



Comhairle Contae Thiobraid Árann  
Tipperary County Council



# Building Control Officer Perspective

## Re-Use of Existing Buildings and Materials

Building Control Act 1990 to 2025

**Martin Moore**

MSc., BSc. (Hons.) C. Build E MCABE MIBCI (Reg. Building Surveyor)  
Assistant Chief Fire Officer / Building Control Officer  
Tipperary Fire & Rescue Service



# Overview

- Building Control Acts 1990 to 2025
  - Building Regulations 1997 (as amended)
  - Building Control Regulations 1997 (as amended)
- Fire Services Acts 1981 & 2003\*
- Fire Safety Certificate Process
- Guidance on Fire Safety in Reuse of Existing Structures
- Assessment of Fire Resistance of Existing Structures
- Guidance on the Upgrading of Fire Resistance
- Compensatory Measures for Existing Buildings
- Utilisation of Professional Judgement



# Building Control Act 1990 to 2025

## Minimum Standards to be Achieved

### Building Regulations

- **Part A** – Structure
- **Part B** – Fire Safety
- **Part C** – Site Preparation and Resistance to Moisture
- **Part D** – Materials and Workmanship
- **Part E** – Sound
- **Part F** – Ventilation
- **Part G** – Hygiene
- **Part H** – Drainage and Waste Water Disposal
- **Part J** – Heat Producing Appliances
- **Part K** – Stairways, Ladders, Ramps and Guards
- **Part L** – Conservation of Fuel and Energy
- **Part M** – Access and Use

## Process to Demonstrate Compliance

### Building Control Regulations

- **Fire Safety Certificates**
- **Disability Access Certificates**
- **Commencement Notices**
- **Certificate of Compliance on Completion**



# Building Regulations

- **Material Alterations and Extensions** – All Parts of Building Regulations apply
- **Material Change of Use** – only some of the Parts of the Building Regulations apply;

**Part A1** – Structure (Loading)

**Part B** - Fire Safety

**Part A2** - Structure (Ground Movement)

**Part C4** - Site Preparation and Resistance to Moisture (Resistance to Weather and Ground Moisture)

**Part E** - Sound,

**Part F** - Ventilation,

**Part G** - Hygiene,

**Part H** - Drainage and Waste Water Disposal,

**Part J** - Heat Producing Appliances,

**Part L** - Conservation of Fuel and Energy,

**Part M\*** - Access and Use



\* Part M only applies to elements that are altered or provided that are covered by Part M (e.g. if a passenger lift is decided to be installed the lift must conform to Part M).



# Building Regulations

- Regulation Vs. Guidance

Regulation B1 – Means of escape in case of fire

A Building **shall** be so designed and constructed that there are **adequate** means of escape in case of fire...

Guidance – maximum travel distance to an exit **should** be.....





# Fire Services Acts 1981 & 2003

- Section 18(2)

*“reasonable measures”...*

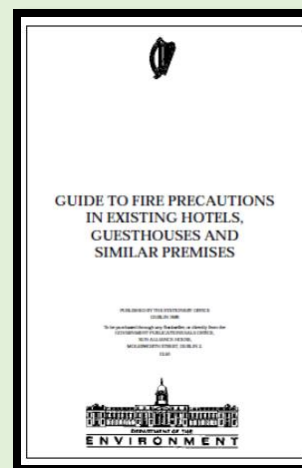
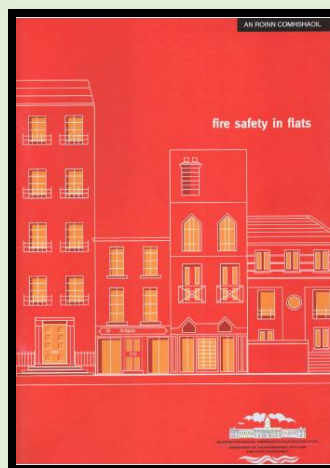
Applies to all buildings other than *“a dwelling house occupied as a single dwelling”*

- Section 19 – Potentially Dangerous Building

*“means any building which would, in the event of a fire occurring therein, constitute a serious danger to life”...*

- Very useful guides for existing buildings published under Section 18A

- <https://www.fireireland.ie/fire-safety/guidance/>





# Definitions – MA / MCoU

Definitions under the Building Control Regulations 1997 to 2025 (secondary legislation)

“ material alteration ” means an alteration (other than a repair or renewal), where the work, or any part of the work, carried out by itself would be subject to a requirement of Part A or B of the Second Schedule to the Building Regulations;

“ material change of use ” means —

( a ) a change of use, deemed by section 3(3) of the Act to be a material change of use, takes place, or

( b ) a building which was not being used as —

- (i) a day centre, becomes so used, or
- (ii) a hotel, hostel or guest building, becomes so used, or
- (iii) an industrial building, becomes so used, or
- (iv) an institutional building, becomes so used, or
- (v) an office (which is not ancillary to the primary use of the building), becomes so used, or
- (vi) a place of assembly, becomes so used, or
- (vii) a shop (which is not ancillary to the primary use of the building), becomes so used, or
- (viii) a shopping centre, becomes so used;



## Definitions – MA / MCoU

### Material Change of Use Definition – Building Control Act 1990 to 2025 (primary legislation)

(3) In addition to the provisions of any regulations made for the purposes of *subsection (1)(d)*, there shall be deemed to be a material change in the purposes for which a building is used if, on or after the operative day—

- (a) a building, being a building which was not originally constructed for occupation as a dwelling, or which, though so constructed, has been appropriated to other purposes, becomes used as a dwelling,
- (b) a building, being a building which was originally constructed for occupation as a dwelling by one family only, becomes occupied by two or more families, or
- (c) where building regulations contain special provisions in relation to buildings used for any particular purpose, a building to which the regulations apply and which was not being used for that purpose, becomes so used.



# FSC's and DAC's

- Articles 11 and 20D of the Building Control Regulations 1997 (as amended)
  - Construction of a new building
  - Material alterations

( b ) works in connection with the material alteration of—

(i) a day centre,

(ii) a building containing a flat,

(iii) a hotel, hostel or guest building, or

(iv) an institutional building, or

(v) a place of assembly, or

(vi) a shopping centre,

but excluding works to such buildings, consisting solely of minor works,

( c ) works in connection with the material alteration of a shop, office or industrial building where—

(i) additional floor area is being provided within the existing building, or

(ii) the building is being subdivided into a number of units for separate occupancy,

( b ) works in connection with the material alteration of —

(i) a day centre,

(ii) a hotel, hostel or guest building, or

(iii) an institutional building, or

(iv) a place of assembly, or

(v) a shopping centre,

but excluding works to such buildings, consisting solely of minor works,

( c ) works in connection with the material alteration of a shop, office or industrial building where —

(i) additional floor area is being provided within the existing building, or

(ii) the building is being subdivided into a number of units for separate occupancy,

- Material change of use
- Extension > 25m<sup>2</sup>



# FSC & DAC Info for Existing Buildings

- Compliance Report is a Key Document:

## For the Designer:

- An existing buildings may not easily fit with the guidance provided in TGD's or other prescriptive codes.....write this document carefully,
- Don't leave the assessing Officer guessing....
- Ideally organise a pre-submission meeting with the BCA / Fire Officer where there are significant deviations from prescriptive codes,
- Understand the background to the guidance – why is it written that way? Is there an alternative approach that would align to the principles of the guidance

## For the Officer:

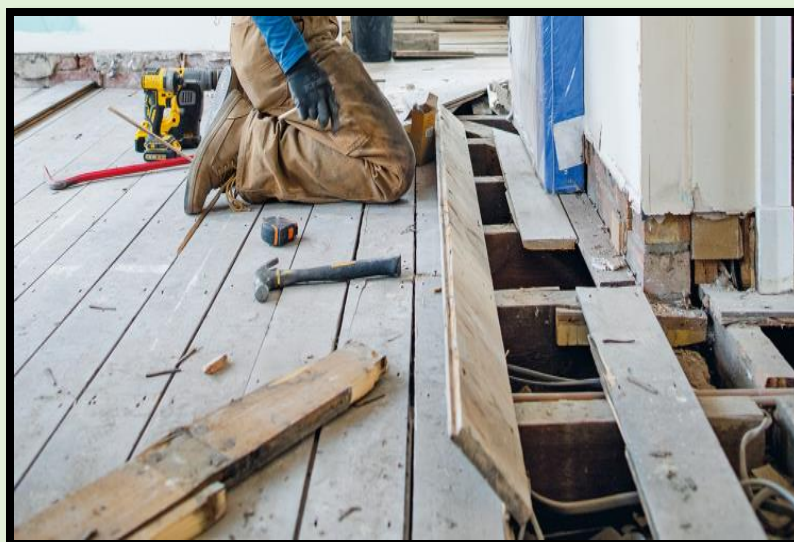
- Common sense approach to deviations – is the risk proportional?
- Use the TGD's as intended – guidance not a substitute for professional judgement
- Remember you are assessing for compliance with **Requirements** not guidance
  - Is it “adequate”?



