



# National Building Control Office

## Part C - Site Prep & Moisture

### Building Control - Perspective

- ▶ PRESENTER: ACFO - NOEL CRONIN
- ▶ 16 | MAY | 2024

## Disclaimer

*Kerry County Council make every effort to ensure the accuracy and comprehensiveness of the information supplied within this presentation. This presentation is the experience KCC are finding on construction site walks in 2022/2023 /2024.*

*You are reminded to check with the supplier/producer of a product/system for specific details.*



Rialtas na hÉireann  
Government of Ireland

Building Regulations

**Technical Guidance Document C**

Site Preparation and Resistance to Moisture

Amended 2023

# ► AGENDA

## 1) Introduction to TGD -C

What it covers

Why it is important

Where it sits amongst other TGD

Ways to compliance

## 2) Sections – Amended 2023

Radon Maps

C1 to C5

## 3) Typical Construction Details Encountered in Application.

Section 11 requests for information

# TGD - C - Site Preparation & Resistance to Moisture

Article 7 of the Building Regulations, 1997. It provides guidance in relation to Part C of the Second Schedule to the Regulations.

## TGD – C Contents:

- 28 Pages
- 10 Diagrams
- C1,C2,C3,C4,C5
- Sections 1, 2 & 3
  
- Site Preparation & Site Drainage
- Resistance to Moisture / Gases – Floor, Walls & Roof
  
- *“Non Complex Buildings of Normal Design and Construction”*



# TGD - C - Why Important



## Labour in £75bn pledge to tackle UK housing crisis



Council housebuilding programme 'for the many' would be biggest since postwar boom

Heather Stewart  
Robert Booth

Labour will today promise to tackle Britain's housing crisis by "building for the many" - setting aside £75bn over five years to fund the most dramatic increase in the number of council homes since the second world war.

As to how the Labour manifesto, Home Country will judge the by the end of its first term in office, a Labour government will have built 500,000 council houses and 600,000 private rented homes through housing associations and all at a rate to high international standards. Only 6,497 council homes were built in 2018-19.

The rapid increase would be paid for using half of the cost of the "social infrastructure fund" recently announced by the shadow chancellor, John McDonnell, which will be funded through government borrowing. The

shadow housing secretary, John Healey, said the blueprint: "We're talking about a new era of council housing - "and the significance of it is that building on this scale allows us not just to build for the present, but to be able to build homes again for those young people and young professionals, young families that want to get a start that can't pay affordable rents and people that can't find affordable homes that aren't somewhere more secure and reliable council housing."

He added: "We can do it in a way that we did by bringing off that great council housebuilding programme after the second world war, we can build for the many."

Healey concluded that to meet the target, Labour would have to rapidly increase the capacity of local authorities, whose planning decisions are often held up by slow court cases.

Centre hopes the focus on housing will help to boost the general election drive beyond Brexit, where Boris Johnson has been hammering home his promise to leave the EU by the end of January.

Labour is defining a string of key policies across the Midlands and the north, where the Tories are leading the general election.

**Scandal forces prince to suspend public duties**

Relationship with the convicted child sex offender Jeffrey Epstein, prince Andrew said he was

**Families waiting for a home include mothers of severely ill children, people in their 80s and working families'**



## Belgium 'heading for unseen housing crisis', industry experts warn

Monday, 6 May 2024 **TBT+**  
By Lauren Walker



Credit: Belga / Kurt Desplenter

Belgium's housing sector is on the brink of collapse, industry experts have warned. They call for a complete overhaul of how new housing projects are developed, arguing that regional governments keep

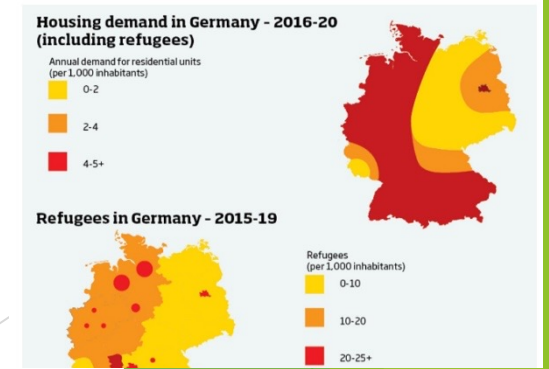


## Cold comforts in German housing crisis

By Daniele Palumbo | Thu 10 March 2016



Germany's open-door policy has piled pressure on a housing market that is already at breaking point.



