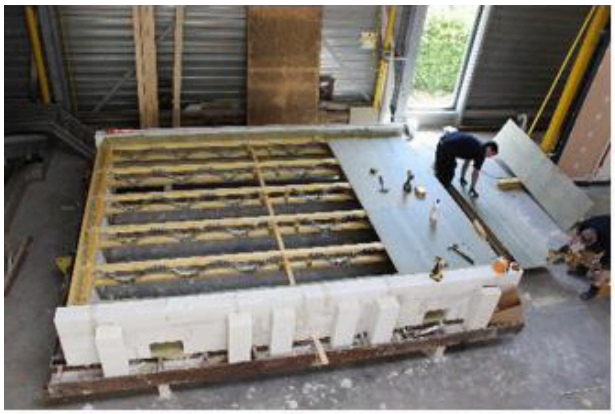
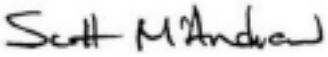
Fire Resistance

Guidance Document - Ireland



30 MINUTE FIRE SEPARATION TO EN 1365-2:2014 FIRE RESISTANCE TESTS FOR LOADBEARING ELEMENTS – PART 2: FLOORS AND ROOFS

Prepared by: 

Date: 26/09/18

Scott McAndrew, MSc

Engineer / R&D Manager

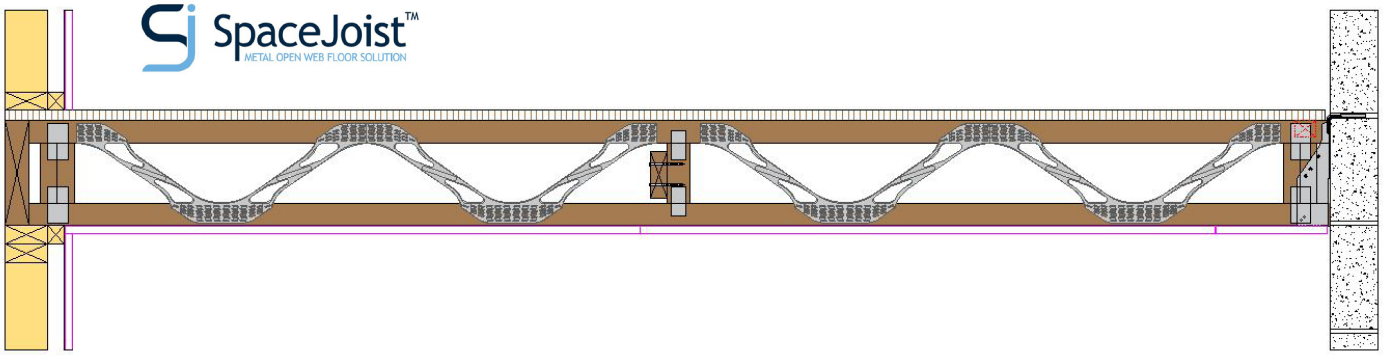
ITW Construction Products

A Division of ITW Ltd

Objective

To provide suitable floor and roof construction when tested to EN 1365-2:2014 Part 2: Floors and roofs and meet the requirements of Building Regulations 2017 – Technical Guidance Document B, Fire Safety – Volume 2 – Dwelling Houses (Appendix A – Performance of Materials and Structures – Table 1A)

FLOOR CONSTRUCTION FOR 30 MINUTES FIRE RESISTANCE IN ACCORDANCE WITH EN1365-2:2014



Joist

- SpaceJoist™ depths of 219, 254 & 304mm deep (SJ9, SJ10 & SJ12)
- Flanges to be 72mm minimum width
- Maximum joist centres of 400mm

Floor deck options

- 18 or 22mm T&G P5 chipboard flooring
- 18mm T&G OSB/3
- Decking glued using D4 adhesive to joists and joints, fixed with screws at 200mm centres (4.2x45mm minimum screw size)
- Perimeter noggins required to unsupported edge of flooring (as per decking manufacturer guidance)

