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European Technical Assessment	ETA No. 15/0524 of 30/09/2019

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: BRE Global	
Trade name of the construction product	STEELGUARD™651
Product family to which the construction product belongs	35. Fire protective product – Reactive coatings for the fire protection of steel elements
Manufacturer	PPG Coatings Europe BV Oceanenweg 2 1047 BB Amsterdam, The Netherlands www.ppg.com
Manufacturing plant(s)	Plant 3 (1253)
This European Technical Assessment contains	89 pages including Annex A & B which form an integral part of this assessment. Annex C contains confidential information and is not included in the European Technical Assessment when that assessment is publicly available
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	European Assessment Document EAD 350402-00-1106, September 2017

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1. Scope of the EAD

This ETA covers reactive coating final assembly, comprising the primer, reactive coating and, depending on the environmental use category, the topcoat where appropriate.

1.1 Description of the construction product

STEELGUARD™651 is airless spray applied or, for small areas, brush-applied one component waterborne reactive coating.
STEELGUARD™651 systems shown in Table 1.

1.2 Information on the intended use(s) of the construction product

1.2 1. Intended use(s)

STEELGUARD™651 is reactive coating system to be used on steel elements according to 1.2.1 EAD 350402-00-1106[1].

This ETA covers assemblies installed in accordance with the provisions given in Annex A.

1.2.2 Product option

All STEELGUARD™651 systems shown in Table 1 have been assessed in this ETA under option 3, as described in the 1.2.2 of EAD 350402-00-1106[1].

This ETA is issued for a “final assembly”. This ETA only covers the reactive coating product, but one (or more) primers and/or one (or more) topcoats are also identified. All components of the “final assembly” are subjected to the assessment but cannot be CE-marked on the basis of it. Only the reactive coating products are subjected to the FPC requirements.

1.2.3 Use scenarios related to environmental conditions

Compatibility of primers have been assessed to 2.3.4 of EAD 350402-00-1106.

Primer	Reactive coating	Topcoat	Environmental use categories (i), (ii), (iii)
Generic primer type: Two component epoxy			
Amercoat 71 (i) (iii)	STEELGUARD™651	No top coat	Type Z_1
		Steelguard 2458	
		Aquacover 40	
		Aquacover 45	
		Sigmadur 520	Type X
		Freitane 520	
		Sigmadur 550	
		Freitane 550	
Generic primer type: One component waterborne Acrylic			
Aquacover 20 (i) (iii)	STEELGUARD™651	No top coat	Type Z_1
		Steelguard 2458	
		Aquacover 40	
		Aquacover 45	
		Sigmadur 520	Type X
		Freitane 520	
		Sigmadur 550	
		Freitane 550	
Generic primer type: Alkyd			
SigmaFast 20 (ii) (iii)	STEELGUARD™651	No top coat	Type Z_1
		Steelguard 2458	
		Aquacover 40	
		Aquacover 45	
		Sigmadur 520	Type X
		Freitane 520	
		Sigmadur 550	
		Freitane 550	

Primer	Reactive coating	Topcoat	Environmental use categories [(i), (ii), (iii)]
Generic primer type: Galvanized steel			
Galvanized steel/Amercoat 71TC [(ii) (iii)]	STEELGUARD™651	No top coat	Type Z_1
		Steelguard 2458	
		Aquacover 40	
		Aquacover 45	
		Sigmadur 520	Type X
		Freitane 520	
		Sigmadur 550	
		Freitane 550	
Generic primer type: Thermal metal spray			
Thermal Metal Spray/Amercoat 71 [(ii) (iii)]	STEELGUARD™651	No top coat	Type Z_1
		Steelguard 2458	
		Aquacover 40	
		Aquacover 45	
		Sigmadur 520	Type X
		Freitane 520	
		Sigmadur 550	
		Freitane 550	

(i) Products that meet the requirements for type X, meet the requirements for other types (Y, Z_1 and Z_2).

(ii) Products that meet the requirements for type Y, meet the requirements for other types (Z_1 and Z_2).

(iii) Products that meet the requirements for type Z_1, also meet the requirements for type Z_2.

Table 1: Components of the reactive coating system

1.2.4 Working Life / Durability

The assumed working life of the product for the intended use is at least 10 years, provided that the reactive coating system is subject to appropriate use and maintenance. These provisions are based upon the current state of the art and the available knowledge and experience.

The indications given as to the working life of the products cannot be interpreted as a guarantee given by the ETA-holder or the Technical Approval Body. It should only be regarded as a means for the specifiers to choose the appropriate criteria for the reactive coating system in relation to the expected, economically reasonable working life of the product.