# TGD - C - Who is responsible / Ownership

- A – Structure Structural Engineer
- B – Fire Safety Fire Officer & Fire Consultant
- **C – Site & Moisture Builder, Architect ?**
- D – Workmanship Everybody
- E – Sound Acoustic Engineer
- F – Ventilation Mechanical Engineer
- G – Hygiene Civil / Plumber
- H – Drainage & Waste Civil / Plumber
- J – Heat Appliance Fire Officer & Fire Consultant
- K – Stairs & Guards Architect & Engineer
- L – Fuel & Energy Mech & Elec Engineer
- M – Access – DAC Engineer

## Code of Practice

for

Inspecting and Certifying  
Buildings and Works

### Roles and Duties

- 3.1 Key Responsibility
- 3.2 Building Owner's Role
- 3.3 Builder's Role
- 3.4 Designer's Role
- 3.5 Assigned Certifier's Role
- 3.6 Role of Building Control Authority
- 4.1 Certificates Required
- 4.2 Signing as Design Certifier
- 4.3 Certificate of Compliance (Design)
- 4.4 Undertaking by Assigned Certifier
- 4.5 Undertaking by Builder
- 4.6 Certificate of Compliance on Completion
- 4.7 Change of Assigned Certifier and/or Builder

## TGD - C - Ways / routes to compliance

*“Works are carried out in accordance with the guidance in this document, this will, prima facie, indicate compliance with Part C”*

*“the adoption of an approach other than that outlined in the guidance is not precluded provided that the relevant requirements of the Regulations are complied with”*

*“Non Complex Buildings of Normal Design and Construction”*

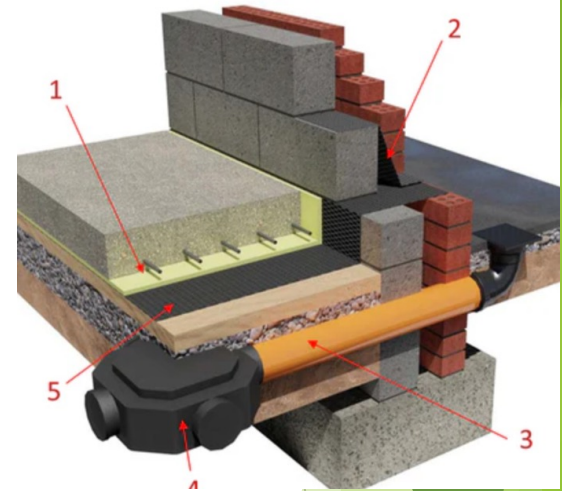
### **Existing Buildings**

*“material alterations or changes of use of existing buildings, the adoption without modification of the guidance in this document may .....may be unduly restrictive or impracticable”*

# TGD - C - Resistance to - RADON

New EPA Radon Risk Maps – online  
Radon – Impacts = Lung Cancer

Dwellings;           200 Bq/m<sup>3</sup>  
Workplaces;        300 Bq/m<sup>3</sup>  
SI 30 of 2019 – Radiological Act  
Sets radon level in Workplace



Fully Sealed membrane over entire footprint and means of extracting radon via pipework and sump. (LDPE)

*“Installed by appropriate trained personnel”* – No actual certificate – Unless remedial scheme.

Sump per 250m<sup>2</sup>

Proprietary and confidential – do not distribute

Sections ☰ THE IRISH TIMES 15° Sub

Ireland

## Record levels of radon gas found in Kerry house

A HOUSE in Co Kerry has recorded concentrations of the cancer-causing radioactive gas radon at some of the highest levels ever...

