



## Structural Sections Ltd

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**Agrément  
Certificate  
No 06/4365**

Designated by Government  
to issue  
European Technical  
Approvals

## HADLEY STEEL FRAMING COMPONENTS

Système pour constructions — éléments  
Bausystem — Bestandteilen

## Product




• THIS CERTIFICATE RELATES TO HADLEY STEEL FRAMING COMPONENTS.

- The components comprise steel sections for on-site construction of walls, floors and infill panels, in concrete or steel-framed structures.
- This assessment only covers the loadbearing adequacy of the structural steel frame components and their durability. Other aspects of performance have not been assessed. However, the completed building must be designed and constructed to satisfy all of the relevant requirements of the national Building Regulations. In this context the steel frame has adequate strength and stability and has a design life of at least 60 years provided that the building design utilises the warm frame principle by the application of external insulated cladding.

## Regulations

### 1 The Building Regulations 2000 (as amended) (England and Wales)

 The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of structural framing components with the Building Regulations. In the opinion of the BBA, Hadley Steel Framing Components, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: A1

Loading

Comment:

Walls and floors constructed from the components will have sufficient strength and stability to meet this Requirement. See sections 8.1 to 8.7 of this Certificate.


Requirement: Regulation 7

Materials and workmanship

Comment:

The components are acceptable. See section 9 of this Certificate.

### 2 The Building (Scotland) Regulations 2004

 In the opinion of the BBA, Hadley Steel Framing Components if used in accordance with this Certificate, will satisfy or contribute to satisfying the various Regulations and related Mandatory Standards listed below.

Regulation: 8

Fitness and durability of materials and workmanship

Regulation: 8(1)

Fitness and durability of materials and workmanship

Comment:

The components satisfy this Regulation. See section 9 and the *Installation* part of this Certificate.

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Regulation:	9	Building standards — construction
Standard:	1.1(a)(b)	Structure
Comment:	The walls and floors constructed from the components will have adequate strength and stability to meet this Standard, with reference to clause 1.1.1 <sup>(1)</sup> . See sections 8.1 to 8.7 of this Certificate. (1) Technical Handbook (Non-Domestic).	

## 3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, Hadley Steel Framing Components, if used in accordance with this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:	The components are acceptable. See section 9 of this Certificate.	
Regulation:	D1	Stability
Comment:	Walls and floors constructed from the components will have adequate strength and stability to meet this Regulation. See sections 8.1 to 8.7 of this Certificate.	

## 4 Construction (Design and Management) Regulations 1994 (as amended) Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See sections: 7 *Delivery and site handling* (7.1 and 7.2), and 10 *Procedure* (10.1 and 10.2) of this Certificate.

## Technical Specification

### 5 Description

5.1 Hadley Steel Framing Components comprise a range of cold-formed structural sections, bracing straps and brackets. The components are assembled on-site in accordance with the design drawings. The components are used to form structural walls, partitions, infill walls and also floor joists.

5.2 The range of sections is given in Table 1 and Figure 1. The C-shaped section and U-shaped section are cold-formed and all components are manufactured from pre-galvanized steel sheet to BS EN 10326 : 2004 S390GD + 275 – N-A-C.

Table 1 Range of sections<sup>(1)</sup>

	A	B	C	Thickness (mm)
C-sections	70/100/150	50	10	1.2/1.5/2.0
Ultrabeam sections	200	63	12	1.2/1.4/1.6/2.0
	225	63	12	1.4/1.6/2.0
	255	75	15	1.4/1.6/2.0
	285/305	75	15	1.6/2.0/3.0
U-sections	74/104/154/204	40	—	1.2
	74/104/154/204	70	—	1.2/2.0
	229/259	40	—	1.2
	229/259	70	—	2
	290/310	40	—	1.5
	290/310	70	—	2.5
Bracing	38/100	—	—	1

(1) Stud sections are also available with pre-cut holes 100 mm x 35 mm at 600 mm from each end to accommodate services.