2. Performance of the product and references to the methods used for its assessment

2.1 Evaluation of ancillary products

Ancillary products used in test assemblies are specified in the installation provisions of the fire resistance test(s) described in Annex B of this ETA.

For ancillary products referred to in this ETA specifically (by trade name), the composition of the product (if manufactured by the ETA holder) or its properties/characteristics (if supplied to the ETA holder) are laid down in the confidential ETA file held by the Technical Assessment Body. The ETA holder shall inform the Technical Assessment Body if any of this information is no longer correct.

2.2 Basic Requirements for Construction Works (BRCW) and Essential characteristics

2.2.1 BRCW 2: Safety in case of fire

2.2.2.1 Reaction to fire

The reactive coating system STEELGUARD™651 including all the primers and topcoats listed in Table 1 has a performance determined for a reaction to fire Class E according to EN 13501-1 [2].

2.2.2.2 Fire resistance

STEELGUARD™651 is intended to fire protect various sizes of I- and H-section steel beams, I- and H-section steel columns, circular hollow section steel columns, rectangular hollow section steel columns and rectangular hollow section steel beams, having various section factors. The detailed relationship between protection thickness, section factor and fire resistance period of STEELGUARD™651 are given in Annex A.

The fire resistance performance, according to EN 13381-8[3] & classification to EN 13501-2[4] for various thicknesses of the reactive coating system, is presented in Annex A, table A1.

2.2.3 BRCW 3: Hygiene, health and the environment

2.2.3. 1 Content, emission and/ or release of dangerous substances

SVOC and VOC of the product have not been assessed in this ETA.

According to the manufacturer's declaration, the product specification has been compared with the dangerous substances listed on the database established on the EC construction website, with the list of regulated dangerous substances possibly associated with construction products with Annex XVII and Annex XVI of REACH and with the ECHA *Candidate List of Substances of Very High Concern* to verify that the product does not contain such substances at greater than the tolerated maximum concentration values.

In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope. In order to meet the provisions of the EU Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

2.2.4 BRCW 4: Safety and accessibility in use

2.2.4.1 Adhesion

The primers and topcoats indicated in Table 1 of this ETA are compatible with the reactive coating. The verifications were made in accordance with 2.2.5.2.1.1 of of EAD 350402-00-1106.

2.2.5 Durability

The primers and topcoats indicated in Table 1 of this ETA are compatible with the reactive coating. The verifications were made in accordance with 2.2.5.2.1.1 of of EAD 350402-00-1106.

2.2. 5.1 Corrosion resistance

The primers and topcoats indicated in Table 1 of this ETA are compatible with the reactive coating. The verifications were made in accordance with 2.2.5.1 of of EAD 350402-00-1106. Compatibility of primers have been assessed to 2.3.4 of EAD 350402-00-1106.

2.2.5.2 Behaviour under different environmental conditions

The primers and topcoats indicated in Table 1 of this ETA are compatible with the reactive coating. The verifications were made in accordance with 2.2.5.2 of EAD 350402-00-1106.

The approved environmental use categories shall be taken from table 1 of this ETA.

2.3 Technical Characterisation

This ETA is issued for the system on the basis of agreed data/information, held on file by BRE Global which identifies the system components that have been assessed and judged in accordance with 2.3.5 of EAD 350402-00-1106. Identification tests according to section Annex E EAD 350402-00-1106 have been carried out on components, which confirm that the system under assessment conforms to its declared characteristics.

3. Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

According to the decision 1999/454/EC of the European Commission the System of assessment and verification of consistency of performance (see Annex V to Regulation (EU) No 305/2011) is

Product(s)	**Intended use(s)**	**Level(s) or class(es)**	**AVCP System(s)**
Fire protective products (including coatings)	For fire compartmentation and/or fire protection or fire performance	Any	1

Table 2 AVCP System

4. Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

All the necessary technical details for the implementation of the AVCP system are laid down in the *Control Plan*[5] deposited with BRE Global and the factory production control shall be in accordance with it.

5. Recommendations

5.1 Recommendations on packaging, transport and storage

In the accompanying documentation or on the containers, the manufacturer shall give information as to transport and storage.

At least the following shall be indicated: type of storage (container, tank, drum etc.), minimum and maximum temperature for transport and storage. In case of combustible components or other potentially dangerous substances the instructions shall contain indications about limitations and/or conditions for handling, transport and storage.

5.2 Recommendations on use, maintenance and repair

The assessment of the fitness for use is based on the assumption that necessary maintenance and repair, if required, is carried out in accordance with the manufacturer's instructions during the assumed intended working life.