# TGD - C - Resistance to Weather / Moisture

## Typical Floor Build - up

- 150mm or 50mm Concrete Slab
- Insulation
- DPM or Radon Barrier
- T3 Blind – 50mm fine 0/4mm Aggregate
- T2 Perm – 200mm 4/40mm Aggregate
- T1 Struc – Max 900mm 0/32mm Aggregate

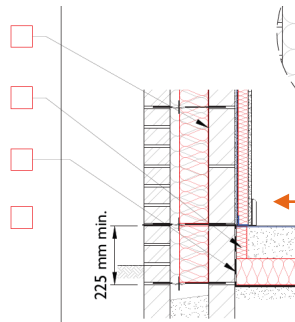
D.P.C. 150mm min above external ground

Ensure partial fill insulation is secured firmly against inner leaf of cavity wall

Install perimeter insulation with a minimum R-value of 1.0 m<sup>2</sup>K/W

Floor insulation to tightly abut blockwork wall

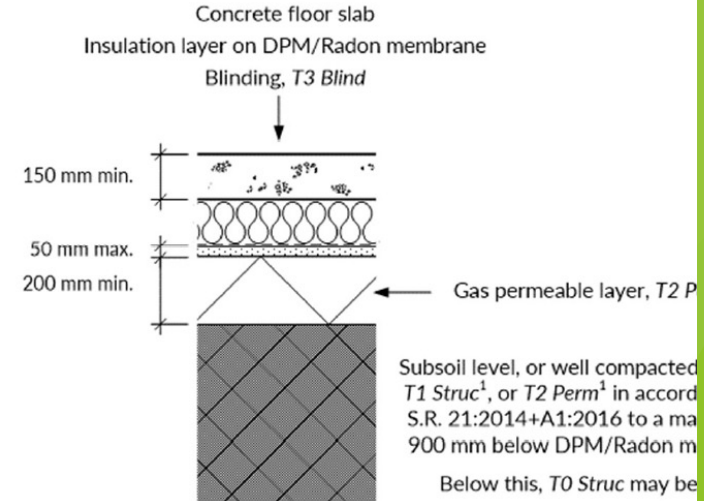
Ensure wall insulation is installed at least 225 mm below top of floor



**TGD – L**  
**Acceptable**  
**Construction Details**

Diagram 4

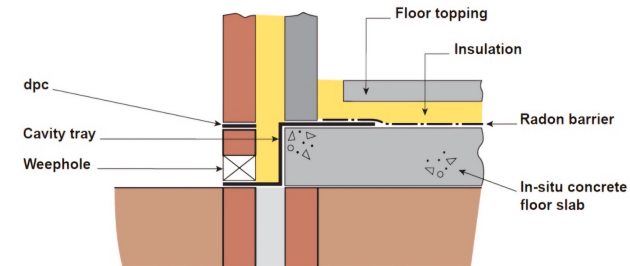
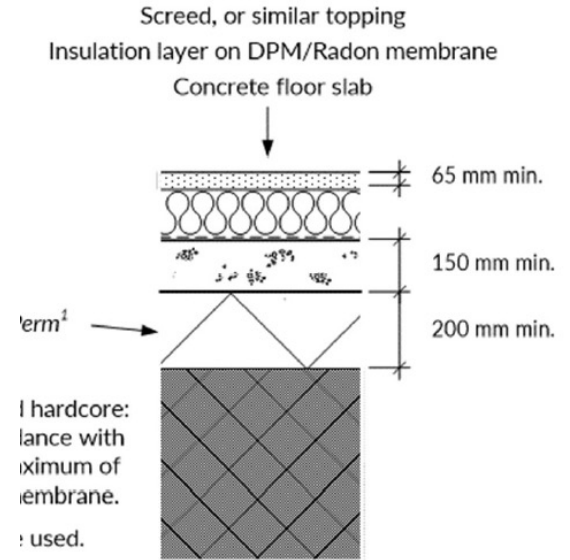
Ground Supported Floor