Ceiling

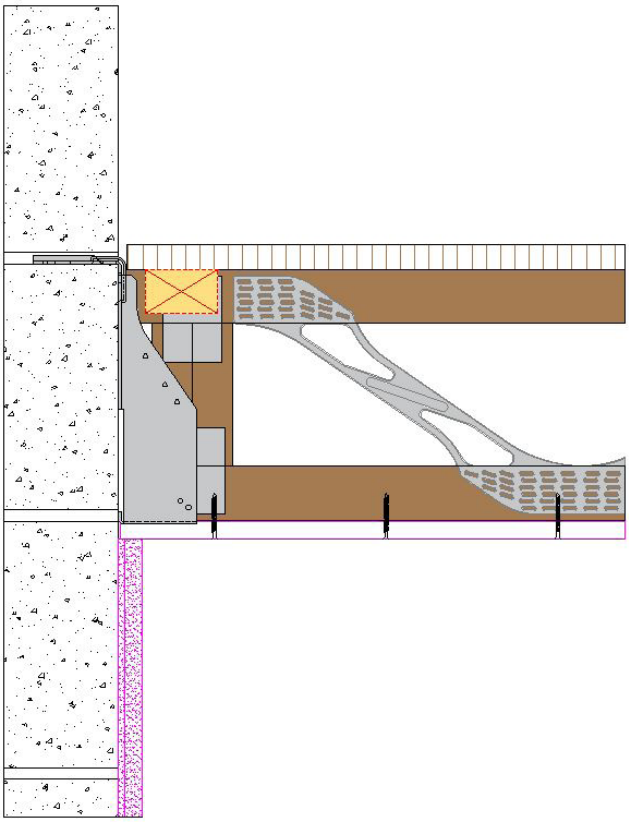
- 15mm type A Gyproc wallboard (fixed with 3.35x55mm drywall screws at 150mm centres)
- No perimeter noggins required to board edges
- No noggins required to plasterboard joints

Hangers

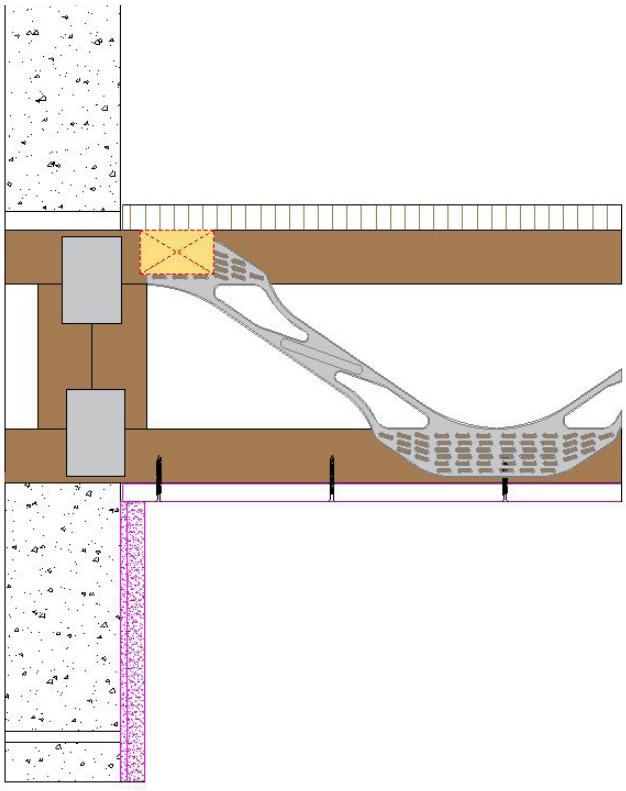
- Cullen JHI / JHIR or RB-JHI / RB-JHIR hangers have been tested and approved for joists supported on hangers

EXTERNAL WALL DETAILS – MINIMUM REQUIREMENT

Masonry wall with joist supported on hangers and wall directly plastered



Masonry wall with joist built into wall and wall directly plastered



Joist

- SpaceJoist™ depths of 219, 254 & 304mm deep (SJ9, SJ10 & SJ12)
- Flanges to be 72mm minimum width
- Maximum joist centres of 400mm