The topcoat, where necessary, shall protect the reactive coating from moisture and other environmental influences. Therefore it shall always be kept in a proper state. In case of an execution without topcoat the control shall refer to the reactive coating. If the maintenance work related to the reactive coating or the top coating is necessary, the manufacturer's instructions shall be respected.

Issued in Watford, United Kingdom on 06.12.2019

By 

Stephen Howard

Director of Fire Testing and Certification

BRE Global

6. References

1. EAD 350402-00-1106, European Assessment Document, Reactive Coatings for Fire protection of Steel Elements, September 2017

2. EN 13501-1:2007 +A1:2009, Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests

3. BS EN 13381-8:2013, Test methods for determining the contribution to the fire resistance of structural members, Part 8: Applied reactive protection to steel members

4. BS EN 13501-2:2016, Fire classification of construction products and building elements, Part 2: Classification using data from fire resistance tests, excluding ventilation services

5. The control plan is a confidential part of the ETA and only handed over to the notified product certification body involved in the assessment and verification of consistency of performance

6. BS EN 10025-1: 2014. Hot rolled products of structural steels. General technical delivery conditions.

7. ISO 8501-1:2007, Preparation of steel substrates before application of paints and related products -- Visual assessment of surface cleanliness. Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings.

ANNEX A – Fire resistance performance overview for STEELGUARD™651 applications

The fire protective system given in Table A1 has been assessed within the framework of this ETA. Assemblies and applications installed according to the provisions given in this Annex are covered by this ETA.

Assemblies protected by STEELGUARD™651 is assessed within the framework of this ETA	Classification according to EN 13501-2	Test Standard	Intended use category according to 1.2.2 of EAD 350402-00-1106	Application details	Date of addition to this ETA
Protection of loadbearing steel elements I- and H-section beams [(i)]	R 120-IncSlow, R 90-IncSlow, R 60-IncSlow, R45-IncSlow, R 30-IncSlow, R 20-IncSlow, R 15-IncSlow see also Annex B	EN 13381-8:2013 (Annex E.2)	Fire protective coating system to be used on steel elements	See Annex B	Date of original ETA
Protection of loadbearing steel elements I- and H-section columns, [(i)(ii)]	R 120-IncSlow, R 90-IncSlow, R 60-IncSlow, R45-IncSlow, R 30-IncSlow, R 20-IncSlow, R 15-IncSlow see also Annex B	EN 13381-8:2013 (Annex E.2)	Fire protective coating system to be used on steel elements	See Annex B	Date of original ETA
Protection of loadbearing steel elements circular columns	R 120-IncSlow, R 90-IncSlow, R 60-IncSlow, R45-IncSlow, R 30-IncSlow, R 20-IncSlow, R 15-IncSlow see also Annex B	EN 13381-8:2013 (Annex E.2)	Fire protective coating system to be used on steel elements	See Annex B	Date of original ETA
Protection of loadbearing steel elements rectangular/square columns [(i)(ii)]	R 120-IncSlow, R 90-IncSlow, R 60-IncSlow, R45-IncSlow, R 30-IncSlow, R 20-IncSlow, R 15-IncSlow see also Annex B	EN 13381-8:2013 (Annex E.2)	Fire protective coating system to be used on steel elements	See Annex B	Date of original ETA

Assemblies protected by STEELGUARD™651 is assessed within the framework of this ETA	Classification according to EN 13501-2	Test Standard	Intended use category according to 1.2.2 of EAD 350402-00-1106	Application details	Date of addition to this ETA
Protection of loadbearing steel elements rectangular/square beams [(i)]	R 60-IncSlow, R 30-IncSlow, see also Annex B	EN 13381-8:2013 (Annex E.2)	Fire protective coating system to be used on steel elements	See Annex B	Date of original ETA

Table A1

[i] the thicknesses given for open H- and I-sections also apply to steel sections of other shapes, e.g. U, L and T-sections under consideration of the same A/V value.

[ii] The thicknesses given for columns can be applied to beams exposed on all four sides up to the maximum dry film thickness predicted from the appropriate loaded beam test.

ANNEX B - Specification and assessment of reactive coating fire protection of load bearing steel elements protected by STEELGUARD™651

B.1 Classification

The assembly described in this annex has been tested and assessed according to EN 13381-8:2013 and classified in accordance with EN 13501-2 detailed in Table A1.

The critical temperatures assessed are 350°C, 400°C, 450°C, 500°C, 540°C, 550°C, 570°C, 600°C, 650°C and 700°C for loadbearing steel elements I- and H-section beams, I- and H-section columns, circular columns, rectangular/square columns and for fire resistance of 15IncSlow, 20IncSlow, 30IncSlow, 45IncSlow, 60IncSlow, 90IncSlow and 120IncSlow minutes as applicable and detailed in Annex B.