5.3 The Certificate holder's SLIP-KLIP<sup>(1)</sup> deflection head clip and FC series cleat are used in infill wall projects (see Figures 2 and 3).

(1) Under UK patent application No 0421108.2.

Figure 1 Typical sections

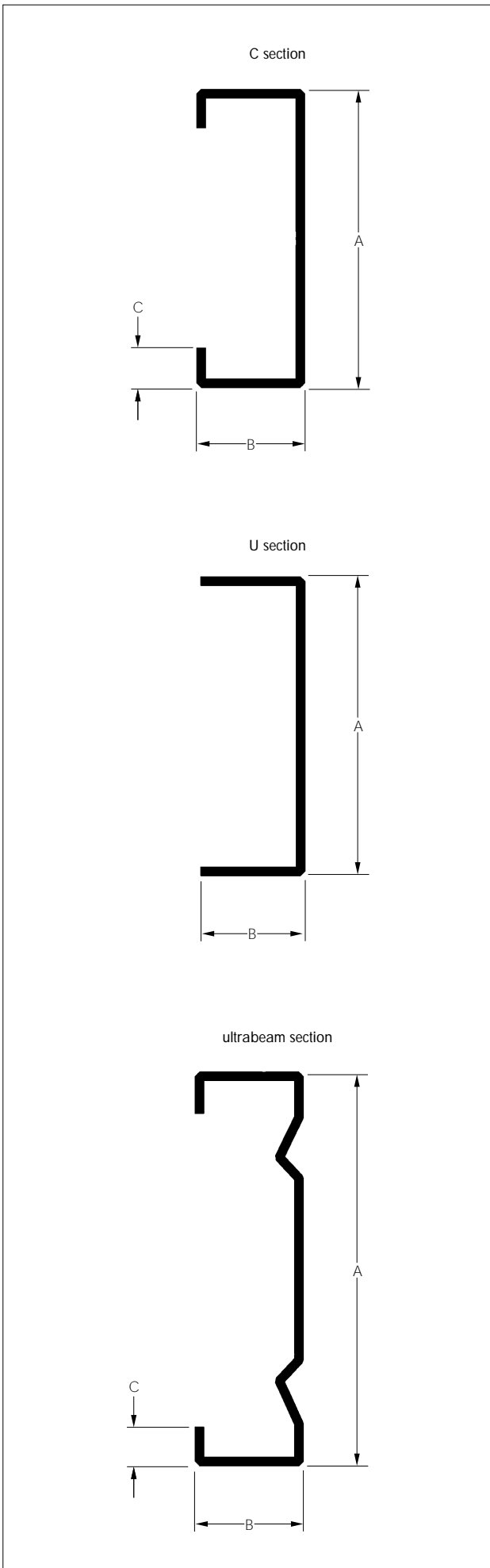


Figure 2 Infill framing incorporating deflection head details

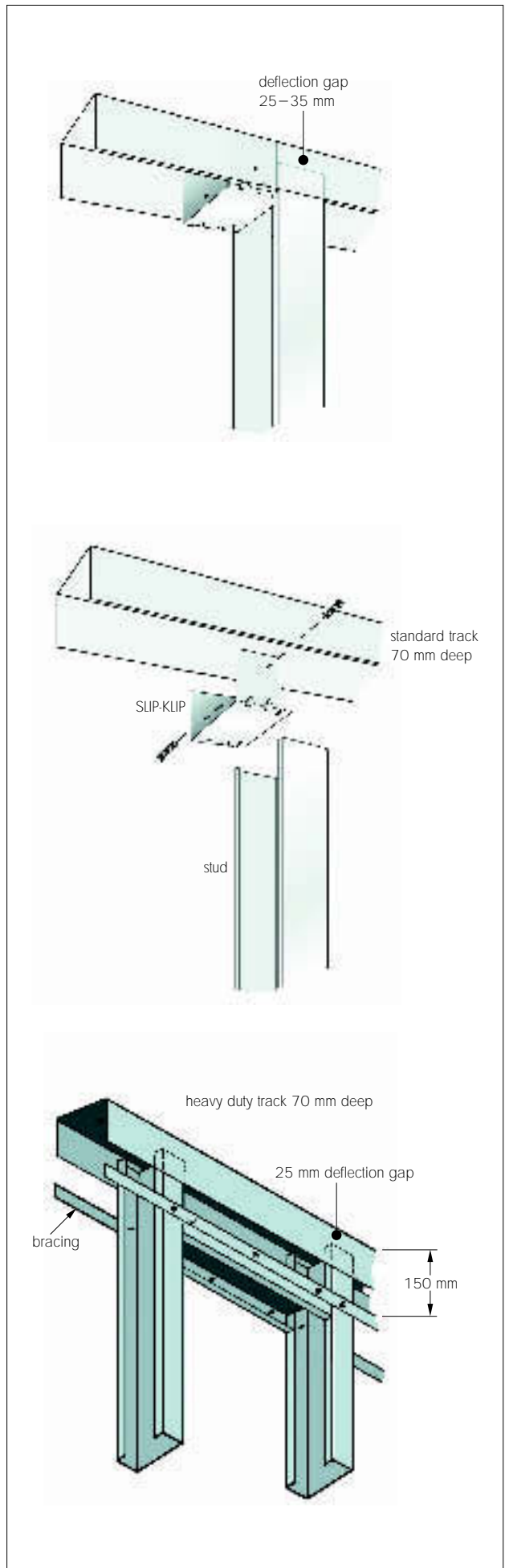
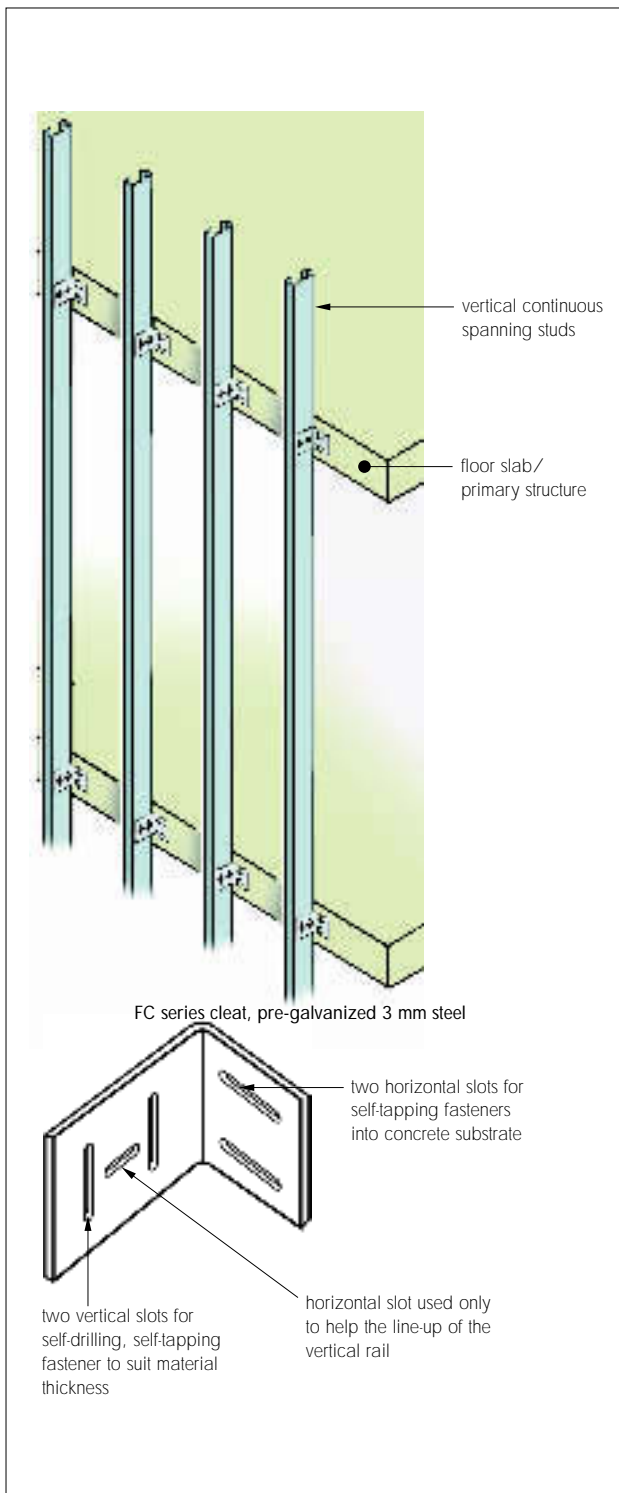