# Granting

- BCA may grant a certificate with or without conditions
  - Important to note the following wording:

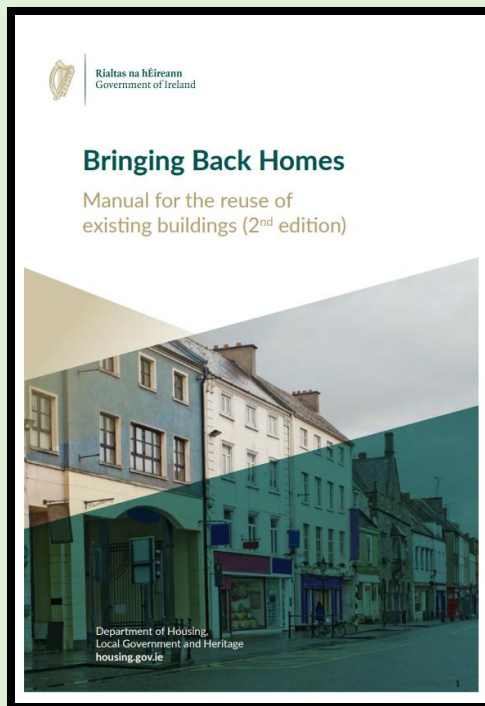
*...(Building Control Authority)...hereby certify that the works or building to which the application relates, will, if constructed in accordance with the plans, calculations, specifications and particulars submitted, comply with the requirements of Part B / M of the Second Schedule to the Building Regulations 1997 as amended.*





# Bringing Back Homes Vol. 2

## • Useful Index for the Regulatory Approach Required



### Bringing Back Homes – 2<sup>nd</sup> Edition

<https://www.gov.ie/ga/an-roinn-tith%C3%ADochta-rialtais-%C3%A1it%C3%BAl-agus-oidhreacht/foilseachain/bringing-back-homes-manual-for-the-reuse-of-existing-buildings/>

Figure 1 – The Basic Process for Bringing a Property Back into Use

### Assess



#### Step 1 Consider reusing an existing building for residential purposes

##### Considerations:

- What is the condition of the existing building?
- What heritage value (if any) does the building have and what specialist skills will be required to work on this building?
- What incentives/grants are available?
- What are the likely costs of the proposed works?
- Are there any site specific constraints?
- What utility connections are required e.g. electricity, gas, water, wastewater?



#### Step 2 Identify the Regulatory Approval Path

##### Considerations:

- Do the works require planning permission?
- Do the works qualify for an exemption under Exempted Development Regulations, 2022?
- Do the works require a Fire Safety Certificate?
- Do the works require a Disability Access Certificate?

### Design



#### Step 3 Identify the key design work needed

##### Considerations:

- What standards (planning, building or rental) apply to the works?
- Are there site specific risks which should be considered in the design e.g. sound insulation on busy streets, flooding risks, etc?

### Approval



#### Step 4 Confirm that approvals are in place

##### Considerations:

- Has planning permission / Fire Safety Certificate been granted?
- Are other specific permits required or restrictions? e.g.
  - Road closure licence?
  - Refuse/ skips?
  - Utility connections e.g. water, electricity, etc?

### Build



#### Step 5 Commence building work

##### Considerations:

- Is a Commencement Notice required?
- When can I start work?
- Will the Safety, Health, Welfare at Work Regulations apply?



# TGD's - Existing Buildings

- TGD's with Sections specific to Existing Buildings:
- TGD B Vol. 1 2024 – Section 7
  - “....Sections 1 to 6 and 8 cannot be reasonably achieved...” - consider compensatory measures
- TGD M 2022 – Section 2
  - Use Section 1 except for specific items to Section 2 where necessary i.e. Section 2 is not the default
  - “Works to existing buildings can present many design challenges because of the individual character, appearance and environs of existing buildings. Each existing building and site will present its own unique access opportunities and constraints, which are likely to result in different ways of addressing accessibility. However, the fundamental priorities of accessibility should be the same as those set out in M1, i.e. accessing and using a building, its facilities and environs”
- TGD L's 2022 – Section 2
  - Backstop u-values for existing buildings
  - Air-permeability – “..reasonable levels...”
  - Major Renovations.....



# Technical Guidance Documents (TGD's)

- Each TGD is written with this paragraph.....

## Existing Buildings

In the case of material alterations or changes of use of existing buildings, the adoption without modification of the guidance in this document may not, in all circumstances, be appropriate. In particular, the adherence to guidance — including codes, standards or technical specifications — intended for application to new work may be unduly restrictive or impracticable. Buildings of architectural or historical interest are especially likely to give rise to such circumstances. In these situations, alternative approaches based on the principles contained in the document may be more relevant and should be considered.

**Professional Judgement**

By both Designer and Building Control Officer



An Roinn Tithíochta,  
Rialtais Áitiúil agus Oidhreacht  
Department of Housing,  
Local Government and Heritage

## Information Note on Alternative Approaches to Demonstrate Compliance with the Building Regulations

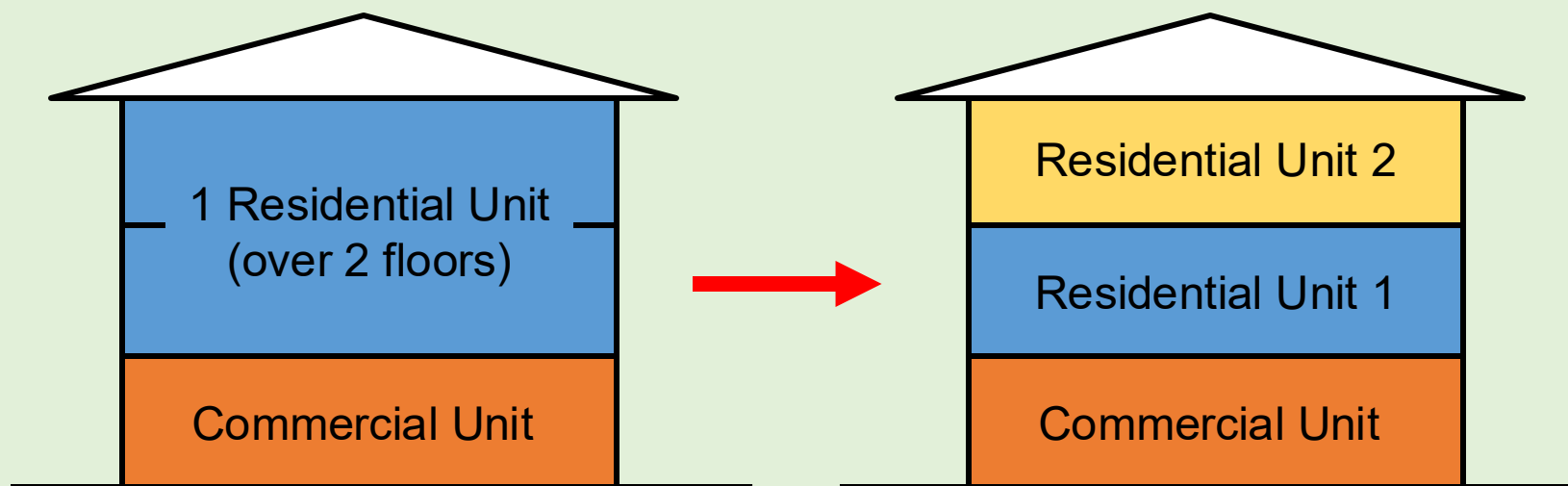
March 2024

<https://www.gov.ie/en/department-of-housing-local-government-and-heritage/publications/alternative-approaches-to-demonstrate-compliance-with-the-building-regulations/>