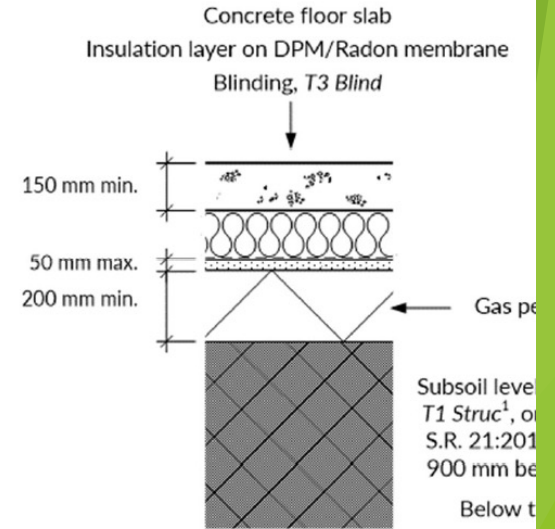
(a) - Insulation below concrete slab



# TGD - C - Floor



# TGD - C - Floor



(a) - Insulation below concrete slab



# TGD - C - Floor - MMC - Check Agreement Detail

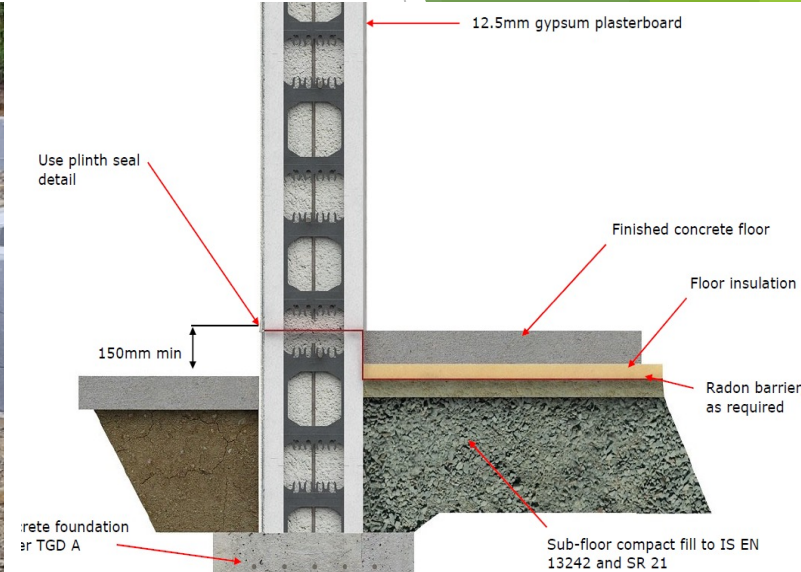


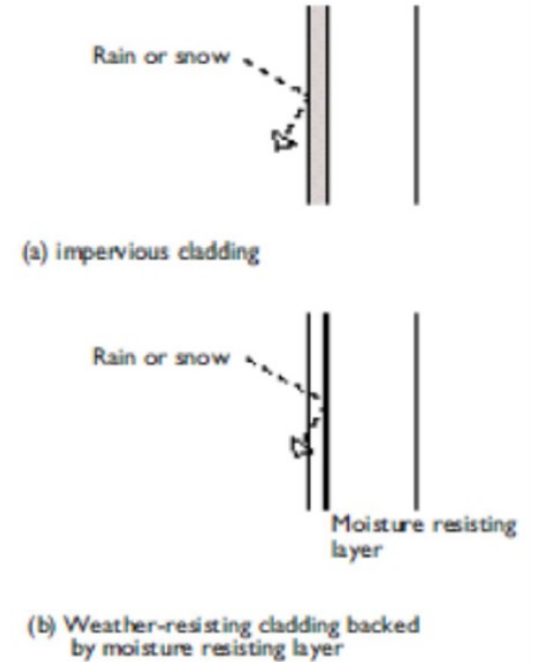
Figure 2: Typical Floor to Wall ICF Detail



# TGD - C - Wall



Diagram 10 **Cladding – walls and roofs** Par. 3.3.1



# TGD - C - Wall - Render - Location



Driving Rain Index  
 $\text{m}^2 \text{sec}^{-1} \text{year}^{-1}$

(Taken from Met Eireann Climatological Report No.13 - Distribution of Driving Rain in Ireland (November 2010))

Figure 12 — Driving rain index ( $\text{m}^2 \text{Sec}^{-1} \text{yr}^{-1}$ )

## S.R. 325 – Eurocode 6 Masonry Structure Ireland

- Severe Exposure
- Render - 2 undercoats & final coat

# TGD - C - Wall - Masonry - DOP ? CE ?



## DECLARATION OF PERFORMANCE

Water Absorption due to Capillary  
Action

7.5N Not to be left unrendered in Exposed conditions.

