

STUDY ON TIMBER FRAME HOUSING IN IRELAND FOR THE DEPARTMENT OF ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT

by the Timber Frame Housing 2002 Consortium

1.0 Executive Summary

A consortium of consultants - Timber Frame Housing Consortium (TFHC) 2002 - was commissioned by the Department of Environment, Heritage and Local Government to study timber frame construction of residential buildings in Ireland.

The consultants forming the Consortium are:

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| ▪ TRADA TECHNOLOGY LTD. | TIMBER TECHNOLOGISTS |
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| ▪ GARDINER AND THEOBOLD (IRELAND) LTD. | COST CONSULTANTS |

1.1 Terms of Reference

The following are the terms of reference for the study:

- to carry out a detailed examination of current practice and procedure in relation to the use of timber frame construction for private sector and social housing in Ireland and to make appropriate recommendations;
- to assess the impact of the current regulatory regime and related technical requirements on the provision of timber frame housing, and recommend any appropriate amendments to regulations, guidance or practice;
- to assess current systems and practices in relation to quality control and product certification in timber frame housing construction at all stages up to the completed dwelling and recommend any appropriate improvements in procedures and practices.

In response to the **Terms of Reference**, the TFHC examined the current practices and procedures by extensive research both of Irish and international markets. The relevant professional experiences of the consortium members as well as input through and interview process from contractors, manufacturers, insurers, local authorities, the NSAI, building control inspectors, fire officers and owners of timber frame houses were compiled and examined. Numerous written submissions from interested groups were received

and reviewed by the TFHC - in response to a request by the TFHC for submissions that was placed in a national newspaper at the outset of the study period.

This Executive Summary highlights the important issues raised and sets forth in brief, recommendations to the Department of Environment, Heritage and Local Government as they relate to timber frame house construction in Ireland.

1.2 Timber Frame House Construction in Ireland

Residential timber frame construction in Ireland consists mostly of timber frame kits, manufactured off site as panels and then assembled on site, with other trades following on site to complete the building. Other forms of timber frame buildings are being constructed in Ireland in smaller numbers including on site “stick” built houses, complete house kits, Structural Insulated Panels (SIPS) and specialist timber structures. The focus of this Report is on manufactured timber frame kits supplied to the residential markets for erection on site and completion by other trades.

Timber frame kits in Ireland are mainly of the platform framing system and open panel method of construction. These kits consist of solid timber frame components, sheathing material and breather membranes all delivered to site, pre-assembled in panels, for erection on a concrete foundation. Essential components such as breather membranes, vapour control layers and damp proof courses are fundamental to proper water and moisture protection of the timber frame. Insulation, internal linings and external claddings are generally installed on site in a conventional manner. It is notable that a few manufacturers are now producing kits, which provide completed wall and floor panels including the external cladding, windows, doors and internal linings.

1.3 Current Practice and Procedures

The TFHC Consortium have reviewed the current practices and procedures in timber frame construction in Ireland and have compiled this report on the key issues relating to the use of timber in house construction and make recommendations on practice and procedures to be adopted by the industry.

1.3.1 Physical Properties of Timber

The physical properties of timber are appropriate for use in construction of houses as evidenced by its use over time and continued use.

1.3.2 Structural Properties

The structural properties of the timber frame can be designed to meet the requirements of Part A (Structures) of the Building Regulations, the related Technical Guidance Document A and the referenced standards on timber frame.

The structural performance is reliant on good design, appropriate specification of materials, quality control in manufacturing, and adherence to recommended construction practice on site.

1.3.3 Durability

The durability of timber construction relies mainly on the natural durability of the timber species used, moisture content and protection from factors that cause degradation.

Timber used in construction can meet the 60-year life expectancy requirements of BS 7543:1992. To achieve this level of durability in construction the timber must be kept below 22% moisture content.

