



TECHNICAL NOTE 11

Loft & Garage Conversions

A guide to the construction of walls and floors in order to achieve compliance with thermal (Approved Document L1B 2006) and sound (E2 2003) of the Building Regulations.



The guidance contained in this document has been prepared by the Hertfordshire Technical Forum for Building Control.

All data relating to specific products has been sourced from the manufacturers at the time of print. They are typical examples and are NOT specifically recommended by Local Authority Building Control. All the listed materials must be installed in strict accordance with manufacturers guidance and with due regard to the need to ensure continuity of insulation and a reasonable standard of airtightness

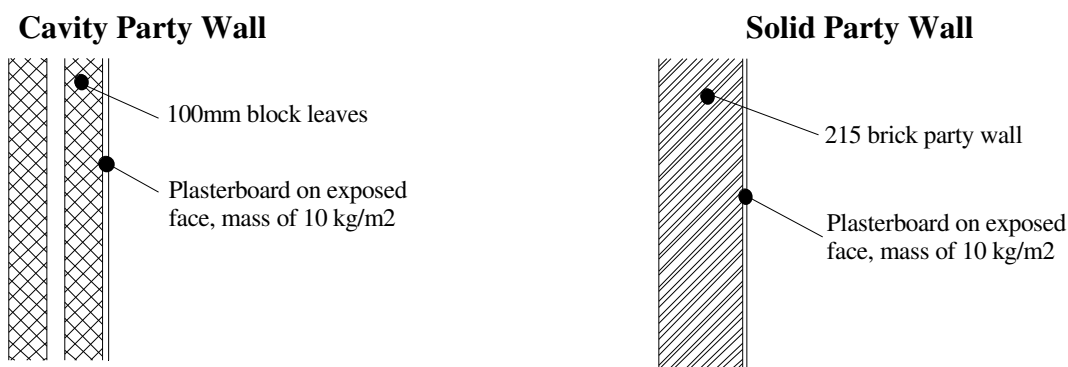
Approved document E and L of the Building Regulations were revised and came into effect on 1 July 2003 and 6th April 2006 respectively. When constructing loft rooms and converting garages to habitable rooms some elements of the structure will need upgrading to provide a degree of sound and thermal insulation. This guide intends to give possible solutions to meeting the above regulations however other methods and materials may also be used in attaining this goal.

Party walls and floors are required to reduce the transmission of sound between adjoining properties whilst providing a degree of thermal insulation if the adjoining area is a 'cold'. (Two adjoining garages with one garage being converted to a habitable room for example)

Party Walls

The party wall between loft/garage conversions and adjoining properties may generally require remedial work in order to provide the degree of sound insulation required under the new Part E. The construction of the party wall should be ascertained, as this will affect the degree of remedial work required. In most cases the bond of the brickwork to the wall will provide guidance on how the party wall is constructed. However in cases where the construction cannot be ascertained it should be assumed that the wall is constructed from 100mm single skin brick or blockwork.

In cavity and 225mm solid party walls it will be necessary to apply plasterboard with a mass of 10kg/m² or greater to the exposed face of the wall. The plasterboards specified in Table A provide guidance on thickness of plasterboard required.

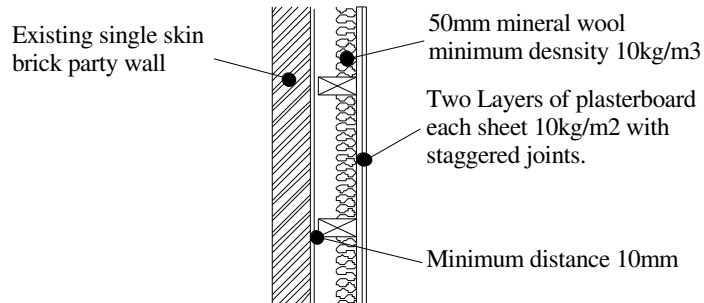


If the adjoining area is a cold area it will be necessary to provide thermal insulation between the wall and the plasterboard. The required type and thickness is shown below:

- 67.5mm Kingspan Kooltherm K18 insulated dry lining board
- 50mm Celotex tuff-R GA3000 with joints taped against brickwork and 25mm x 50mm battens @ 600 c/cs fixed through insulation to walls
- 55 Celotex tuff-R GA3000 with joints taped against brickwork and 25mm x 50mm battens @ 600 c/cs fixed through insulation to walls

100mm Single Skin Party Walls

In the case of single skin party walls it will be necessary to construct an independent studwork lining, leaving a gap of 10 mm between the wall and the inner face of the studwork. This is to ensure that airborne sound transmission is reduced.