Hanger

- Cullen JHI / JHIR or RB-JHI / RB-JHIR masonry joist hangers

Floor deck options

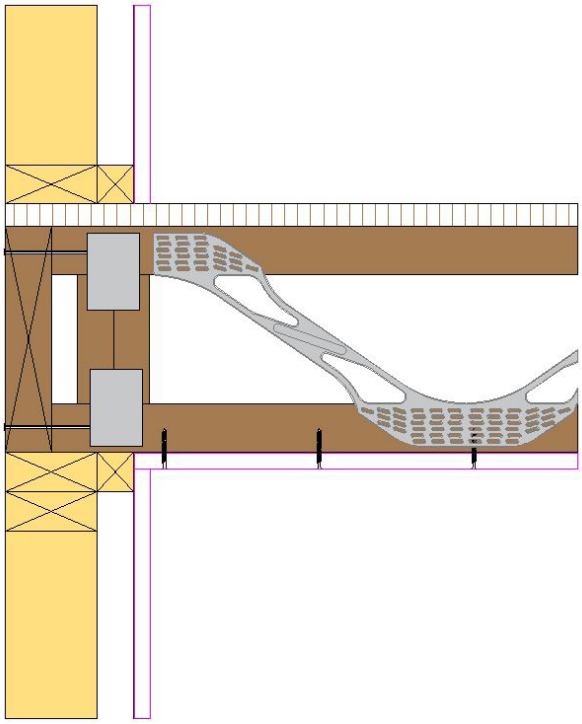
- 18 or 22mm T&G P5 chipboard flooring
- 18mm T&G OSB/3
- Decking glued using D4 adhesive to joists and joints, fixed with screws at 200mm centres (4.2x45mm minimum screw size)
- Perimeter noggins required to unsupported edge of flooring (as per decking manufacturer guidance)

Ceiling

- 15mm type A Gyproc wallboard (fixed with 3.35x55mm drywall screws at 150mm centres)
- No perimeter noggins required to board edges
- No noggins required to plasterboard joints

EXTERNAL WALL DETAILS – MINIMUM REQUIREMENT CONTINUED

Timber frame with rim board and joists supported in wall
(timber frame wall details may vary – please use suitable approved details to give required fire resistance)



Joist

- SpaceJoist™ depths of 219, 254 & 304mm deep (SJ9, SJ10 & SJ12)
- Flanges to be 72mm minimum width
- Maximum joist centres of 400mm

