



Rialtas na hÉireann
Government of Ireland

EMPLOYER'S REQUIREMENTS

for Detail Design of Quality Housing

**General Quality of Materials, Fittings and Finishes
for Social and Affordable Housing and Apartment
Developments, including Guidance on Preliminary
Items**

Issue Revision 1, September 2020

Prepared by the Department of Housing, Planning and Local Government
housing.gov.ie

Quality Housing Design Series

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Abbreviations Used in this Document

AHB	Approved Housing Body
CCMA	City & County Manager's Association
CWMF	Capital Works Management Framework
DHPLG	Department of Housing Planning & Local Government
DMURS	Design Manual for Urban Roads & Streets
DSfNA	Design Standards for New Apartments
LA	Local Authority
M&E	Mechanical & Electrical
OGP	Office of Government Procurement
QHfSC	Quality Housing for Sustainable Communities

Revision 1 September 2020

Introduction:	Reference to Housing (Standards for Rented Housing) Regulations 2019
Section 2.2:	E V Charging Infrastructure
Section 3.1.3:	Sound Insulation Testing

Introduction

The purpose of this document is to set out the general quality of materials, finishes and fittings to be provided in a Social or Affordable Housing and/or Apartment Development, funded in whole or in part by the Department of Housing, Planning and Local Government (DHPLG). This document also provides an acceptable approach to the general preliminary items to inform the tender documents for any associated construction contract.

This document provides greater certainty and promotes consistency across the country, as to the quality and nature of such materials finishes and fittings which the Department in the context of delivering value for money, considers appropriate, balancing initial capital costs, reasonable life expectancy and foreseeable maintenance costs during the lifetime of the dwelling.

This document may be used by local authorities (LA) or Approved Housing Bodies (AHB) to brief either their own internal professional staff or for the appointment of external consultants. It may also be used to set the standard of quality to be delivered in any form of Design and Build, with the addition of other documentation and contractual requirements.

This document is not a specification or construction contract document, nor does it purport to set standards of construction or workmanship etc. For tender and contract purposes a project specific General Construction Specification (see 1.6.3 below) should be written, as part of the Works Requirements, which should reference all applicable standards.

All works related to social housing projects shall

- be designed in accordance with the design guidance in *Quality Housing for Sustainable Communities – Design Guidelines 2007* (QHfSC),
- meet the requirements of *Design Standards for New Apartments* (DSfNA),
- meet the requirements of the *Design Manual for Urban Roads and Streets* (DMURS),
- comply with other relevant planning guidelines, and
- meet the performance requirements of the Irish Building Regulations, and,
- ensure that key elements of the construction have durability in the order of 60 years, with a normal level of maintenance

In addition the completed dwellings must meet all other relevant statutory requirements such as the rental Standards as applicable to Local Authorities¹

¹ Housing (Standards for Rented Houses) Regulations 2019

Although for simplicity, the form of construction in this document is generally inferred as being masonry construction, this does not exclude the use of timber frame or other proprietary construction systems provided such forms of construction demonstrate that they fully meet the requirements of the Building Regulations and durability requirements (see Section 3.1.5 below). In fact, subject to various considerations, such systems may be favored where programme savings can be demonstrated.

Where works involve systems, products, materials, techniques or equipment, for which published national standards do not yet exist², third party certification demonstrating compliance with Irish Building Regulations and durability requirements should be required by the contracting authority. Such certification may include, in part or in total, a European Technical Assessment or Agrément certification e.g. NSAI Agrément or equivalent. This is key to ensuring minimum quality and durability standards are met. This certification must be in place prior to contract award.

All works shall be designed by suitably qualified and competent registered professionals. To ensure compliance with the Building Regulations, the LA/AHB is required to appoint competent persons to design (Design Certifier), build (Builder), inspect and certify the building works (Assigned Certifier) for social housing

projects as set out in the Building Control Regulations³. In relation to compliance matters, unless cost neutral, it is generally not expected that the quality standards set out in the Technical Guidance Documents to the Building Regulations will generally need to be exceeded.

Where references are made in this document to specific requirements of the Building Regulations, this is not to imply that other parts of the Regulations do not apply, merely to highlight specific items of construction which from experience have caused compliance difficulties in the past.

Any such mention in these requirements of a specific item of construction is not to be inferred as a direction for the Assigned Certifier in preparing the inspection schedule.

This document does not preclude the limited use by a local authority of cost neutral or cost saving alternative materials, fittings or finishes where a local authority has long-standing experience of such alternatives and which meet all requirements and do not detract from residential amenity.

In the interests of value for money and consistency nationally, alternative materials, fittings and finishes which exceed the level of quality set out in this document should be only provided where completely necessary,

² Includes, national standards transposing European standards and any accompanying national guidance, national standards, national specifications or equivalent.

³ Code of Practice for Inspecting and Certifying Buildings and Works (September 2016) provides guidance on this process along with the various roles and responsibilities

e.g. to match external finishes in common use in the immediate neighbourhood, or in the case of a Joint Venture (JV) or Public Private Partnership (PPP) development, to match the external appearance of the private housing. Alternatively the extra over cost of an increased specification in one element needs to be fully offset by cost savings in another or other elements, and such cost offsets must be demonstrated by way of submission to the Department.

It is also acknowledged that some variations to exceed these standards may from time to time be necessary for a particular client or a specific dwelling type. Such variations should be specifically agreed in advance with the Department.

The dimensions provided in this document are what apply generally in common situations. For particular sites or construction conditions an increase (or decrease) in dimensions may be appropriate, in particular to meet regulations.

In this document where the term local authority (LA) is used in the context of a contracting or commissioning agency, the words Approved Housing Body (AHB) equally apply. Obviously, this is not the case where the reference to a local authority is to its statutory role.

This document is applicable to the provision of social and affordable housing

and/or apartment developments where other funding mechanisms are used, except where private funders have additional or other requirements such as collateral warranties or additional / alternative standards as part of their conditions of funding.

This document will apply to all projects where a Stage 1 (or other preliminary) application is submitted after 1st November 2019. It is intended that this document will be periodically reviewed and updated as necessary.

This document has been compiled based on templates of similar Employer's Requirements prepared by local authorities to indicate the extent and nature of materials, fittings and finishes to be provided on a rapid delivery Design and Build contract for Social Housing. This document has been prepared by a Working Group comprising architects, engineers and quantity surveyors drawn from a number of local authorities and from the Built Environment Advisory of the Department of Housing, Planning and Local Government (DHPLG), whose members are listed in Appendix 7.

Following a consultation process, many useful observations were received from a number of local authorities and organisation as set out in Appendix 6 which have informed the final document.

1.0 PRELIMINARY ITEMS

- 1.1 Programme
- 1.2 Project Initiation & Site Selection
- 1.3 Procurement & Appointment of Consultants
- 1.4 Health and Safety
- 1.5 Preparation of Tender Documents
- 1.6 Tender Documents
 - 1.6.1 Form, Type and Contract Conditions
 - 1.6.2 Instruction to Tender
 - 1.6.3 Works requirements (Volume A)
 - 1.6.4 Form of Tender and Schedule (Volume B)
 - 1.6.5 Bill of Quantities (Volume C)
 - 1.6.6 Additional Information

1.0 Preliminary Items

1.1 Programme

The local authority should aim to meet the 59 Week Pre-Construction programme agreed by the DHPLG and the CCMA as set out in Appendix 5 and should carefully plan the project accordingly.

The DHPLG process flow chart is also included in Appendix 5, which includes for design and build delivery as well as the traditional employer's design.

The DHPLG has issued guidance and a check list for the information to be submitted at each of the approval Stages under Circular 2/2018.

1.2 Project Initiation & Site Selection

Prior to the actual contract to construct dwellings, there are a significant series of tasks which must be completed.

Firstly there is the choice of site. There are some basic considerations in terms of site selection in respect of sustainable community proofing. A social housing development should not create an over-concentration of social housing in an area. The site should also be located within a 1.0 km distance of a shop a school and a bus stop as a minimum⁴. Apart from sustainable community proofing, there is the matter of cost and value for money.

The following considerations can impact on the value for money of any proposed housing development, and should therefore be examined. Before offering to purchase the lands, it is essential to carry out some basic site information research, which will influence the purchase price (and it is advisable to liaise with the Department's Advisors in this regard).

At a basic level the LA or AHB should satisfy itself as to the, history of the site, the availability of utility connections and the current zoning of the lands. A walk through the lands to undertake a visual survey should also be undertaken to provide some indication as to likely additional or abnormal costs, and at the very least the following should be considered:

- Ease of access (adjacent existing road)
- Topography (need for expensive retaining walls)
- Risk of flooding (water source, drainage run off, presence of wetlands vegetation, CFRAM)
- Ground conditions (cracking in adjacent buildings, rock outcrops, vegetation)
- Ground contamination (former use, condition of site, adjacent uses)

⁴ Ref Quality Housing for Sustainable Communities p31

When a Stage 1 application has been submitted to the DHPLG and before appointment of consultants, in order to meet programme requirement, it is normally necessary that a full level survey and site investigation be carried out. The Site Investigation may be augmented, as required, by the design engineers when appointed.

The site information to be established is set out in Appendix 1 and includes:

- (i) Topographical site survey
- (ii) Site Investigations
- (iii) Invasive Species Survey
- (iv) Archeological desktop study
- (v) Desktop flood risk assessment

1.3 Procurement and Appointment of Consultants

As the Stage 1 submission includes the Project Brief, procurement of consultants should be commenced immediately after the Stage 1 submission is lodged with the DHPLG. This allows for the appointment of the consultants, as soon as Stage 1 approval (which confirms the project brief and funding of consultants to the next Stage) is issued⁵.

Many local authorities administer the contract in house with the Council's Architect as design team leader and outsource other disciplines' services to registered practitioners in Quantity Surveying, Civil and Structural

Engineering and M&E Engineering for instance. Other LAs outsource all disciplines for full Design Team services.

Circular Housing 23/2018 sets out the level of fees to be reimbursed, generally the full amount of tendered fees for external consultants, and fixed rates for in house provision of a full design team or Architect only services.

In terms of the procurement of professional services, National procurement requirements apply up to a fixed amount set every two years by the EU, currently in the order of € 221,000 (ex. VAT).⁶

<https://www.etenders.gov.ie/publishing-guidance>

However, it has to be appreciated that this threshold is the total amount of all consultant's fees (excluding those which are not required to be publicly procured such as local authority in house professional services) and consequently on projects where the construction value is expected to exceed say €2.0 million, this level is likely to be breached, in which case EU procurement requirements apply.

⁵ In an open procurement process, earlier commencement would be required. Accordingly, as recommended by DPER, the use of consultant's frameworks is encouraged. In particular use of the full design team framework, which have been put

in place for local authority and AHB use by the OGP.

⁶ Full and up to date thresholds can be checked on the EU public Procurement website <http://simap.ted.europa.eu>

This necessitates advertising in the OJEU and observing strict EU timelines, which are set out in the transposition into Irish law S.I. No. 284/2016 (European Union (Award of Public Authority Contracts) Regulations 2016), and for which guidance is provided by the OGP at <https://ogp.gov.ie/public-procurement-guidelines-for-goods-and-services/>

Where consultancies are individually appointed, and the total amount of fees (excluding in house) exceed the EU threshold of €221,000 (excluding VAT), each individual consultancy must follow EU procurement requirements. However, Section 2.1 “Rules Governing Public Procurement” of Capital Works Management Framework (CWMF) Guidance document GN 1.6 advises that smaller value consultancies meeting certain criteria, may not need to be OJEU advertised.

Generally there are four avenues to local authorities (and to AHBs) to procure Consultants’ services.

- A. Provide in house
- B. Procure on a one off basis. This could be individual consultancies or a full architect led design team. This is a laborious process to undertake for each individual project and accordingly the OGP encourages the use of Frameworks⁷.
- C. LA’s own Framework, These are a short list panels of either individual

consultants for each discipline or Architect led design teams, assembled as a result of a competitive process. Following the assembly of the framework panel “call off” competitions are held to identify consultants for the particular project, either as a team or to fulfil the required discipline. Use of a framework avoids the need to re-advertise. Many LAs have put in place their own Architect led design team frameworks and/or individual consultancies, usually for different values of work. Frequently these are open to use by AHBs and sometimes by other local authorities.

- D. OGP’s framework. As noted, the OGP has put in place a framework of Architect led design teams, on a regional and cost of construction basis, which is open to all local authorities and all registered AHBs. To enquire about the frameworks available and for advice on how to run a mini-competition in order to appoint a full architect led design, please contact support@ogp.gov.ie

It is a critical element of any appointment that the architect as Design Team Leader, assisted by the QS undertakes proper cost control and achieves the programme.

⁷ OGP advice and further information on frameworks for consultants is at

<https://constructionprocurement.gov.ie/wp-content/uploads/GN-1.6-v1.2-17-1-12.pdf>

The need for cost control, and to meet the pre-contract programme should be specific requirements within the procurement of consultants, and should be highlighted again to design teams on appointment.

The local authority is specifically obligated to constantly review Design Team progress (whether in-house or external consultants or combination thereof) and to ensure the Design Team is working to the latest DHPLG approved budget and will meet or exceed the DHPLG/CCMA agreed 59 week pre-contract programme which is included in Appendix 6 .

The CWMF sets out areas to monitor towards delivery of cost control.

It is important to note that in any competition for the appointment of consultants, (as the OGP framework already has) it should be clearly stated that the conditions of engagement of such consultants will be DPER's COE1 – Standard Conditions of Engagement for Consultancy Services (Technical), together with Schedules A and B, available from

<https://constructionprocurement.gov.ie/standard-conditions-of-engagement/>

and that all consultants are engaged under these conditions of engagement.⁸

Where a collateral warranty is required, the format should be included in the Invitation to Tender package.

1.4 Health and Safety

Under the Safety Health and Welfare at Work Act 2005, the Minister for Jobs, Enterprise and Innovation has issued SI No. 291 of 2013, Safety Health and Welfare at Work Regulations 2014, which sets out the responsibility of the Employer (local authority or AHB) having satisfied itself as to their competency, to appoint in writing suitable project supervisors, one competent person to be appointed for design stage and another competent person for construction stage, normally the contractor. SI 291/2013 also sets out the duties of those supervisors and designers for Health and Safety on the project, including, but not limited to safety and health plan and safety file.

1.5 Preparation of Tender Documents

When preparing tender documents for a development a local authority/AHB/ Appointed Consultants should refer to Pillar 4 of the CWMF which consists of a comprehensive suite of guidance notes aimed at facilitating the implementation of the Government's reforms in construction procurement. Guidance notes can be found here:-

<https://constructionprocurement.gov.ie/guidance-notes/>

⁸ For further guidance see <https://constructionprocurement.gov.ie/wp-content/uploads/GN-1.7-v1.0-28-7-09.pdf> and

<https://constructionprocurement.gov.ie/wp-content/uploads/GN-1.6-v1.2-17-1-12.pdf>

1.6 Tender Documents

1.6.1 Form, Type and Contract Conditions

The use of the Public Works Form of Contract is a requirement for all publically funded capital works projects, there is no exception to this obligation.

The appropriate form of contract is to be selected for the size, nature and type of project.

All the Public Works Forms of Contract (including Contractor's Design for Design and Build) can be accessed here:-
<https://constructionprocurement.gov.ie/contracts/>

Please note that this website is updated regularly, so it is important to check that the most recent documents (including those referenced below) are being used.

