B

CHAPTER 9

FLOORS AND RADON

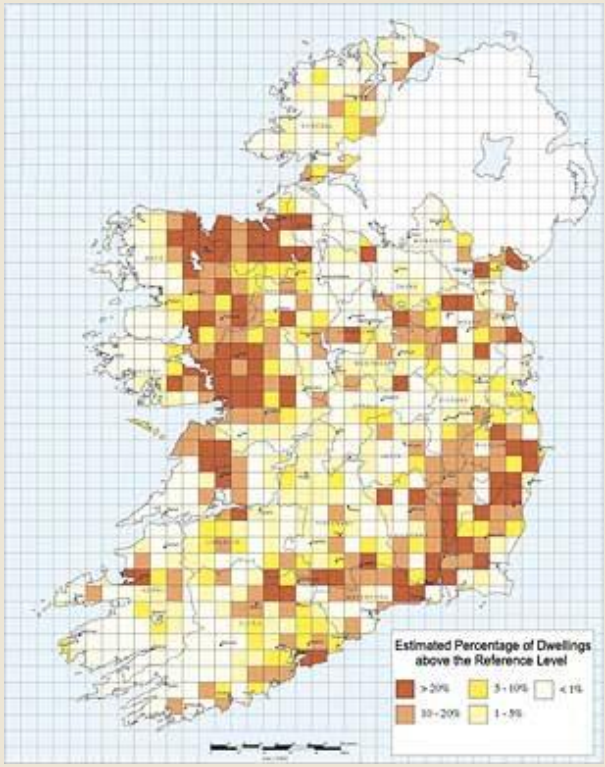
Radon

- Tasteless
- Colourless
- Odourless
- Radioactive gas
- Given off by the decay of radioactive material

Radon in our homes

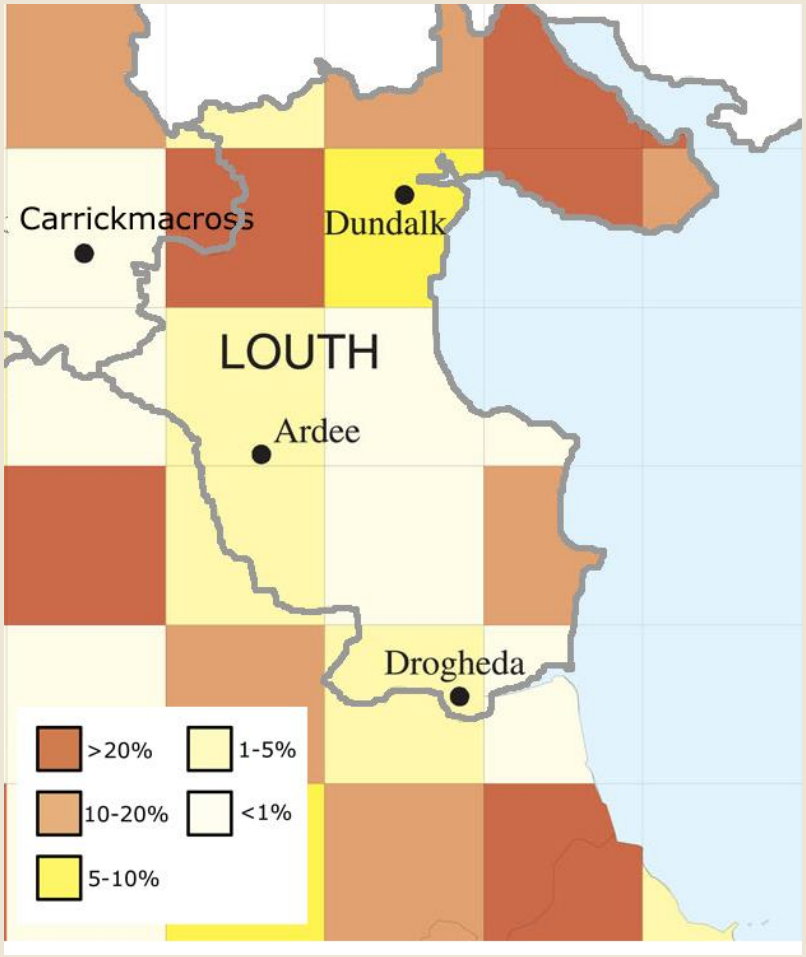
Radon enters a building through:

- Cracks in walls and floors
- Gaps in floors and around services
- Junctions between floors and walls



Example of Radon Map

The darker the area the greater the number of homes above the reference level for radon



Radon Systems: Passive

Passive system

- A radon-proof membrane is laid down on top and is sealed at all junctions.