# Regulatory Challenges Encountered

- **Parts A – M** Increasing the Number of Flat Units – Greater Contravention
  - More onerous regulatory provisions – particularly fire safety





# Regulatory Challenges Encountered

## • Requirement A1 - Loading

- Structural assessment of the existing building and capable loads is vital to determine the possible reuse applications
- **Owner / Designer / Builder must be aware of the limitations of existing structural elements**

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**StructuralEngineers**

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**Assessment of existing structures safety tool**

<https://www.istructe.org/resources/training/assessment-of-existing-structures-safety-tool/>

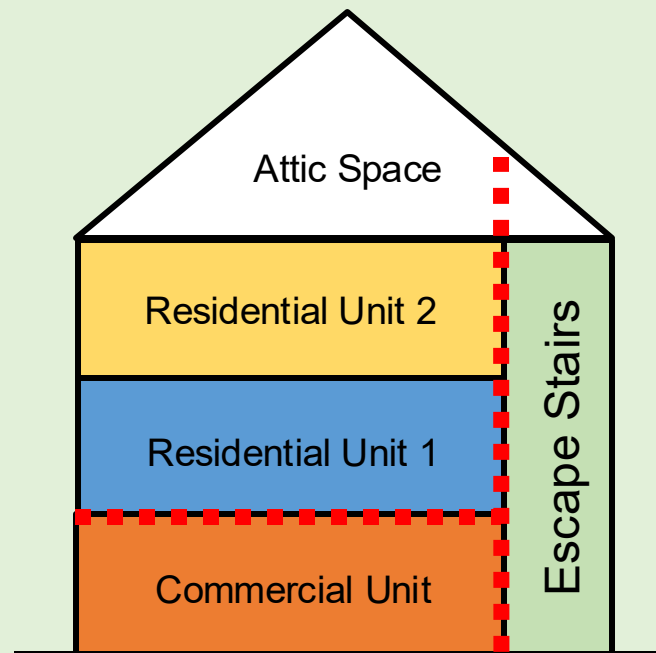




# Regulatory Challenges Encountered

## •Part B(Fire Safety)

- Escape routes, compartmentation, separation of occupancies....
- Assessment of existing fire resistance and upgrade.....
- Agreement on compensatory measures.....



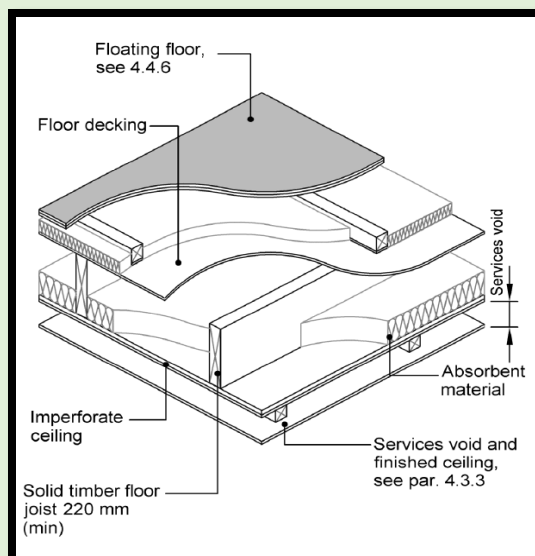
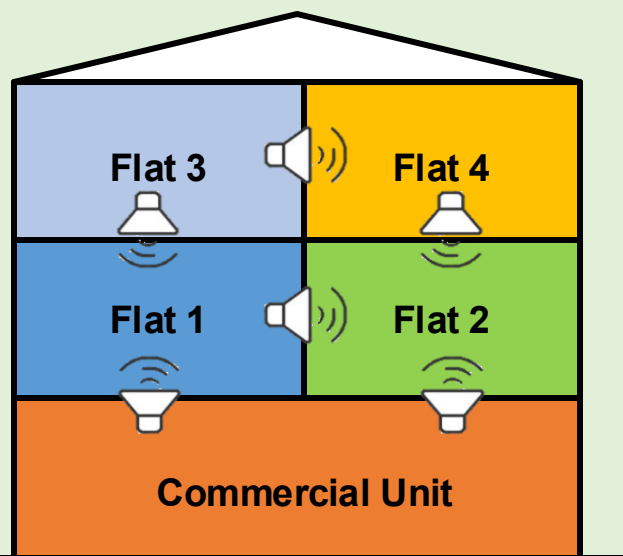


# Regulatory Challenges Encountered

## •Part E(Sound)

### Sound Resistance Requirements Between Commercial and Residential and between Residential Units

- Airborne Sound Insulation (walls and floors) – 53dB – TGD E 2014
- Impact Sound Insulation (floors) – 58dB – TGD E 2014



- E1 Each wall and floor separating a dwelling from -
- (a) another dwelling or dwellings,
  - (b) other parts of the same building,
  - (c) adjoining buildings,
- shall be designed and constructed in such a way so as to provide reasonable resistance to sound.
- E2 The common internal part of a building which provides direct access to a dwelling shall be designed and constructed so as to limit reverberation in the common part to a reasonable level

What's “reasonable” for an existing building in a town centre location?



# Regulatory Challenges Encountered

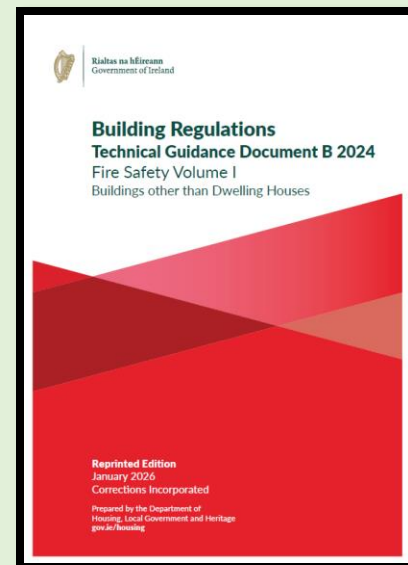
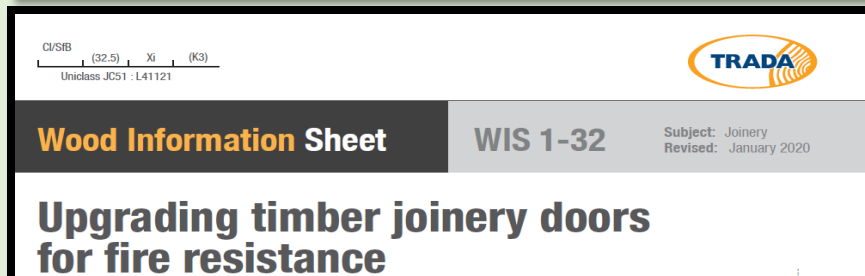
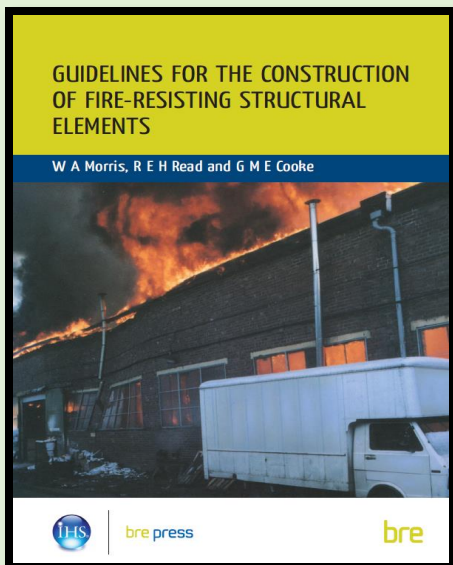
- **Part L (Energy Efficiency) Major Renovations – EPBD (European Directive)**
  - Major Renovation Triggered if more than 25% of heat loss surfaces are renovated (walls, floors, ceilings etc)
  - Entire flat(s) to be upgraded to “cost optimal” level – defined as B2 BER Rating
  - Can be more costly to achieve – but possible (grants available through SEAI)





