

# Acoustic Partition Walls...

This application note gives examples of timber frame internal wall constructions which, when built correctly, will meet or exceed the performance standards set out in Approved Document E, 'Resistance to the passage of sound'.

## Building Regulations Part E

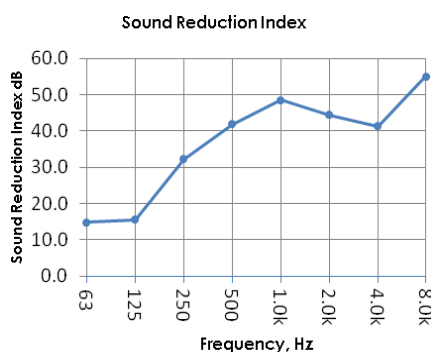
Since July 2003 it has been a requirement, under Part E of The Building Regulations 2000, that houses, flats, and rooms for residential purposes are designed and constructed to provide reasonable resistance to sound from other parts of the same building and from adjoining buildings.

## Meeting Approved Document E

The minimum value for airborne sound insulation of an internal wall (i.e. a wall between two rooms within the same dwelling) is  $R_w = 40\text{dB}$ .  $R_w$  is the weighted sound reduction index and is the degree to which the wall reduces noise from one side where the sound is generated, to the other side where the sound is received.

## Specification

- 70 mm Softwood timber studs @ 600mm centres.
- One layer 12.5 mm plasterboard (8 kg/m<sup>2</sup>) each side.
- 75mm Thermafleece CosyWool between studs.
- Nominal thickness = 95 mm



| Frequency, Hz | Sound Reduction Index (dB) |
|---------------|----------------------------|
| 63            | 14.8                       |
| 125           | 15.6                       |
| 250           | 32.3                       |
| 500           | 41.9                       |
| 1.0k          | 48.5                       |
| 2.0k          | 44.5                       |
| 4.0k          | 41.3                       |
| 8.0k          | 55.1                       |

**Weighted Sound Reduction Index ( $R_w$  dB) = 40dB**

Report No. C/21913/R02

## Construction Guidance

- The minimum distance between inside lining faces should be no less than 70mm.
- Each additional layer of lining board should be staggered to overlap the joints of the under layer.
- Thermafleece can be friction fit between timbers.
- All joints should be well sealed.

## Practical Absorption Coefficients

| Frequency, Hz        | PRACTICAL ABSORPTION COEFFICIENT |         |         |         |
|----------------------|----------------------------------|---------|---------|---------|
|                      | 50 mm                            | 75mm    | 100mm   | 140mm   |
| 125                  | 0.20                             | 0.25    | 0.45    | 0.60    |
| 250                  | 0.40                             | 0.60    | 0.85    | 0.90    |
| 500                  | 0.65                             | 0.85    | 1.00    | 0.95    |
| 1.0k                 | 0.75                             | 0.90    | 1.00    | 1.00    |
| 2.0k                 | 0.85                             | 0.95    | 1.00    | 1.00    |
| 4.0k                 | 0.95                             | 1.00    | 1.00    | 1.00    |
| EN ISO 11654:1997    | Class C                          | Class B | Class A | Class A |
| NRC to ASTM C 423-01 | 0.70                             | 0.85    | 1.05    | 1.00    |