Result

- Radon given off under the house cannot pass above the layer of radon membrane.

Radon Systems: Active

Active system

- A void is created in the hardcore with a pipe leading to the exterior of the building.
- A radon-proof membrane is laid over the foundations similar to the passive system.
- A fan may also be attached to the pipe from the sump to aid ventilation.

Result

- Radon will find its way into the void from the hardcore and then filter out to the exterior along the pipe.

Radon Seal Images

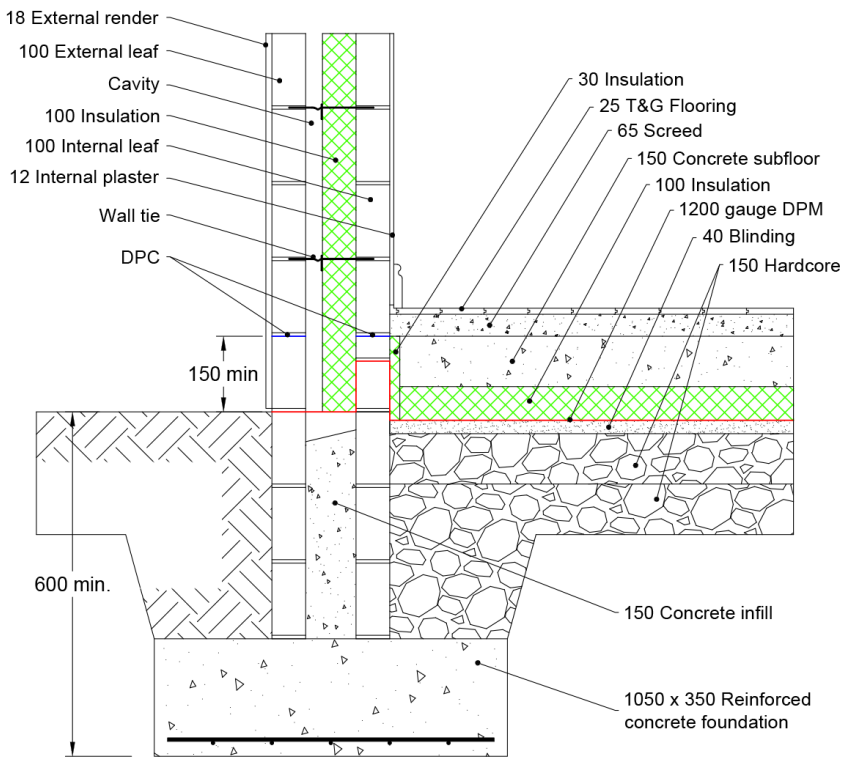
“Top hat” seal around services passing through the radon barrier