## Part B – Specific Reuse Guidance

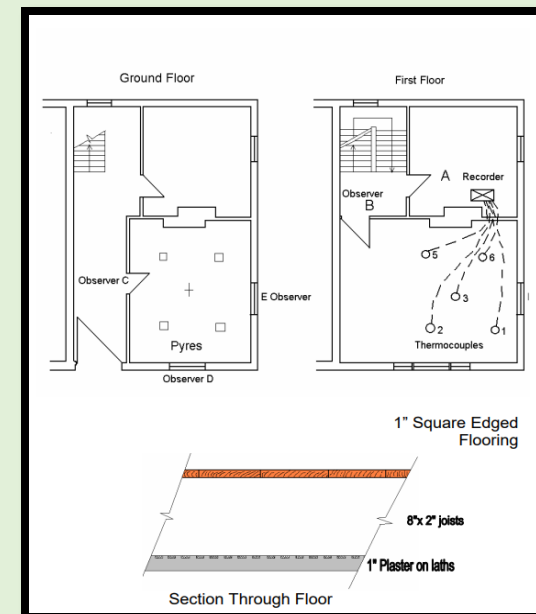
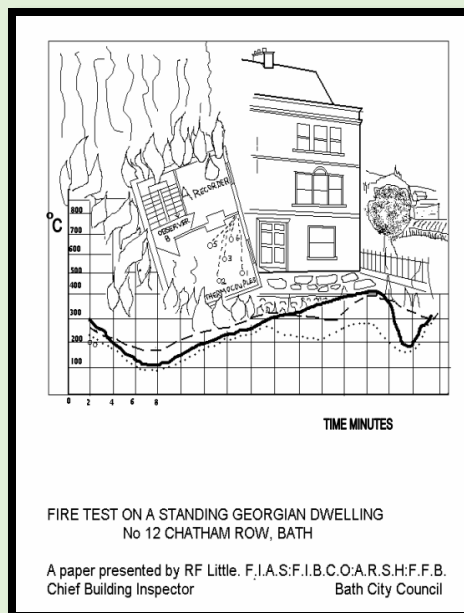
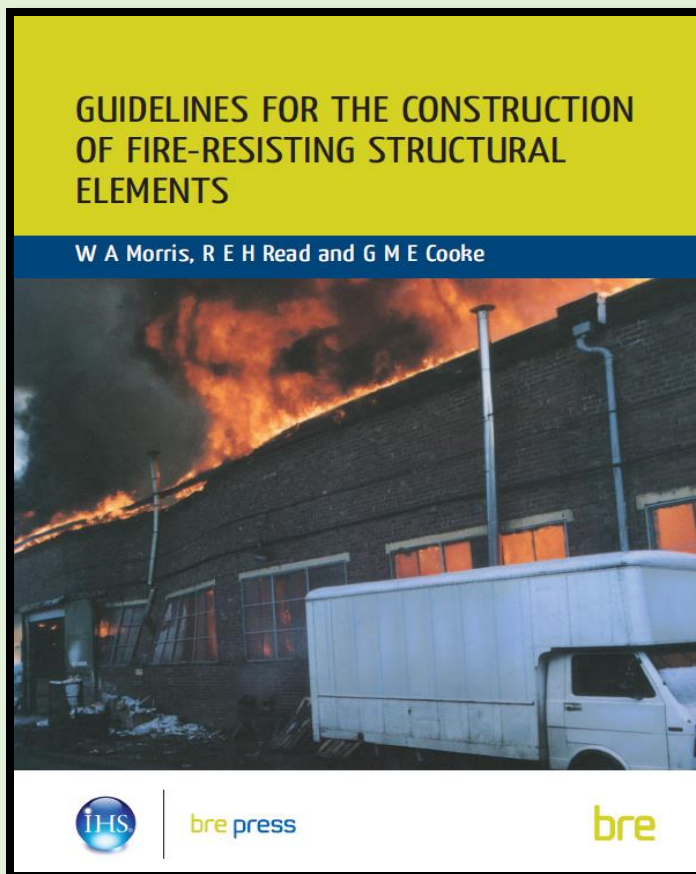
- **BR 128** – Guidelines for the Construction of Fire-Resisting Structural Elements
- **BRE Digest 208** – Increasing the Fire Resistance of Existing Timber Floors
- **WIS 1-32** – Upgrading timber doorsets for fire resistance
- **TGD B Vol. 1 2024** – Section 7



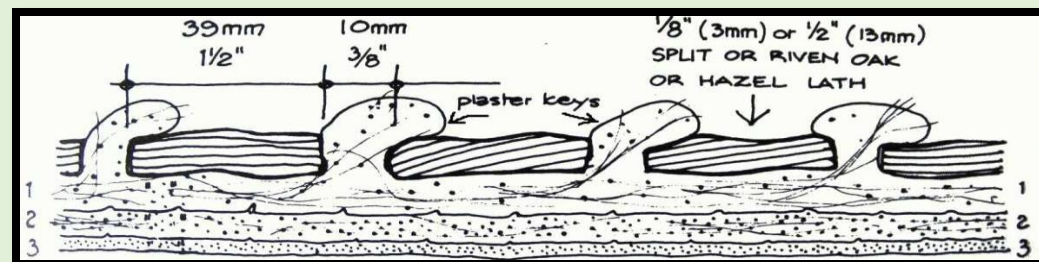


# Assessment of Existing Fire Resistance

- How do we assess the fire resistance of existing structures?



[https://www.buildingcontrol-ni.com/documents/Chatham\\_Row\\_Fire\\_Test\\_\(Lathes\\_Plaster\\_Ceiling\)\\_1967.pdf](https://www.buildingcontrol-ni.com/documents/Chatham_Row_Fire_Test_(Lathes_Plaster_Ceiling)_1967.pdf)



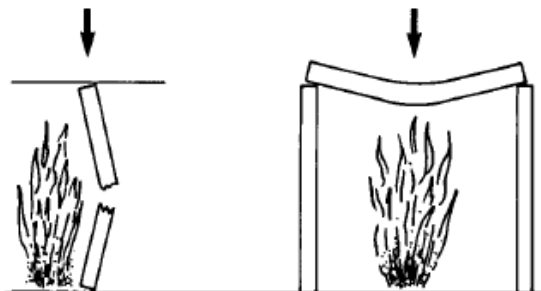


# BR 128 Guidance

- Guidance Document provides fire resistance for some common structural elements encountered
  - Stability (R) – resistance to collapse
  - Integrity (E) – resistance to penetration of flame or hot gases
  - Insulation (I) – resistance to excessive temperatures