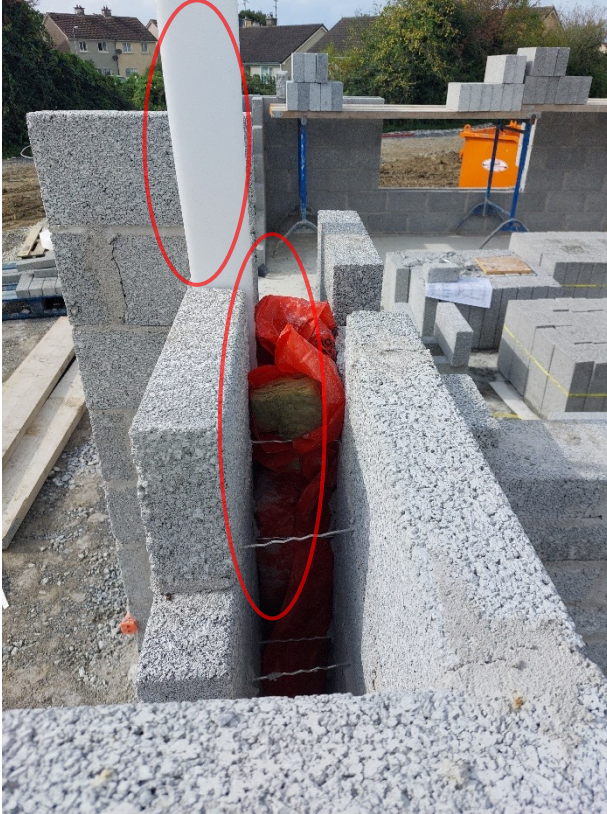
Refer to the clause Above.

**Solid Concrete Blocks**: The S.C.B. shall be Group 1 masonry units conforming to I.S. EN 771-3. The declared mean compressive strength for Group 1 masonry units shall be 7.5N/mm<sup>2</sup>





# TGD - C - Masonry - Ties - Fire - Movement Joint



## DECLARATION OF PERFORMANCE

**I.S. EN 772-14**

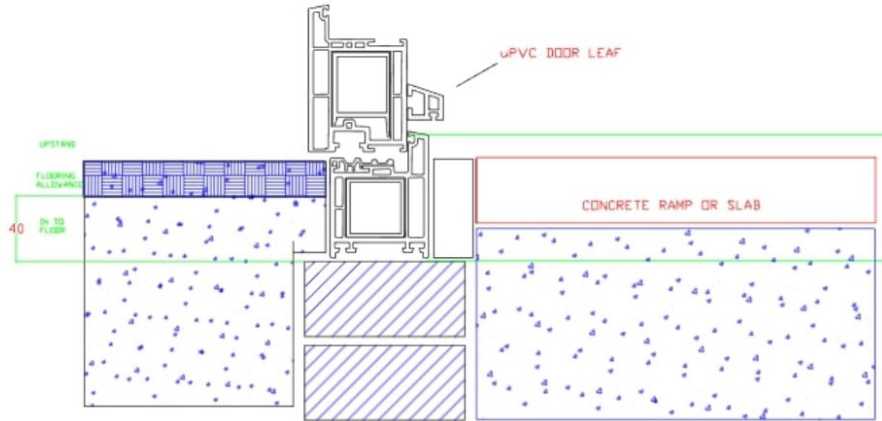
Movement joints required at 7 Meter centres as  
per clause 5.4.3.4 of SR 325  
(or as specified by competent person)

# TGD - C - Door Details - Check Manufacturer

MUNSTER JOINERY UK LTD. - TECHNICAL INFORMATION SHEETS		
Title: <i>PVC Doors</i>		
Sheet No.: TSS06	Rev: B	Date issued: 09.01.01



## PVC INWARD OPENING DOOR - PART M THRESHOLD DETAIL



- S11 – Request Manufacturers Details
- TGD – M – Accessible Door – max 15mm

## PVC OUTWARD OPENING DOOR - PART M THRESHOLD DETAIL

# TGD - C - External Separating Wall



TGD – C - Moisture issue both buildings

# TGD - C - Walls - MMC



- TGD – A – Structural issue
- TGD – B – Fire Safety Issue
- TGD – C – Moisture issue
- TGD – D – Workmanship issue
- TGD – E – Acoustic issue
- TGD – L – Energy performance issue.