Ground Floors

Solid floor

- Hardcore
- Blinding
- Radon barrier/DPM & DPC
- Insulation
- Sub floor

Strip Foundation with Screed



Suspended Floors

Suspended timber floor

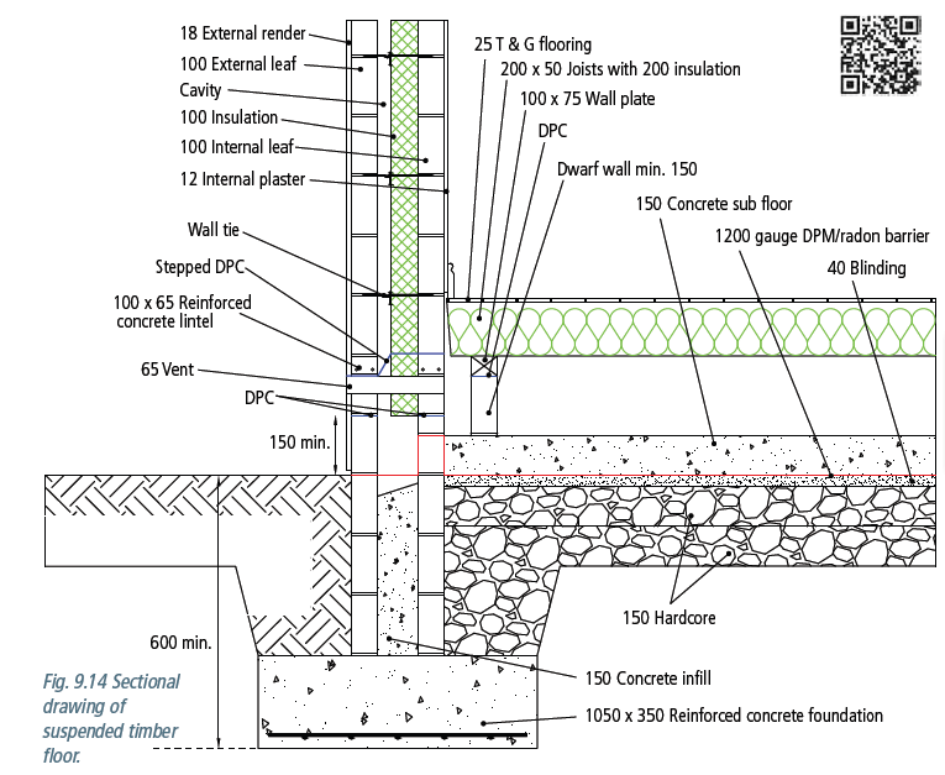
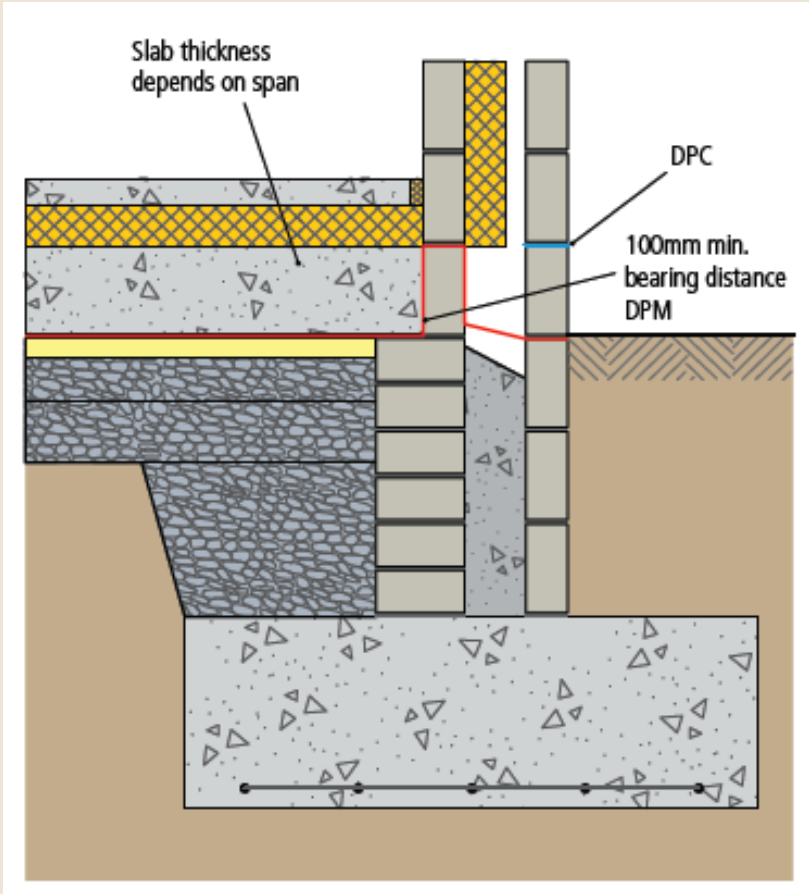
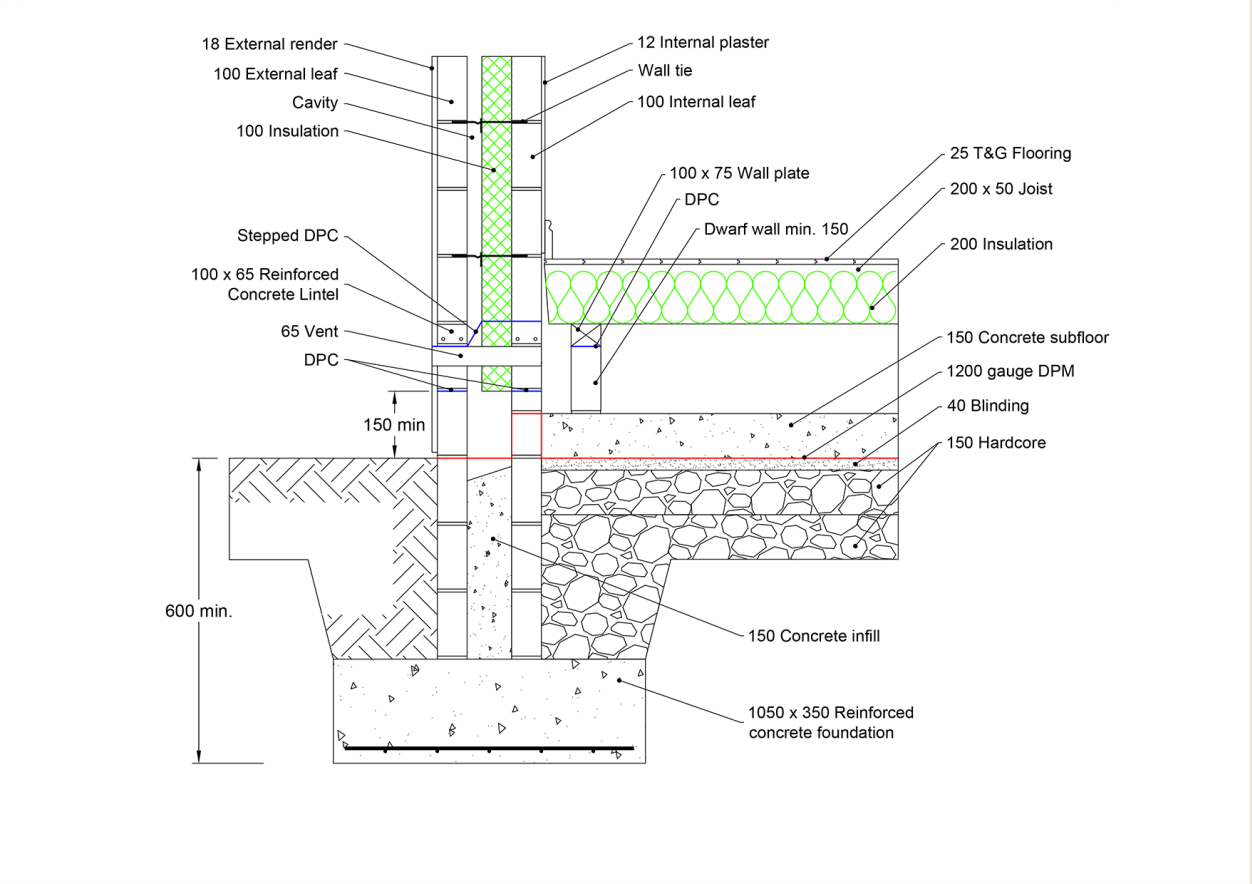


