

## “QUIET HOUSE” DESIGN – GENERAL INFORMATION

Treatment to houses in the form of thick glazing, door seals and roof / ceiling treatment can give reductions of up to 10 dB(A) over and above that of closed windows. However, this requires that one is inside with the windows shut and often necessitates the use of mechanical ventilation or air conditioning. Also, such reductions tend to reduce mid to high frequency noise leaving the sometimes more annoying low frequency noise.

The following provides some techniques that can be incorporated in “Quiet House” designs:-

- Locating bedrooms on opposite side of residence from road.
- Locating of laundries / bathrooms on same side of road.
- Protecting main entrance from road noise.
- Enclosing eaves.
- Roof insulation.
- Use of thicker glazing, with casement windows using winders.
- Double brick construction.

Australian Standard AS 2021-1994 “Acoustics - Aircraft noise intrusion - Building siting and construction” can also provide guidance on construction requirements for various maximum noise levels.

The barriers should be solid in nature, with no gaps. However, their construction can range from a close timber or compressed cement sheet fence to a masonry wall. Landscaped earth bunds could also be used in this instance.

Some specific building guidelines that can be included in the quiet house design guidelines, include:

- Double brick or brick / weatherboard construction.
- Windows are to be either casement or awning windows with mechanical winders compressible seals (windows visible from Highway only).
- Glazing to bedrooms (both ground and first floor) with exposure to the Highway to be 6.38mm thick laminated glass. Other living spaces on side(s) of residence visible from Highway to be minimum of 6mm glass.
- Eaves to be enclosed using 6mm thick compressed cement sheeting or equivalent.
- Sliding doors with seals and overlapping meeting stiles are acceptable on the side of the residence facing the highway for living rooms, sliding doors to first floor bedrooms exposed to the Highway are not acceptable.
- Roofs to be colourbond (or equivalent) with 50mm anticon, with ceilings on top floor to be one layer of 13mm plasterboard and 50mm thick (minimum 32 kg/m<sup>3</sup>) insulation laid over the top.
- No recessed light fittings allowed in bedroom ceilings (on top storey).

Additionally, residences are to be designed to achieve an  $L_{Aeq}$  of 50 dB(A) at outdoor living areas, by either the layout / orientation of the residence and / or construction of fencing.

Note: An acceptable solution to the top storey is to allow lofts. These spaces can have higher noise levels, and so long as the floor is concrete and there is a door to the loft then noise would be acceptable.

Notifications of vehicle traffic noise and the above requirements are to be placed on titles.

For these residences, designs are to be checked by an acoustical consultant with a report stating that the construction adequately attenuates vehicle traffic noise to achieve the following noise levels:

Living and Work Areas	$L_{Aeq(Day)}$ of 40 dB(A)
Bedrooms	$L_{Aeq(Night)}$ of 35 dB(A)
Outdoor living Area	$L_{Aeq(night)}$ of 50 dB(A)

The above building criteria are for the first row of residences, as these residences will provide the barrier to the residences behind.