Durability of the timber frame structure is therefore reliant on means of preventing water ingress, including cladding, roofing and moisture protection components such as damp proof membranes, vapour control layers, damp proof courses and breather membranes. A ventilated and drained cavity allows water that has inadvertently entered the external wall system, a means to escape.

Preservative treatment can increase the durability of non-durable species but only when subject to the strictest quality control in the selection and use of such species. The use of durable or very durable species of timber can be an alternative to the use of chemical treatment.

In the Consortium's view the ventilated and drained cavity is deemed an essential design feature in timber frame house construction in Ireland.

1.3.4 Combustibility

Timber is a naturally combustible material and in construction is protected by the use of fire retardant chemical treatment, intumescent coatings or protection by non-combustible materials.

1.3.5 Dimensional Stability

The dimensional stability of timber makes it appropriate for timber frame construction. Timber shrinks with the reduction of moisture content that generally occurs after construction and this must be allowed for in detailing of openings and junctures with other construction. Proper detailing to allow for this shrinkage becomes critical in multi storey timber frame construction.

1.3.6 Forms of Timber Frame Construction

The open panel, platform frame construction method is currently the most prevalent method of timber frame construction in Ireland. Other forms, including closed panel construction and post and beam are also evident. The majority of timber frame houses in Ireland are constructed of manufactured frame kits of the open panel type.

The benefits of manufacturing kits off site include greater quality control, reduced waste, protection from environment elements during construction, reduced erection time on site and less reliance on highly skilled carpenters. Some disadvantages include less flexibility in late design changes, longer lead in times for design and engineering of the kits and less flexibility in tolerating setting out errors in foundations and ground works. More detailed arguments for and against selecting timber frame as a construction method are set out in Appendix 1 (Advantages and Disadvantages of Timber Frame Construction).

A smaller number of timber frame houses are constructed using on site stick built methods. The consortium notes that while the stick built method of construction is used extensively in Canada and the United States of America, it is also noted that building control regimes in these countries differ from Ireland's regime. In the USA and Canada, buildings are inspected and signed off by the building control authority for compliance with regulations, at each stage of construction. In addition to this, a culture of building in timber has evolved for hundreds of years, resulting in high level of skills on site.

1.3.7 Conclusions on Current Practice and Procedures:

1.3.7.1 The TFHC have concluded that timber frame construction systems consisting of factory manufactured timber panels, assembled on site as a kit and completed by the installation of the work of following trades is a suitable form of construction for housing in Ireland. This form of construction has been found to perform well particularly in the UK where, particularly in Scotland, it contributes significantly to the provision of both private and social housing.

This view is qualified by the requirement that to ensure suitability, design, manufacture and construction of the timber frame system must comply with Building Regulations, be constructed in accordance with best industry practice and be subject to high standards of quality control in manufacture, erection and during the completion of the building by the following trades.

1.3.7.2 The vast majority of timber frame residential construction in Ireland consists of houses of up to 2 storeys.

1.3.7.3 Timber frame manufacturers report that there is a potential for growth of the industry in terms of the provision of 2, 3 and 4 storey units. For this growth to be realised in all sectors of housing, increased limits specified in TGD B and expanded reference to suitable Codes of Practice must be linked to significant improvements by the timber frame industry in practices and procedures, including site quality control. Amendments to the procurement methods of local authority and social housing sectors should also be linked to improvements by the timber frame industry.

1.3.7.4 All of those involved in the design, manufacture and construction of timber frame buildings have a responsibility to ensure that the finished product performs satisfactorily. In order to meet this requirement, a coherent system of training, supervision and certification is essential. Design and detailing features of timber frame construction must also respond to Ireland's environmental factors including strong winds, heavy rainfall and short drying out periods.

1.3.8 Recommendations on Current Practice and Procedures:

R.3.1. Where a timber frame manufacturer is proposing a departure from the standard open panel, platform frame method of construction they should be required to support their proposed form of construction by providing appropriate third party certification, Agrément Certificate.