Design & Build and Rapid Delivery

Whilst Section 1 of this document is primarily in relation to the traditional Employer's Design, this is not to preclude Design and Build (Contractor's Design), which is encouraged as in practice it can usually deliver time saving. The flow chart in Appendix 5 includes for this process and, subject to conditions, shows that the Stage 3 approval can be bypassed for Design and Build projects.

The decision to procure on the basis of design and build should ideally be made early in the process and the design team appointed accordingly.

A specific instance of design and build, is the Rapid Delivery framework compiled by the OGP (for housing projects up to 50

dwelling) and the Volumetric Construction framework compiled by Dublin City for use in larger housing and apartment developments.

These are frameworks of prequalified design and build contractors, who provide a design and build service, towards the early delivery of Social Houses and Apartments, and the frameworks are available to use by any local authority or registered AHBs. Use of these frameworks is specifically encouraged as they can result in significant time savings, in both the preconstruction stage and during construction. For example, on a scheme of 34 dwellings, one local authority reports a preconstruction period of 43 weeks (a saving of 16 weeks) and a construction period of 42 weeks.

Typically the LA or AHB will themselves or by the use of consultants, develop the outline design and after Stage 2 approval, obtain the Part 8 (or planning) permission, following which they would seek to procure the design and build contractor from the appropriate framework.

To enquire about running a mini-competition to appoint a design and build specialist contractor in respect of Dublin City's Volumetric Framework, in the first instance contact the DHPLG and in respect of the OGP's Rapid Delivery Framework contact support@ogp.gov.ie

1.6.2 Instruction to Tenderers

All information relating to the tender should be included in the particulars in this document.

<https://constructionprocurement.gov.ie/invtations-to-tender-works/>

1.6.3 Works Requirements (Volume A)

All documents comprising the works requirement must be included here.

Dependent on the size and complexity of the project, the following documents will form part of the works requirement.

Project Particulars:

Project Particulars are required on all projects. Project Particulars to comprise of:

Nature of the Project:

The proposed project is to be fully described and the type and nature of the outlined including mix, type and number of units.

Location of the Project:

Provide the location of the project.

General Description of the Works:

The works to broadly be described consisting of substructure type, building structure, building completions, building finishes, mechanical & electrical installations and site development works.

Access:

Access to the site to be fully described and include any responsibilities or activities assigned to the Contractor.

Site:

Site working constraints and site facilities

Arrangements for Visiting Site:

Details to be provided on arrangements for tenderers to visit the site and any restrictions that are available

Model Forms:

Model forms which can be used in relation to procurement and with the contract can be found here: -

<https://constructionprocurement.gov.ie/model-forms/>

Drawings:

Dependent on the size and complexity of the project but will normally comprise of Architectural, Civil & Structural Engineers and Building Services Drawings.

Specifications: All Specifications must conform to national guidelines and the EU Directive on Public Procurement as transposed in to Irish law SI No.284/2016, and the requirements in this regard under Regulations 42 - 45 in particular should be strictly complied with. Specifications should be based on the material specification, the applicable standards and the performance required. Regulations 42 (7) of SI No 284/2016 sets out the order of preference of specification. In essence, it is required to describe materials by their characteristics and performance requirements and not by proprietary names. Even where using the order of preference for specification, the Product name or Manufacturer's name for some reason cannot be avoided, it should be accompanied by the phrase "or equivalent" (SI 284/2016 Regulation 42(9)).

Regulation 42 of SI 284/2016 sets out the mechanisms by which tenders should prove the acceptability of any equivalent products. A bespoke performance specification which creates unjustifiable obstacles to other suppliers is prohibited by SI 284/2016 Regulation 42 (6).

1.6.4 Form of Tender and Schedule (Volume B)

Form of Tender and Schedule to be issued as part of the tender documents.

Form of tender is a form where the tenderer can fill in the details relating to their offer, including the lump sum for which they are offering to complete the works.

Form of tender and Schedule allocated to the type of contract can be located here:- <https://constructionprocurement.gov.ie/forms-of-tender-and-schedules-works/>

Schedule 1 is the part of the Contract that specifies the particulars of the project including:-

Project Boards:

Guidance on the use of project boards and dispute resolution when using the Public Works Contracts can be found here:

<https://constructionprocurement.gov.ie/wp-content/uploads/GN-3.1.1-v1.1-28-06-2016.pdf>

Insurances:

Particulars and limits of all insurances should be provided including Professional Indemnity, Public Liability, Employers Liability and Contractors All Risks. The

option exist for additional insurance provision including for work to existing facilities. The Employer may include or exclude insurance for the risk as loss of and damage to such facilities.

Performance Bonds:

A performance bond is required for all projects exceeding €500,000 in Contract value. The amount of the performance bond shall be a specific percentage of the contract sum as set out in the CWMF guidance note Section 3.3 of GN 1.5.1.

<https://constructionprocurement.gov.ie/wp-content/uploads/GN-1.5.1-v1.1-05-07-2018.pdf>

The Schedule, part 1 states that the performance bond is to be a certain percentage of the initial Contract Sum. Therefore the value of the bond will depend on whether the Contract Sum is to be expressed as inclusive or exclusive of VAT.

Guidance on authorised bonding businesses who can provide Performance Bonds (a Class 15 type insurance) can be found in document in the below link.

<https://constructionprocurement.gov.ie/authorised-bonding-businesses/>

Collateral Warranties:

If applicable, a schedule of required collateral warranties, and their format is to be provided including the dates of when it is expected to receive the collateral warranty for each element of works requested.

Construction Programme:

To improve housing delivery, and increase focus on the date for substantial completion more challenging contract programmes will be required, whilst still respecting Health and Safety considerations. However, responsibility for Health & Safety post contract award, rests with the contractor in his role as PSCS, and the contractor is therefore in a better position to determine a programme consistent with Health & Safety considerations.

The comparative cost of tender is one mechanism for including the programme as part of the tender evaluation process.

If this method is adopted by the Employer, it is suitable for use with PW-CF1 – PW-CF5 Form of Contract. As shown in the worked example in Appendix 4, in the Instruction to Tenders - Award Criteria (Section 9), the option for the comparative cost of tender is selected. The Employer estimates the appropriate date for substantial completion⁹, (entered as a number of days) and inserts this in the ITT particulars, in the box for the date for substantial completion as the “latest date”.

To avoid unduly optimistic programmes it is recommended that the Employer then considers an appropriate limit on the amount the Tenders can improve on the latest date for substantial completion. This is translated into an earlier date for substantial completion and entered as a number of days into the same box for

⁹ For instance on a greenfield site with traditional form of construction, a “latest date” for substantial completion greater than 12 months or

substantial completion in the ITT particulars as the “earliest date”

The Employer leaves the Schedule, part 1G blank for Substantial Completion, but inserts the value for liquidated damages (see below) in the appropriate column.

The Employer calculates a genuine pre estimate of the value that the Employer puts on having the project delivered early, and is a similar exercise for calculation of Liquidated & Ascertained Damages. This value is then inserted in the first column of Appendix 5 to the Instructions to Tenderers document alongside “days in excess of the earliest date for substantial completion”.

As part of his tender, the Tenderer must complete the Schedule, part 2C – this requires the tenderer to provide the substantial completion date(s) in calendar days, between the earliest and latest date nominated by the employer.

An evaluation is then undertaken in line with the guidance note 1.5.1 – part 7 <https://constructionprocurement.gov.ie/wp-content/uploads/GN-1.5.1-v1.1-05-07-2018.pdf>.

A worked example is provided in Appendix 4 in accordance with the guidance note. This is solely for the purpose of illustration and should not be copied or reproduced. Variations on this means of evaluation may at times be appropriate subject to OGP’s prior approval.

364 calendar days after the contract date should not normally be required for a development of up to 24 dwellings.

This comparative cost of tender is one approach and is distinct from identifying the programme as a separate award criterion. However programme can also be listed as a separate criterion in the Technical Merit as part of the Most Economically Advantageous Tender in order to focus in detail on how the Contract is going to be delivered within the programme indicated by the Tenderer.

Given the importance of earliest delivery, either the comparative cost of tender or inclusion of the programme as a separate MEAT award criteria, should be used (unless otherwise pre agreed with the DHPLG) to highlight to Tenderers the importance of the programme to the contract.

Rates for Liquidated Damages:

The rate for liquidated damages is for delay in delivery of the works or for a specific section of works where phased delivery is agreed. To be enforceable, liquidated damages should be a genuine pre-estimate of the actual loss in the event of delay in delivery beyond the date for completion. Liquidated damages should be accurately calculated and a record of the calculation should be kept on file.

Calculation of the liquidated damage would therefore include for the actual loss of not housing a tenant i.e. the cost to the LA of providing alternative accommodation such as the current market rent in the area or the cost to accommodate in a Hotel etc. as well as some provision for additional fees payable

to consultants. The OGP advises that Liquidated Damages must be applied in accordance with the contract as soon as applicable, and this is not discretionary.

Early Completion:

Early completion is encouraged. If the Works or Section of Works reaches substantial completion before its date for substantial completion, the Employer is in a position to (and wants to) accept completion the certificate of substantial completion should be issued.

Defects Period:

The initial Defects Period is one year from the date of Substantial Completion of the Works. The close of the defects period is on the release of the Defects Certificate by the Employer's Representative on the satisfaction of all outstanding defects.

Random Checks for Employment

Records:

The contractual right to conduct random checks in addition to planned and regular checks must always be part of the Contract.

Delay Events, Compensation, Programme Contingency, Delay Costs, Adjustments:

Details of the delay and compensation event that apply to the works. Please note discretionary events should be entered as Part 1K- each contract might have a different number of discretionary events. Weather events, details of the programme contingency thresholds and delay costs and adjustments should be entered.

Payment Particulars:

Details of payment intervals should be stated, dependent on the type and nature of the project, typically monthly. Retention percentages are set out in the guidelines as follows:

Contract Cost	Retention Percentage
<i>Under €200,000</i>	<i>10%</i>
<i>Between €200,000 to €3,000,000</i>	<i>Sliding scale between 10% and 3% pro rata to the nearest whole number</i>
<i>Over €3,000,000</i>	<i>3% minimum (special circumstances may require higher retention)</i>

Price Variation:

The price variation option should be selected, with an indication of which of the two Contract Conditions clauses (PV1 or PV2) is to be used on the project. Where PW-CF5 is used, only PV1 applies.

Conciliation, Adjudication &

Arbitration: The appointment of a Conciliator or Standing Conciliator or Adjudicator or Arbitrator should be by agreement of the parties. However to cover failure of the parties to agree, an alternative such as the nomination of such person by one of the professional bodies, should be inserted in Part 1N of the tender schedule. Guidance Note 3.1.1 on dispute resolution can be accessed here

<https://constructionprocurement.gov.ie/wp-content/uploads/GN-3.1.1-v1.1-28-06-2016.pdf>

Rights in Contractors Documents:

This indicates whether or not copyright and other rights in relation to the Contractor's documents and work proposals are to be transferred to the Employer. Unless specifically agreed otherwise with DHPLG, copyright should transfer to the Employer.

Schedule Part 2:

This part is to be completed by Contractor.

1.6.5 Bill of Quantities (Volume C):

Bills of Quantities to be measured strictly in accordance with the latest Agreed Rules of Measurement and amendments/supplements thereto, jointly published by the Society of Chartered Surveyors and Construction Industry Federation.

All descriptions in the Bill of Quantities to be in accordance with the information in Section 1.6.3 above and with SI 284/2016.

The Preliminaries Section of the Bill of Quantities (for pricing) shall include information required to complete Schedule Part 1 (as above). The preliminary section should also include appropriate clauses that the employer may provide (but not limited to) particular items for pricing, for example

- General description of the works.
- General description of the site.
- Access to the site.
- Visiting the site.
- Phasing of the works.
- Details of information that supported the production the Bill of Quantities.
- Form of contract and details of clauses.
- Insurance levels

- Local authority fees and charges i.e. road opening/closing licenses
- Obligations and Restrictions imposed by the Employer i.e. Access, limitations on working space, limitations on working hours and inconvenience of others.
- The required experience, skill and qualifications of key personnel on site.
- The disposal of any material found on site.
- Hoarding, fences, screens, temporary roofs, temporary name boards and advertising rights.
- The maintenance and protection of existing services.
- Temporary accommodation and facilities.
- Provision of communication systems.
- Control of noise.
- Provision of Project Supervisor Construction Stage (PSCS) for duration of the project.
- Building Control Regulations SI9 of 2014 (BCAR) – Contract to provide all cost associated with BCAR requirements i.e. providing certificates as required under BCAR.
- Tax clearance certificates.
- Membership of a Pension/Sick Pay scheme.
- Details of the Performance Bond.
- Construction Contract Act 2013
- Historical Finds.
- Freedom of Information Act 1997
- Works by Utility Providers.
- General Facilities and Obligations such as supervision and co-

ordination of works for example, plant, tools, equipment, scaffolding, site administration, security, provisions for protection of the public, transport of workpeople, protecting the works, including from inclement weather, water for the works, temporary lighting and power, temporary roads and hard standings, temporary accommodation, traffic regulations, welfare facilities

- Health and Safety File: the Contractor to include for providing information about the structure and material used which might affect the health and safety of anyone if construction works are carried out. The PSCS to include for all liaison with the PSDP.
- Operation, maintenance manuals and certificates.
- Tenant Handbook: Health, Safety and Operating manual.
- Training and Commissioning.¹⁰
- Removing rubbish.
- Maintenance of private and public roads.
- Drying the works.
- Samples.
- Testing.
- Other item i.e. project specific or client requirements

Consideration should be given to include a full list of both regulatory performance tests (i.e. airtightness testing, acoustic testing) and quality control testing (i.e. concrete cube tests, quality of aggregates etc.) in accordance with the relevant standards

¹⁰ Reference Section 4.9 below for further information in this regard

1.6.6 Additional Information:

The following is a list of some additional information depending on the type and nature of the project, which should be provided as part of the tender package and included in Appendix 3 of the Instruction to Tender. The following documents should be included (as appropriate).

- The preliminary Health and Safety Plan.
- A copy of the Granted Planning permission or Part 8.
- A copy of the fire safety certificate and disability access certificate (where applicable).
- (With the exception of Design & Build Projects which may form part of the works requirements) site investigations, utility surveys, asbestos and archaeology reports (where relevant).
- Design and Build Projects – Further Information in respect of the project is to be provided.

2.0 EXTERNAL WORKS INCLUDING UTILITIES

- 2.1 General
- 2.2 Site Development Works
- 2.3 External Materials &
Finishes
- 2.4 Landscaping
- 2.5 Boundary Finishes
- 2.6 Utility Services
 - Irish Water
 - ESB Networks
 - GAS Networks
 - Communications
- 2.7 Bin Stores
- 2.8 External Stores
- 2.9 Art

2.0 External works including utilities

2.1 General

In external works, the materials used must be robust and durable and the design should also create a pleasant and memorable place within the locality.

2.2 Site Development Works

The site development shall include for the following:

Residential Development Roads and Paths: All new roads shall be designed and constructed in accordance with the Design Manual Urban Roads and Streets (DMURS)

<https://www.dmurs.ie/>

This includes but is not limited to carriageway widths, alignment and curvature, cross falls, junction design, carriageway surfaces, kerbs and visibility. The alignment design (curvature, levels, cambers / cross falls) shall provide for appropriate drainage.