Figure 3 Vertical framing to support external cladding



5.4 Components are assembled on site using self-drilling, self-tapping screws. Bracings are fixed using self-drilling, self-tapping screws. Sheathing boards are fixed using countersunk or low profile self-drilling, self-tapping screws to the board manufacturer's recommendations. When appropriate, diagonal steel bracing is screwed to the main frame member. Double studs are used at corner of braced elements.

5.5 Lintels and openings may be formed from the components in several configurations depending on the design (see Figures 4 and 5).

Sections are cold-formed from galvanized steel coil or manufactured from galvanized steel hot-rolled sections.

## 7 Delivery and site handling

7.1 The components are transported to site in the form of component parts packed into bundles.

7.2 The components are off-loaded by fork-lift and stored on site until required.

## Design Data

## 8 Strength and stability



8.1 A suitably-qualified chartered engineer must underwrite the structural design of every building utilising the components covered by this Certificate. It is assumed that the engineer, in addition to calculations to the relevant code of practice, will:

- ensure the adequacy of the fixings to the foundation
- ensure that the deflection of floor beams and lintels are restricted to span/360
- ensure adequate bracing is provided to prevent horizontal deformation from exceeding span/300 (see section 8.2)
- ensure adequacy of connection details
- prepare a schedule of foundation loads to enable the foundation to be designed

8.2 Calculations were carried out to confirm the technical data contained in the Certificate holder's document *Structural Section Framing – SSF for lightweight steel framing in construction*, June 2005.

8.3 The components incorporate provision for diagonal bracing. The detail of such bracing is determined by structural design to BS 5950-5 : 1998 on a project specific basis, taking no account of the sheathing.

