NSAI Standards

SWiFT 6:2013

Timber in construction – Span tables and guidelines

SWiFT 6:2013

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

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Foreword

This SWiFT was developed by NSAI Timber Standards Consultative Committee, Working Group 2, Task Group 2 "Trussed rafters and timber in buildings".

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This document, which replaces I.S. 444:1998, relates to timber members commonly used in buildings constructed in Ireland and provides non-contradictory complementary information where those members are designed to I.S. EN 1995-1-1 and its National Annex.

The drawings in this document represent typical construction details. They are not prescriptive and alternative details may be appropriate. Attention is drawn to the acceptable constructional details published by the Department of the Environment, Community and Local Government which primarily show insulation and air tightness detailing.

During all construction related activities account should be taken of the Safety, Health and Welfare at Work (Construction) Regulations.

This publication does not purport to include all necessary provisions of a contract. Users are responsible for its correct application.

Compliance with this SWiFT does not of itself confer immunity from legal obligations.

In line with international standards the decimal point is shown as a comma (,) throughout this document.

1 Scope

The span tables in this SWiFT give maximum spans for the following solid softwood structural members in buildings:

- Floor joists, including ground floor joists;
- Ceiling joists, including those supporting a standard water tank;
- Flat roof joists (0° to 5°);
- Rafters (20° to 45°); and
- Roof purlins.

Roof slopes other than those listed above are not included in this document.

Load tables for 44 mm x 100 mm timber wall studs are also included.

Maximum spans are given for members of a particular section size, spacing, strength class, and loading. For the tables, it has been assumed that the members are in service class 2 conditions (see I.S. EN 1995-1-1).

Structural members properly selected using these span tables comply with the structural design requirements of I.S. EN 1995-1-1 and its corresponding National Annex. It is intended that members so selected can be used in timber building construction without further design.

The loads on the members and the load combinations used for the preparation of the span tables comply with the requirements of the current editions of the following standards including their National Annexes:

- I.S. EN 1990;
- I.S. EN 1991-1-1;
- I.S. EN 1991-1-3; and
- I.S. EN 1991-1-4.

Using these loading standards, wind uplift becomes a major design criterion for members and their connections.

It is not feasible to provide span tables for all load cases and combinations. The loadings covered by the span tables in this document are set out in Table 1. Structural design of members subjected to loads or load combinations outside those covered by the span tables should be designed by appropriately qualified and experienced engineers in compliance with 1.3 (2) in I.S. EN 1990.

Flooring materials (e.g. T&G flooring boards, particle boards or plywood) are not covered.

Dormers and hipped roofs are complex constructions and should not be designed using this document. Instead their design should be referred to a competent timber designer; the load span tables should not be used in connection with these parts of a project.

The design and detailing of connections for all members are not included in this document and should be designed by appropriately qualified and experienced engineers in compliance with 1.3 (2) in I.S. EN 1990.