



NSAI
Standards

Irish Standard
I.S. 440:2009

Timber frame dwellings

I.S. 440:2009

Incorporating amendments/corrigenda issued since publication:

<i>This document replaces:</i>	<i>This document is based on:</i> I.S. 440:2009	<i>Published:</i>	
This document was published under the authority of the NSAI and comes into effect on: 22 May, 2009		ICS number: 91.080.20	
NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie	Price Code: S
Údarás um Chaighdeáin Náisiúnta na hÉireann			

DECLARATION
OF
SPECIFICATION
ENTITLED
TIMBER FRAME DWELLINGS
AS
THE IRISH STANDARD SPECIFICATION FOR
TIMBER FRAME DWELLINGS

NSAI, in exercise of the power conferred by section 16 (3) of the National Standards Authority of Ireland Act, 1996 (No. 28 of 1996) and with the consent of the Minister for Enterprise, Trade and Employment, hereby declares as follows:

1. This instrument may be cited as the Standard Specification (Timber frame dwellings) Declaration, 2009.
2. (1) The Specification set forth in the Schedule to this declaration is hereby declared to be the standard specification for Timber frame dwellings.
(2) The said standard specification may be cited as Irish Standard 440: 2009 or as I.S. 440: 2009.

Contents

Page

Declaration.....	1
Foreword.....	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	10
3.1 Terminology	10
3.2 Abbreviated terms	12
4 Responsibilities	13
4.1 Domestic dwellings	13
4.2 Apartment buildings.....	13
4.2.1 Building design	13
4.2.2 Structural design of timber frame.....	14
4.2.3 Manufacture of timber frame	15
4.2.4 Erection of timber frame	15
4.2.5 Building construction.....	15
5 Materials	16
5.1 General.....	16
5.2 Timber	16
5.2.1 Grading	16
5.2.2 Tolerances	16
5.2.3 Moisture content.....	16
5.2.4 Preservative treatment	17
5.3 Engineered wood products	17
5.4 Sheathing.....	17
5.4.1 Plywood	17
5.4.2 Oriented strand board	17
5.4.3 Other sheathing materials	17
5.5 Breather membranes.....	18
5.6 Fasteners and connectors	18
5.6.1 Strength properties.....	18
5.6.2 Corrosion resistance of fixings.....	18
5.6.3 Fixings for internal linings.....	18
5.6.4 Staples	18
5.7 Cavity barriers.....	18
5.7.1 Proprietary cavity barriers	19
5.7.2 Timber cavity barriers	19
5.8 Fire stops.....	19
5.9 Wall ties	19
5.10 Anchor straps.....	19
5.11 Holding down straps	20
5.12 Thermal insulation	20
5.13 Acoustic insulation.....	20
5.14 Vapour control layer.....	20
5.15 Internal linings	20
5.15.1 Plasterboard.....	20
5.15.2 Other linings.....	20
5.16 External cladding.....	21
5.16.1 Masonry cladding	21
5.16.2 Timber cladding	21

5.16.3	Other claddings	21
6	Design.....	21
6.1	General	21
6.2	Structural calculations.....	22
6.2.1	General	22
6.2.2	Wind actions	23
6.2.3	Vertical actions	23
6.3	Structural design checks.....	24
6.4	Design of roof, floor and wall diaphragms	25
6.4.1	General	25
6.4.2	Roof design.....	25
6.4.3	Floor design	25
6.4.4	Wall design.....	25
6.4.5	Service classes.....	26
6.4.6	Materials	26
6.5	Fire design and protection	26
6.5.1	Fire resistance	26
6.5.2	The surface spread of flame classification.....	27
6.5.3	The non-combustibility of a product or material	27
6.5.4	Limited combustibility	27
6.5.5	Fire protective linings	27
6.5.6	Separating walls	27
6.5.7	Compartment walls	28
6.5.8	Floors.....	28
6.5.9	Compartment floors	28
6.5.10	Domestic dwellings over two storeys	28
6.5.11	I-joist and metal web joist floors.....	29
6.5.12	Cavity barriers	31
6.5.13	Fire stops	31
6.6	Connections	31
6.6.1	Design.....	31
6.6.2	Site fixing schedule.....	31
6.7	Energy conservation	32
6.7.1	General	32
6.7.2	Thermal bridging	32
6.7.3	Air permeability	32
7	Manufacture	32
7.1	Factory production control	32
7.2	Materials	32
7.3	Panel manufacture	32
7.3.1	Premises.....	32
7.3.2	Equipment	32
7.3.3	Panel fabrication.....	33
7.4	Marking of panels	37
7.4.1	Panel identification.....	37
7.4.2	Quality marking	37
8	Construction details.....	37
8.1	General	37
8.2	Substructure	37
8.3	Concrete ground floors.....	38
8.4	Suspended timber ground floors.....	40
8.5	Fixing of timber frame to substructure	42
8.6	Thresholds and paths	44
8.7	External walls.....	45
8.7.1	General	45
8.7.2	Additional requirements for apartment buildings.....	45
8.8	Upper floors	45
8.8.1	General	45

I.S. 440:2009

8.8.2	Floors using solid timber joists	46
8.8.3	Proprietary I-joists and metal web joists.....	47
8.8.4	Floor decking	47
8.8.5	Compartment floors	47
8.8.6	Non-compartment floors with a 60 minutes fire resistance	49
8.9	Separating and compartment walls	49
8.9.1	General.....	49
8.9.2	Horizontal fire stops	51
8.9.3	Eaves boxes	52
8.9.4	Cavity barriers.....	53
8.9.5	Top of separating walls.....	54
8.9.6	Stepped gable	55
8.9.7	Additional requirements for apartment buildings	56
8.10	Spandrel walls.....	57
8.10.1	General.....	57
8.10.2	Additional requirements for apartment buildings	59
8.11	Internal walls	59
8.12	Roofs	60
8.12.1	General.....	60
8.12.2	Additional requirements for apartment buildings	60
8.13	Steelwork	60
8.13.1	General.....	60
8.13.2	Additional requirements for apartment buildings	61
8.14	Internal linings	61
8.14.1	General.....	61
8.14.2	Plasterboard.....	61
8.14.3	Additional requirements for apartment buildings	62
8.15	Cavity barriers and fire stopping in walls	63
8.15.1	General.....	63
8.15.2	Additional requirements for apartment buildings	65
8.16	Wall claddings.....	65
8.16.1	Masonry wall cladding	65
8.16.2	External timber cladding.....	66
8.16.3	Other types of cladding.....	68
8.17	Fireplaces, flues and chimneys.....	68
8.17.1	Masonry construction	68
8.17.2	Proprietary chimney systems.....	69
8.17.3	Flues through external walls	69
8.18	Window and door frames.....	69
9	Site work.....	69
9.1	General.....	69
9.2	Manufacturer's instructions.....	70
9.3	Project planning.....	70
9.3.1	General.....	70
9.3.2	Site erectors	70
9.4	Construction tolerances	70
9.5	Delivery, handling and storage of timber frame components	72
9.5.1	Delivery inspection.....	72
9.5.2	Handling.....	72
9.5.3	Storage.....	72
9.6	Preparation of base substructure	72
9.6.1	General.....	72
9.6.2	Setting out sole plates	72
9.7	Erection of panels.....	73
9.7.1	General.....	73
9.7.2	Fixing of anchor straps to outer leaf	73
9.7.3	Erection of intermediate floors.....	73
9.7.4	Erection of upper wall and floor panels	74
9.7.5	Floor decking	74

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-