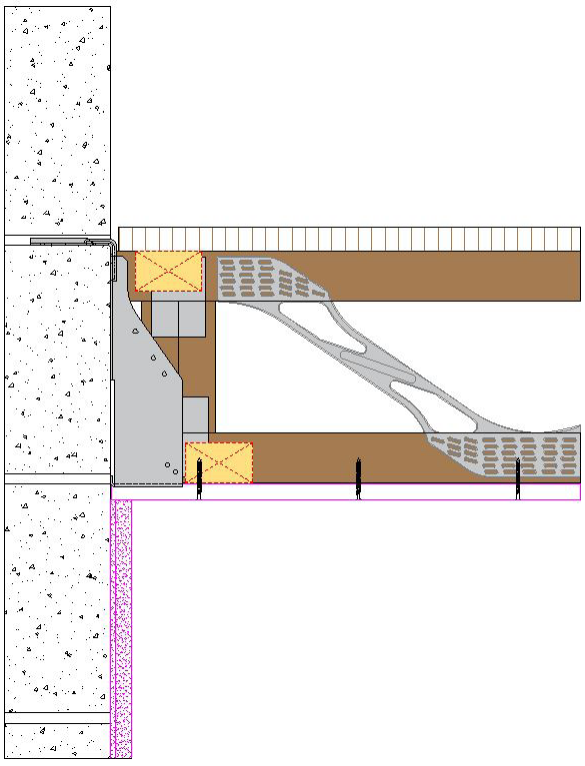
Floor deck options

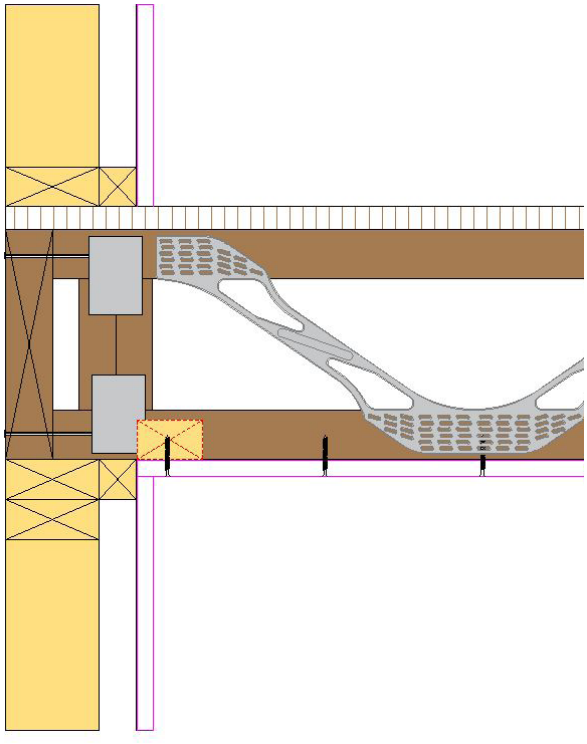
- 18 or 22mm T&G P5 chipboard flooring
- 18mm T&G OSB/3
- Decking glued using D4 adhesive to joists and joints, fixed with screws at 200mm centres (4.2x45mm minimum screw size)
- Perimeter noggins required to unsupported edge of flooring (as per decking manufacturer guidance)

Ceiling

- 15mm type A Gyproc wallboard (fixed with 3.35x55mm drywall screws at 150mm centres)
- No perimeter noggins required to board edges
- No noggins required to plasterboard joints

EXTERNAL WALL DETAILS – BEST PRACTICE



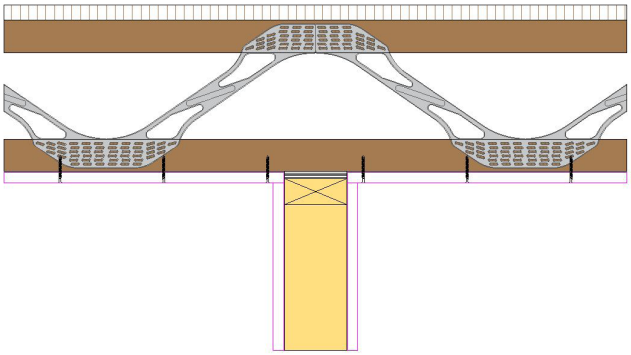


As detailed above with the following additions

- perimeter noggins to joist supports (35x45mm minimum)
- Plasterboard fixed to perimeter noggins with 3.35x55mm drywall screws 2no. fixings per noggin

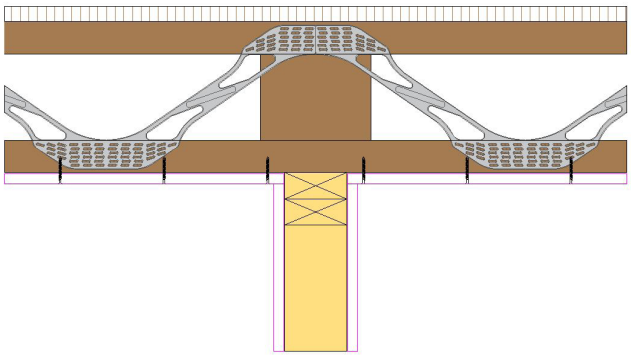
INTERNAL WALL DETAILS

Non-load bearing partition



- Non-load bearing partition with packer to underside of joist
- 15mm Type A Wallboard to ceiling butting tightly to face of partition top rail
- Wallboard to partition to underside of ceiling board with joints taped and filled.
- No noggins required