8.4 The design of connections between the components should be to BS 5950-5 : 1998.

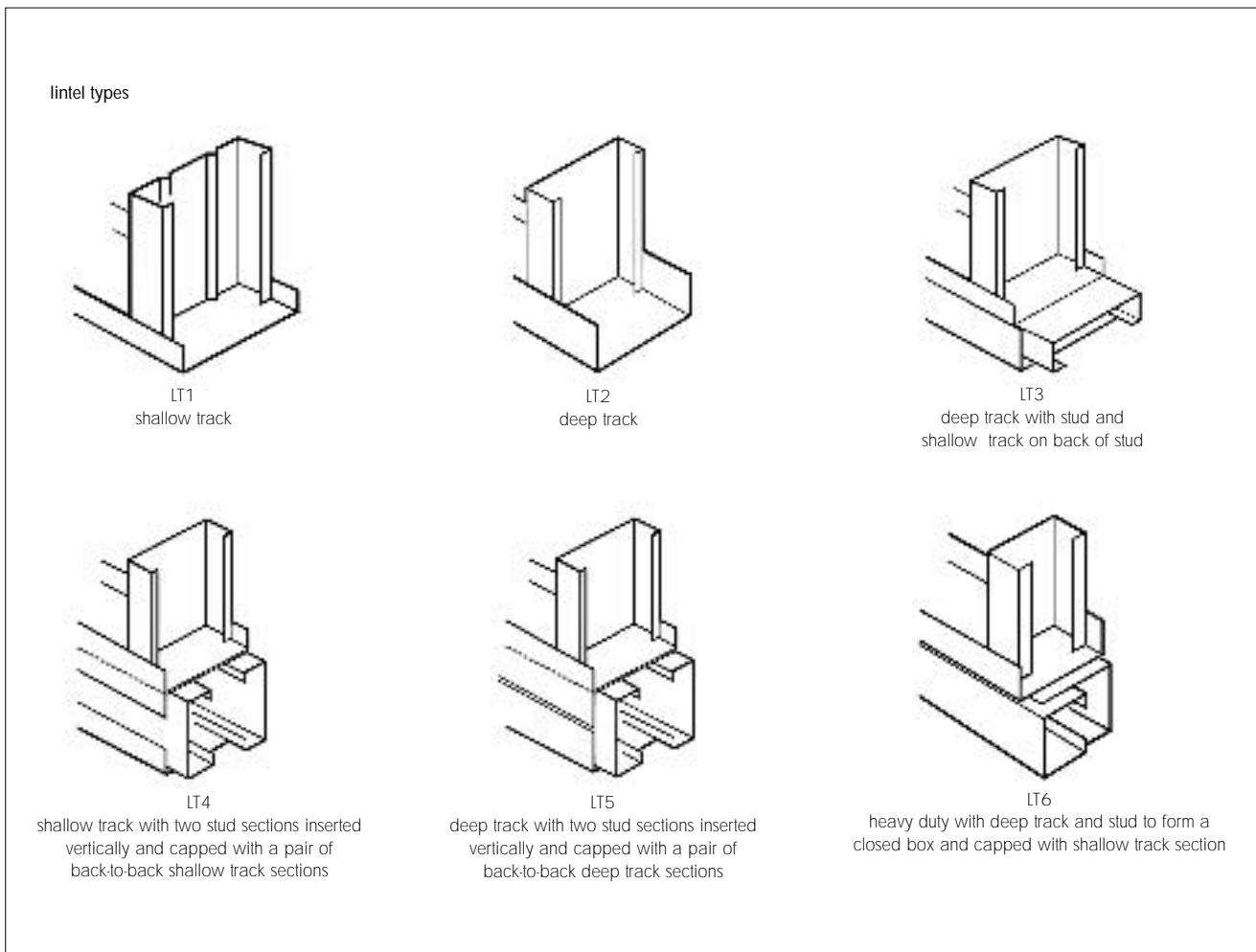
8.5 Designs of a typical two-storey house have been examined by the BBA and demonstrate that compliance with the following codes of practice can be achieved:

- BS 5950-1 : 2000
- BS 5950-5 : 1998
- BS 6399-1 : 1996
- BS 6399-2 : 1997
- BS 6399-3 : 1988.

8.6 The design parameters covered by the calculations were:


- floor imposed load — 1.5 kNm<sup>-2</sup>

Figure 4 Lintels



- roof loads — taken as  $0.60 \text{ kNm}^{-2}$  with an allowance of  $0.25 \text{ kNm}^{-2}$  for use of loft for storage
- wind loads — based on BS 6399-2 : 1997
- the floor beams and lintels were checked against the requirements of BS 5950-5 : 1998, with the acceptable deflection being limited to  $\text{span}/360$ . The horizontal deflection due to wind loads was restricted to  $\text{height}/300$ .

## 9 Durability

 The structural members (see section 5.2) have been assessed as capable of achieving a design life of at least 60 years, provided that the building is constructed in accordance with this Certificate. This assumes that the components are used in warm frame constructions and are suitably protected from moisture. Provisions should be made in the design to ensure any moisture that occurs in the framework during installation can be drained away.

## Installation

### 10 Procedure

10.1 Hadley Steel Framing Components are installed by specialist sub-contractors trained by the Certificate holder. The Certificate holder retains a list of such installers.

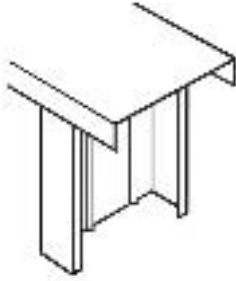
10.2 The components must be installed in accordance with the design and the Certificate holder's documented procedure.