Provision should be made for access for all users in accordance with DMURS and the Traffic Management Guidelines. The design must provide for a high level of connectivity and permeability, with positive designs prioritising pedestrian and cycle movements. Cycle facilities shall be in accordance with the National Cycle Manual, but separated lanes are not required on Local Roads.

Roads should facilitate access for all users, bin collection, emergency services (ambulance, fire brigade); and should meet taking-into-maintenance standards (or taking in charge standards) for the appropriate local authority after issue of the Defects Certificate.

Road signage should be in accordance with

<http://www.irishstatutebook.ie/eli/1997/si/181/made/en/print>

The access road and footways should connect with existing carriageway and footways at abutting roads and footpaths. The appropriate junction design, and crossing facilities shall be in accordance with DMURS, and the local authority requirements. Safety measures shall include speed control measures and crossings. Local authority and DMURS standards will apply and must be confirmed as compliant.

Ground Levels

The external ground levels, and finished floor level of dwellings should be carefully considered to best align with existing road and footpath levels, and whilst working within DMURS acceptable gradients, and meeting Part M of the Building Regulations requirements for approach and access to individual dwellings, to minimise the extent of level difference and earthworks across the site, in order to avoid, or reduce the need for retaining walls

Where retaining walls do become necessary, the priority should be to try to deliver level differences small enough to accommodate code compliant concrete blockwork retaining walls, or alternatively proprietary retaining systems which are cost neutral.

Taking in charge

All developments shall meet the taking-in-charge requirements of the associated local authority. This may include but is not limited to roads, footways, public lighting, landscaped open spaces, unallocated parking spaces, fire service access, and water attenuation. By way of example the taking in charge standards for one local authority is provided in Appendix 3, but it is important to note that it is the Standards of the particular local authority where the housing development is taking place, which must be met.

External Services Materials

It should also be noted that all materials works and fittings which provide for water supply, surface water and foul drainage, including access chambers, manholes, etc., should comply with the relevant parts of the Irish Water's Code of Practice (IW's CoP) for Water Infrastructure and IW's CoP for Wastewater Infrastructure as well as IW standard details, national standards and to meet regulations.

Parking Provision

Parking areas as per relevant design standards should preferably be provided on-street. Materials should be robust and car-parking should be of taking-into-maintenance (taking in charge) standards by the relevant local authority.

On street designated special needs parking spaces should be provided to meet regulations appropriately located to best serve Special Needs dwellings. (See Part M of the Building Regulations)

The draft TGD L for Dwellings, published for public consultation and available on the DHPLG website provides that for a new multi-unit residential building the installation of ducting infrastructure for every parking space to enable the later installation of recharging points for electric vehicles; and for a new dwelling house with a car parking space located within the curtilage of the dwelling house, the provision of appropriate electric vehicle recharging infrastructure to enable the later installation of a recharging point for electric vehicles.

The final TGD L for Dwellings will be published in the coming months, but the above sets the standard to be met for new Local Authority housing until the final TGD Part L for Dwellings is issued, when its requirements (if they differ) become the standard.

The link to the draft TGD L is available here:

https://www.housing.gov.ie/sites/default/files/public-consultation/files/public_consultation_draft_tgd_l_2020_dwellings.pdf

General Considerations

Access footpaths for persons from parking bays and footways to allow access to dwellings should be 950 mm in width in the case of individual dwellings, 1550 mm wide in respect of apartments (with passing spaces for wheelchairs as required) and provided with a cross fall to drain to unpaved areas all to meet regulations.

External paths adjoining the building

An insitu cast 900 mm wide concrete apron, falling outwards, should be provided the length of the front and back elevations (and along gable elevations where provided) at 150mm below dpc level. It will slope upward to provide part of the 1200 mm wide level access platform at the front door (sloping outwards at 1 in 40) and the dpc appropriately guarded by proprietary surface water slotted drain grilles for the full extent the 150 mm level difference is not maintained.

Side passages

Any side passage or rear lane should be paved for its full width, and laid to fall to surface water gullies. Side passages and rear lanes should be provided in the case of a single user, by a galvanized steel frame door with infill timber panels, or in the case of a shared lane with a galvanized steel framed and steel sheeted gate. Both should be paint finished to match front façade and be provided with a shoot bolt to receive tenant's padlock, or in the case of a shared access, an integral key pad operated lock.

(See Parts C, D, H, and M of the Building Regulations)

Note: As the DHPLG's guidance document "Site Development Works" has largely been superseded by the requirements of individual utility providers, local authority's taking in charge requirements and DMURS, it should only be referred to in respect of items which have not as yet been superseded.

2.3 External Materials and Finishes

Roads:

Materials shall be robust and durable, generally road surfaces shall be asphalt concrete, stone mastic asphalt, porous asphalt or similar. Where possible, sustainable and contrasting materials (and colours) such as colour contrasting road surfaces, and in particular permeable paving, or re-cycled materials, particularly for large hard-standing areas should be considered. Such materials shall be in accordance with the associated local authority's taking-in-charge requirements.

Car parking, shall preferably be on street and in permeable materials where appropriate, otherwise as per road finish.

Where on curtilage parking is provided it should be proprietary self-draining blocks installed strictly in accordance with manufacturer's instructions, and together with the adjoining path (which should be in situ cast concrete, brushed finish) should meet the width required by regulations for individual dwellings or for apartments as appropriate.

(See Part M of the Building Regulations)

Road Markings and traffic signs, these shall be in accordance with the Traffic Signs Manual, with the proviso as set out in DMURS that clutter is to be minimized for instance by using poles for multiple functions.

Kerbs & Dropped Kerbs shall be precast, or in situ, concrete

Public footpaths shall be in situ cast concrete, brushed finish.

Tactile Paving shall be as per Traffic Signs Manual.

Speed Control shall be raised tables and other traffic controls – as DMURS. Raised tables normally in brick or concrete pavers fit for purpose in contrasting colour.

Street Lighting shall be in accordance with DMURS and local authority requirements. Shared Spaces (Homezones) shall be in accordance with DMURS. Consideration may be given to brick or concrete pavers of depth appropriate to intended use.

Street Trees & Grids shall be in accordance with DMURS.

2.4 Landscaping:

Where possible, and with no loss of dwelling numbers, every effort should be made to retain existing mature trees, where the layout can accommodate this in public open space, or subject to local authority's approval, in back gardens.

Landscape design should wherever possible incorporate on site disposal of a portion of the surface water, and where possible should maximize the use of existing drainage patterns. Judicious use should be made of permeable and semi permeable materials to reduce and delay runoff. Irrespective of this, some provision for on-site attenuation may be required to meet the local authority's requirements in respect of Sustainable Urban Drainage Systems (SUDS).

Generally public open space should be seeded with grass and provided with 2-3 year old native deciduous trees and otherwise with robust planting. On street trees should be native deciduous trees, selected for robustness and non-invasive root systems and provided with one species per street to assist in way finding. Design and works should be carried out to meet the local authority's taking in charge standards. Pathways through landscaped areas should be firm, suitable for assisted movement and either be self-draining or laid to cross falls to landscaped areas. All imported top soil should be certified to be free of invasive species.

2.5 Boundary Treatments

The end rear garden wall should be of fair faced blockwork construction, 2.0 meters high, which may be painted, designed to comply with relevant structural design code, and fitted with an appropriate precast coping. Side walls abutting public areas, which should be minimized to avoid disruption of active frontage, should be of similar construction but should be rendered and painted towards the public area, or of face brick finish or to otherwise match adjacent finishes where a condition of planning approval.

Side rear garden walls between gardens should be 2.0 meters high of proprietary precast concrete post and plank construction, but concrete planks may be substituted with timber panels above a height of 1.0 meters.

Front boundary at rear of public footpath should be 900 mm high, and may be brick faced, painted render blockwork or gloss painted galvanized steel railings, or omitted as appropriate. Stone front boundary wall should normally not be provided except to meet a condition of planning or to match immediately adjoining boundary walls. Alternatively the extra over cost should be met from cost savings elsewhere. A pedestrian gate of 900 mm clear width should be provided. Whilst on street parking is favoured, if on curtilage parking is provided, normally no vehicular gate should be provided.

Front gardens between properties shall, at the junction with the house for a length of 1.5 meters, comprise a 1.25 m high gossip wall¹¹, in which to locate meter boxes, the wall may in part comprise a bin store (see 2.7 below). The front boundaries with adjoining properties will otherwise comprise a gloss painted galvanized steel railing. End of terrace dwellings may alternatively locate meter boxes on the gable wall and provide a concrete hard standing in the rear garden instead of a bin store at the front.

2.6 Utilities/Services:

The engineer's drawings¹² will be required to show the required routes of all service runs and all known existing services on site, which the contractor should be required to confirm prior to excavation, to provide certainty to the project. All

services are to be run underground. Unless otherwise required by a utility provider, main runs should be located under footpaths and under on street parking. The services likely to be required include:

- ESB Networks (Domestic supplies and site Public lighting)
- Gas Networks Ireland (GNI),
- Communications - Eir ¹³
- Public Lighting,
- Irish Water-Refer to the Civil/Structural Performance Guidance in Appendix 1 and to comply with the relevant local authority's and Irish Water's requirements.

Standards, testing, certification, approvals and acceptance criteria should all be stated in the Works Requirements provided by the Employer's Consulting Engineers.

It will be the responsibility of the appointed Contractor to incorporate the works requirements for all the utilities into their works proposals and program. It cannot be overemphasized that applications to relevant utility providers should be submitted by the Employer's Consulting Engineers as early as possible in order to avoid delays to the project at a later stage.

¹¹ Or higher if specifically required to suit an individual utility's requirements for meter location

¹² Design and coordination of the service runs and the various applications to and liaison with utility providers, should all form part of the Engineer's/M&E Engineer's scope of works and

should be clearly identified as such in the Request for Tenders and Conditions of Engagement.

¹³ On the basis Eir permits unrestricted access to its ducts and any providers observing this condition are also acceptable

Whilst the procedures below appear to offer the optimum arrangement, any acceptable alternatives which the LA has successfully used in the past and from experience is confident will not cause any delay, are not precluded.

The provision of individual satellite dishes and associated wiring is the responsibility of the individual tenant, subject always to planning and other controls. In multi-storey apartment buildings, wiring for data connections may be continued to the roof for later satellite dish installation by tenants.

It is a specific requirement that all services be visually integrated as fully as possible with the external works, i.e. electrical mini pillars, and communications cabinets, should wherever possible, and with utility provider's approval, be integrated into the front boundary treatment or landscaping, and manholes and chambers constructed so that covers are parallel with boundaries or front walls.

Irish Water

It will be the responsibility of the appointed contractor to liaise with Irish Water, in relation to water and wastewater (foul) connections, and the relevant local authority in relation to a surface water connection. Communication should commence as early as possible on projects by way of submission of a pre-connection enquiry form.

The Employer's Consulting Engineers will arrange for the final Water and Wastewater (foul) applications to be submitted to Irish Water, the Consulting

Engineer's requirements to be incorporated into the tender documentation, and for associated invoices to be issued in the name of the Local Authority. Where levied, such charges are to be paid by the Local Authority. It is generally anticipated that the site chosen will have mains drainage. Where this is not the case, and where acceptable to the Local Authority and Irish Water, an appropriately sized septic tank with adequate percolation area, or an onsite waste water treatment system should be provided to meet all Local Authority requirements, planning requirements, relevant standards, Building Regulations and manufacturer's requirements.

ESB Networks

Connection to ESB Networks for general domestic services, and for Public lighting services, to approval of ESB Networks and their regulations. The Employer's Consulting Engineers will apply for final electrical supply to housing units. The local authority will pay the capital contribution and the Contractor will register the associated MPRN for each housing unit with a registered electricity supplier of their choosing. The associated supply accounts are to be registered in the name of the Contractor in order to ensure that costs related to electricity consumed during the construction and commissioning stages are billed to the Contractor.

Gas Networks

Connection to Gas Networks Ireland (GNI) to be in accordance with GNI regulations and to be approved by GNI. The Employer's Consulting Engineers will arrange for GNI to issue capital contribution costs in the name of the local authority. These charges are to be paid by the local authority.

Communication Services

Communication Services are to be ducted— individual access points to each dwelling (or common access points in the case of an apartment building), are the responsibility of the utility company. As noted, external ducting is to be on the understanding that there is unrestricted access available to other data providers. (See Section 4.7 below).

The Employer's Consulting Engineers will arrange for the communication utility provider to issue capital contribution costs in the name of the local authority. These charges are to be paid by the local authority. Installation to be completed by an appropriately located phone outlet in either the hall or main living room and a data outlet (suitable for TV connection) in the main living room.

Fire Hydrants

Fire Hydrants shall be provided in accordance with Irish Water's Code of Practice for Water Supply and Standard Details (IW-CDS-5020-01), and shall be installed so that no house is more than 46 meters from a hydrant.

Hydrants should be of the screw-down type in compliance with the requirements of IS EN 14338:2005. Hydrant outlets should comply with the Chief Fire Officer's requirements. The depth of the hydrant outlet below finished ground level, should not exceed 200mm.

2.7 Bin Stores

All mid-terrace houses shall have suitably designed bin store fitted with opening doors for 3 no. wheelie bins (i.e. grey, green and brown), each generally 600mm wide by 750mm deep by 1100mm high, (or as otherwise sized by the local authority). All end-of-terrace houses will have a hard standing for these bins normally in the rear garden. Duplex units shall provide for both the ground floor and upper floor wheelie bins, through incorporation into the stair design (where external) in whole or in part, or otherwise. Apartment buildings shall have provision for communal wheelie bins located to facilitate easy movement to the street.

2.8 External Stores

Quality Housing for Sustainable Communities (QHfSC) and Design Standards for New Apartments (DSfNA) both allow for a portion of the required storage space to be provided external to the dwelling unit. Consistent with DSfNA guidelines, and towards a standard approach, where external storage is provided there should be a commensurate reduction in the internal storage areas shown in QHfSC.

In the case of individual dwellings, where required, such storage should be provided, by means of a prefabricated storage unit, approximately 2.4 x 1.8m in plan area, with a galvanized steel frame and finished externally in pre-coloured corrugated galvanized steel sheeting and roof, and finished internally with a non-drip insulated coating. It should be provided with one door and window, and be permanently fixed to a concrete base sized to meet supplier's requirements. A minimum 10 year manufacturer's guarantee on structure and external finish should be provided.

2.9 Art

There is a financial provision for an Artwork in accordance with the National Guidelines 2004, published by the Department of Arts Sports and Tourism. Whilst a wide range of works and activities, including performance art are eligible, it is suggested that preference should be given to a work of art which is of direct benefit to the residents. Amalgamation of funding from a number of housing developments is permitted.