R.3.2. The ventilated and drained cavity is an essential feature for timber frame construction in Ireland. TGD C (Site Preparation and Moisture Resistance) should call up suitable reference material e.g. proposed "Timber Frame Code of Practice" (see recommendation R.4.2 below).

R.3.3. Subject to R.3.4. all solid timber members in the external walls or ventilated and drained cavities of timber frame houses and apartments should be subjected to a preservative treatment as specified in British and European Standards. These standards should be listed in TGD C (Site Preparation and Moisture Resistance) and TGD D (Materials and Workmanship). TGDs should also include reference to the proposed Timber Frame Code of Practice (see recommendation R.4.2 below).

R.3.4. Omission of the preservative treatment should only be permitted for components that are constructed from the heartwood of timber species categorised as "durable" or "very durable", protected by suitable breather membrane or damp proof course as appropriate. This option must be shown by way of Agrément certification to meet the requirements of durability in the specific conditions of use in Ireland.

R.3.5. New cladding materials or systems that have not been proven in the Irish climate should undergo assessment by an independent competent body, allowing for the specific climatic and site conditions in which the material or system is to be used and assessment of its appropriateness for use on a timber frame structure. The Agrément certification process in accordance with the Irish Agrément Board (IAB) can achieve this.

R.3.6. Timber cladding should only be fixed over preservative treated timber battens. TGD C (Site Preparation and Moisture Resistance) and TGD D (Materials and Workmanship) should be

amended to direct specifiers to suitable sources of technical guidance on this issue such as the proposed Timber Frame Code of Practice (see Recommendation R.4.2 below).

- R.3.7.** The timber frame manufacturers should issue a Method Statement document with timber frame kits, when delivered to site, to ensure that clear instructions are available to erectors and contractors.
- R.3.8.** Customised training in timber frame construction should be developed by FAS, ITFMA and third level institutions for erection crews and site managers.
- R.3.9.** Customised education and training in timber frame construction for the design/ project supervision professions should be developed, by the DES, relevant third level institutions, professional bodies (as part of continuing professional development programmes), in conjunction with the ITFMA.

1.4 Current Regulatory Regime

Under the provisions of the Building Control Act 1990, currently in force in Ireland, the primary responsibility for compliance with the Building Regulations rests with the designer, builder and owner of the building.

A non-statutory certification system operates in Ireland, using a suite of Opinions of Compliance for different circumstances and as agreed between the RIAI, and the Law Society, for property conveyance purposes. These Opinions are normally complemented by confirmations from the consultants, main contractor, subcontractors and suppliers of specialist design elements such as lifts, windows and roofing, etc. These non-statutory confirmations are relied on as warranting that the particular elements of the building are constructed in accordance with relevant Building Regulations.

1.4.1 Inspection and Enforcement

Building control authorities are empowered under the Building Control Act 1990 to carry out random inspections to monitor compliance with Building Regulations. The national inspection target level set by the CCMA (and endorsed by the Minister for the Environment, Heritage and Local Government) in 1995 was 12%-15% of all developments. According to building control statistics for the first half of 2002, more than 90% of all local authorities carried out inspections and more than 80% reached the 12%-15% target level of inspections.

The building control authority inspection process is intended to encourage compliance and deter non-compliance, secondary to the primary responsibility for compliance imposed by legislation on designers, builders and owners.

This system differs significantly from building control regimes elsewhere in Europe and in North America, which generally fall into one of two broad categories, as follows:

1. **Local Authority Inspection and Approval system:** the building control authority inspects and certifies building plans, various stages of construction, and the completed building, as being in compliance with Building Regulations.
2. **Certification system:** qualified building professionals and/or builders are required to certify that the completed building complies with the Building Regulations; and

bear civil and or criminal liability for such certification. The certifiers may be part of the project team (self certification) or independent of the project team (third party certification).