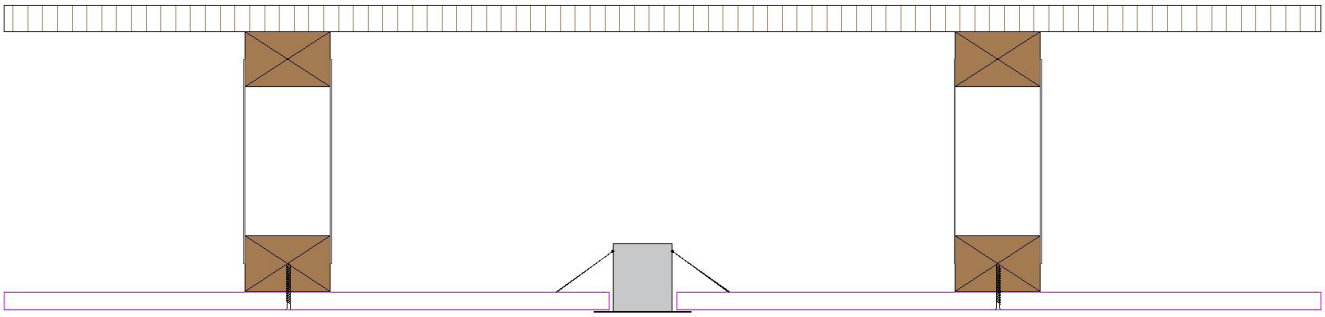
Load bearing partition



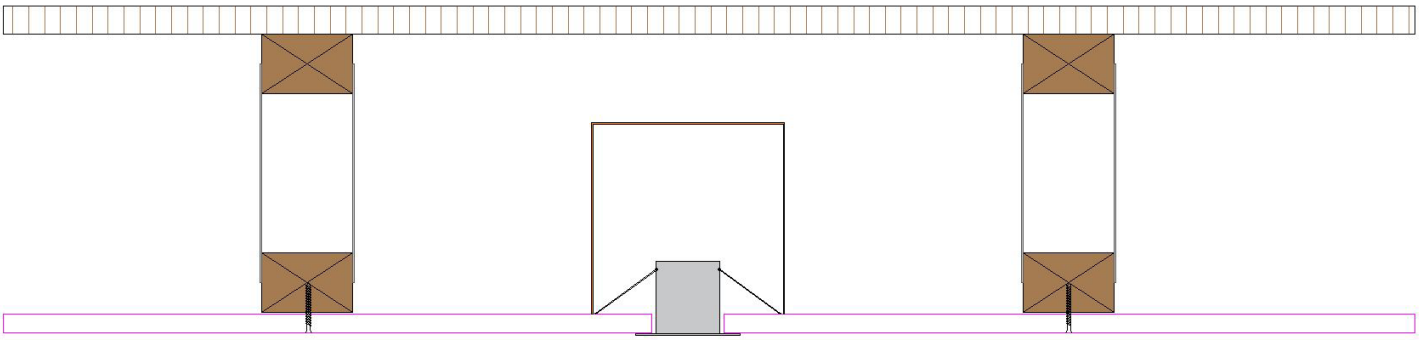
- Load bearing partition to underside of joist
- Blocking to webs of joist above load bearing wall
- 15mm Type A Wallboard to ceiling butting tightly to face of partition top rail
- Wallboard to partition to underside of ceiling board with joints taped and filled.
- No noggins required

Openings with the Floor

Down lighters

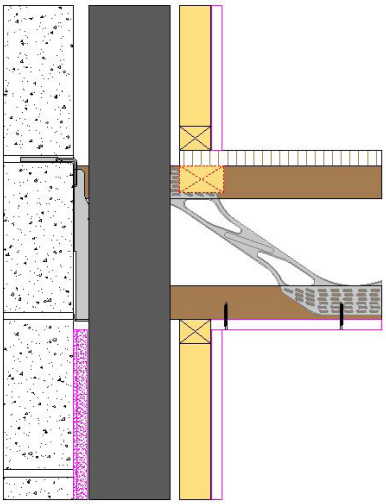


- Down lighters in a 30minute ceiling must have a 30minute minimum fire rating

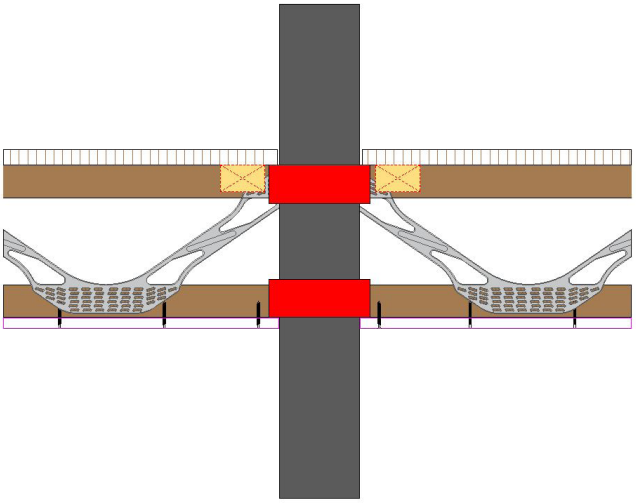


- Alternatively, fire rated fire hood to be installed over down lighters with a 30minute minimum fire rating

Large services



- Large services to protected with framing and plasterboard to give fire resistance equal or greater than ceiling