3.0 MATERIALS, FINISHES & FITTINGS

- 3.1 General Items
 - 3.1.1 Building Regulations
 - 3.1.2 Critical Dimensions
 - 3.1.3 Sound Insulation
 - 3.1.4 Energy Performance of Dwellings
 - 3.1.5 Design Life Span
- 3.2 External Materials and Finishes
 - 3.2.1 External Finishes
 - 3.2.2 Glazing & External Doors
 - 3.2.3 Roofs
 - 3.2.4 External Balconies
 - 3.2.5 External Stairs
 - 3.2.6 Building & Street identification Signage
- 3.3 Internal Materials and Finishes
 - 3.3.1 Floors
 - 3.3.2 Internal (non-party) Walls
 - 3.3.3 Separating (Party) Walls sound Insulation
 - 3.3.4 Internal Doors & Screens
 - 3.3.5 Ceilings
 - 3.3.6 Bathroom / Toilet Facilities
 - 3.3.7 Internal Staircases
- 3.4 Fittings
 - 3.4.1 Sanitary Fittings
 - 3.4.2 Kitchen Furniture, Fittings & Fixings
 - 3.4.3 Wardrobes
 - 3.4.4 Stores

3.0 Materials, Finishes and Fittings

3.1 General Items

3.1.1 Building Regulations

The building regulations apply to the design and construction of new buildings (including dwellings) and to extensions and material alterations to existing buildings. In addition, certain parts of the Regulations apply to existing buildings where a material change of use takes place. The minimum performance requirements that a building must achieve are set out in the second schedule to the building regulations. These requirements are set out in 12 parts (classified as Parts A to M) as follows:

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

Associated with each Part A – M is a Technical Guidance Document (TGD) on materials, methods of construction, standards and other specifications which

are suitable for the purposes of the regulations. Where works are carried out in accordance with the TGD, this would, *prima facie*, indicate compliance with the Building Regulations.

Social housing projects should follow the TGDs of the Building Regulations. However, the adoption of an approach other than that outlined in the TGDs is not precluded provided that the relevant requirements of the Regulations are complied with and the costs are comparable with TGD compliance.

The latest version of the Regulations and associated Technical Guidance Documents (TGDs) are available at the following link: <https://www.housing.gov.ie/housing/building-standards/building-regulations/building-regulations>

As the Building Regulations undergo review, the link above should be checked regularly for the most up to date information.

3.1.2 Critical Dimensions

In new build, all dwelling areas and room areas and widths shall meet, but generally not appreciably exceed, the requirements set out in the DHPLG best practice Guideline QHfSC and DSfNA. Subject to meeting adequate residential amenity, and not generally exceeding overall dwelling target areas, some flexibility in respect of floor areas and room areas and dimensions may be appropriate in conversions of existing buildings.

Minimum finished floor to ceiling height should meet the suggested heights in TGD Part F but generally not to exceed 2.45m. Ground floor apartments in multi dwelling developments (excluding own door apartments or duplexes) should be no more than 2.75 or as otherwise required to meet DSfNA.

To provide some tolerance, a reduction of up to 5% of an individual room area or room width is acceptable provided the overall target floor area for the dwelling is met or exceeded. The minimum room width should be provided for at least 65% of the room's length, and in such situations where not provided generally over the whole length of the room, to compensate, the minimum floor area of the room should be increased by 5% above requirement.

3.1.3 Sound Insulation

To ensure a proper standard of testing, it is essential that persons are competent in the measurement of sound insulation in buildings to the relevant ISO Standards i.e. ISO 16283 Part 1 and Part 2 series, possess sufficient training, experience and knowledge appropriate to the nature of the work he or she is required to perform having particular regard to the size and complexity of such works.

(See Part E of the Building Regulations)

3.1.4 Energy Performance of Dwellings Nearly Zero Energy Buildings

A DEAP analysis must be carried out to demonstrate compliance and establish the performance specification for each element

to achieve Nearly Zero Energy Building (NZEB) requirements in relation to the whole building energy performance.

Fabric U values shall meet the minimum backstops required to comply with Part L of the Building Regulations and shall also achieve the performance requirements required to meet the Nearly Zero Energy Building (NZEB) Maximum Energy Performance Coefficient (MPECPC) of 0.3 and Maximum Carbon Performance Coefficient of 0.35.

All fabric constructions should be designed to avoid interstitial condensation risk in accordance with Appendix B of TGD L.

TGD L (2019) Appendix E provides example specifications for all elements of a number of different forms of buildings.

Dwellings should target an airtightness performance of 3m³/hr/m² or better.¹⁴ The contractor should be required to carry out an air tightness test after first fix before covering over junctions and a final air tightness test on completion of the dwelling.

Thermal bridging should be avoided as per Part L and thermally performing blockwork should be used at critical junction as well as suitably insulated cavity wall closure at openings.

Sample specifications for mechanical and electrical installations sufficient to achieve compliance are shown in section 4.5.1.

(See Parts J and L of the Building Regulations, and Acceptable Construction Details to Limit Thermal Bridging).

¹⁴ Airtightness measures include tapes at all key junctions including window and door frames, air tightness barriers at top floor ceiling, airtightness

tapes at external wall floor junctions, wet plaster on masonry walls or airtightness barriers with a service void on timber frame dwellings.

3.1.5 Durability

The building is to be designed and constructed using materials, systems and components with durability set out below from date of Substantial Completion, given that normal maintenance will be carried out and fair wear and tear excepted

Required documentation: CE, Declaration of Performance NSAI or Agrément Certificate or third party certification, (or equivalent) stating durability.

Accreditation by a member of the European cooperation for Accreditation (EA) such as the Irish National Accreditation Board (INAB) offers a way of ensuring that tests are conducted in accordance with recognised criteria and can be relied on.

Element	Life Span required
All Structural elements including system elements such as timber frame (where used)	60 years Required
Floors, Balconies, Walls, Claddings and Roofs.	60 years Required
Waterproofing Flat Roofs and Balconies	30 Years Required
External Completions; windows and doors	30 years Required
Heating ,Mechanical Systems and renewable systems	20 years ¹⁵ Required
Plumbing and Sanitary	40 Years Required
Electrical Services	40 years Required
Kitchen frontage / Worktops / Sinks & accessories	20 years Required

¹⁵ For Heat Pumps a Design life span of 15 years is acceptable

Dwelling construction should be designed to be adequately resistant to moisture ingress.

(See Part C of the Building Regulations)

3.2. External Materials and Finishes

3.2.1 External Finishes

The external building finishes must be durable, and robust and fit for intended use. Materials should be sympathetic to the external materials and finishes in the immediate neighbourhood. Material shall be selected to reflect the overall quality of the development, design life and ease of maintenance as set out above.

All commonly used external wall finishes, including fair-faced flush-pointed brickwork and blockwork with painted render to selected colour may be used and should be set out in the Works Requirements and must be agreed with the Employer's Representative in entirety prior to commencement of works.

Generally and unless unsympathetic to adjoining developments (or if exposure considerations suggest otherwise) it will be expected that the front elevation will be largely if not entirely face brick finished, though with a portion of painted rendered blockwork as appropriate. Rear and side external walls to dwellings and apartments shall be painted render, though should a side wall abuts a public space again consideration can be given to a large portion being in face brick.

Consideration can also be given to elements of stone in a rendered main façade where this can be delivered within the same cost provision as the face brick

alternative. Where a specific requirement of the local authority, a wet or dry dash finish can be provided to the blockwork.

In cavity walls, particular care should be taken in relation to the specification of the wall ties and in the location detailing and specification of fire stopping/compartmentation to ensure compliance with Part B (e.g. at all openings, cavity closings and at junctions with the external cavity wall of separating (party) walls and floors, etc.)

(See Parts A, B, C, D, E, F, and L of the Building Regulations)

3.2.2 Windows & External Doors

In general, unless otherwise required by the local authority, external window frames throughout shall be of a proprietary hardwood, thermally broken aluminium or aluminium clad timber windows, double glazed (except where specifically required to meet regulations, or where following a specific Part L example, triple glazed).

Windows should typically be side hung outward opening casements, hinged to permit cleaning of the glass from the inside.

In houses, windows to bathrooms are to be fitted with obscure glass. In apartments, obscure glass to bathroom windows only where required.

As houses will generally be in terraced forms, the use of corner windows where

proposed, should be limited to end of terrace dwellings.

For security purposes, all windows to houses, and to ground and first floor in apartments should be fitted with locks as part of the handle. However, window opening sections required for escape or rescue purposes (see TGD B Fire Safety), should not be fitted with lockable handles or restrictors, which can only be released by removable keys or other tools.

The height of window cills should be carefully considered to avoid unnecessary design complexity with associated costs. Windows should be fitted with safety restrictors, guarding and safety glazing as required to meet regulations. Opening sections should meet the guidance in TGD B for escape and rescue purposes, TGD K for guarding and prevention of falls and TGD D for safety glazing provision, where necessary

Where required for health and safety reasons, fall arrest eyes should be provided.

A manufacturer's written guarantee of at least 10 years should also be provided.

External doors to be "High security" impact resistant timber or composite entrance doors to EN 1627, with 5 point locking system (split spindle unless otherwise required by the local authority), operated internally with a non-removable thumb turn.

Front doors to houses should in addition be provided with a letter box and a proprietary call bell. Communal front door to apartments should be provided with a proprietary voice intercom and door release mechanism individually wired to an intercom in each apartment.

All front entrance doors should be provided with an external light and an overhead canopy (complete with gutter and rain water downpipe where appropriate) ordinarily matching the roof finish, and front doors should always face the public footpath from which they are accessed.

(See Parts B, D, K, and L of the Building Regulations)

Cills

Cills should be precast concrete suitably weathered and with drip moulding, and painted as required (unless otherwise provided as a normal integral part of the glazing system).

Lintels

Lintels should be appropriately sized, either precast concrete, proprietary lintels or steel angle lintels in face brick.

Unless for conformity with adjoining housing developments, or unless the extra over cost is met from cost savings elsewhere, stone cills or lintels should not be used.

(See Parts A, B, C, D, F, H, K, and L of the Building Regulations) S.R.
325:2014+A2:2018, I.S 440 and Acceptable Construction Details to Limit Thermal Bridging.

3.2.3 Roofs

The roof is to be of proprietary concrete tile / fibre cement slate, non-combustible material, mechanically fixed to timber battens on counter battens on vapour permeable roofing underlay, on timber / steel roof structure to pitch as indicated in specifications. Where required as a condition of planning approval or if required to match immediately adjoining developments, variations will be acceptable such as natural slates (on similar roof build up) or long-strip flat metal roofing in zinc sheeting on breathable roofing underlay, on well ventilated marine plywood substrate on timber / steel roof structure to pitch as indicated on the drawings.

In the context of a limited life span, flat roofs are best avoided, but where used, should be laid to required falls and finished in single ply high performance membrane (such as PVC), or asphalt, installed strictly in accordance with manufacturer's instructions, and best practice and provided with a minimum 10 Years written guarantee.

Particular care should be taken in the detailing and specification of fire stopping/compartmentation to ensure compliance with Part B e.g. at junction separating (party) walls and underside roof.

Fascia and Soffits

All fascia, soffits and rainwater goods will be appropriately sized proprietary PVC to meet relevant standard. Eaves must be protected by proprietary or manufactured flashing to create neat detail. Alternatively where expressly required by the local authority, fascia soffits, gutters and downpipes can be in aluminum.

Note: some fibre cement tiles may not achieve the specified 60 year life expectancy, so it would be important this be clearly specified as a product requirement.

Rooflights: Internal layouts should be such as to provide adequate daylight to all habitable rooms. However, where a habitable room (bedroom, living room or dining room) cannot achieve a window area greater than 10% of its floor area, daylight may be augmented by the use of rooflight(s), which otherwise should not ordinarily be provided. These should be of the same materials as other windows (or may match the roof finish if required) and meet relevant standards.

Should Part B necessitate a rooflight be part of an alternative means of escape, this may have implications for its size and location, and accordingly it would be preferable if this situation be avoided, by redesigning to prevent such a requirement arising.

(See Parts A, B, C, D, F, H, and L of the Building Regulations)

3.2.4 External Balconies

Balconies should ordinarily only be provided to apartment or duplex dwellings which are not on the ground floor and do not have access to private open space. Open space in front of the building line to ground floor dwellings cannot be considered as private open space.

Balconies should be sized in compliance with the DSfNA. Thermal considerations suggests preference be given to attached balconies, to minimise impact on the thermally insulating layer.

The floor to the balcony shall be waterproof and drain to a suitable rain water downpipe.

The balustrade top railing should comprise a handrail in stainless steel or gloss painted galvanized steel finish circular section on gloss painted galvanized steel balustrading, either from appropriately sized steel rods or square uprights and either open between or infilled with gloss painted galvanized steel sheet.

Balconies generally should have robust, non-combustible, low maintenance materials. Suitably specified glazed balustrade may be used solely where required to match adjoining buildings, unless the extra over cost is met from cost savings elsewhere.

(See Parts A, B, C, D, E, F, K, and L of the Building Regulations)

3.2.5 External Stairs

Where provided to access first floor duplexes an external stairs should generally be provided at the rate of one shared stairs to serve two first floor dwellings. Tread and riser finishes may be proprietary non-slip ceramic tiles suitable for external use with purpose made recessed nosing in contrasting colour. Fair faced concrete with non-slip finish and applied contrasting flush nosings may also be appropriate. Handrail may be in stainless steel or gloss painted galvanized steel finish circular section on gloss painted galvanized steel balustrading, either from appropriately sized and spaced steel rods or square uprights and either open between or infilled with gloss painted galvanized steel sheet.

Suitably specified glazed balustrade may be used solely where required to match adjoining buildings, unless the extra over cost is met from cost savings elsewhere.

(See Parts A, B, C, D, H, K, L, and M of the Building Regulations)

3.2.6 Building & Street Identification Signage

External numbering to each house to identify postal locations, along with signage for the housing scheme shall be provided which shall be of individual lettering on a thick steel plate/casting fixed to steel posts, similar to the existing signage to streets in the vicinity, or as otherwise required by a local authority in its taking in charge standards.

3.3 Internal Materials & Finishes

3.3.1 Floors

Ground floors to houses and apartments shall be steel float finished concrete to receive tenant's finish. Kitchen/dining rooms should be fitted with suitable 2mm vinyl tiles with appropriate slip resistance performance, and where combined with a lounge, (or at other junctions with tenant's floor finishes such as under doors) be edged with a neat flush aluminum nosing piece to receive tenant's floor finish to lounge (or other rooms).

Construction should be such as to adequately protect against radon in the ground as required by and in compliance with Part C of the Building Regulations.

Upper floors in houses to be 119 X 19mm (fin) red deal tongued and grooved, either varnished or painted finish. Where specifically required by the local authority, flooring grade tongue & grooved sheet ply may be used as an alternative. Bathrooms floors to be screw fixed 19mm WBP Plywood. Floor thicknesses are typical but should be sized to suit joist spacing.

Floor finish to bathrooms and ground floor WCs shall be a suitable vinyl sheet flooring (with appropriate slip resistance) with welded joints. Flooring shall be continuous under the bath and, where practicable, shall be turned up 100mm at all walls to form a banded skirting.

In apartments, upper separating floors are to be finished with a resilient layer to meet regulations, bonded to steel floated concrete or screed to either receive tenant's floor finishes in dry rooms or fitted with suitable vinyl flooring in wet areas (with appropriate slip resistance) details as in houses above. Common area floors are to be finished with a non-slip vinyl sheet with welded joints.

Compartment floors are to achieve required fire and sound performance and be imperforate, except for suitably designed service penetrations.