1.4.2 Conclusions on Current Regulatory Regime

1.4.2.1 Random inspections by building control authorities are not adequate on their own, nor are they intended to provide universal and consistent quality assurance of good building standards and compliance with Building Regulations. This is valid whether it relates to design or construction of buildings using methods whose technical robustness is well established or to methods of construction whose technical robustness in the Irish environment is less established.

1.4.2.2 In the case of timber frame construction, there is currently a low level of awareness and knowledge in the construction industry in relation to this construction method and the potential consequences of defects where timber frame housing is not built in accordance with appropriate codes. Accordingly, there is a need to introduce a more advanced certification approval system for timber frame housing above 2 storeys in height.

1.4.2.2 The TFHC have considered that for all cases of timber frame housing and apartments above 2 storeys in height, one or more of the following options be implemented by the Building Control Authority to provide a more advanced certification / approval system for housing above 2 storeys.

Option A – Building Control Inspection and Approval System

Local authority building control inspection is carried out on all timber frame housing and apartment developments of 3 or more storeys. Approval is required of plans, construction details and specifications in advance of commencement of construction. Staged inspections by building control authority officials to be carried out at appropriate stages throughout the construction process. Prescribed fees can fund this option.

Option B – Professional Certification System

In the case where a developer opts for self-certification by the design team, a full professional service by an appropriately qualified person, i.e. an Architect or Engineer (RIAI Schedule A Services 1 – 8 or IEI Standard Services), shall be provided for timber frame housing and apartments of 3 or more storeys. The relevant RIAI, Opinion on Compliance to be signed by a qualified Architect or Engineer with appropriate Professional Indemnity (PI) insurance cover, to be in a legally prescribed form and on completion to be lodged in a statutory register maintained by the building control authority.

Option C – Independent Third Party Certification System

Certification by a Third Party Inspection Specialist to be required for timber frame houses and apartments of 3 or more storeys to certify the timber frame building has been manufactured and erected in accordance with the Building Regulations. The certificate to be signed by a suitably qualified design professional with appropriate Professional Indemnity (PI) insurance cover and whose services should include periodic inspection of the works, appropriate to the relevant stage of construction. The certification process to be in a legally prescribed form and lodged in a statutory register maintained by the building control authority.

1.4.2.3 It is the view of the TFHC that it is unlikely that a Building Control Inspection and Approval System (Option A) could be implemented by local building control authorities in the foreseeable future.

1.4.2.4 The DoEHLG and representative institutes for the architectural and engineering professions should liaise on appropriate levels of PI cover.

1.4.3 Recommendation:

R.4.1. In the case of all timber frame residential construction of 3 or more storeys, it should be mandatory that an appropriately worded certificate, as in Option B (Professional Certification System) or Option C (Independent Third Party Certification System) of this Report, be lodged with the building control authority.

1.4. Building Regulations and Technical Guidance Documents

1.4.1 The Current Irish Building Regulations allow for the provision of timber frame housing. The Technical Guidance Documents (TGDs) provide guidance to designers, builders, and owners as to how to comply with the Building Regulations. While the TGDs are not mandatory, the construction industry and client bodies are slow to depart from the TGDs. This is due to a number of factors including the additional time and cost involved in demonstrating compliance to the local building control authority, the risk of rejection by that authority, and the liability and insurance implications, if an alternative approach proves to be defective.

1.4.2 Currently, TGD B (Fire Safety) Section 3, restricts timber frame separating walls to 2 storeys (see 4.4.2).

1.4.3 Conclusions:

The Standards that are referenced in the TGDs, relating to timber frame construction, provide appropriate, if limited, technical reference and guidance.

Some of the references listed in the 1997 edition of the TGDs would benefit from updating; to reflect the latest issue dates of revised national standards and emerging harmonised European standards (ENs and ETAGs). The Consortium note particularly that BS 5258 Part 6 has been revised to provide codes of practice on timber frame construction up to 4 storeys (the previous version indicated practice up to 3 storeys).