The critical temperatures assessed are 350°C, 400°C, 450°C, 500°C, 540°C and 550°C for loadbearing steel elements rectangular hollow beams and for fire resistance of 30IncSlow and 60IncSlow minutes as applicable and detailed in Annex B

A relationship between protection thickness, section factor and fire resistance for I- and H-section structural steel beams with concrete slab and three side protection of STEELGUARD™651 intumescent coating, tested in accordance with clause EN13381-8 section 7.1[3], and are given in tables B3 to B9, section factor and fire resistance for I- and H-section structural steel column's with four sided protection of STEELGUARD™651 intumescent coating and is applicable to I- and H- section beams exposed on four sides, but limited to a maximum dry film thickness of 5.226mm are given in tables B10 to B16 , circular hollow section steel columns with exposed all round protection of STEELGUARD™651 intumescent coating are given in tables B17 to B23, rectangular hollow section steel columns with exposed four sided protection of STEELGUARD™651 intumescent coating are

given in tables B24 to B30 and applicable to rectangular hollow section beams protected on all four sided, but to maximum protection thickness of 5.465, and rectangular hollow section steel beams protection of STEELGUARD™651 intumescent coating, tested in accordance with clause EN13381-8 section 7.1[3] , and are given in tables B31 and B32.

The precise scope is given in the tables which specify the dry film thickness of intumescent coating (without primer and topcoat) required to achieve the classification R for various design temperatures and section factors.

The thicknesses given for open H- and I- sections also apply to steel sections of other shapes, e.g. U-, L-, T- and fabricated sections under consideration of the same section factor value.

The thicknesses given for columns can be applied to beams exposed on all four sides up to the maximum dry film thickness predicted from the appropriate loaded beam test.

B.2 Manufacturing requirements

The European Technical Approval is issued for the reactive coating STEELGUARD™651 on the basis of agreed data/information deposited with the BRE Global, which identifies the products that have been assessed and judged. Changes to the product or production processes, which could result in this deposited data/information being incorrect, should be notified to BRE Global before the changes are introduced. BRE Global will decide whether such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and, if so, whether further assessment or alterations to the ETA shall be necessary.

B.3 Installation requirements

B.3.1 Supporting structure

STEELGUARD™651 is applicable to I- and H- section beams three sided exposure, with a maximum section factor between 65 and 335 m^{-1} to I- and H- section columns four sided exposure, with a maximum section factor between 70 and 375 m^{-1}, circular hollow section columns all round exposure, with a maximum section factor between 50 and 360 m^{-1}, rectangular hollow section columns four sided exposure, with a maximum section factor between 50 and 340 m^{-1}, rectangular hollow section beams three sided exposure, with a maximum section factor between 70 and 175 m^{-1}.

STEELGUARD™651 is applicable to load bearing steel elements for critical steel temperatures as per Annex B Tables B3 to B32.

Specifications for the load bearing elements are given in Table B1 below

Load bearing element	**Identification**	**Characteristics**	**Steel Preparation**
I – and H – section steel beams Three Sides Exposure	Steel, grade S355	Section factor between 65 m^{-1} and 335 m^{-1} I/H sections	Abrasive blasted to Sa2½ of ISO8501-1 prior to application of applicable Primers See table1

Load bearing element	Identification	Characteristics	Steel Preparation
I – and H – section steel columns Four Sides Exposure	Steel, grade S355	Section factor between 70 m^{-1} and 375 m^{-1} I/H sections	Abrasive blasted to Sa2½ of ISO8501-1 prior to application of applicable Primers See table1
Circular hollow section steel columns All-Round Exposure	Steel, grade S355	Section factor between 50 m^{-1} and 360 m^{-1} sections	Abrasive blasted to Sa2½ of ISO8501-1 prior to application of applicable Primers See table1
Rectangular/square hollow section steel columns Four Sides Exposure	Steel, grade S355	Section factor between 50 m^{-1} and 340 m^{-1} sections	Abrasive blasted to Sa2½ of ISO8501-1 prior to application of applicable Primers See table1
Rectangular/square hollow section steel beams Three Sides Exposure	Steel, grade S355	Section factor between 70 m^{-1} and 175 m^{-1} sections	Abrasive blasted to Sa2½ of ISO8501-1 prior to application of applicable Primers See table1

Table B1

The data presented in Table B1 are applicable to other structural steel (S designation) sections in accordance with EN 10025-1[6] (excluding S185).