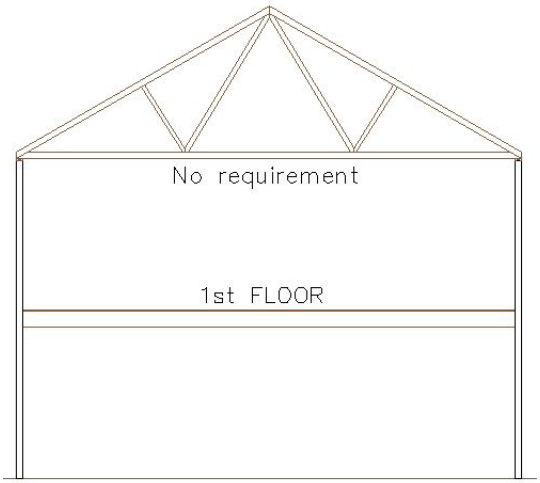


- Alternatively, large pipework penetrations (SVP etc.) greater than 40mm diameter to be fitted with fire collars where they break the ceiling and deck construction

- Small penetrations (cables, radiator pipes etc.) to be sealed with intumescent mastic

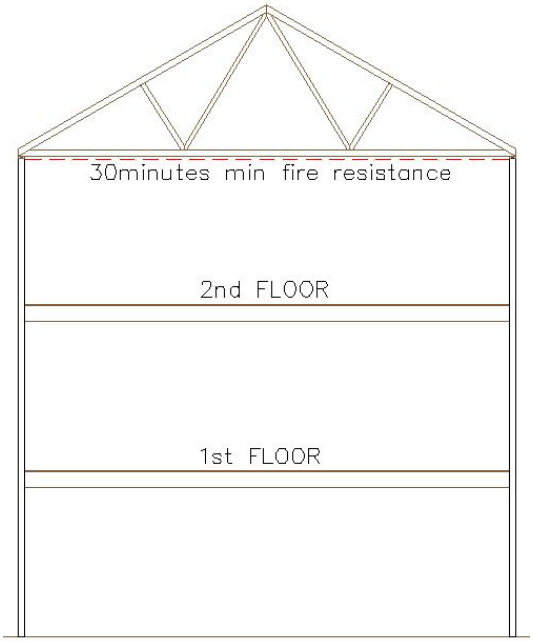
ROOF CONSTRUCTION FOR 30 MINUTES FIRE RESISTANCE IN ACCORDANCE WITH EN1365-2:2014

Roof Trusses – Dwelling houses



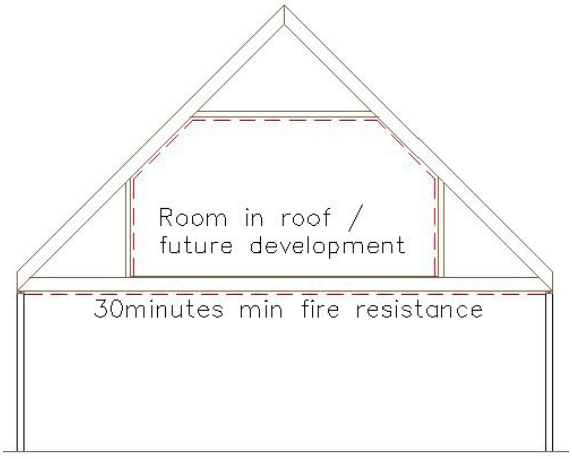
Standard trusses in dwelling houses maximum of two storeys