## Stability

No collapse or excessive deflection



Stability failure

## Integrity

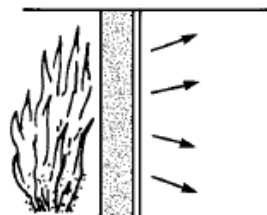
No gaps



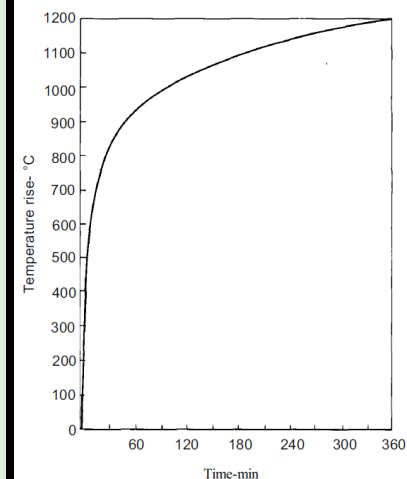
Integrity failure

## Insulation

No excessive heat transfer



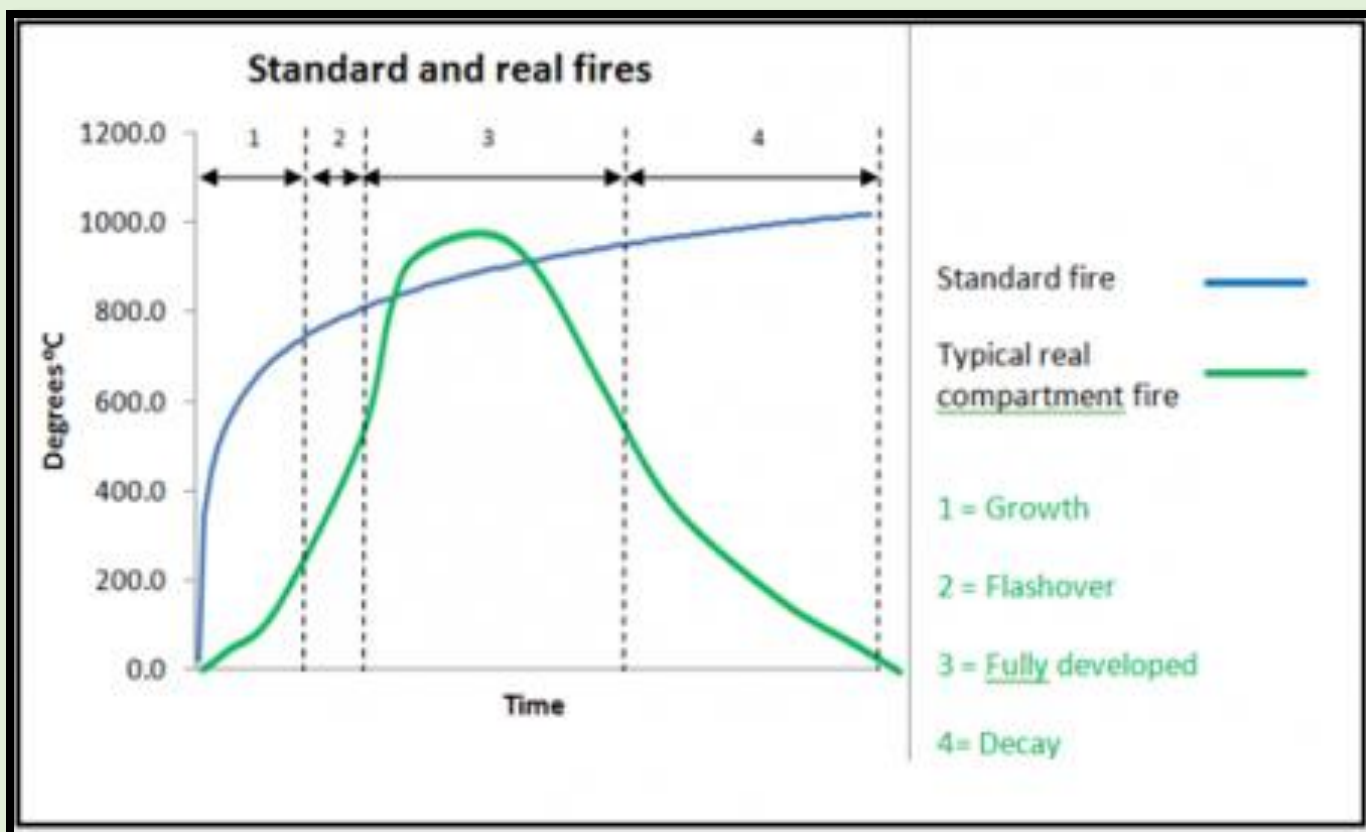
Insulation failure





# Fire Testing

- Fire Testing – not an exact science.....





# BR 128 Guidance

- Tabular Data provides information on build-ups required to achieve relevant fire resistance time in accordance with BS 476 – Framed Internal Walls

Table 4 Framed internal walls. Loadbearing.  
(Required to resist fire from one side at a time)

| Nature of construction and materials                                                                                         | Minimum thickness (mm)<br>of protection for a<br>fire resistance of: |                  |
|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------|
|                                                                                                                              | ½ h                                                                  | 1 h              |
| Timber studs at 600 mm centres (except where indicated), faced on each side with:                                            |                                                                      |                  |
| 1 One layer of plasterboard with all joints taped and filled                                                                 | 12.5 <sup>++</sup>                                                   |                  |
| 2 Two layers of plasterboard with joints staggered, joints in outer layer taped and filled – total thickness for each face   |                                                                      | 25 <sup>++</sup> |
| 3 One layer of 9.5 mm <sup>a</sup> plasterboard with a finish of lightweight aggregate gypsum plaster – thickness of plaster | 10 <sup>+</sup>                                                      | 13 <sup>++</sup> |
| 4 One layer of 12.5 mm plasterboard with a finish of lightweight aggregate gypsum plaster – thickness of plaster             |                                                                      | 13 <sup>++</sup> |
| 5 Expanded metal lath and lightweight aggregate gypsum plaster (metal lathing grade) – thickness of plaster                  | 13 <sup>+</sup>                                                      | 13 <sup>++</sup> |
| 6 One layer of plywood, or of wood chipboard                                                                                 | 18 <sup>+</sup>                                                      |                  |
| 7 One layer of asbestos insulating board fixed                                                                               |                                                                      |                  |
| (i) direct to studs                                                                                                          | 12 <sup>++</sup>                                                     |                  |
| (ii) to each stud through continuous fillets of 9 mm asbestos insulating board                                               | 9 <sup>++</sup>                                                      |                  |

<sup>a</sup>Supports not to exceed 450 mm centres

Minimum acceptable stud sizes: <sup>+</sup> 37 mm at 100% load ratio  
<sup>++</sup> 37 mm at 60% load ratio or 44 mm at 100% load ratio



# BR 128 Guidance

- Tabular Data provides information on build-ups required to achieve relevant fire resistance time in accordance with BS 476 – Timber Floors

**2 Joists:** the two important aspects which determine which ceiling protection should be used are the breadth of the joist and the flooring type/thickness. These tables have used joists with a minimum breadth of 37 mm for simplicity, in association with different boarding systems, (due regard being given to include joist sizes to comply with manufacturers fixing instructions). Where the dominant factor is protection to the joist, the ceiling protection will be the same for different floorings. In practice, the ceiling specification will be able to be reduced for increased joist sizes. In these cases, reference should be made to the manufacturer concerned.

- the joist breadth selected, as mentioned above, should also have regard to the manufacturer's fixing instructions for the ceiling protection used.
- the depth should be appropriate for the load and span according to BS 5268: Part 2<sup>20</sup>.
- the recommended spacing is 400 mm centres; however, except where particularly mentioned, these centres may be increased to 600 mm subject to manufacturer's recommendations for their materials. Maximum spacing for fixing –  
9.5 mm plasterboard is 450 mm  
12.5 mm and 15 mm plasterboard is 600 mm  
19 mm plasterboard is 800 mm  
but closer spacings may be recommended.

**3 Fixing:** the following recommendations are minima, and should be provided at every joist. In double layer constructions both layers require fixing independently as stated. It is normally recommended that boards should be fixed and supported on all four edges, either to joists or noggings.

- 9.5 mm plasterboard – 30 mm galvanised nails – 150 mm centres
- 12.5 mm and 15 mm plasterboard – 40 mm galvanised nails – 150 mm centres
- 19 mm-25 mm plasterboard – 60 mm galvanised nails – 150 mm centres
- 30 mm-35 mm plasterboard – 65 mm galvanised nails – 150 mm centres
- asbestos insulating board – 50 mm x 4 mm wood screws – 400 mm centres

- Expanded metal lath for plastering should be fixed to supports at 100 mm centres with 38 mm galvanised nails or 32 mm galvanised staples. End laps to be not less than 50 mm, side laps to be not less than 25 mm, and in both cases should be wired together at 150 mm intervals. In order that adequate mechanical bond is attained by the plaster, the lath should be spaced away from the background by some suitable means to give a 6 mm gap or alternatively an appropriate proprietary brand of lath should be used.

- Specified thickness of plaster on laths, to be measured from the face of the lath.

**4 Materials:** joists – species and grades to be as accepted in BS 5268: Part 2.  
plywood – species and grades to be as included in BS 5268: Part 2.  
softwood boarding – generally in accordance with BS 1297<sup>43</sup> and of minimum density 420 kg/m<sup>3</sup>.