The current TGDs would benefit from the availability of appropriate detailed guidance on timber frame construction, which could be called up as a reference standard.

1.4.4 Recommendations:

R.4.2. The NSAI should prepare and publish a Code of Practice for Timber Frame Construction (hereafter referred to as the TF Code), taking account of the specific characteristics of residential design and construction in Ireland. The TF Code should be formulated by the NSAI, with assistance from the DoEHLG, the wider construction industry (CIF, IEI, RIAI, SCS) and timber frame industry (ITFMA). The TF Code should be cited as a reference for compliance in relevant TGDs.

R.4.3. TGD B (Fire Safety) should be amended to allow timber frame separating walls in buildings with floors up to 4 storeys and 10m above ground level. This recommendation is linked to recommendations relating to higher levels of

certification for timber frame houses and apartments over 2 storeys - see recommendation R.4.1.

- R.4.4.** Recommendation R.4.3. should be reviewed in 2008, in the light of practical experience gained from timber frame construction of up to 4 storeys, with a view to the possible updating of guidance to harmonise with equivalent compliance guidance for England and Wales, Scotland and Northern Ireland.
- R.4.5.** TGD B (Fire Safety) should be amended to provide clear guidance on timber frame compartment walls in apartment buildings with floor levels up to 4 storeys and 10m above ground, either directly or by reference to the TF Code (see recommendation R.4.2.).
- R.4.6.** TGD B (Fire Safety) should be revised to allow the use of stairs constructed of combustible materials in single-stair apartment buildings - provided the topmost storey is not more than 4 storeys and 10 m above ground level and where the soffit of the stairs is lined by proprietary gypsum plasterboard, minimum 12.5 mm thick, stair elements are jointed using thermosetting type glue and all timbers making up the stair are pressure impregnated using a test validated proprietary treatment equivalent to that necessary to provide a Class 1 surface spread of flame performance.
- R.4.7.** TGD D (Materials and Workmanship) should be amended to incorporate reference to suitable guidance on accepted good practice in timber frame construction (e.g.; TF Code, Trada, Timber Fame Construction, etc.).
- R.4.8.** TGD E (Sound) should be amended to list reference material on accepted good practice in the construction of timber frame separating walls, compartment walls and compartment floors.
- R.4.9.** ETAG 007 (Guideline for European Technical Approval of Timber Frame Building Kits) is a mandatory European Technical Approval Guidance document and should be utilized by the Irish Agrément Board for establishing evaluation criteria for complete timber frame house kits and the issue of relevant European Technical Approvals (ETAs) in Ireland.
- R.4.10.** Developers and builders who wish to build timber frame houses over 2 storeys, should be legally required to sign up to the NSAI Timber Certification/Inspection Service or an equivalent certification/inspection service of a member state of the EU. The NSAI, in association with the ITFMA, should establish and maintain a register of those who have signed up to these services.
- R.4.11.** Formal communication procedures should be established between building control authorities and the NSAI, to ensure that any concerns over innovative construction methods/systems (including timber frame construction) are identified and feed into the evolution of the TF Code and Agrément assessment of timber frame systems.

1.5 Quality Control and Product Certification

Those involved in the design, manufacture and construction of any building have a duty to ensure that minimum quality standards are met and maintained if the building is to perform as required and expected by its owners and occupiers.

The TFHC have found that for timber frame manufacturers who are accepted into the NSAI Timber Frame Manufacturers' Quality Assurance Scheme, quality in the factory design and production of timber frames is good. Conversely, the erecting and completing of the works on site has not been found to be of equal quality to that found in the factory and reports of defects tend to relate to site erecting of timber frames and the works of the following trades.