Fig. 9.14 Sectional drawing of suspended timber floor.

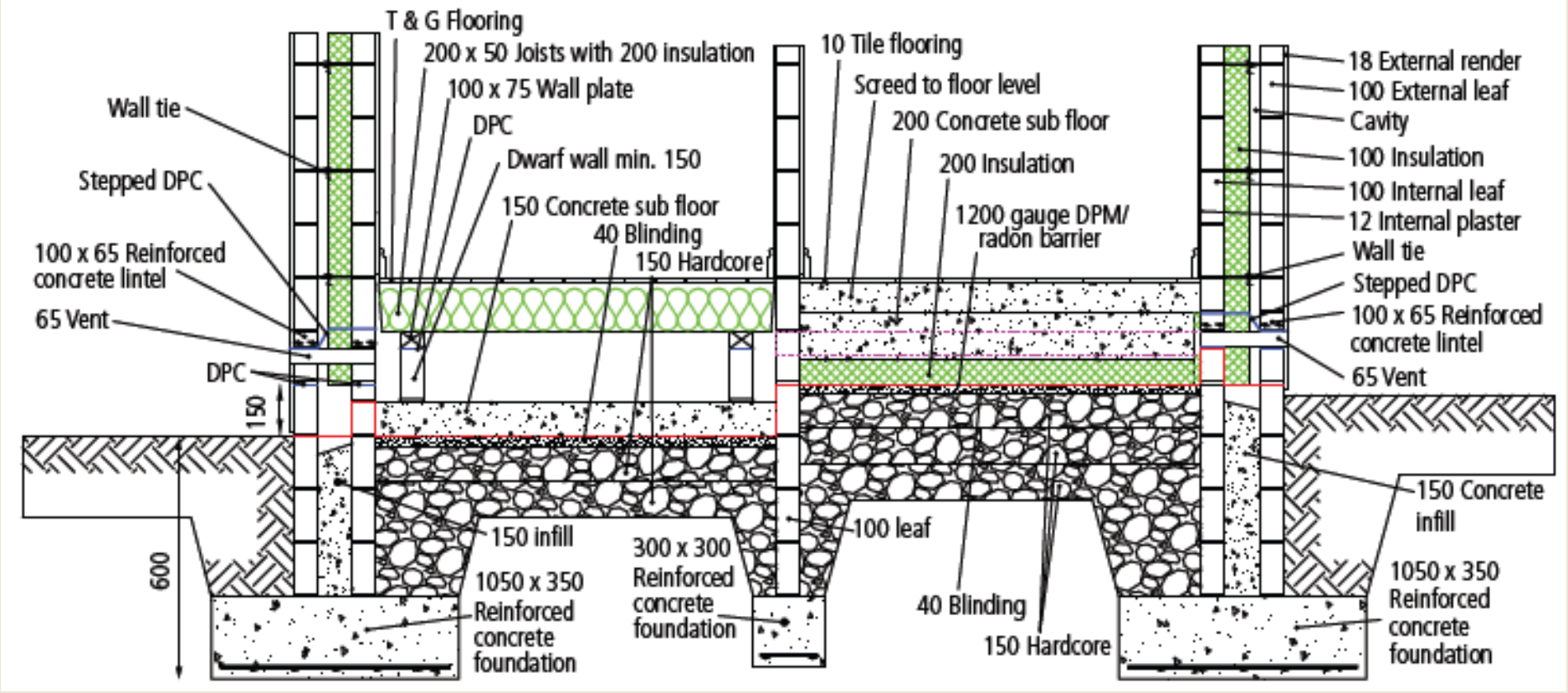
Suspended concrete floor



Suspended Timber Floor

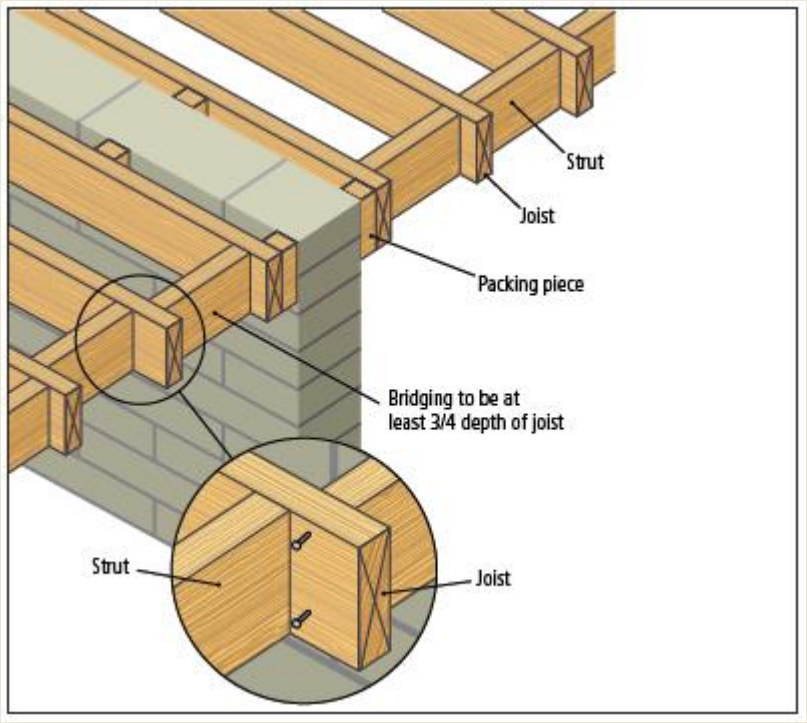


Linked Floors

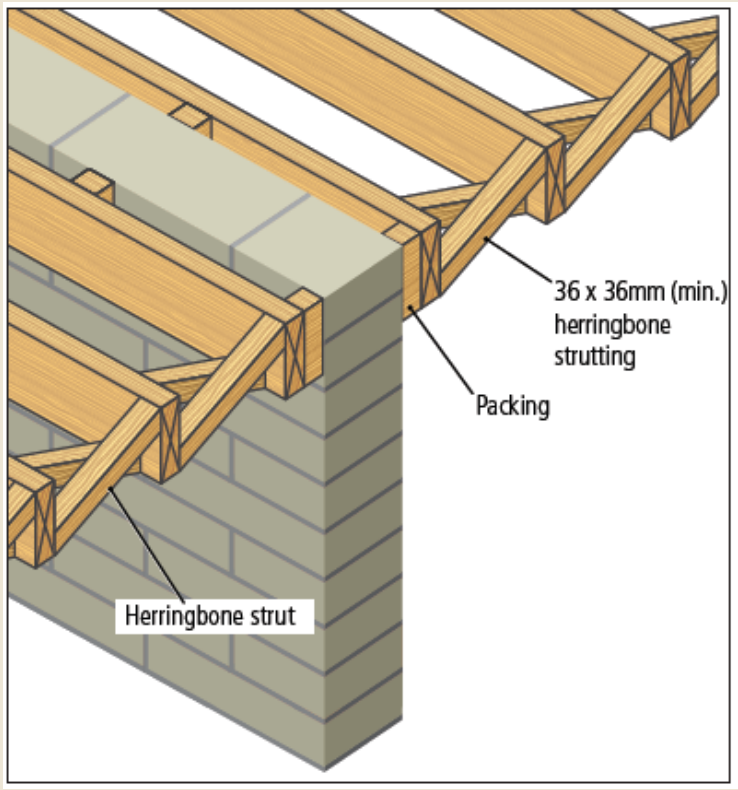


Floor Bridging

Solid bridging

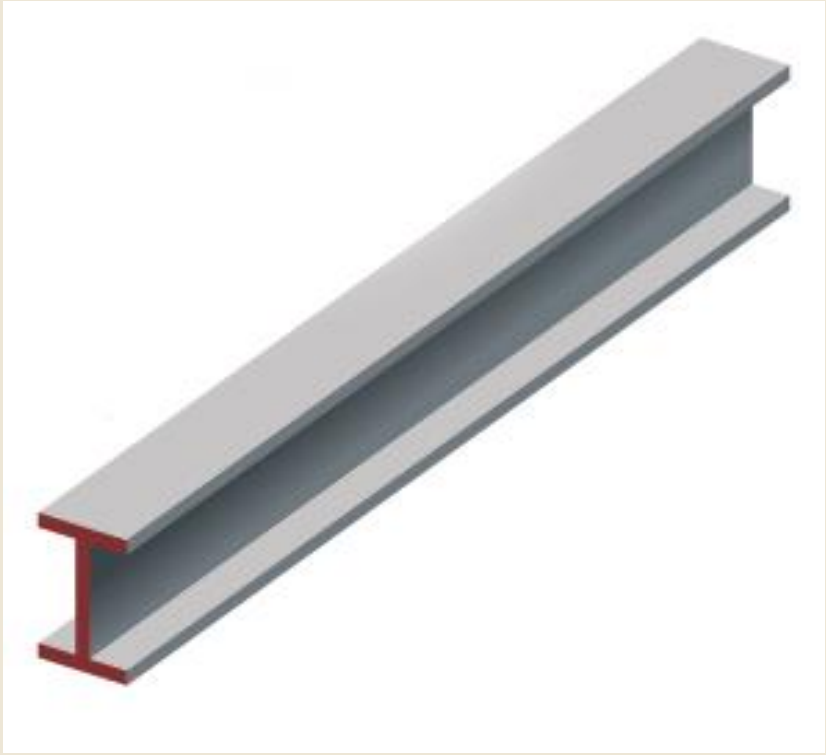


Herringbone strutting



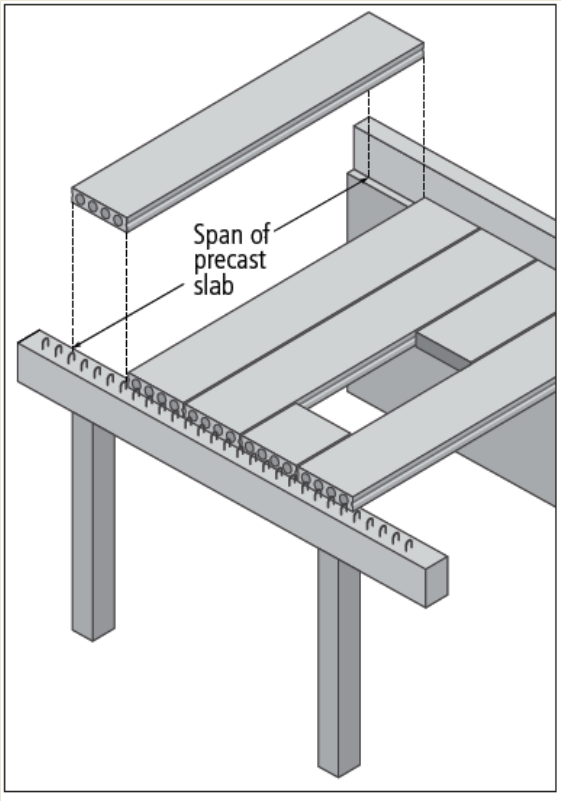
I-Joists

- Laminated veneered lumber (LVL)
- Orientated strand board (OSB)