Additional insulation required if adjoining 'cold' area (mineral wool omitted):

- 80mm Kingspan Thermawall TW55 between studs
- 100mm Celotex XR3000 between studs

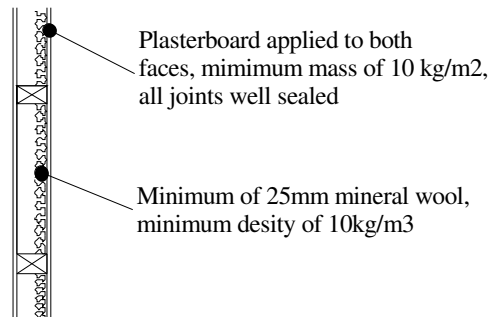
Internal Walls

Internal walls are required to provide a degree of insulation against airborne sound transmission, in the following circumstances.

- :- Between bedrooms and any other rooms
- :- between rooms containing WC's and Other, unless the WC is ensuite or the wall in question has a door in it.

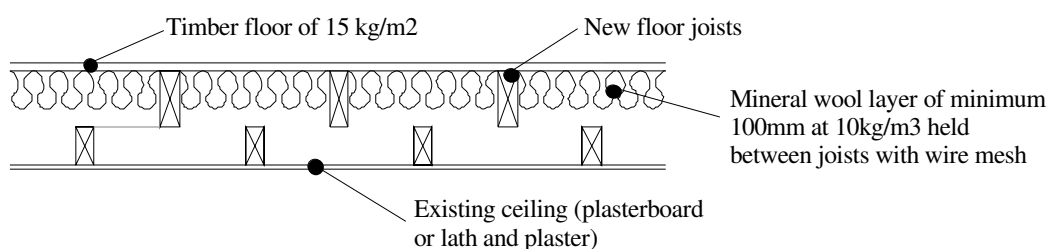
The example below suggests how this can be met, using table A for suggested plasterboard thickness.

Minimum 75mm wide timber frame or 45mm wide metal frame



Internal Floor

The internal floor between the new loft conversion and the existing first floor or between a garage and room above is also required to protect against airborne sound transmission. In most cases the floor to a loft conversion is built above the existing ceiling and it is therefore possible to amalgamate fire and sound protection measures into the new floor. 100mm Mineral wool laid between the new floor joists over wire mesh will increase the fire protection that the floor provides and reduce sound transmission. The new floor decking is also required to be a minimum of 22mm thick tongued and grooved board in order to provide a density of 15kg/m² and suggested materials can be found in Table B



In the case of a garage the existing timbers forming the floor of the room above will remain in place. Therefore the 100mm of rockwool should be placed between these timbers and a new single layer of plasterboard with a minimum mass of 10 kg/m³ ceiling formed. It will also be necessary to check the existing flooring of the room above to check if the timber or wood based floor board has a minimum mass of 15 kg/m³

If the area below the floor or the ceiling of a garage is a ‘cold’ area then the one of the following insulations will be required between the joists:

- 105mm Kingspan Kooltherm K7
- 105mm Celotex GA3000z
- 200mm Mineral wool

Table A

Minimum thickness of plasterboards required to achieve a minimum mass of 10kg/m².

Gyproc Plasterboard

Product	Thickness (mm)	Mass (Kg/m ²)
Wallboard and Duplex	15	10
Wallboard 10	12.5	10
Duraline & Duraline Severe	13	11.5
Fireline, Fireline MR & Fireline Duplex	12.5	10
Coreboard	19	16
Moisture resistant	15	10
Plank	19	15
Profile board – Bevelled Edge	15	10
Sound Bloc	12.5	10.5
Sound Bloc Rapid	15	12.5
Triline	32	11
Thermaline Plus, Basic, Handiboard, Industrial grade	Not acceptable	Under 10

Lafarge Plasterboard

Product	Thickness (mm)	Mass (Kg/m ²)
Standard wall board	15	10
Sound resistant board	12.5	10.2
Fire-Check wall board	12.5	10
Vapour-Check wall board	15	10

Knauf Plasterboards

Product	Thickness (mm)	Mass (Kg/m ²)
Wallboard	15	10.2
Plank	13.2	Over 10
Vapourshield	15	Over 10
Fireshield	15	Over 10
Fire Mosituershield	15	Over 10
Core board	16	Over 10
Denseshield	12.5	Over 10
Soundshield	12.5	Over 10

Table B

Minimum thickness of Flooring Materials required to achieve a minimum mass of 15kg/m².

Grade / Type of board	Thickness (mm)	Mass (Kg/m ²)
MFC	23	Over 15
MDF	20	Over 15
Chipboard P5	22	15.2
Chipboard P6	21	Over 15
Chipboard P7	21	Over 15
Weyroc Protect	22	15.4
Plywood (Generally)	22	Over 15