(See Parts A, B, C, D, E, K, M of the Building Regulations also see DHPLG Guidance BC 07-2018 Timber Framed Floors)

3.3.2 Internal (Non-party) Walls

The choice of slabbing material and thickness may be dictated by the fire performance requirements of the regulations, but limited to the specific locations where this is required (i.e. internal partitions to protected entrance halls or stairs, etc.). Partitions should be designed and constructed with a traditional form of construction deemed to comply with the particular requirement,¹⁶ or in accordance with a certified proprietary system¹⁷ manufacturer's details and instructions, to achieve the required rating. Such walls should be imperforate except as allowed under regulations.

Where not needing to meet such fire separation performance, (unless required to be loadbearing, in which case they should be appropriately designed), internal partition walls to be uninsulated timber or metal stud system partitions, generally with 12.5mm plasterboard each side (or equivalent) with filled and taped joints, bonding (if required) to achieve true surface and skim.

All jointing, external / internal corners, etc., to be smooth finished. All exposed edges to be provided with expanded metal plaster angle bead.

Internal partitions generally to be finished with 3 no coats of selected colour emulsion paint finish, and fitted with 100x19mm red deal skirting boards mechanically fixed to partition framework, and filled, primed, undercoated, and gloss paint finished on completion throughout.

All walls to wet areas such as kitchens, bathrooms and toilets to be faced with moisture resistant plasterboard. In addition head and side wall of bath to be fitted with tile backer type board.

Allow for 4 sqm of 150x150x5.5mm white flat glazed ceramic wall tiles to Bathrooms, to a height of 2.0 meters above floor level over three sides of bath (similar area of tiles to an accessible shower) with 300x600 mm splash-back to WHB in bathroom and ground floor WC. All exposed edge of tiling should be complete with quadrant beads at all exposed edges and bath fitted with proprietary bath seal at junction with tiling.

In kitchen, provide 5 rows of 100x100x6 mm flat gloss, glazed ceramic wall tiles, generally between the worktop and overhead cupboards, or cooker hood, for the full length of the kitchen fittings.

Any proposed alternatives should be subject to specific DHPLG approval in advance.

(See Parts A, B, C, D, and E of the Building Regulations)

3.3.3 Separating (Party) Walls

All Separating (Party) walls shall be so designed and constructed as to achieve compliance with the regulations, in particular Part B.

¹⁶ Plasterboard by itself does not have a specified fire performance. Fire performance of a plasterboard wall is achieved where the wall is constructed in accordance with the manufacturer's specifications,

which have been proven under test, to IS EN 1364-1-2015 to achieve a specific fire performance.

¹⁷ With performance proven under test to IS-EN 1364-1

All timber framed dwellings must demonstrate compliance with I.S.440: 2009+A1:2014 Timber Frame Construction, Dwellings and other Buildings. A register of compliant manufacturers is available on the NSAI website at <https://www.nsai.ie/Our-Services/Certification/Company-Registration-Search.aspx>.

Separately, the Department of Housing, Planning and Local Government issued guidance on Timber Frame Walls¹⁸, which have been tested to the European fire test standard and meet the performance set down in Technical Guidance Document B (TGD B) for external and separating walls in dwellings. Separating walls should either conform to the provisions of the issued guidance, or where construction details differ from the guidance, proof of compliance via the appropriate tests should be provided. Ref Section 4.2 below in relation to service runs.

(See Parts A, B, C, D, E of the Building Regulations and Circular BC 03-2018 – Guidance on Timber Frame Walls)

3.3.4 Internal Doors and Screens

All internal doors are to be 44 mm thick semi solid doors to appropriate standard and be either flush or paneled doors painting grade supplied with factory primer and with 6 mm solid timber lipping all round, and should be sized to achieve compliance with regulations.

All doors to have three no. 100mm satin finished stainless steel ball bearing hinges, with brushed stainless steel lever handles on roses & escutcheon plates to both sides.

Provided only where required by regulation, and to achieve the required rating, fire rated doors should be solid core and should be supplied and installed as a complete door set, inclusive of frame and hinges, with appropriate certification and a fixed label as to their rating. Where integral flush closers have been fitted, these can sometimes be cut, thus negating their effect. Unless a local authority has satisfied itself in this regard, where fire rated doors are required to be self-closing they should be fitted with an overhead soft action door closer, sized to meet regulations.

Unless not required by the local authority, two lever mortice locks with handles to be provided to all internal doors (except bathrooms) throughout. Bathroom and WC doors to be provided with thumb turn type locks openable from the outside, as well as two stainless steel clothes hooks.

Where not part of an integral fire rated door, door frames to be nominally 100 x 50 mm softwood, rebated to receive 44mm door. All internal door sets to be constructed to allow for full width architraves to be 70 x19mm (fin) red deal on each side with chamfered leading edges.

Unless otherwise required to achieve fire performance, all internal doors to be paint finished including base coat / primer, undercoat and final satin coat painted on completion.

¹⁸ Circular BC 03-2018 – Guidance on Timber Frame Walls

In apartments, doors in communal areas are to be solid doors with a glazed panel on their upper half and with fire performance all to meet regulations. Such doors should be provided with pull handles, push plates and kicking plates but no locks.

(See Parts B, D, K, M of the Building Regulations)

3.3.5 Ceilings

All suspended ceilings to houses to be plasterboard with filled and taped joints bonding if required to achieve true surface, skim and three coats of emulsion paint throughout in accordance with specification. Similar ceilings in apartments and underside separating floor in duplexes, on timber sub frame fixed to underside compartment slab. Cornices to be typically 55mm coved to all ceilings in gypsum plasterboard, mitered at internal and external angles.

3.3.6 Bathroom / Toilet Facilities

A WC visitable by persons with disability should be provided in a location and dimensioned to meet regulations.

Wall construction and layout of such WCs should provide suitable support for future fixing of grab rails, folding rails, etc., and be provided with a floor drainage outlet (except in the case of the smaller visitable WC provided in smaller dwellings, where provision is discretionary). WCs should be dual flush in accordance with TGD G. (See Parts A, B, D, F, G, H, M of Building Regulations)

3.3.7 Internal Staircases

Common area internal stairs in duplexes or apartments, are to be designed and sized to meet regulations and be fitted with hardwood handrails and appropriately designed painted galvanized steel balustrade all to meet regulations.

In houses or duplexes¹⁹, all internal private staircases to dwellings shall be of red deal, or timber-faced steel construction. Solid hard wood handrail to be provided with timber balustrade to open sides of stairs and landings all to meet regulations. Entire staircase to be sanded and finished with three coats clear satin varnish, or painted, on completion, to receive tenant's finish as required.

Alternative materials which are equally robust and cost neutral may also be considered.

(See Parts B, D, K, M of the Building Regulations)

3.4. Fittings

3.4.1 Sanitary Fittings

Bathroom: White - A matching suite of ceramic Wash Hand basin, quality ceramic low level close couple suite with integral cistern, dual flush, a 750mm wide by 1700mm long enameled steel bath with fixed side and end panels to match, with appropriate slip resistance performance, as well as a single tap hole matching wash hand basin.

¹⁹ Except where forming part of the fire separation between compartments, where the stairs should be appropriately designed

Where appropriate, an accessible shower should be provided in lieu of the bath. A wall hung shower curtain rail with rings to receive tenant's curtain should be provided over the length (and one side where required) of the bath or as required where a shower is provided in lieu.

Visitable WC: A quality ceramic low level close couple suite (colour white) with integral cistern, dual flush, Wash hand basin to be by same manufacturer but sized appropriately for ease of use by wheelchair users.

Bathroom and WC are both to be provided with polished chrome toilet roll holder and with 500mm and 350mm respectively 19mm diameter towel rail, and 6mm mirror, 250 x 400mm in WC and 400 x 400mm in Bathroom. Provide appropriately sized rubber plugs on stainless steel chains in all wash hand basins and bath.

Taps: Generally to be mixer type, polished chrome to relevant standards. 6 Litre/ Min flow restrictors are recommended.

Bathroom sink taps to be single handle mixer type, reach 100 mm. Bath taps to be two handles mixer type with integral shower attachment and selector and with 1.5 meter long hose, and be provided with wall mounting for use as shower. 6 Litre/ Min flow restrictors are recommended.

WC: Single handle mixer type tap compact for use with small wash hand basin.

In single storey dwellings such as apartments, where more than four bed spaces are provided, and where a separate visitable WC is not provided, a WC with

wash hand basin (fittings as per visitable WC above) should be provided in addition to the main visitable bathroom.

Refer Parts D, F, G, H of Building Regulations)

3.4.2 Kitchen Furniture, Fittings & Fixings

Carcass

All carcasses and panel sheet material to be manufactured from high density, fine surface 18mm MFC core board to EN 312 - Type P3 moisture resisting.

Carcass to comply with EN 14749 European Safety Standard for kitchen storage units and worktops. To have a hard wearing 80g/m² melamine finish as standard, with all exposed edges 0.8mm ABS lipped and include an intermediate adjustable shelf.

Whilst the target storage volume to be provided in the kitchen and adjacent rooms for each dwelling type is set out on page 57 of QHfSC, this may not always be achievable when providing the minimum worktop lengths permitted, but it would be expected that at least 85% of this target storage volume will be provided by way of under counter, full height and over counter cupboards and drawers. For ease of calculation no deductions need to be made for the volume of internal shelves or dividers or drawer divisions, and dimensions shall be to the front face of the cupboard doors.

Doors

High pressure laminate facing bonded onto MR MDF core with a balancing bonded melamine veneer to the inside door face finished thickness 19 – 20 mm, with 2mm ABS lipping, securely fixed, factory finished.

Doors & Carcass: Structural and surface performance to EN 16122.

Drawers

Drawer unit to have three metal box drawers, epoxy coated, with P3 15mm moisture resistant bottoms. Metal box drawers to have metal to three sides. 450 mm deep drawer to be incorporated at base. Top drawer to be fitted out with cutlery tray. Adjustable mounting brackets with metal runners and double nylon rollers with integrated stop to be incorporated.

Worktop

Laminated worktop required to comprise 38mm Particle Board. The minimum lengths set out on page 58 of QHfSC should be provided.

Structural and surface performance to EN 16122 and surface finishes to EN 438 (decorative high pressure laminates). Worktop to be post formed / bull nose moulded front edge with Patent drip barrier to be in place to bottom front underside edge.

Joints to be machine tooled, biscuited and to be sealed with EN 204 grade D3 or D4 moisture resistant gap filling adhesive. Mitered or butt joints to be used. Worktops shall be continuous without visible jointing strips. Ends to be capped with 38mm chrome end piece.

Plinth

150 x 19mm, high pressure laminate facing bonded MDF both sides, plinths. Plinths to be fully removable using clips system, clipped onto cabinet legs to EN 312 Type P3.

Supports

Individual carcass units to be fitted with 4 plastic supports to raise the bottom of the unit 150mm from the floor to accept the kicker board.

The contractor will be responsible for all services connections.

Hinges

Self-closing, quality with three way adjustable cruciform plates. Hinges to be 170° concealed with metal spring hinge system so they may fold back against adjoining units.

Two hinges minimum on 715mm high doors, three hinges minimum on 900mm doors.

Handles

Handles to be brushed stainless steel. Two samples/choices to be provided.

Cooker Extract Requirements

An integrated wall mounted cooker hood extractor unit to be supplied with integral light and installed above cooker space, ducted to the exterior, via 100mm (or otherwise sized for compliance), proprietary rigid ducting all to meet regulations. Short lengths such as forming connections may be in flexible ducting. Kitchen design should be such as to limit the need for extensive extract ducting run.

As it does not contribute to the extract ventilation, unless associated additional costs are met by cost saving elsewhere, circulating cooker hoods, which can raise maintenance issues, should not normally be provided, and where proposed, should be the subject of an application to the Department for approval and be accompanied by the local Authority's planned maintenance proposals.

(See Part F of Building Regulations)

Sinks

Overall W 860mm D 500mm Bowl depth 180mm Min. base unit 500mm cut out W 838mm D 480mm

Sinks to comply with EN 13310 kitchen sinks- functional requirements and test methods.

0.7mm stainless steel satin finish with reversible 2 punched tap holes (one with tap hole stopper) 90mm waste outlet for a basket strainer waste suitable for a waste disposer Waste and overflow included. Sink base units to be 450mm deep allowing for 120mm space back for services and have one intermediate shelf uPVC sleeve to be placed to bottom edge of whole unit. Drip tray to base of sink base unit with up-stand at rear; any leaks from sink U trap to be diverted towards cabinet door.

Taps

Single lever design, polished chrome, minimum 0.3 bar pressure required lever action single flow. Height 145mm, reach 205mm.

White Goods

White goods such as washing machines, dishwasher, fridge, freezer and cooker are tenant supply items. Other tenant supply items are intruder alarms and any associated wiring. Water supply and waste to be supplied to under counter space left for dishwasher and washing machine, and the kitchen layout is also to incorporate space for a freestanding cooker.

Fire Safety

Kitchens should be provided with proprietary fire blankets and alarms to meet regulations. Common area of apartments should be fitted with proprietary type fire escape signage as required to meet regulations

(See Parts B, D, G, H, J of the Building Regulations)

3.4.3 Wardrobes

All carcasses and panel sheet material to be manufactured from high density, fine surface 18mm MFC core board to EN 312. Each wardrobe should contain a 450 mm width of 6 shelves and two 30 mm deep proprietary chromed steel hanging rails and brackets.

Doors to be from 25mm MDF painted finish with dampened action, hold open hinges, three per leaf.

3.4.4 Stores

In addition to the free area of the hotpress, one of the stores is to be provided with 800 mm length of 600 mm deep slatted shelving in 75 x 19 mm red deal slats on red deal supports and brackets, varnish or painted finish. Shelves to be provided at five levels, with highest shelf at 1.8 meters above floor level.

4.0 MECHANICAL & ELECTRICAL

- 4.1 Mechanical Installations
- 4.2 Electrical Installations
- 4.3 Gas Installations
- 4.4 Water & Waste Installations
- 4.5 Heating, Water Heating & Ventilation
 - 4.5.1 Table E2 of TGD Part L
 - 4.5.2 Gas & PV Option
 - 4.5.3 Heat Pump Option
 - 4.5.4 Ventilation
- 4.6 Lift Installations
- 4.7 Communication Services
- 4.8 Commissioning & Handover

4.0 Mechanical & Electrical

4.1 Mechanical Installations.

Mechanical services should meet all relevant standards and regulations.

All piped and ducted services work shall be concealed and adequately supported with proprietary fittings within timber / metal stud partitions, floors and ceilings²⁰ and in fire and sound rated vertical service ducts, but not in fire and sound rated walls. Hot and Cold Water Supply shall be in appropriate plastic piping to meet relevant Irish Standard (IS) and Irish Water's (IW's) Code of Practice (CoP) and designed in compliance with the regulations. Central Heating shall be in cross-linked polyethylene piping to the relevant standard. Jointing shall be appropriate to the type and class of pipe. Where required, brass connections should be used. Generally joints should be avoided where difficult to access, in particular above ceilings. Unless a local authority has satisfied itself as to their long term robustness, Push Pull connections should not be used. Short runs of exposed pipework may be in copper, or proprietary steel mesh covered flexible piping.

Surface mounting and boxing out of services should be avoided (except for limited boxed runs of waste in bathrooms); all service routes should be accommodated within internal partitions, and ceiling voids.

