Fire Resistance Guidance

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Building Regulations – Current Status

- **Part A** – Structure (2012)
- **Part B** - Fire Safety (2017)
- **Part C** - Site Preparation and Moisture Resistance (2018)
- **Part D** – Materials & Workmanship (2013)
- **Part E** – Sound (2014)
- **Part F** - Ventilation (2009)
- **Part G** – Hygiene (2011)
- **Part K** - Stairways, Ladders, Ramps & Guards (2014)
Appendix A Performance of Materials and Structures

- A 21 Structural fire design- additional Reference to Eurocodes and Fire Parts of Structural Eurocodes
- Application of EU Test methods-design to Eurocodes(TGD Part A Structure -2012)
- Application BS 476-existing buildings
Dept. Concerns

• External walls/loadbearing walls fire resistance
• Party walls in Timber frame
• Flooring types now being used and their fire resistance ie Engineered joists
• Penetrations of the fire resistant layer
• Trusses requiring fire resistance under
Current IS 440 walls

BREATHER MEMBRANE
LAPPED MINIMUM 100 mm
OVER LOWER MEMBRANES

VCL

AIRTIGHT SEAL

BRIDGING BETWEEN JOISTS OR JOISTS
PARALLEL TO FLOOR SPAN

NOGGING TO PICK UP PLASTERBOARD CEILING

HEADER JOIST

CHECK ON SITE CONSTRUCTION DETAILS
FOR AIRTIGHT SEALS AND VAPOUR CONTROL LAYERS

ANCHOR STRAPS FIXED INTO STUDS AND A MINIMUM OF
50 mm INTO MORTAR, TYPICALLY AT CORNERS, ON
EITHER SIDE OF OPENINGS AND SPACED AT NO MORE
THAN 1.8 m or 1.8 m

ANCHOR STRAPS ARE PROPRIETARY PRODUCTS
FIXED IN ACCORDANCE WITH THE SITE FIXING
SCHEDULE USING THE SUPPLIED NAILS

DPC AND AIRTIGHT SEAL

DPM/RADON BARRIER LAPPED WITH DPC

50 mm MINIMUM

WINDOW

STUD POSITIONS MARKED

50 mm MINIMUM
New verses old wall types

100mm Outer Leaf
50mm Ventilated Cavity with Wall Ties
Breather Paper on OSB
140mm Stud with Insulation Between

12.5mm Plasterboard Returned to Window/Door Frame

**mm insulation
Airtight Membrane
40mm Service Zone
12.5mm Plasterboard

100mm Outer Leaf
50mm Ventilated Cavity with Wall Ties
Breather Paper on OSB
184mm Stud with Insulation Between

12.5mm Plasterboard with 50mm Insulation Returned to Window/Door Frame

40mm Insulation
REFLECTIVE Airtight Membrane
40mm Service Zone
12.5mm Plasterboard

ANCHOR STRAPS FIXED INTO STUDS AND A MINIMUM OF 50 mm INTO MORTAR, TYPICALLY AT CORNERS, ON EITHER SIDE OF OPENINGS AND SPACED AT NO MORE THAN 1.8 M or 1.8 M

ANCHOR STRAPS ARE PROPRIETARY PRODUCTS FIXED IN ACCORDANCE WITH THE SITE FIXING SCHEDULE USING THE SUPPLIED NAILS

DPC AND AIRTIGHT SEAL

DPM/RADON BARRIER LAPPED WITH DPC

50 mm MINIMUM

WINDO W

STUD POSITIONS MARKED

50 mm MINIMUM
3.4.2 Fire Resistance Standard

Structural frames, beams, columns, loadbearing walls (internal and external), floor structures, should have at least the fire resistance given in Appendix A, Table A1
Fire Test Chamber

Thermocouples in Chamber
External wall just after fire test
External wall after fire test
External Wall 30 Min. Fire Resistance

Plan

Figure 2  Wall Type 2 (WT2) - Service Cavity Wall
External Wall 30 Min. Fire Resistance

Figure 4  **Wall Type 4 (WT4) - Service Cavity Wall**
Hot News External wall 30 Min. Fire Resistance

• New Fire tests since the release of the Guidance
• Wall Types WT 2 & WT4 tested with 12.5mm Type F board.
• Both lasted substantially longer than 30 minutes.
• 12.5mm Type F (Fire line board) can be used in place of 15mm Type A plasterboard on these constructions.
IS 440 Party Wall

Ensure adequate cover of timber for fixing and fire performance.

Batten to support roofing battens.

Ensure lining is properly fixed and timber backed.

Fire stop fills cavity and tight to vertical fire stop at ends of party wall and to NCB. Note location of fire stop covering horizontal joints.

Cavity barrier fills cavity and tight to vertical fire stops at ends of party wall and to NCB. Note location of cavity barrier covering horizontal joint.

An Rolni Thlithohta, Pleanbia, Pobail agus Riachtais Arithil
Department of Housing, Planning, Community and Local Government
Separating (Party) Wall

• Integrity of wall just being breached
• Note jacks underneath loading studs
• 15mm Type F facing board
• 15mm Type A behind
• Both fixed directly to studs with screws or staples
• 9mm OSB racking board.
• Fibreglass between studs.
Separating Wall 60 Min. Fire resistance

Plan

Figure 5 Separating Wall Type 1 (SWT1)
Engineered Joists

IS 440 8.8.3 States

“These joists usually have specific ceiling constructions for fire resistance (different to those for solid joists) and the designer's recommendations (or those in this Standard if they are more onerous) in these areas shall be followed.”
Engineered Joists
Engineered Joists

- 15mm Type A plasterboard
- Metal web joists @400mm centres
- Noggins at edge
- Flooring over
- Loaded for dwelling
Engineered Joists
Floor Fire Test
Floor Fire Test
Engineered Joists

30 minutes fire resistance: No apertures (downlighters, service penetrations etc.) should be present except where fitted with an approved light fitting or an appropriate proven penetration sealing system.
Engineered Joists

30 minutes fire resistance:
No apertures (downlighters, service penetrations etc.) should be present except where fitted with an approved light fitting or an appropriate proven penetration sealing system.
Engineered Joists

30 minutes fire resistance:
Only openings fitted with an approved light fitting or an appropriate proven penetration system are satisfactory. No other openings are permitted.
Hot News Internal wall 30 Min. Fire Resistance to EN 1365

- Load bearing Timber stud
- 12.5mm Type A plasterboard both sides
- Meets 30 Minutes requirement.
- Also achieved 30 Min. with 9mm OSB as racking board
IS 440 Detail

Self-adhesion of the pad
Both surfaces to be clean before fitting

Fire protection pad fitted externally
Penetrations in fire resisting construction

Example of accessories being back-to-back in the same cavity space (can be at different heights)

Example of accessories not being back-to-back in the same cavity
Fire putty to fire stop socket
Back to Back penetrations in stud partition
Truss roofs requiring 30 min. ceiling

- 15mm type F plasterboard.
- On 47mm thick trusses at 600mm centres.
- Board joints nogged with 35x70mm @1200mm centres.
- With insulation over
Truss roofs requiring 30 min. ceiling
Truss roofs requiring 30 min. ceiling

- Roof Loading
- service loading
Truss roofs requiring 30 min. ceiling
Joint with Gang nail plate after fire
Thank You for your attention!

GENERAL ENQUIRIES

- [buildingstandards@housing.gov.ie](mailto:buildingstandards@housing.gov.ie)