\*Easily Resolved once known about\*



# TGD - C - Walls - Insulation



- Different types of insulation
- On external block leaf
- TGD – C – Moisture issue
- TGD – D – Workmanship issue
- TGD – L – Energy performance issue



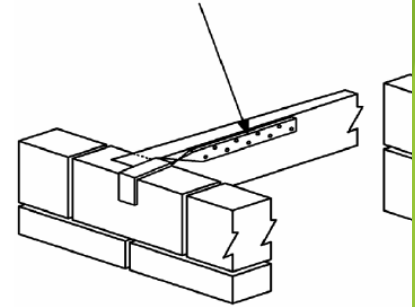
# TGD - C - Walls - Floor Joists into Cavity



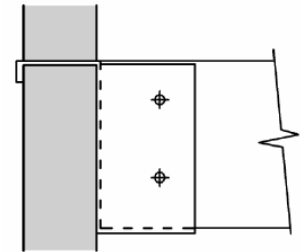
- TGD – A – Structural issue
- TGD – B – Fire Safety Issue
- TGD – C – Moisture issue
- TGD – D – Workmanship issue
- TGD – E – Acoustic issue

Proprietary and confidential – do not distribute

30 x 5 mm galvanised mild steel or other durable strap held tight against masonry wall



(a) Strap detail - 1



1 2 (c) Restraint type joist hanger

# TGD - C - Walls - Moisture through wall and floor



- TGD – C – Moisture issue
- TGD – D – Workmanship issue
- TGD – L – Energy performance issue

\*Not Easily Resolved once known about\*

## Common Causes:

- DPC non compliance
- DPM / RADON non compliance
- Insulation – non compliance
- Ventilation – non compliance



## TGD - C - Roof - Moisture ingress



TGD – C – Moisture issue

TGD – D – Workmanship issue

TGD – L – Energy performance issue.

\*Can be resolved once known about\*

### **Solution:**

Correct insulation and ventilation with membrane/vapour barrier

Gutter/roof maintenance

# TGD - C - Walls - Moisture through roof



TGD – C – Moisture issue

TGD – D – Workmanship issue

TGD – L – Energy performance issue.

\*Can be resolved once known about\*

## **Solution:**

Correct insulation and ventilation with vapour barrier

Maintenance – Gutters, Slates, Painting



# TGD - C - Roof - Moisture through Flat roof



TGD – C – Moisture issue

TGD – D – Workmanship issue

TGD – L – Energy performance issue

\*Can be resolved once known about\*

## **Solution:**

Correct insulation and ventilation and barrier

# TGD - C - Roof - MMC Details



Size & Weight	
Weight	13.0kg/m <sup>2</sup>
Depth	250mm
Width	510mm
Max Length	12000mm

Certifications & Ratings	
Certifications	IAB, NSAI, ETA, LABC
External Fire Spread	Class 0

Commercial	
Typical Use	Double & Single Span Roof

Materials & Finishes	
Materials	EPS & Steel C-Sections

# TGD - C - Roof - MMC Details



Size & Weight	
Weight	13.0kg/m <sup>2</sup>
Depth	250mm
Width	510mm
Max Length	12000mm

Certifications & Ratings	
Certifications	IAB, NSAI, ETA, LABC
External Fire Spread	Class 0

Commercial	
Typical Use	Double & Single Span Roof

Materials & Finishes	
Materials	EPS & Steel C-Sections

# Summary & Section 11

- Masonry (Eurocode 6) - conforming to I.S. EN 771-3 - mean compressive strength 7.5N/mm<sup>2</sup>
- Aggregates - Annex E of **S.R. 21:2014 + A1:2016** limiting presence of pyrite
- Membrane - fully sealed low permeability over entire footprint building & means extracting Radon
- National Reference Level Radon Gas Workplaces of 300Bq/m<sup>3</sup> annual average concentration
- I.S.EN 1610: 1998 Construction and testing of drains and sewers guidance to testing.

## **Opt Out**

- No Statutory Certification
- No Assigned Certifier
- No Design Cert
- No Builder Undertaking
- No CCC
- Often Owner = Now responsible for Design / details / certification