**Table 14 Timber floors**

**(A) Any structurally suitable square edge flooring**

| Nature of construction and materials             |                                                                                                                                                                                   | Minimum thickness (mm) of protection for a fire resistance of: |     |      |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----|------|
|                                                  |                                                                                                                                                                                   | modified ½ h                                                   | ½ h | 1 h  |
| 37 mm (minimum) Timber joists with a ceiling of: |                                                                                                                                                                                   |                                                                |     |      |
| A1                                               | Timber lath and plaster – thickness of plaster                                                                                                                                    | 15                                                             |     |      |
| A2                                               | Expanded metal lath and lightweight aggregate gypsum plaster (metal lathing grade) – thickness of plaster                                                                         |                                                                | 13  | 19   |
| A3                                               | One layer of plasterboard with joints taped and filled and backed by timber                                                                                                       | 12.5                                                           | 15  |      |
| A4                                               | Two layers of plasterboard with joints staggered, joints in outer layer taped and filled – total thickness                                                                        | 19 <sup>a</sup>                                                | 25  |      |
| A5                                               | Two layers of plasterboard (type F) with joints staggered, joints in outer layer taped and filled – total thickness                                                               |                                                                |     | 25** |
| A6                                               | Two layers of plasterboard, each not less than 9.5 mm thick <sup>a</sup> , joints between boards staggered and outer layer finished with gypsum board finish plaster of thickness | 5                                                              |     |      |
| A7                                               | One layer of plasterboard not less than 9.5 mm thick <sup>a</sup> , finished with lightweight aggregate gypsum plaster – thickness of plaster                                     | 10                                                             |     | 19   |
| A8                                               | One layer of plasterboard not less than 12.5 mm thick, finished with lightweight aggregate gypsum plaster – thickness of plaster                                                  |                                                                | 13  | 19   |
| A9                                               | One layer of asbestos insulating board with any transverse joints backed by fillets of asbestos insulating board not less than 9 mm thick, or by timber                           | 9                                                              | 12  |      |

<sup>a</sup> Supports not to exceed 450 mm centres.

\*\*In conjunction with 47 mm (minimum) joists.



# Upgrading Fire Resistance of Existing Floors

- BRE Digest 208





# BRE Digest 208 – Upgrading Floors

- BRE Digest 208
  - Document provides guidance on upgrading existing floor with three procedures – (a.) protection added to underside of ceiling, (b.) protection applied from above and (c.) protection leaving existing joists exposed

Existing ceilings of 15-22 mm plaster on wood lath may possibly contribute up to 20 minutes to the fire resistance of a timber floor under BS 476 test conditions, but this will depend on the condition and key. Therefore a detailed inspection is required before assuming any contribution to the overall fire resistance of the floor. Greater thicknesses of plaster will not necessarily provide additional protection and because of the added weight may well fail earlier than thinner plaster.



# BRE Digest 208 – Upgrading Floors

- BRE Digest 208 – Upgrading from Below
  - Adding layers to achieve either 30 minutes or 60 minutes fire resistance
  - Consideration of Sound Resistance also required to comply with Part E of BR's – where apartments proposed

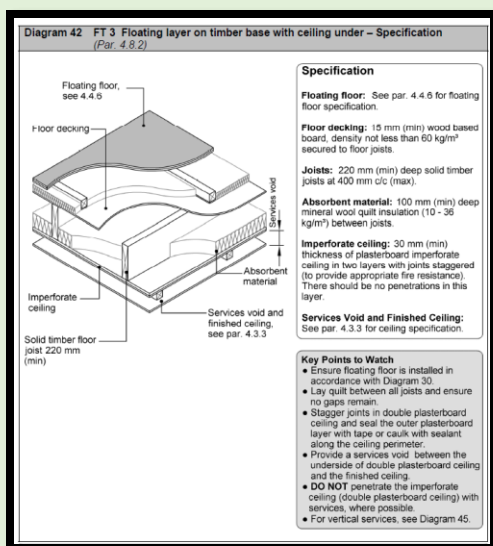
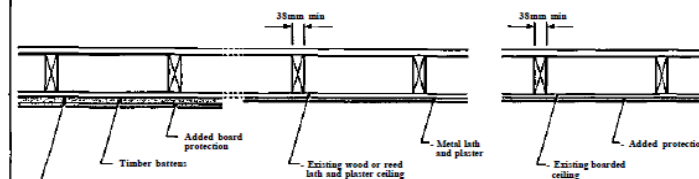


Table 1 Protection added to underside of existing ceiling

| Required period of fire resistance | Existing ceiling                                                           | Additional protection                                                        |
|------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Half-hour                          | (i) 13 mm fibre insulating board <sup>(1)</sup> with gypsum plaster finish | 12.5 mm plasterboard                                                         |
|                                    | (ii) 9.5 mm plasterboard with gypsum plaster finish                        | 9.5 mm plasterboard <sup>(1)(2)</sup><br>12.5 mm plasterboard <sup>(2)</sup> |
|                                    | (iii) 15-22 mm plaster on wood or reed lath <sup>(3)</sup>                 | 12.5 mm plasterboard on battens ( <i>see fixing</i> )                        |
| One-hour                           | (iv) 9.5 mm plasterboard with gypsum plaster finish                        | 13 mm lightweight                                                            |
|                                    | (v) 12.5 mm plasterboard with gypsum plaster finish                        | plaster (metal lathing grade) on metal lath                                  |
|                                    | (vi) 15-22 mm plaster on wood or reed lath                                 |                                                                              |

With plaster finishes to lath, the dimensions given are those from the face of the lath.

- 1 If floor boarding is good fitting 21 mm tongued and grooved (or equivalent)
- 2 Supports not to exceed 450 mm
- 3 If floor boarding is plain edged (or badly fitting t & g)





# BRE Digest 208 – Upgrading Floors

- BRE Digest 208 – Upgrading from Above
  - Lifting original flooring and providing fire resistance between joists
  - Proprietary products also available – ensure it has sufficient test data – BS 476 or IS EN 13501



Table 2 Protection applied from above

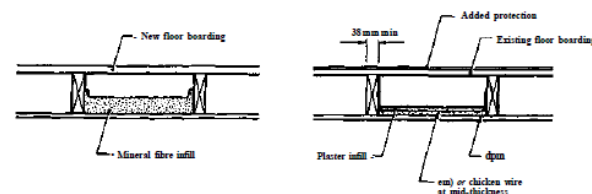
| Required period of fire resistance | Existing construction                      |                                                            | Additional protection (see key below) |
|------------------------------------|--------------------------------------------|------------------------------------------------------------|---------------------------------------|
|                                    | Floor boarding                             | Ceiling                                                    |                                       |
| Half-hour                          | (i) none (eg existing roof space)          | 9.5 mm plasterboard with gypsum plaster finish             | 1                                     |
|                                    | (ii) plain edged                           | 15-22 mm plaster on wood or reed lath (in sound condition) | 2                                     |
| One-hour                           | (iii) plain edged                          | 9.5 mm plasterboard with gypsum plaster finish             | 2 and 3                               |
|                                    | (iv) plain edged                           | 15-22 mm plaster on wood or reed lath                      | 2 and 3                               |
|                                    | (v) 21 mm good fitting tongued and grooved | 15-22 mm plaster on wood or reed lath                      | 3                                     |

With plaster finishes to lath, the dimensions given are those from the face of the lath.

#### Additional protection

- 1 Not less than 60 mm mineral fibre insulating material (formed from crushed rock or blast furnace slag) laid between the joists and fixed to the joist sides. New floor to be tongued and grooved, 25 mm nominal boarding or 15 mm plywood or chipboard.
- 2 Not less than 3.2 mm standard hardboard Type S to BS 1142:Part 2 (or 4 mm plywood) nailed at not more than 150 mm centres on the line of joists to the existing floor to break joint; joints to coincide with the line of the joists.
- 3 19 mm lightweight aggregate gypsum plaster (metal lathing grade) trowelled between joists in conjunction with expanded metal lathing or chicken wire well turned up and fixed to the joist sides or continuous over joists. To prevent staining the existing ceiling, polythene sheet can be placed before the plaster infill.