10.3 Members cut on site must be cut squarely and jagged edges removed.

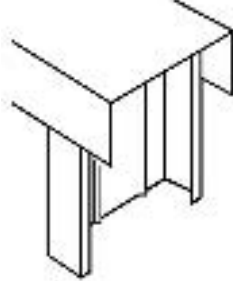
10.4 Typical details of the various constructions covered by the Certificate are given in Figures 6, 7 and 8.

Figure 5 Openings

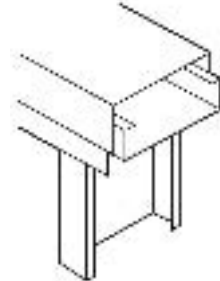
sill types



CT1  
shallow track

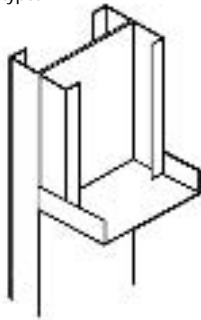


CT2  
deep track

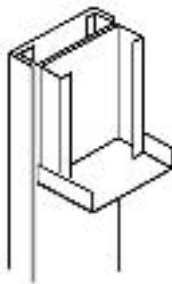


CT3  
shallow track over supporting studs with closed  
box of stud and deep track fitted on top

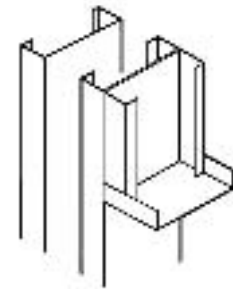
jamb types



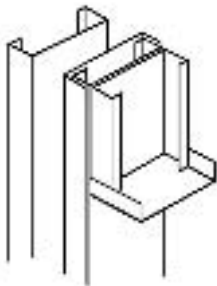
JT1  
basic configuration



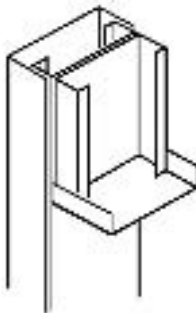
JT2  
single stud closed on reverse side with  
shallow track section to form a box



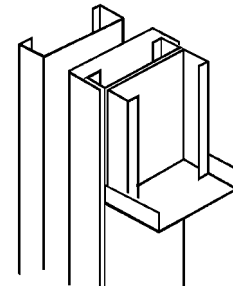
TJ3  
single stud and brick tie stud



JT4  
single stud closed on reverse side  
with shallow track section to form  
a box with brick tie



JT5  
single stud closed on reverse side with  
deep track section to form a box



JT6  
single stud closed on reverse side with  
deep track section to form a box with brick tie