²⁰ Services may also be accommodated in service ducts or within service cavities created external to the un-breached linings of the fire resistant compartment wall or floor. Where services pass through these

Fire resistant construction to separating party walls (or other walls required to have a fire rated performance) and floors to be imperforate, as per Sections 3.3.1 and 3.3.3 above; any services which are required to party wall side of houses or to underside of separating floors in apartments must be designed to meet regulations (typically to be run in battened out services zone with plasterboard slab to housing unit side of party wall). No services should pass through framed construction separating walls. No wet services from an apartment above are to be run in the ceiling space of the apartment below.

Meter locations and details are to meet individual utility provider's requirements, and to be so included in tender documentation.

(See Parts B, D, E, F, G, H, L of the Building Regulations)

4.2 Electrical Installations

Electrical services to meet the requirements stated in tender documents, including all relevant standards, and in accordance with Safe Electric Requirements, i.e. ET101, or to meet any subsequent IS.

compartment walls or floors, any such penetrations and the enclosing ducts and/or cavities should be designed to meet regulations. Refer TGD Parts B, D, E

Contract documents must specify that the contractor is to ensure that an electricity supply is delivered to each house (including metering, testing and commissioning) within the contract period, and before the issue of substantial completion certificate.

All wiring throughout the house is to be contained in heavy duty PVC conduit, or as otherwise required to meet I.S. EN 10101 (to replace E101:2008). Surface mounting and boxing out of services should be avoided; all service routes should be accommodated within internal partitions, and suspended floor or ceiling void. Should chasing of external or other non-party walls be unavoidable, it should be made good so as to ensure the air tightness properties are not compromised.

Any services which are required to separating (party) walls in houses or separating floor in apartments or duplexes, must be designed to meet regulations (for instance, to be run in battened out services zone with plasterboard slab to housing unit side of party wall, or above plasterboard ceiling). No electrical services of one apartment is to be run in the ceiling space of the apartment below, or anywhere else outside the apartment.

Electrical Consumer Panel normally to be located in hallway, at an appropriate height above finished floor level, with all circuits clearly marked and identified, and supplied with integral latched cover, all to meet IS EN 10101.

Electrical Meter cabinet to be located to the front of each house on the gossip wall

in the front garden (or gable wall), and contained in an ESBN standard meter cabinet, securely fitted and fixed- to ESB guidelines. In apartments meters to be located off a communal area on the ground floor and suitably enclosed.

A Fire Detection and alarm system is to be provided to comply with regulations and in accordance with IS 3218.

Unless to meet specific artificial lighting standards, all rooms and corridors/hall/landings to have a single ceiling mounted pendant fitting, to accept a low wattage or LED bulb with a single rocker type switch appropriately located between 900 and 1200 mm above finished floor level at just inside the entrance to the room (or outside in the case of a bathroom/wc).

Location of pendent should be such as to allow for easy replacement (i.e. not over stair voids). All stair/landings to be fitted with a two way switch, as should all rooms with two access doors. Stores not designed as wardrobes to have a single pendent fitting. Kitchens to be fitted with a proprietary ceiling mounted fitting to receive three low energy spotlights, and under cupboard lighting should be provided for a two meter length under the main overhead cupboards. In apartments, common areas are to have an appropriate number of pendent or recessed light fittings with switches and motion sensor activation.

Main bathroom should be provided with an over sink light with a shaving socket.

Bathrooms, WCs and wet area lights are to be fitted with suitable ceiling mounted non-pendant types to receive LED or low wattage bulbs, with switches located outside the bathroom, WC or wet area. Electrical sockets should be provided, between 400 mm and 1200 mm above finished floor level²¹ (the lower level favoured), where possible at least 350mm away from internal corners, preferably as double sockets, individually switched to provide the number of single socket outlets per room as shown in the table below.

Where rooms are combined a slight reduction in outlet number will be appropriate. Unless otherwise required by the local authority, the kitchen is to be

provided with an electrical cooker outlet with isolator.

In houses, a double socket should be provided in the entrance hall, at the base of the stairs and a double socket on the corridor on each upper floor. In apartments, common areas should be provided with adequate socket outlets per floor for cleaning purposes.

Store rooms are not to be provided with socket outlets.

All works must be carried out and appropriately certified by a Registered Electrical Contractor (RECI).

(See Parts B, D and E of the Building Regulations and EN10101:2019)

Dwelling Type	Kitchen Worktop	Kitchen Low level	Lounge	Dining	Double Bed	Single Bed
1 Bedroom	4	4	4	2	6	4
2 Bedroom	6	4	4	4	6	4
3 Bedroom	6	6	6	4	6	4
4 Bedroom	8	6	6	6	6	4

Schedule of Socket outlets per Room

²¹ Dedicated electrical sockets, for continuously used appliances, not normally intended to be accessed, do not need to meet this requirement

and should be appropriately located. Over counter sockets in kitchens, should be located 100mm above the countertop.

4.3 Gas Installations

The following applies where a natural gas installation is provided to individual dwellings.

Contract documents must specify that the contractor is to ensure that a natural gas supply is delivered to each dwelling (including metering, testing and commissioning by contractor) within the contract period, and before the issue of substantial completion certificate. Gas installations²² must be fitted, tested, completed, commissioned and in accordance with the requirements of, Gas Networks Ireland (GNI) and certified by a Registered Gas Installer (RGI) prior to connection to the GNI network.

A recessed Gas Meter cabinet is to be located to the front of each house on the gossip wall in the front garden wall, and contained in a Gas Networks Ireland (GNI) standard meter cabinet, securely fitted and fixed – to GNI details.

In apartments, meters for gas are to be appropriately located in a specific area generally off a ground floor communal area and suitably enclosed, all to meet GNI requirements. Consideration to be given to a specific ground floor meter room, accessed externally, in larger apartment developments.

Unless otherwise required by the local authority, a connection should be provided to the cooker location in the kitchen and suitably capped off to allow for later connection of tenant's cooker.

4.4 Water & Waste Installations

Contract documents must specify that the contractor is to ensure that Irish Water will supply water to each dwelling in the development, (including metering, testing and commissioning by contractor) within the contract period, and before the issue of substantial completion certificate.

An in ground water meter & insulated meter matrix box to Irish Water requirements is to be located to the front of each house in a prominent location in the footpath outside each house.. External water supply pipes are to be at a depth (at least 600mm including connection to water meter as per TGD G) to achieve the required cover and to be suitably detailed to meet regulations (See Part G of the Building Regulations and IW requirements).

In apartments, meters for water are to be appropriately located in a specific area generally off a ground floor communal area and suitably enclosed, all to meet IW's CoP requirements

Water Storage: Should be provided to meet IW's CoP, or otherwise meet regulations. Cold water tanks should normally be either of grp or plastic construction. Where provided in the attic, and subject to no compromise to the insulation properties, a portion of the attic not exceeding 6sqm should be appropriately floored in ply for maintenance access from the ceiling trap door to the tank.

²² In accordance with IS 813

Supply and waste to individual sanitary fittings should be designed and sized to meet regulations. Waste pipes should be in an appropriate grade of plastic pipes to meet regulations. Supply and waste should also be provided for connection of washing machine and dishwasher (by tenant).

An isolation valve is to be fitted to isolate the entire supply and to be located under the kitchen sink. Screw driver operated isolating valves to be fitted on the supply to all appliances.

Whether by the use of thermostatically controlled valves or otherwise, plumbing design should avoid scalding risk.

(See Parts B, D, G, and H of the Building Regulations)

4.5 Heating, Water Heating, and Ventilation

Fabric U values shall meet the minimum backstops required to comply with Part L of the Building Regulations and shall also achieve the performance requirements required to meet the Nearly Zero Energy Building (NZEB) Maximum Energy Performance Coefficient (MPECPC) of 0.3 and Maximum Carbon Performance Coefficient of 0.35.

4.5.1 Table E2 of TGD L

This is shown below and sets out examples of new dwelling specifications that meet Part L requirements. The preferred options for heating are:

- a gas fired boiler with renewables (such as photovoltaic collector), or
- a heat pump, can be installed (but not with a boiler or photovoltaics), or
- where appropriate, a district heating system

Any alternatives will be the subject of prior approval of DHPLG, and must be cost neutral in the entire installation, including appropriate storage to meet regulations.

In all preferred options, radiators are to be factory finished steel or aluminium, horizontal, surface mounted to relevant EN standard and sized to meet heat demand of dwelling in the context of specific heat source.

Table E2 Example Dwellings - Results						
	Example A – Semi-detached heated by mains gas and cMEV	Example B – Semi-detached heated by mains gas and NV with intermittent extract	Example C – Semi-detached heated by mains gas and MVHR	Example D – Semi-detached heated by heat pump and cMEV	Example E - Apartment heated by gas and MVHR	Example F - Apartment heated by heat pump and cMEV
Primary energy [kWh/m ² yr]	42	42	38	39	37	40
CO ₂ emissions [kg/m ² yr]	8	8	7	8	7	8
EPC	0.29	0.29	0.26	0.27	0.28	0.29
CPC	0.26	0.26	0.24	0.26	0.26	0.29
RER	0.24	0.26	0.22	0.39	0.23	0.34

In the above table, examples A, B, D and F are acceptable. For optimum value for money and to confirm LA maintenance responsibilities and costs, any proposed variations such as incorporating MHVR will be the subject of an application to the Department setting out the cost benefit, and confirming that an ongoing maintenance programme is in place, with any additional costs met from cost savings elsewhere.

Any such proposals for additional measures would need to be comprehensive and include for installed future access.

Where a specific requirement of a local authority who has satisfied itself as to affordability of the running costs to tenants, alternative forms of heating consistent with NZEB requirements may be provided. In such cases the extent of DHPLG funding should be agreed in advance, and applications for approval

must include details of local authority's ongoing maintenance.

Due to improved fabric performance, new dwellings are more resilient, can maintain comfortable temperatures for long durations without heat generators and have significantly reduced energy bills. Unless there are exceptional circumstances (i.e. a one off rural house), solid fossil fuel appliances and a chimney should not normally be provided in new social housing.

The removal of solid fuel should contribute to better air quality, thereby improving the health of occupants, and will reduce carbon emissions, the cost of construction and maintenance.

Also secondary back up heating sources should not normally be required for these dwellings.

Where a new or replacement open-flued or flueless combustion appliance, not designed solely for cooking purposes, is installed in a dwelling, an appropriate carbon monoxide (CO) alarm should be provided in the required locations to meet regulations.

(See Parts J, L, of the Building Regulations)

4.5.2 Gas & Photovoltaic (PV) Option

In the case of a gas fired²³ installation, the boiler shall be appropriately sized for the floor area of the dwelling with a minimum efficiency of 90%, as per SEAI HARP register and fitted with appropriate controls to comply with regulations. Further guidance is available in heating and hot water systems –achieving compliance with TGD L 2019.

Where a gas boiler is provided, each dwelling will also be fitted with a Photovoltaic micro-generation system. Electricity generated on-site will be used to supplement the electrical supply in each home.

The PV modules should be installed on roofs with the optimum orientation to maximize performance to be approved by the employer, as illustrated on the M&E Consultant's design drawings.

The output of each PV collector system should be designed to comply with Part L when assessed in the Dwelling Energy Assessment Procedure (DEAP).

Photovoltaic systems should be installed in accordance with the SEAI Domestic Solar Photovoltaic Code Practice Sections 3 to 6.

(See Part L of the Building Regulations)

4.5.3 Heat Pump Option

Space and water heating system for each dwelling will be provided by a standalone heat pump or alternatively an exhaust air heat pump which combines the heat pump and ventilation unit into a single system.

Information on the sizing and design of heat pumps can be found in the SEAI document Domestic Technical Standards & Specifications. Section 6.9 deals with the Heat Pump Systems and is available at

<https://www.seai.ie/resources/publications/Domestic-Technical-Standards-and-Specifications.pdf>

4.5.4 Ventilation

To be Continuous Mechanical Extract Ventilation (CMEV) or can be NV with intermittent extract as required.

Cooker Hood Extract – see 3.4.2 above

Note: It is important that extract to cooker hood, should be by extraction duct to the outside and not reliant on the CMEV, which will normally be located to extract directly from the wet areas such as the bathroom.

²³ Where a specific requirement of the local authority, this can be substituted subject to stated

specific conditions, with an oil fired boiler with rating to meet regulations.

Ventilation systems for the dwelling should be designed in accordance with TGD F. Mechanical ventilation systems should be installed and commissioned by competent installers. Ventilation systems should be validated by an independent validator from the NSAI register after commissioning.

(See Parts F, L, of the Building Regulations)

4.6 Lift Installation

In multi-unit apartment developments, where required to satisfy Part M, passenger lifts shall comply with the EU Lifts Directive (2014/33/EU), and be sized to achieve compliance with regulations, (currently nominally 1450 x 1150mm internally and with an 800 mm wide door).

One passenger lift should be provided per core serving a maximum of 12 apartments per floor²⁴. A second passenger lift should only be provided if the total number of apartments served per lift exceeds 50, or the height exceeds 7 floors served, Lift specification should be for a residential (not commercial) building and should not be high speed. Lifts not requiring a lift motor room are preferred. Tender documents should be based on an “open protocol” not to preclude post contract service contract by other suppliers.

(See Parts B, D, M, of the Building Regulations and the Lifts Directive)

4.7 Communication Services

Article 8 of Directive 2014/61/EU requires Member States to ensure that new buildings and major renovations are constructed with the necessary in-building

infrastructure which is suitable to enable connection to a broadband network with a speed of at least 30 Mbit/s.

In a dwelling house, the in-building physical infrastructure should consist of empty ducting through the external wall and may include the subfloor. The ducting should be designed to suit the technology (including cabling) expected to be used in the building.

In multi-dwelling building, the in-building physical infrastructure should be taken to an individual network termination point within each apartment or duplex dwelling. Such infrastructure may consist of a single duct from a main access point outside the building, leading to a common access point within the building, (usually located in a communal service riser) from which, typically, an empty duct connection will be provided to the network termination point.

(See Parts B, C, E and L of the Building Regulations)

4.8 Firefighting Installation

In apartment buildings, common areas must be provided with firefighting installation (including proprietary hose reels, extinguishers, dry and wet risers, firefighting shafts, lifts, etc.), as required to meet regulations and specifically the Fire Safety Certificate.

²⁴ And also meeting DHPLG guidance on apartments.

For maintenance and other considerations a sprinkler system should not generally be provided, and the apartments should be designed so as to avoid this becoming a requirement. However, where a significant reason exists, such as cost savings arising from an acceptable reduction in floor areas the use of such a system will be the subject of an application to the Department for approval pre planning application or pre Part 8, setting out the specific reasons, and accompanied by the local Authority's planned maintenance proposals.

(See Parts B and D of the Building Regulations)

4.9 Commissioning and Handover

The tender/contract documents should include the requirement that all electrical, gas, lifts and other mechanical and electrical installations including the heating and hot water installations should be commissioned and handed over in full working order and operating efficiently for the purposes of the conservation of fuel and energy in accordance with requirements²⁵.

Water and waste water installation to be tested and commissioned in strict accordance with relevant IW's CoP and requirements.