Note: In methods 1 and 3 the nails or staples should penetrate into the joist sides to a minimum depth of 20 mm





# BRE Digest 208 – Upgrading Floors

- BRE Digest 208 – Keeping Joists Exposed
  - Only possible for 30 minutes FR
  - Consider charring effect on joists
    - Residual section to be 50mm thick

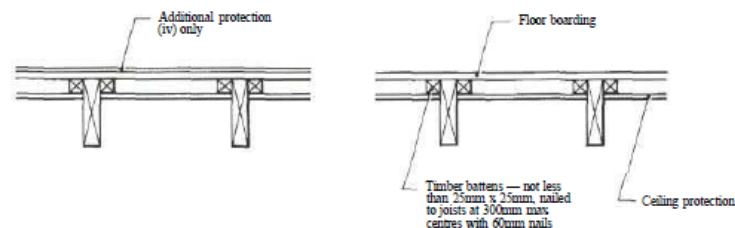
**Table 4 Charring rates of timber from BS 5 2 68: Part 4: Section 4.1 (an amendment is being prepared)**

| Species                                                                                     | Depth of charring on each face exposed to fire in: |         |
|---------------------------------------------------------------------------------------------|----------------------------------------------------|---------|
|                                                                                             | 30 mins                                            | 60 mins |
| All structural species listed in Table 1 of CP 112: Part 2: 1971, except those listed below | 20 mm                                              | 40 mm   |
| Western red cedar                                                                           | 25 mm                                              | 50 mm   |
| Oak, utile, keruing (gurjun), teak, greenheart, jarrah                                      | 15 mm                                              | 30 mm   |

**Table 3 Protection leaving existing joists exposed**

| Required period of fire resistance | Existing floor boarding          | Protection between joists                                                |
|------------------------------------|----------------------------------|--------------------------------------------------------------------------|
| Half-hour                          | (i) square edged (any thickness) | 2 layers of 12.5 mm plasterboard with joints staggered                   |
|                                    | (ii) 15 mm t & g plywood         | 9.5 mm plasterboard <sup>(1)</sup> with 5 mm gypsum board finish plaster |
|                                    | (iii) 21 mm good fitting t & g   | 12.5 mm plasterboard                                                     |
|                                    | (iv) square edged overlaid*      | 12.5 mm plasterboard                                                     |

- 1 Supports not to exceed 450 mm centres
- 2 Not less than 3.2 mm standard hardboard Type S to BS 1142:Part 2 (or 4 mm plywood) nailed at not more than 150 mm centres on line of joists to break joint. Joints to coincide with line of joists.





# Wood Information Sheet 1-32

- Offers guidance to upgrade existing timber joinery doors from BM TRADA

- Can be upgraded to achieve 20mins or 30mins fire resistance

- Goes back to the fundamentals of what is a fire door?

Assembly of:

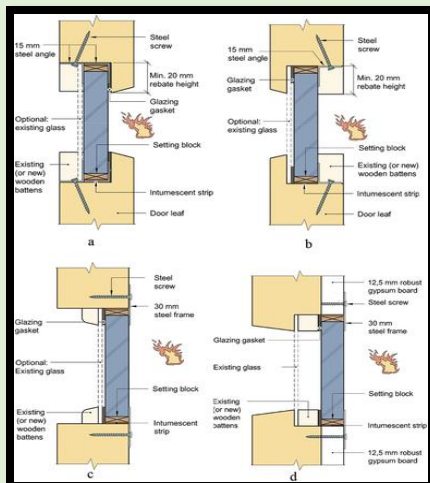
- Door panel at least 44mm thick (30 mins)
- Solid frame well fitted to the wall,
- Self closer,
- 3 fire rated hinges (good quality brass, steel, stainless)
- Suitable ironmongery,
- Intumescent strips / cold smoke seal,
- Minimal gaps

| Door type                        | Comments                                                                                                                                                                            |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ledged and braced                | Unlikely to be suitable for retaining for upgrading for fire resistance as there will be insufficient thickness at the leaf edges to accommodate an intumescent seal                |
| Framed, ledged and braced        | Ability to upgrade depends on joints between boards, fixings and the thickness of the leaf framing (typically a minimum of 44mm required for 30-minute fire-resisting applications) |
| Framed, solid with solid panels  | Ability to upgrade depends on leaf thickness (typically a minimum of 44mm required for 30-minute fire-resistance applications) and the panel construction                           |
| Framed, solid with glazed panels | Ability to upgrade depends on leaf thickness (typically a minimum of 44mm required for 30-minute fire-resistance applications) and the type/installation of the glazing             |



# Wood Information Sheet 1-32

- First question to ask – are the reasons for upgrading the door well understood?
- Can the door be preserved and reused elsewhere in the building? – i.e. as a non fire rated internal door within a flat
- If 60mins is required – then a new door will be needed or alternative compensatory measures to reduce the fire risk.



## Key points

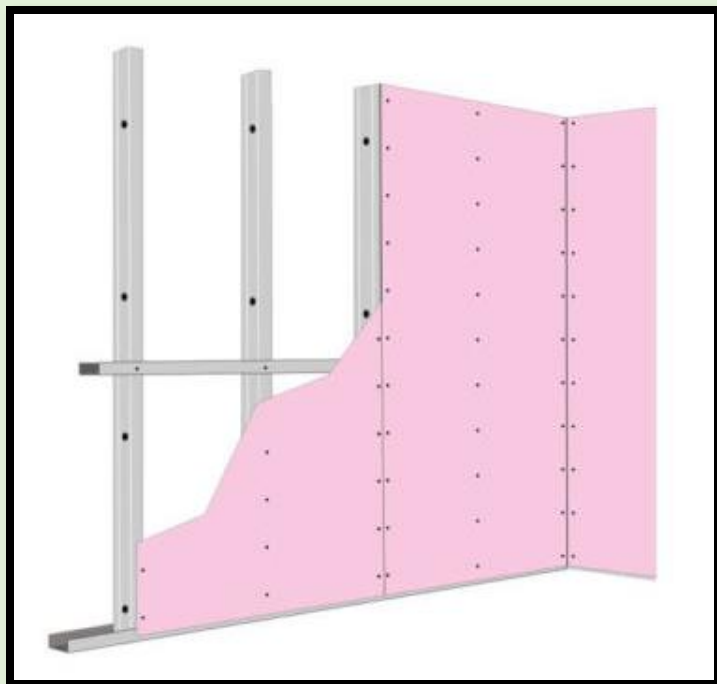
Checklist for considering upgrading the performance of timber joinery doors

- Are the reasons for upgrading the doors well understood?
- Is it worth employing a specialist fire engineer/product assessor to survey the doors prior to making decisions on whether to upgrade the fire resistance of the doors (particularly for unusual or complicated door designs)?
- Does the person that is going to be carrying out the upgrading work have demonstrable competence in upgrading the fire-resistance performance of timber joinery doors?
- Is it worthwhile to upgrade or is a replacement a more effective alternative?
- Will the upgrading measures negatively impact the historic fabric of the door and does it make more sense from a heritage conservation perspective to put the door into storage or into another use within the building?
- What level of fire resistance is required?
- Will an upgraded solution satisfy the control authority?
- Has each existing door leaf and frame the potential for being upgraded?
- Has the method of improving the burn-through resistance of the door leaf been proven or does it need assessment by a specialist?
- Has the door to frame gap been upgraded in terms of fit, intumescent protection and smoke sealing?
- Is the frame adequate and sufficiently well sealed into the wall?
- Is the hardware appropriate for use on a fire-resisting door?



# New Build Ups within Existing Structure

- Refer to products test data – ensure it is in compliance with IS EN 13501 test standard for new elements





# Compensatory Measures – Fire Safety

## • TGD B Vol.1 2024 – Section 7

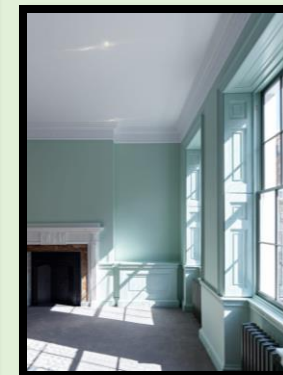
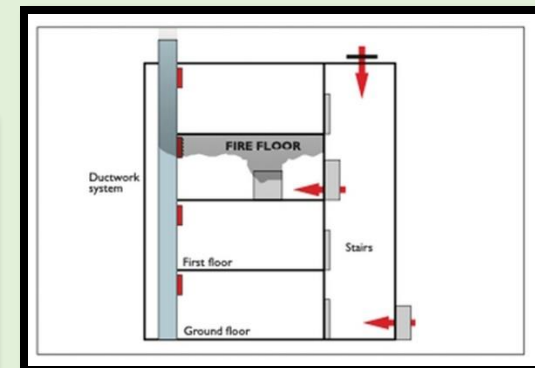
### 7.0.2.2 Compensating Measures

Where compensating fire safety measures are proposed, the nature and extent of such measures will depend on the circumstances in each particular case.

