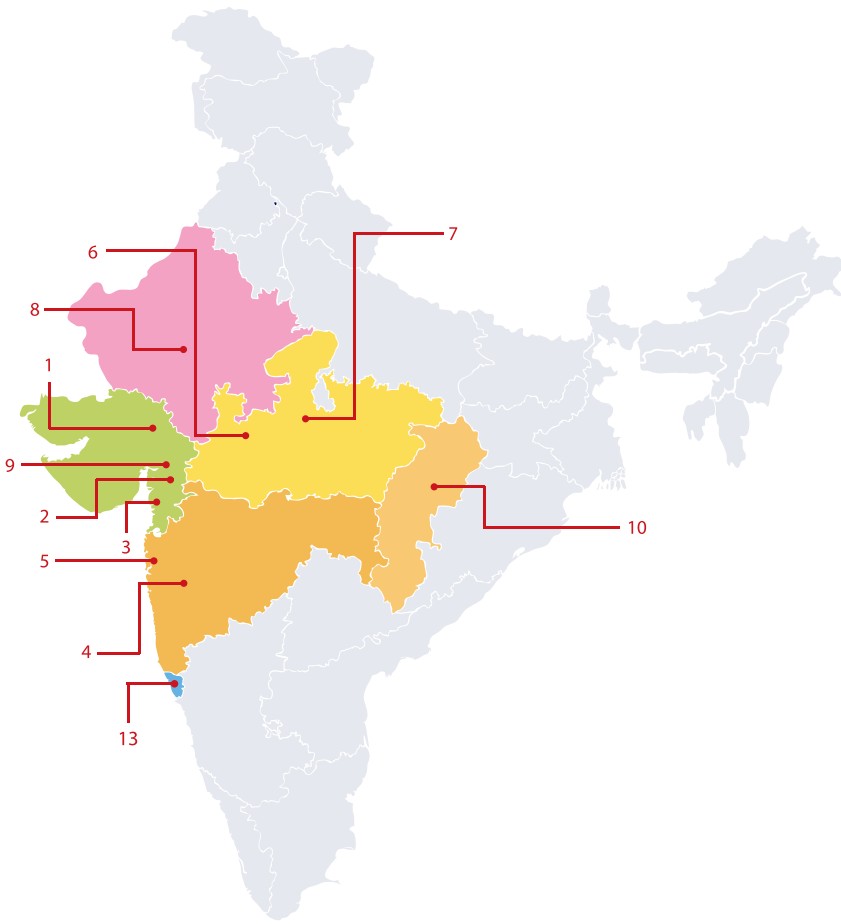
Ideal For

Home Theatres, Libraries, Banquets, Convention Halls, Commercial Theatres, Auditoriums, Conference Rooms, etc.



A) Brick wall B) Wooden / Aluminium grid C) Insulation material D) Ply / Gypsum board

- InBrick systems can help prevent echo, reverberation and transfer
 - Selecting the right insulation and finishing material is the key to success
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