Figure 6 Typical construction walls

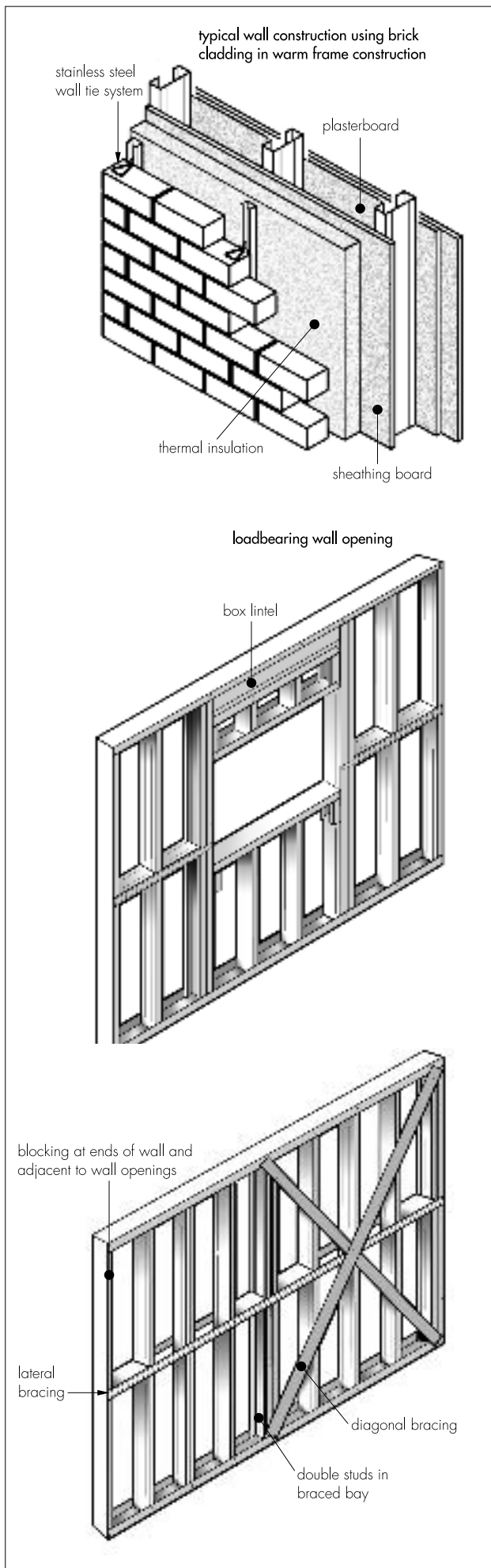


Figure 7 Typical detail partition walls

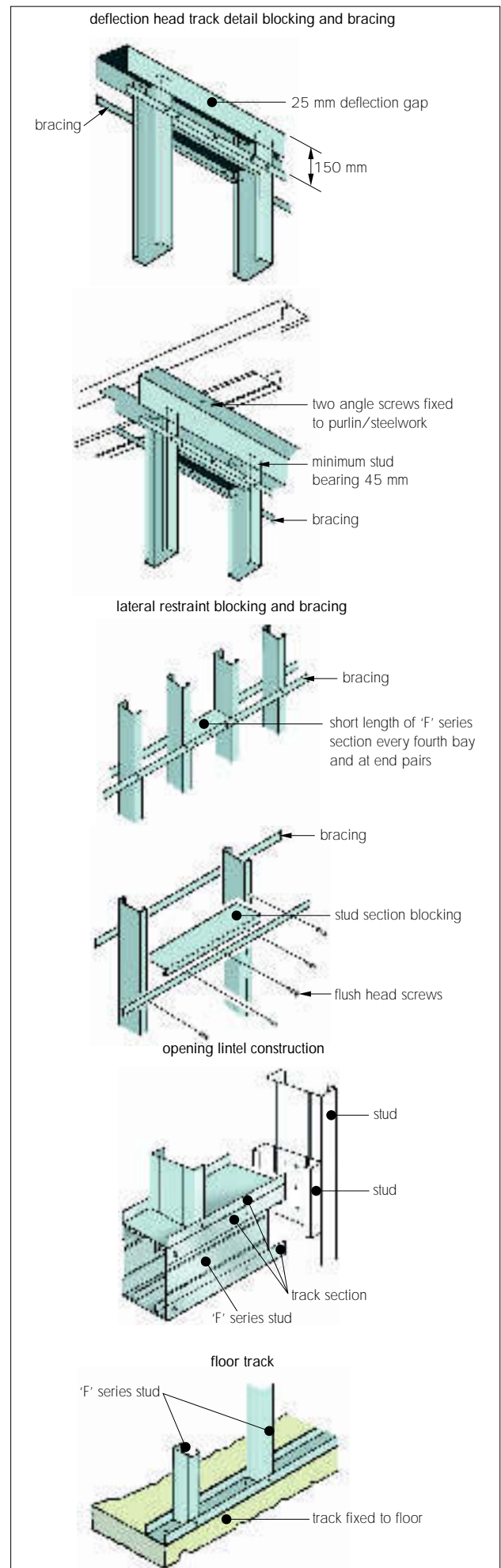
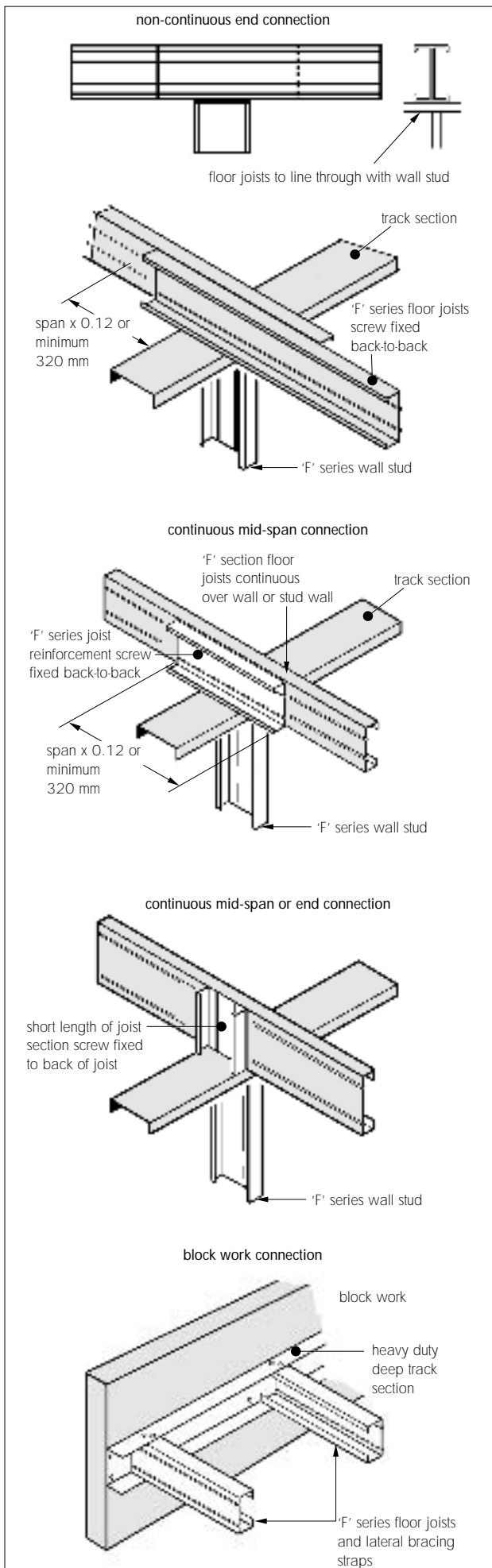