1.5.1 Conclusions:

The Consortium concludes that quality control in the factory is a key factor in the proper performance of timber frame construction and the current NSAI Timber Frame Manufacturers' Quality Assurance Scheme (TFMQAS) requires an appropriate level of quality assurance procedures for manufacturers prior to acceptance into the scheme.

Quality control on site is equally important for the proper performance of timber frame. The Consortium have found instances of defects on site which are attributed to lack of knowledge and experience of erectors and tradespersons in timber frame.

Quality control does not end at the factory, and to meet end user expectations of durability and low maintenance, quality control on site and education of builders is essential.

The Consortium recommends the following:

1.5.2 Recommendations:

- R.5.1.** Those responsible for the design, engineering and manufacture of timber frame structures must be required to certify that the kit is designed, engineered and manufactured to comply with Building Regulations. This should be stipulated in the Advice Notes to the standard forms of compliance used by Architects and Engineers and be advised as a requirement through the NSAI TFMQAS. See also recommendation R.4.1.
- R.5.2.** NSAI should extend their TFMQAS to include a personnel certification scheme for timber frame erectors.
- R.5.3.** DoEHLG should make membership of NSAI manufacturing and erection certification schemes or equivalent schemes mandatory for new contracts for social housing sector. HomeBond and timber frame manufacturers should do the same in relation to private housing.
- R.5.4.** Clients, building professionals, and contractors should invoke independent checking services, e.g. NSAI inspection schemes, "frameCHECK✓" and "siteRIGHT". These are worthwhile additions to third party quality assurance schemes. Benefits include improved building quality, reduced callbacks and improved consumer confidence.
- R.5.5.** Timber frame manufacturers to produce separate technical guidance notes/manuals for erectors, follow on trades, site managers and clerk of works.
- R.5.6.** The timber frame industry should fund the development of a comprehensive suite of educational material on timber frame construction and in partnership with FAS, etc.

Material to be at a level appropriate for complete range of construction disciplines:

- **Students of architecture, engineering, construction and surveying**
- **Architects, engineers, surveyors, and other professionals and surveyors**
- **Timber frame designers**
- **Manufacturing staff**
- **Erectors**
- **Follow-on trades (e.g. plumbers, electrician, bricklayers, dry-liners)**
- **Site managers**
- **Clerks of works**

It is important to note that there will be a considerable amount of variation in the level, format and method of delivery of technical information required to meet the training needs of all disciplines.

R.5.8. FAS in partnership with NSAI, timber frame manufacturers and others to provide short training courses for professionals, manufacturing staff, erectors, follow-on trades, site managers and clerks of works.

R.5.9. Third level educational establishments to be encouraged by Department of Education and Science (DES), to include timber frame construction in course syllabuses for students of professional disciplines.

R.5.10. DoEHLG should insist that professional advisers, contractors and sub-contractors, working on social housing developments, demonstrate experience or training in timber frame construction.

1.6 Environmental Sustainability

1.6.1 Conclusions:

Timber produced in Ireland comes from sustainable managed forest plantations in Ireland. Relatively short transport distances from the source to the construction site result in a low embodied energy; however, the solid structural grade timber frame components used in the construction of timber frames in Ireland consist largely of timber from imported Canadian and Scandinavian sources and as a result have a relatively high embodied energy due to transportation emissions. Transportation of timber from non local sources reduces the environmental benefits of timber. TF manufacturers use imported timber for structural framing because it is readily available in the required grades and at lower cost than locally grown timber. It is noted however that recent upgrades in Irish timber saw mills should result in increased quality and supply of local timber.

1.6.2 Recommendations:

R.6.1. Timber used in timber frame construction should be specified and certified as being sourced from stocks recognised by the Forest Stewardship Council or equivalent certification bodies, as being from sustainable and managed sources.

1.7 Market Analysis

Timber frame housing accounted for an estimated 15% of the total housing output in Ireland in 2002 (as extracted from ITFMA data). It is envisaged that this form of construction will contribute to the target of 500,000 new houses as set forth in the National Development Plan and in an environmentally sustainable way.