- Beam-bearing details:
  - Om wall
  - Wall hanger

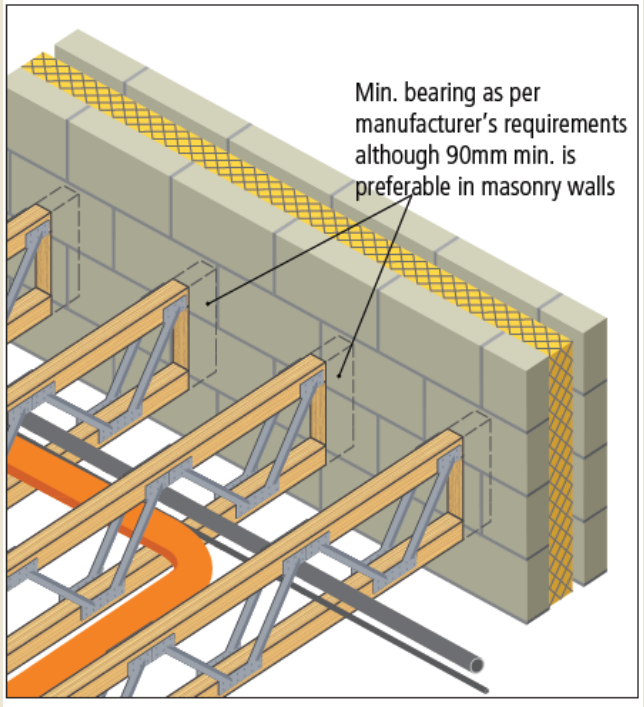


Alternative Floors

Concrete



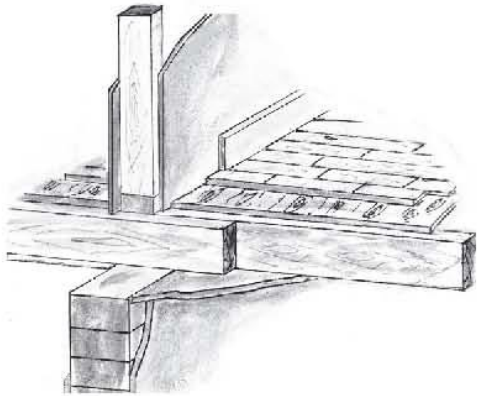
Timber and steel open web joist



Relevant 2013 Exam Question Ordinary level Q 5

OL Q5

5. A non load-bearing stud partition separates two upstairs bedrooms in a dwelling house. The floor and partition are supported on a 215 mm solid block wall, as shown in the sketch. The floor is a floating tongued and grooved oak floor on plywood, on 200 mm × 50 mm joists with a plasterboard ceiling beneath.



To a scale of 1:5, draw a vertical section through the stud partition and the floor. Show the typical construction details from a level 300 mm below the plasterboard ceiling, through the wall, floor and partition to a point 400 mm above the finished floor level. Include **three** typical dimensions on your drawing.

***Note**: Show a floor width of 500 mm at each side of the partition.*