The owner of the building should be provided with sufficient information about the building, the fixed building services and their maintenance requirements so that the building can be operated in such a manner as to use no more fuel and energy than is reasonable in the circumstances. A way of complying would be to provide a suitable set of operating and maintenance instructions aimed at achieving economy in the use of fuel and energy in a way that householders can understand. The instructions should be directly related to the particular system(s) installed in the dwelling. Without prejudice to the need to comply with health and safety requirements, the instructions should explain to the occupier of the dwelling how to operate the system(s) efficiently. This should include:

- (a) the making of adjustments to the timing and temperature control settings;
- (b) what routine maintenance is needed to enable operating efficiency to be maintained at a reasonable level through the service life (lives) of the system(s) and
- (c) the operation and maintenance of renewable energy systems.

Handover over procedures should include a walkthrough of the operation and maintenance procedures for dwelling systems with the dwelling occupant and where appropriate customized online videos can be used to provide information to dwelling occupants.

²⁵ For instance, Heating and Domestic Hot Water Systems for Dwellings – Achieving compliance with Part L 2019 and Installation and Commissioning

of Ventilation Systems for Dwellings-Achieving Compliance with Part F2

Appendix 1

Civil & Structural Site investigations & Surveys

Civil/Structural Performance Guidance

Overview

This document contains some high level civil/structural performance information that may be used by local authorities or AHBs to brief either their own internal Professional Staff or for the appointment of External Consultants. It is important to note that this is a sample document and actual requirements may vary greatly between projects.

1. Surveys and Investigations

The following is a sample of the surveys and investigations that should be carried out as early as possible on a typical social housing project:

A – Topographical Site Survey

including:

- Site boundaries including levels (top of... base of...).
- Typical section of boundaries including levels on either side.
- Structures within the site and contiguous structures.
- Site Levels & contours (0.5m intervals).
- Site features i.e. trees, foliage, scrub, rock outcrop, gates, bollards, parking spaces, road traffic signs etc.)
- Services within/adjacent to site: i.e. overhead power lines& poles, mini pillars, substations, public lighting, mini pillars, telecoms lines, hydrants, air valves, sluice valves, scour valves, gas, sewers, manholes (cover and invert levels), open drains etc.
- Finished floor, eaves and ridge levels for structures on site and adjacent structures.
- Adjoining road edges, centre-line, kerbs/footpath - to extend beyond the site for sight-line assessment.
- Any other pertinent information to allow design development and progress of the works.
- Provision of report, survey drawings and any other relevant documentation in both hard and soft copies. Soft format drawings to be with software to suit local authority's requirements, (such as Revit or Autocad) and in pdf format.

B – Site Investigation

Site investigation requirements can vary a great deal from project to project based upon many contributing factors, including:

- Greenfields or Brownfields sites.
- Live services.
- Local ground conditions – clays, silts, sands, gravels, high level rock etc.
- Project scale.
- Site constraints/access.

After assessing the above and all other relevant factors the employing authority could populate this section with a suitable site investigation requirement. This may include some of the following line items:

- Cable percussion boreholes.
- Rotary coring.
- Trial pits.
- Infiltration testing.
- Plate bearing tests.
- Contamination analysis of soil.
- Classification of waste for offsite disposal (Waste Acceptance Criteria).
- Dynamic probing.
- Site Set up.
- H&S requirements.

C – Invasive Species Survey

An investigation of the site shall be carried out by a suitably qualified ecologist to identify if Japanese Knotweed or other invasive species are present. If found, mitigation measures should be proposed in the form of a costed report.

This investigation should be carried out as early as possible on the project to avoid unnecessary delays, though should be timed in the knowledge of potential dormancy periods.

D – Archaeological Desktop Assessment

A desktop assessment should be carried out by a suitably qualified archaeologist. At a minimum, it should include a review of following:

- Monument database
- Early mapping
- Ariel photography
- Any other documentary sources

Where there is a recorded or documented monument further assessment including, pre-development archaeological testing, buffer zones and possibly full excavation will be required as directed by the archaeologist.

Note: It is also a requirement that all developments, more than 1km in length and 0.5Ha, are assessed even if there are no recorded monuments in evidence. This assessment, based on scale, can take the form of geophysical survey and/or archaeological testing.

E – Flood Studies Desktop Assessment

A flood studies desktop assessment should be carried out by a suitably qualified person. At a minimum, it should include a review of following:

- Topographical survey of the site and assessment of adjacent river/stream catchments
- The available information on the OPW website (www.floodmaps.ie)
- The Flood Extents and Flood depth maps which form part of the CFRAM Study (<http://www.floodinfo.ie>)
- Examine all other flood outlines available for the site

The following also needs to be established:

- Has the site flooded before for any reason? Is there a pluvial drainage risk on the site?
- Will the new development increase the flood risk of surrounding area?

If there is any evidence that the site may be at a risk of flooding, or that the development will increase the risk of flooding the surrounding area, a Flood Risk Assessment (FRA) report should be prepared in the context of “The Planning System and Flood Risk Management – Guidelines for Planning Authorities, November 2009, published by the Office of Public Works and the Department of Environment, Heritage and Local Government”.

Appendix 2

Civil & Structural Standards

The following is a non-exhaustive list of civil/structural standards that should be adhered to. These can be added to/amended at the Employing Authority's discretion.

All Eurocodes, European Standards, Codes of Practice, Irish Standards, or British Standards referred to in this Specification shall be those current at the time of tender, together with all amendments and addendums. A list of relevant standards and Codes of Practice is appended to this Specification. Where both Irish and British versions of documents exist, the Irish version shall be used unless noted otherwise

Structures

In general, to be in accordance with TGD Part A – 2012. Structural design to be completed in accordance with Eurocodes (IS EN 1990-1999) including associated Irish National Annexes

Water, Drainage and Wastewater

- Private side drainage and wastewater to be in accordance with TGD Part H – 2016.
- Site drainage in accordance with TGD Part H – 2016.
- Site Wastewater to be in accordance with Irish Water's Code of Practice and Standard Details.
- Private site water to be in accordance with TGD Part G – 2008.
- Site Water to be in accordance with Irish Water's Code of Practice and Standard Details.

The full suite of SUDS measures should be considered and where practicable, used as appropriate, when carrying out the drainage design.

Hardcore

- Aggregates for use as hardcore under concrete slabs and footpaths to be in accordance with IS EN 13242:2002+A1:2007, incorporating SR 21 2014 + A1:2016 Annex E.
- Procurement and use of unbound granular fill hardcore material for use under concrete floors to be as per IS 888:2016.
- Hardcore under roads to be in accordance with the TII Specifications for Road Works.

Concrete

- Structural design to be completed in accordance with IS EN 1992 and associated Irish National Annexes
- To be in accordance with I.S. EN 206: 2013 (+A1:2016 +AC: 2017) and associated Irish National Annex and supplied by a registered manufacturer as listed on NSAI's website.
- Reinforcing steel to be in accordance with IS EN 10080:2005 (+NA: 2010).

Masonry

- Design to be in accordance with IS EN 1996 and associated Irish National Annexes
- To be in accordance with SR 325: 2013 + A2:2018+ AC:2019.

Structural Steelwork

- Design to be in accordance with IS EN 1993 and associated Irish National Annexes
- Fabricated structural steel to be in accordance with IS EN 1090-1:2009 + AC:2010 + A1:2011.
- All structural steel to be CE marked. Contractor to submit; Factory Production Control Certificate, Welding Certificate for the steelwork manufacturer and a project specific Declaration of Performance to the Clients Representative and Design Team.

Note: The architect as design team leader shall ensure that all building elements including steel sections, where required, have adequate fire proofing specified by the appropriate member of the design team.

Structural Timber

- Design to be completed in accordance with IS EN 1995 and associated Irish National Annexes.
- Structural timber with rectangular cross sections to be in accordance with EN 14081-1:2016.
- Timber frame construction of dwellings and other buildings to be in accordance with IS 440:2009 (+ A1:2014).
- Timber sections (floor joists, ceiling joists, flat roof joists, rafters and roof purlins) to be in accordance with SR 71:2015 Timber in construction – Eurocode 5 – Span tables and guidelines.

- Timber trussed rafters in accordance with I.S. EN 14250:2010 and associated guidance given in S.R. 70:2015 Timber in construction - Eurocode 5 Trussed rafters

Roadways

The following documents should be referred to when designing roads:

- Design Manual for Urban Roads and Streets ²⁶(DMURS), DHPLG & DTTAS, 2013
- Traffic Management Guidelines, DTTAS 2012
- National Cycle Manual, NTA 2011, <https://www.cyclemanual.ie/>
- Road design²⁷ - TII publications - <http://www.tiipublications.ie/advanced-search/>
- Traffic Signs Manual, DTTAS 2010

²⁶ Mandatory under Circular RW6/2013 for all roads and streets in urban areas (with some limited exceptions)

²⁷ Of limited applicability as it refers generally to roads with speed limit of 60kph and above in non-built up areas

Appendix 3

Sample Taking in Charge

The following is included by way of an example of an Extract for 'Taking in Charge' requirements for Roads from one local authority.

<https://www.sdcc.ie/en/services/planning/commencement-and-completion/completion/taking-in-charge-policy-standards/sdcc-tic-6-policy-appendix-6-roads-minimum-standards.pdf>

It must be emphasised that requirements vary between local authorities and it is a specific requirement that the external works must meet the taking in charge requirements of the local authority in whose area the development is taking place.

SDCC TTC Policy - Appendix 6 - Roads Minimum Standards

Pavement Layers				
		Residential	Commercial/Arterial Route	Regional
Bound layers		Cul de sac - Home Zone	Spine Rd - Heavily Trafficked	
Surface course (Single course)	Minimum compacted thickness: Chip size range: Material name: Alternatively:	40mm 10mm SMA surf (IS EN 13108-5)	40mm 10mm or 14mm SMA surf (IS EN 13108-5) HRA (IS EN 13108-4)	40mm 10mm or 14mm SMA surf (IS EN 13108-5) HRA (IS EN 13108-4)
Binder course (Single course)	Minimum compacted thickness: Chip size range: Material:	100mm 20mm AC 20 dense bin (IS 13108-1)	60mm 20mm AC 20 dense bin (IS 13108-1)	60mm 20mm AC 20 dense bin (IS 13108-1)
Base course (Single or double course)	Minimum compacted thickness: Chip size range: Material name:		80mm 32mm AC 32 dense base (IS 13108-1)	120mm 32mm AC 32 dense base (IS 13108-1)
	Minimum bituminous thickness:	140mm	180mm	220mm
Unbound layers		(Designer should be cognisant of Figure 4.2 of DW-PAV-03021 Dec 2010)		
Sub-base	Minimum compacted thickness: Material name:	150mm	150mm	150mm
Capping	Compacted thickness: Material name:	Refer to T11 publication - DN-PAV-0321 (i.e. CBR, plate compaction, water tables, etc) Refer to T11 publication - DN-PAV-0321 (i.e. Class 6P2/6P1, water tables, etc)		
Surface course (Single course)	Material description For use on: Min compacted thickness: Chip size range: Min chip PSV value: Material name:	Red PMB DEMURS 40mm 10mm only 55 SMA surf PMB (IS EN 13108-5)	Coloured Surface Course Options Buff SMA Cul de sacs, DEMURS 40mm 10mm only 55 SMA surf PMB (IS EN 13108-5)	Black PMB with Red Chip Traffic Calming Ramps 40mm 10mm only 55 SMA surf PMB (IS EN 13108-5)
	Chip colour: Aggregate colour ratio: Pigment % in mix: Binder: After treatment: Protected from Traffic:	Red Chips >4mm: Coloured Aggregate Red 5% (Typically) Black None 4hrs min	Buff Chips >4mm: Coloured Aggregate Buff 5% (Typically) Clear None 4hrs min	Red Chips >4mm: Coloured Aggregate n/a None Black None 2hrs min
Notes				
1. Any deviation from the requirements above must be approved in advance by SDCC Roads Department				
2. Design must be in compliance with current BS EN 13108 and SR28				
3. Design must be signed off by a certified person				
4. Where a subgrade has a CBR lower than 2.5%, it is considered unsuitable for support, and must be 'permanently improved'				
5. SDCC require that 2 days advance notice by email is given by the developer to SDCC in advance of all bituminous work being carried out (date & approx times included)				
6. Cores will be required post completion to verify laying depths and proper compaction; and shall be taken in accordance to the requirements of BS 5949:87 Clause 1				

Helpful notes for Builders and Inspectors

Developers/Builders and their staff who are involved in the construction of Road Pavements should be very familiar with the contents of the following documents:			
TII - DN-PAV-03021			
TII - Specification for Roadworks - Series 800 - Unbound materials (CC-SPW-00800)			
BS 594987:2015 - Specification for transport, laying, compaction and product-type testing protocol			
Notwithstanding the information contained in the above documents, SDCC TIC section draw particular attention to the items below where reoccurring problems are being regularly encountered at construction stage:			
Item	Problems	Remedy	Reference
Capping			
Material	Drying out	Avoid stock-piling	Series 800 Clause 802/1
Laying	Being laid in layers greater than 25mm	Remind ground workers of the max layer depth	Series 800 - Clause 802 - Laying
Compaction	Laid too high - decreasing the subbase layer depth	Better quality control by Builder, and supervision of Sub-Contractor	
	Incorrect procedures being employed	Compaction to be carried out to specification for unbound mixtures	Series 800 - Clause 802 - Table 8/4
Sub-base			
Material	Separation of large and fine aggregate; not being placed to specification	Avoid stock-piling; random spot-checks, turn away trucks with segregated material	Series 800 - Clause 802 - Transport
Laying	Irregular surface profile	Sub-base to be machine laid; finished layer must have a closed blinded finish	Series 800 - Clause 802 - Laying
Compaction	Incorrect compaction procedures being employed	Compaction to be carried out to specification for unbound mixtures	Series 800 - Clause 802 - Table 8/4
Base			
Material	Segregation of material being loaded; cold material delivered to site	Better quality control by Builder, and supervision of Sub-Contractor; temp control	BS 594987 Clause 4.1 & 4.2
Laying	Laying during unsuitable weather conditions (i.e. heavy rain, cold temps)	Better programming	BS 594987 Clause 6.1, 6.2, 6.3 & 6.4
Compaction	Incorrect compaction procedures being employed	Compaction to be carried out to specification for bound mixtures	BS 594987 Clause 9.1, 9.2 & 9.3
Blinder course & Surface course			
Protection of the exposed surface (Base)	Contaminated, open texture filled with clay/dirt	Prevention in the first instance; housekeeping; reduce time between laying courses	BS 594987 Clause 5.1
	Not being applied; not being verified; SDCC must receive notice of laying	Min bond coat - 0.7litres/m ² ; solution must be allowed to oxidise & become tacky	BS 594987 Clause 5.5
Bond coat between every bituminous course			
Material	Segregation of material being loaded; cold material delivered to site	Better quality control by Builder, and supervision of Sub-Contractor; temp control	BS 594987 Clause 4.1 & 4.2
Laying	Laying during unsuitable weather conditions is completely unacceptable	Better programming & quality control by Builder, and supervision of Sub-Contractor	BS 594987 Clause 6.1, 6.2, 6.3 & 6.4
Compaction	Incorrect compaction procedures being employed	Compaction requirements for bound materials must be met	BS 594987 Clause 9.1, 9.2 & 9.3
Joints			
Longitudinal	Mats not laid tightly together; joint holding water (freeze/thaw issues)	Better quality control by Builder, and supervision of Sub-Contractor	BS 594987 Clause 6.8
Edge-sealing			
Kerbs and other edges	No evidence sealing is being carried out	Better quality control by Builder, and supervision of Sub-Contractor	BS 594987 Clause 6.9
Topsealing:			
Longitudinal joints	TII/SDCC do not approve top-sealing with standard bitumen seal	Material must have min SRV (Skid Resistance Value) value of 55 (i.e. overbanding product)	
Temperatures			
Min on Arrival	See Table A.1 (Range 110-140° C)	Material & mix dependent	BS 594987 Table A.1
Min immediately prior to Rolling	See Table A.1 (Range 80-110° C)	Material & mix dependent	BS 594987 Table A.1
Gradients	Ponding	Min 1:300 longitudinal; 1:40 crossfall	

Appendix 4

Worked Example - Comparative Cost of Tender

The following is included purely for purposes of illustration

Programme:

In Section 1.6.4 Programme, above, it was noted that using the Comparative Cost of Tender method as part of the evaluation, the programme can be an important element in determining the Most Economic Advantageous Tender. The contract document refers to programme in calendar days and therefore all examples below have been prepared accordingly.