1.7.1 Conclusions:

The ITFMA's assessment of its output, based on current industry development plans, is that it will have the potential to increase production and output by over 50% of its output in 2002. The TFHC's view is that the Irish timber frame industry has the potential to contribute significantly to the provision of housing in Ireland when coupled with increased demand.

For the year 2002 the number of residential units completed amounted to around 57,700 units, of which local authority (4,403 units) and voluntary housing (1,360 units) account for 5,763 units or some 10% of overall output.

The initial capital cost of timber frame housing is generally comparable to the capital cost of other widely used forms of housing construction.

Cost-in-use of timber frame housing can be relatively low with regard to energy demand. The construction technology of timber frame buildings, i.e. thermally lightweight construction, lends itself to energy efficiency as detailed in Chapter 6 of this report.

1.8 Procurement and Contractual Issues Relating to Public Sector Housing

Both local authorities and voluntary housing associations provide housing in the Republic of Ireland, with funding by the Department of the Environment, Heritage and Local Government. The method by which these organisations procure their housing stock greatly influences the form of construction used in the building of social housing.

1.8.1 Conclusions:

Social housing providers tend to use the 'traditional procurement route'. This route involves the substantial completion of design by the housing providers' designers prior to the issue of tender documentation. The tender documents, consisting of Drawings and Specification (with or without Bills of Quantities), are issued to the tendering building contractors and competitive tenders are sought.

This form of procurement provides a relatively high degree of cost certainty that is generally a fundamental requirement of social housing providers, particularly as funding is subject to cost limits. Relative cost certainty is achieved as the design is essentially complete at tender stage and the tenderers are pricing what is or should be the 'as-built' design. In addition, the social housing providers are able to significantly influence the design of the housing schemes through their design professionals, for example incorporating low cost-in-use heating systems, low maintenance materials.

1.8.2 Recommendations:

R.8.1. Contractors should be allowed, on a pilot scheme basis, to put forward alternative designs and specifications to those set out in prescriptive tender documents, while respecting DoEHLG guidelines on design, layout, unit cost limits, etc. This would allow a contractor to submit a tender based on timber frame construction, in addition to a bid based on traditional (masonry) construction, with limited design variations permissible to accommodate timber frame construction. The contractor should be required to demonstrate a proven track record in timber frame construction.

R. 8.2. Public sector procurement of social housing should be changed, in the medium term, from prescriptive design and specifications to tender documentation incorporating

performance specifications and outputs. This would allow contractors to select the construction method, geared to their building strengths, on which to base their competitive tender.

R.8.3. In the meantime, the Design and Build (DB) procurement option would allow experienced timber frame contractors to put forward designs based on timber frame construction; and this procurement route should also be tried and evaluated on a pilot scheme basis.

R.8.4. The above approaches should be assessed on up to 12 projects across the regions, over a concentrated 12 to 24 month period. A monitoring system should be set up to assess progress. Two pilot timber frame projects are already in planning by South Dublin County Council.

R.8.5. In the medium term, amendments to procurement policy should address the following recommended policy and “learning curve” issues for all participants:

- Preparation of and agreement by all participants on a suite of standardised GDLA contract amendments. Forum for the Construction Industry (FCI) to control this process, in consultation with the Department of Finance (Public Procurement Policy Unit), and the insurance industry.
- A recognised standard wording to confirm compliance with Building Regulations should be formulated, in consultation with the timber frame industry, which in turn can be used by the client’s designer.
- Establishment, within the insurance industry, of a certifiable insurance backed guarantee sufficient to provide indemnity to client and designer.
- Education of all parties on revised design responsibilities by way of education workshops coordinated in conjunction with the relevant institutions (RIAI, CIF, etc.).
- Education of all parties of revised expectations, which would pertain to the administration of contracts coordinated in conjunction with the relevant institutions (RIAI, CIF).