- No fire resistance requirement



Standard trusses in dwelling houses of three or more storeys

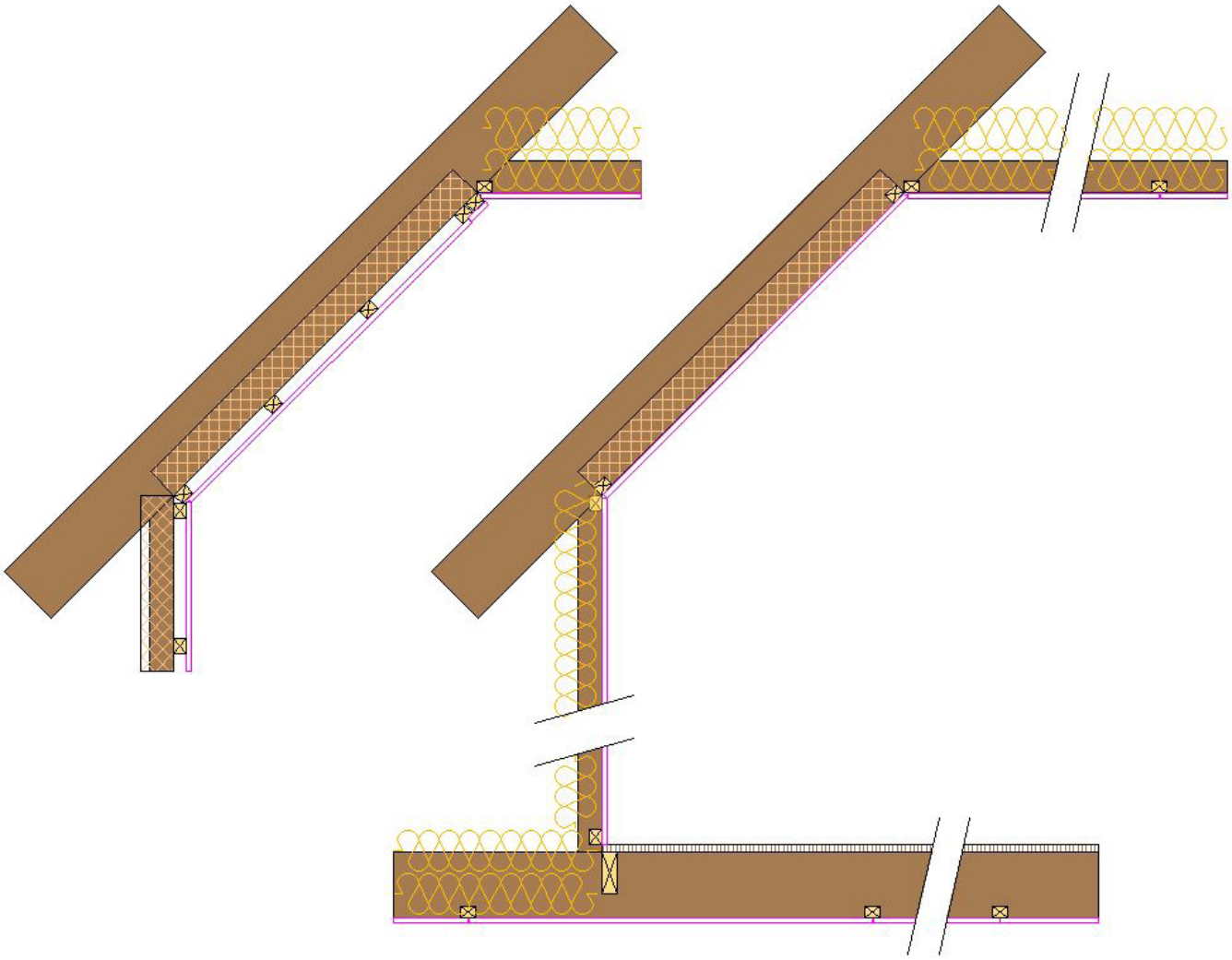
- 30minute fire resistance to ceiling



Room in roof trusses (including future development) all storey heights

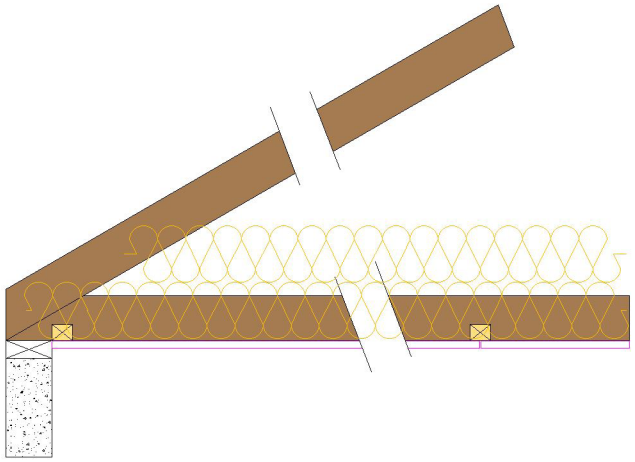
- 30minute fire resistance to ceiling
- 30minute fire resistance to internal room (walls, ceiling & sloping ceiling)