However, such measures could include some or all of the following:

- enhanced levels of life safety protection by automatic fire detection and alarm systems; or
- reduced travel distances; or
- enhanced building systems to aid evacuation; or
- enhanced smoke control measures; or
- pressurisation of stairway enclosures; or
- protection to escape routes from places of special fire risk; or
- enhanced performance of fire doors; or
- additional structural fire protection measures, such as increased levels of compartmentation of the building (see [Section 3](#)); or
- automatic fire suppression and extinguishing systems; or
- significantly increased room heights; or
- additional facilities for firefighting, e.g. dry risers.

This list is neither exhaustive nor in any order of preference. It is indicative of the range of options that may be considered.





Comhairle Contae Thiobraid Árann  
Tipperary County Council



# Q & A

Thank You  
For Your Attention!

# Any Questions





# Success Projects

Examples of some completed VATSU projects:

- **The Irish House - Tipperary Town**

- Ground Floor Retail Unit with 2 Floors of Flats Overhead (6 Flats Total)

- **One19 Coffee Shop, Templemore**

- Ground Floor Coffee Shop with First Floor Flat

- **No. 3/4 Pearse Street, Nenagh**

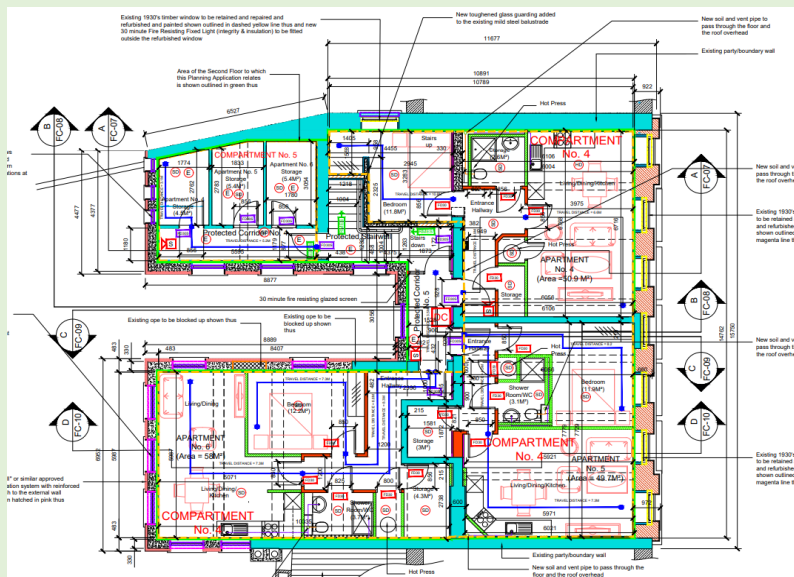
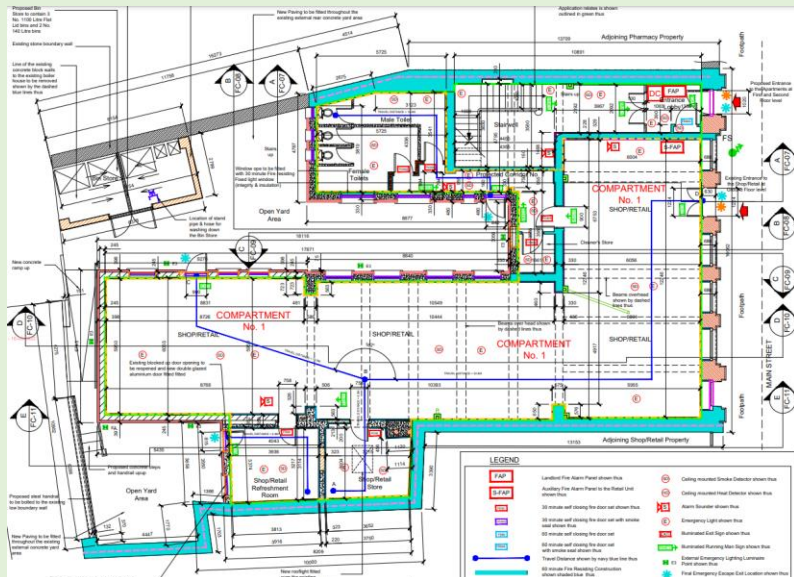
- Ground Floor Retail Unit with 2 Flats Overhead

All 3 share one thing in common.....

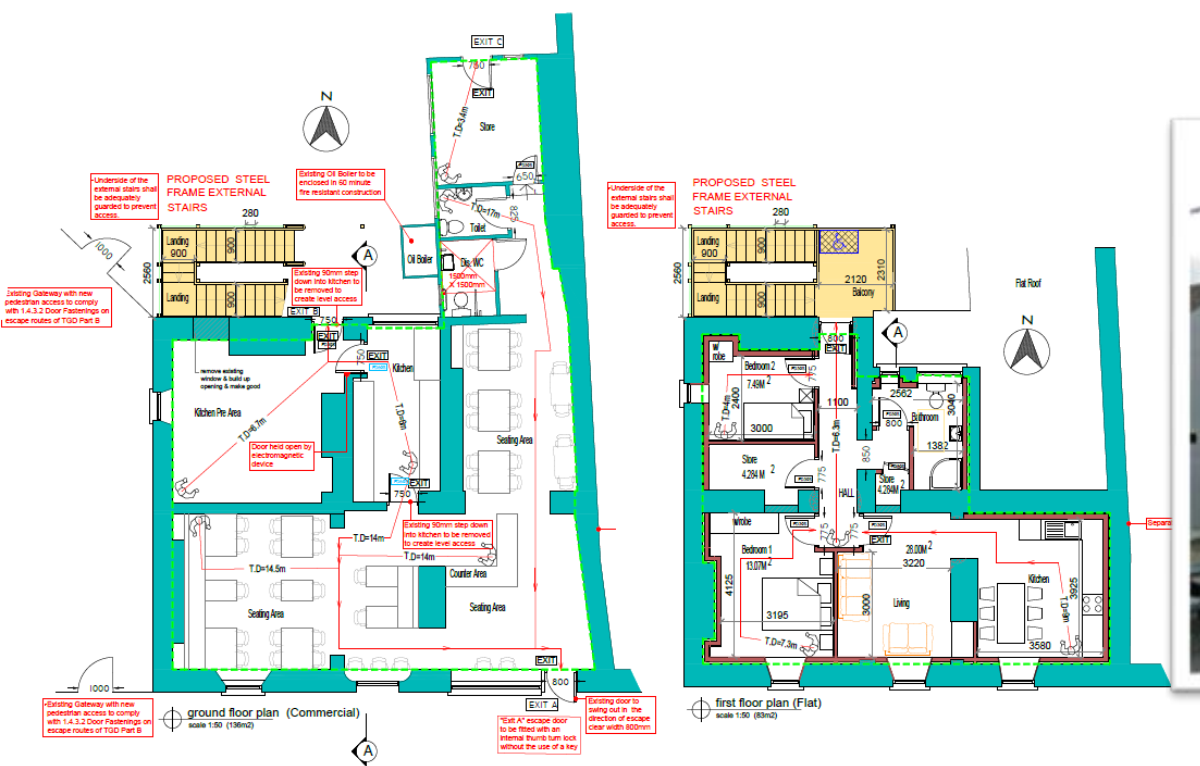


# Irish House – Tipperary Town

## The Irish House – Tipperary Town



# One19 Coffee Shop – Templemore





## No. 3/4 Pearse St. - Nenagh



# No. 3/4 Pearse St. - Nenagh