The method used for including the construction programme as part of a tender competition is as follows – note: Minor Works Contract used for example:-

1. In the ITT Award Criteria (Section 9.1), in the most economically advantageous tender the “Comparative Cost of Tender as Appendix 5” option is selected (last line in the extract below)

Award Criterion
(Instructions
section 9.1)

Most Economically Advantageous Tender	
Price	
Enter Price Criterion/Not Applicable	0%/Not applicable
Enter Price Criterion/Not Applicable	0%/Not applicable
Enter Price Criterion/Not Applicable	0%/Not applicable
Technical Merit	
Enter Technical Criterion/ Not Applicable	0%/Not applicable
Enter Technical Criterion/ Not Applicable	0%/Not applicable
Enter Technical Criterion/ Not Applicable	0%/Not applicable
Enter Technical Criterion/ Not Applicable	0%/Not applicable
Enter Technical Criterion/ Not Applicable	0%/Not applicable
Enter Technical Criterion/ Not Applicable	0%/Not applicable
Enter Technical Criterion/ Not Applicable	0%/Not applicable
Total:	100%

Note: The combined total weightings for 'Price' and 'Technical Merit' must equal 100%.

The formulae for assessment purposes are provided under Section 9.6 of these Instructions.

Or

Most Economically Advantageous Tender	
Comparative Cost of Tender as Appendix 5	100% / Not applicable

- The Employer estimates the appropriate date for substantial completion, (expressed as a number of days) and inserts this in the ITT particulars, in the box for the date for substantial completion (Section 5.9) as the “latest date”.

Instructions to Tenderers Open Procedure for Works Contractors		
Substantial Completion (Instructions section 5.9)	Date for Substantial Completion	As Schedule, Part 1 (or, As tendered, with earliest and latest dates stated here)
Form of Tender to be sealed (Instructions section 5.12)	No	
Mandatory Options (Instructions section 6.2)	Are mandatory options required? No List the options that an Applicant must tender	
Variants (Instructions section 6.3)	Are variant tenders permitted? No If variant tenders are permitted, is a standard tender also required? Not Applicable Minimum requirements for variants: Not applicable. (If applicable, give minimum requirements.)	
Number of Tenders	Maximum number of Tenders per Tenderer: One (Amend if required – for example, for Design and Build or Variants.)	

The Employer then considers an appropriate limit on the amount the Tenders should be allowed to improve on the latest date for substantial completion. This is translated into an earlier date for substantial completion and entered as a number of days into the same box for substantial completion in the ITT particulars as the “earliest date”. The Employer is not requiring the tenderer to complete by this earliest date. It is a matter for the tenderer to assess the tender information and prepare a programme for the works, with an appropriate date for substantial completion in the context of his duties as PSCP.

- The Employer leaves the Schedule Part 1 G – Date for Substantial Completion Blank. Note this activates the alternative arrangement requiring the tenderer to enter the date for substantial completion in Schedule Part 2 Section C. On Schedule Part 1 G, the Employer completes the rate for Liquidated Damages.²⁸

²⁸ Ref Section 1.6.4 pages 13 – 14 above for how to determine Liquidated Damages

G Dates for Substantial Completion, Sections, Liquidated Damages, Retention

	Date for Substantial Completion	Rate of liquidated damages	Reduction in retention on Substantial Completion of Section (%)
The Works	To be completed by Contractor in part 2)	€2,100 per calendar day	
Section: (Employer to complete names of sections)		€ per	
Section: (Employer to complete names of sections)		€ per	
Section: (Employer to complete names of sections)		€ per	
Section: (Employer to complete names of sections)		€ per	

4. In appendix 5 of the Instruction to Tenderers the Employer inserts the values including the value for calendar dates for “days in excess of the earliest date for substantial completion”

Instructions to Tenderers Open Procedure for Works Contractors

Appendix 5: Template to be used by Employer to Calculate Comparative Cost of Tender, Continued

For Information Purposes Only: Applicants are not to complete this table

Contract Sum				€
Tendered Contract Sum (Form of Tender ⁴)				
Tendered Compensation Events Charges				
€	labour	x	% adjustment (Schedule, part 2D)	
€	materials	x	% adjustment (Schedule, part 2D)	
€	plant	x	% adjustment (Schedule, part 2D)	
days	Site Working Days' delay	x	tendered rate (Schedule, part 2D) ⁵	
Sub-Total				
Tendered Date for Substantial Completion (if used)				
€2,100	Value per calendar day	x	days in excess of the earliest date for substantial completion ⁶	
Sub-Total				
		x		
		x		
		x		
		x		
TOTAL COMPARATIVE COST OF TENDER				

In the example, the items for the Tender Compensation Events Charges have been left blank for the ease of demonstration.

5. The Contractor²⁹ completes Schedule Part 2C with Date for Substantial Completion (note this is in number of calendar days).

Tender and Schedule for Public Works Contract for MINOR Building or Civil Engineering Works Designed by the Employer

C Dates for Substantial Completion

	Date for Substantial Completion Number of days after the Contract Date (To be completed by Contractor in Tender ONLY if not completed by Employer in Part 1)
The Works	
Section: (Employer to complete names of sections)	
Section: (Employer to complete names of sections)	
Section: (Employer to complete names of sections)	
Section: (Employer to complete names of sections)	

Worked Example:

A sample project was examined to see how this the comparative cost evaluation would affect the ranking of tenders received. A single project of twenty units with 67 bed spaces was considered.

The LA indicated in the ITT tender documentation a latest date for completion of 52 weeks, or 364 calendar days. The LA then considered the extent he would allow tenderers to improve on this programme and considered a 15% improvement was the extent which could be permitted, subject to the tenderer's own assessment. This translated into a reduction of 54 calendar days³⁰ so a date for substantial completion of 310 days (44 weeks) was entered into the ITT as the earliest date. Consequently, should a Tenderer's date for substantial completion be earlier than 310 Calendar days, they would still only be considered in the evaluation as having the earliest date for substantial completion.

For the evaluation of the programme, and to provide a genuine pre-estimate of loss to be included as liquidated & ascertained damages, bed & breakfast accommodation was considered at an estimated €70/night (assuming an element of discount), as there was limited number of rental accommodation to cater for the numbers required in the area, particularly for an unknown duration. The following was concluded when considering alternative accommodation:-

²⁹ This is actually the Tenderer, but for purposes of incorporation into the contract the term Contractor is used in the PWC schedule

³⁰ Days and weeks are slightly rounded to avoid using fractions or portions

- 1 and 2 bed – 2/4 person houses – Hotel requirement 1 room. (10 no.)
- 3 bed - 5 person houses – Hotel requirement 2 rooms. (20 no.)

The total number of bed & breakfast rooms required, accounting for the mix of units, is 30 with a total pre-estimated cost of €2,100/night. As a result of this potential loss, the value per calendar day was set at this amount.

On the basis of cost only, the results were the second lowest tender was 1.3% above the lowest priced tender with the third at just over 2.5% and the fourth tender at 4.6% above the lowest tenderer.

The tendered dates for substantial completion were then examined and it was found that the lowest ranked tender on the basis of cost alone (Tenderer A) submitted a completion date adopting the latest date for substantial completion, 364 calendar days (54 weeks).

Accordingly, for the purposes of assessment only, Tenderer A's comparative cost of tender would increase by the amount of €113,400 to €4,003,646. Tenderer B submitted a programme of 324 calendar days (46 weeks) their comparative cost of tender would increase by €29,400 to €3,970,706, which would adjust their ranking to the most competitively ranked tenderer received.

The worked example below shows Tender C submitted a date for substantial completion of 310 calendar days (44 weeks) (i.e. adopting that of the earliest date for substantial completion) and so there is no adjustment to their tender amount although their comparative cost would now see them ranked second at €3,988,505.

Tender D submitted a substantial completion date of 300 days in advance of the earliest date for substantial completion, but they were limited to the earliest date i.e. 310 calendar days improvement for programme improvement and accordingly there is no adjustment to the tendered amount under the comparative cost of tender. The ranking of Tender D following comparative cost evaluation remained ranked fourth.

It is important to stress that the adjustment of the tender sums is purely for the purposes of evaluating the tenders on the cost comparative basis, and the contract will be awarded on the unadjusted tender sum.

Worked Example

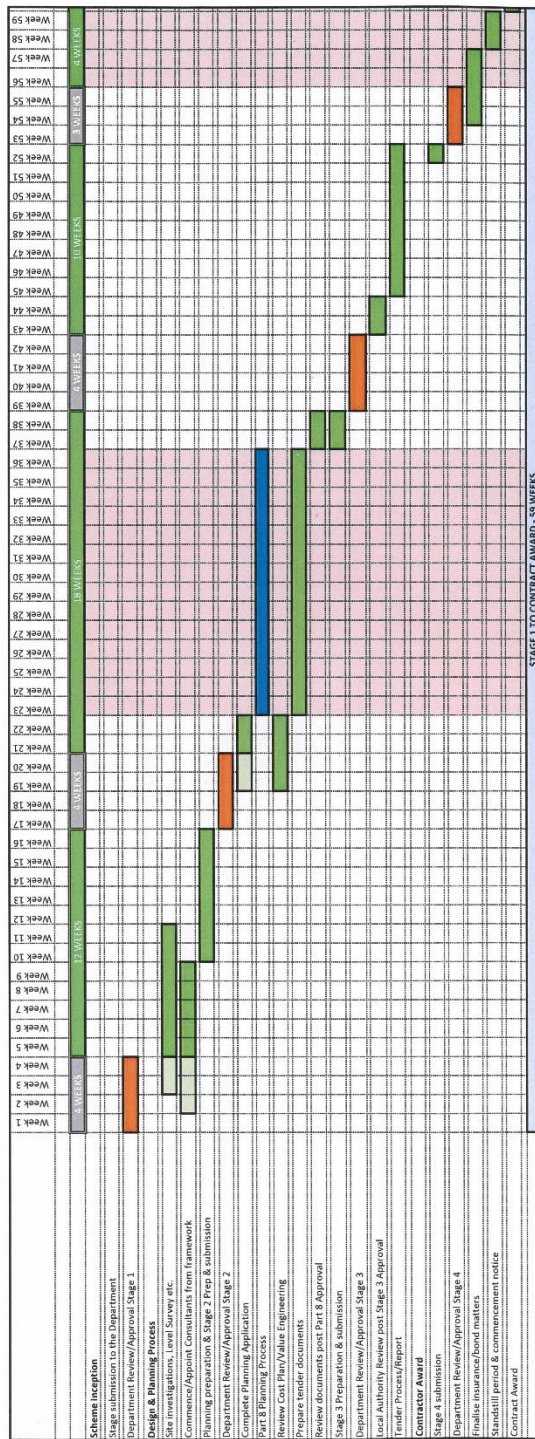
Tenders Received	Tenders following Tendered Compensation Events Charges (€)	% Variance	Variance €	Ranking	Assess Cost/Day	Latest Date for Completion (364 Calendar Days or 52 weeks)	Earliest Date for Completion (310 Calendar Days or 44 Weeks)	Tenderer proposed programme (Calendar Days)	Days in excess of the Earliest Date	Comparative Cost Value (Day x Value per Calendar Day)	Comparative cost of Tender for Programme	Ranking
Tender A	3,890,246.00	100.00%	-	1	2,100.00	364.00	310.00	364.00	54.00	113,400.00	4,003,646.00	3
Tender B	3,941,306.00	101.31%	51,060.00	2	2,100.00	364.00	310.00	324.00	14.00	29,400.00	3,970,706.00	1
Tender C	3,988,505.00	102.53%	98,259.00	3	2,100.00	364.00	310.00	310.00	-	-	3,988,505.00	2
Tender D	4,068,308.00	104.58%	178,062.00	4	2,100.00	364.00	310.00	300.00	- 10.00	-	4,068,308.00	4

Appendix 5

Pre-Contract Programme & Flow Chart

59 week Pre-contract Programme

TARGET PROGRAMME - STAGE 1 TO SITE
TYPICAL SOCIAL HOUSING SCHEME



Qualifications/notes

1. Pre-qualification framework is utilized - reduction can be achieved where in-house resources utilized
2. Fire Certificate & DAC excluded but capable of running in tandem with Part B
3. Target programme assumes minimum risk vis-à-vis planning, a positive and robust tender process and successful contractor insurance and bond clearance within reasonable timelines
4. Contract award (i.e. issue of letter of acceptance)
5. Pre-stage 1 engagement strongly encouraged to assist with project progression to programme

Appendix 6

Observations and submissions

The Department is very pleased to acknowledge the assistance provided and time taken by local authorities and other bodies, to read the draft document and submit valuable observations during the consultation period, which were of great assistance in finalizing this document. Observations and submissions were received from

- Cavan County Council
- Clare County Council
- Cork City Council
- Dublin City Council
- Kerry County Council
- Kildare County Council
- Kilkenny County Council
- Mayo County Council
- Meath County Council
- Monaghan County Council
- Roscommon County Council
- Sligo County Council
- Tipperary County Council
- Waterford City & County Council
- Irish Council for Social Housing
- Age Friendly Ireland

Appendix 7

Employer's Requirements Working Group Members

Working Group comprising:

Maire O'Sullivan, Senior Executive Architect, South Dublin County Council

Sarah Clifford, Executive Architect, Dun Laoghaire-Rathdown County Council

Michael O'Donoghue, Senior Executive Engineer, Kerry County Council

John Gallagher, Senior Engineer, Donegal County Council

Paddy De Roe, Senior Architect, South Dublin County Council

Peter Gavican, Housing Delivery Office, DHPLG

Paul Benson, Housing Delivery Office, DHPLG

Simon Dolphin, Advisor, Building Standards, DHPLG

Alan Heatly, QS Advisor, DHPLG

Sarah Neary, Principal Advisor, Housing Advisors & Building Standards, DHPLG

John Wickham, Senior Advisor Building Standards, DHPLG

Sean Armstrong, Senior Advisor Building Standards, DHPLG

Simon McGuinness, Advisor, Building Standards, DHPLG

Emmanuel Bourdin, Advisor, Building Standards, DHPLG

Eoin O'Dowd, Advisor, Building Standards, DHPLG

Eamonn Smyth, Advisor, Building Standards, DHPLG

Edel Murray, Advisor, Building Standards, DHPLG

John Morris, Architect Advisor DHPLG

Paul Altman, Senior Advisor Urbanism & Architecture DHPLG

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