Internal Room Members of Attic/Room-In-Roof Trusses



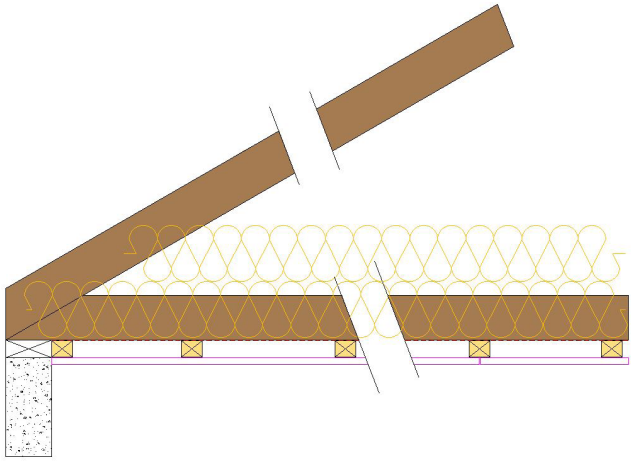
- 47mm minimum truss width
- Truss at a maximum of 600mm centres (to suit truss design)
- 15mm Type F fireline board
- Noggins to perimeter and all board edges (35x60mm minimum)
- Bottom chord/ceiling member as per standard truss detail for 47mm wide trusses

Bottom Chord of all Roof Trusses/Internal Ceiling of Attic/Room-In-Roof Trusses



- 47mm minimum truss width
- Truss at a maximum of 600mm centres (to suit truss design)
- Noggins to perimeter and all board edges (35x45mm minimum)
- 15mm Type F fireline board
- 300mm minimum glass wool insulation between and over trusses

Detail showing masonry wall construction but also applies to timber frame wall construction



- 35mm minimum truss width
- Truss at a maximum of 600mm centres (to suit truss design)
- Air tight membrane to underside of trusses (for air tightness requirements)
- Counter battens at maximum of 400mm centres fixed, with infill noggins between to perimeter and all board edges (35x60mm minimum)
- 15mm Type F fireline board

Detail showing masonry wall construction but also applies to timber frame wall construction

Supporting Information – Floor Testing

Testing body

Peutz bv, Lindenlaan 41, NL-6584 AC Molenhoek,
Postbus 66, NL-6585 ZH Mook,
The Netherlands NB 2264

Date of Test	Report Number	Descritpion	Summary
24th July 2017	Y1859-1E-RA-001	Joists at 400mm centres, 15mm Type A, 22mm chipboard	• Test achieved 45minutes • REI45
18th January 2018	Y1901-1E-RA-001	Joists at 600mm centres, 15mm Type A, 22mm chipboard	• Test achieved 36minutes • REI30
29th March 2018	Y1964-1E-RA-001	Joists at 400mm centres, 15mm Type A, 18mm chipboard, joists supported on hangers	• Test achieved 55minutes • REI45

Supporting Information – Roof Trusses

Testing body

Exova Warringtonfire,
Holmesfield Road, Warrington,
United Kingdom WA1 2DS

Date of Test	Report Number	Descritpion	Summary
21st February 2018	393523	• 35mm thick trusses at 600mm centres • 12.5mm Type F Fireline board • noggins to perimeter & board edges	• Test failed before 30minutes was reached (Integrity & Insulation failed at 24minutes)
	393524	• 47mm thick trusses at 600mm centres • 15mm Type F Fireline board • noggins to perimeter & board edges	• Test achieved 33minutes • REI30

Peutz bv, Lindenlaan 41, NL-6584 AC Molenhoek,
Postbus 66, NL-6585 ZH Mook,
The Netherlands NB 2264

Date of Test	Report Number	Descritpion	Summary
2nd August 2019	Y1980	• 35mm thick trusses at 600mm centres • counter battens at 400mm centres • 12.5mm Type F Fireline board • infill noggins to perimeter & board edges	• Test failed before 30minutes was reached (Integrity failed at 29minutes

NOTES

The information in this catalogue is intended for general guidance only and is given without engagement. Additional information and advice on specific applications is available from our Technical Support Team. For this however, we require a precise description of your particular application.

All the data in this catalogue concerning work with our fixing elements must be adapted to suit local conditions and the type of materials in use.

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