Figure 8 Typical detail floor joists



## Technical Investigations

The following is a summary of the technical investigations carried out on Hadley Steel Framing Components.

### 11 Investigations

11.1 An examination was made of existing data to assess:

- structural strength and stability
- durability.

11.2 A site was visited to assess the practicability of installation.

11.3 A factory visit was carried out to establish the adequacy of quality control during production.

## Bibliography

BS 5950-1 : 2000 *Structural use of steelwork in building — Code of practice for design — Rolled and welded sections*

BS 5950-5 : 1998 *Structural use of steelwork in building — Code of practice for design of cold formed thin gauge sections*

BS 6399-1 : 1996 *Loading for buildings — Code of practice for dead and imposed loads*

BS 6399-2 : 1997 *Loading for buildings — Code of practice for wind loads*

BS 6399-3 : 1988 *Loading for buildings — Code of practice for imposed roof loads*

BS 8004 : 1986 *Code of practice for foundations*

BS EN 10326 : 2004 *Continuously hot-dip coated strip and sheet of structural steels — Technical delivery conditions*

## Conditions of Certification

### 12 Conditions

12.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English law.

12.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

12.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

12.4 In granting this Certificate, the BBA is not responsible for:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product or system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

12.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate or in the future; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.



In the opinion of the British Board of Agrément, Hadley Steel Framing Components are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 06/4365 is accordingly awarded to Structural Sections Ltd.

On behalf of the British Board of Agrément

Date of issue: 22nd December 2006

Chief Executive





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For technical or additional information, contact the Certificate holder (see front page).  
For information about the Agrément Certificate, including validity and scope, tel: Hotline 01923 665400, or check the BBA website.