B3.2.1 Primer

Only the generic primer types can be used, as specified by the manufacturer, see Table 1 of this ETA for scope of environmental use categories.
The primer shall be applied on surface prepared steel. The surface of the steel shall be free of dust, grease and other pollutants. The preparation grade of surface shall be in accordance with the technical data sheets. The primer shall cover the surface of the steel completely. The required dry film thickness shall be according to the manufacturer's declaration.

B.3.2.2 Reactive coating

STEELGUARD™651 is applied using airless spray equipment in several coats, maximum thickness 1.00mm dry film thickness per coat, until the desired thickness is achieved.

Element	Identification	Characteristics
Protective coating	STEELGUARD™651	maximum thickness 1.00mm dry film thickness per coat

Table B2

B3.2.3 Topcoat

The top coat shall be compatible with the reactive coating. During the tests carried out for the approval procedure the top coats have been found to be compatible according to table 1 of this ETA.

The required dry film thickness shall be according to the manufacturer's declaration.

B.4 Assessment

B.4.1 Fire performance of STEELGUARD™651

The assessment method used to assess the relationship between protection thickness, section factor and fire resistance for I- and H-section steel beams, I- and H-section steel columns, circular hollow section steel columns, rectangular hollow section steel columns and rectangular hollow section steel beams, protected with STEELGUARD™651 is EN 13381-8:2013, annex E.2 graphical approach.

Table B31 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section beams for R 15

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
65	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
70	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
75	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
80	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
85	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
90	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
95	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
100	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
105	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
110	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
115	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
120	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
125	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
130	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
135	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
140	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
145	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
150	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
155	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
160	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
165	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
170	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
175	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
180	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
185	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
190	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
195	0.194	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
200	0.202	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
205	0.210	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
210	0.218	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
215	0.226	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
220	0.234	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
225	0.242	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
230	0.250	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
235	0.258	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
240	0.266	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
245	0.274	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
250	0.282	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
255	0.290	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
260	0.298	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
265	0.306	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
270	0.314	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
275	0.322	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
280	0.330	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
285	0.338	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
290	0.346	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
295	0.354	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
300	0.362	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
305	0.370	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
310	0.378	0.196	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
315	0.386	0.203	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
320	0.394	0.210	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
325	0.402	0.217	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
330	0.410	0.224	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
335	0.418	0.231	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193

Tables B3 to B9 are applicable to I- and H- section beams with a concrete slab and protection of STEELGUARD™651 on three sides

Table B4 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section beams for R 20

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
65	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
70	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
75	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
80	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
85	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
90	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
95	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
100	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
105	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
110	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
115	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
120	0.203	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
125	0.213	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
130	0.223	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
135	0.232	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
140	0.242	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
145	0.252	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
150	0.262	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
155	0.271	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
160	0.281	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
165	0.291	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
170	0.301	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
175	0.310	0.194	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
180	0.320	0.202	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
185	0.330	0.210	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
190	0.339	0.218	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
195	0.349	0.227	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
200	0.359	0.235	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
205	0.369	0.243	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
210	0.378	0.251	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
215	0.388	0.259	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
220	0.398	0.267	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
225	0.408	0.276	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
230	0.417	0.284	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
235	0.427	0.292	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
240	0.437	0.300	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
245	0.447	0.308	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
250	0.456	0.316	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
255	0.466	0.325	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
260	0.476	0.333	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
265	0.486	0.341	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
270	0.495	0.349	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
275	0.505	0.357	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
280	0.515	0.366	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
285	0.524	0.374	0.194	0.193	0.193	0.193	0.193	0.193	0.193	0.193
290	0.534	0.382	0.202	0.193	0.193	0.193	0.193	0.193	0.193	0.193

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
295	0.544	0.390	0.210	0.193	0.193	0.193	0.193	0.193	0.193	0.193
300	0.554	0.398	0.218	0.193	0.193	0.193	0.193	0.193	0.193	0.193
305	0.563	0.406	0.226	0.193	0.193	0.193	0.193	0.193	0.193	0.193
310	0.573	0.415	0.234	0.193	0.193	0.193	0.193	0.193	0.193	0.193
315	0.583	0.423	0.242	0.193	0.193	0.193	0.193	0.193	0.193	0.193
320	0.593	0.431	0.250	0.193	0.193	0.193	0.193	0.193	0.193	0.193
325	0.602	0.439	0.258	0.193	0.193	0.193	0.193	0.193	0.193	0.193
330	0.612	0.447	0.266	0.193	0.193	0.193	0.193	0.193	0.193	0.193
335	0.622	0.455	0.274	0.193	0.193	0.193	0.193	0.193	0.193	0.193

Tables B3 to B9 are applicable to I- and H- section beams with a concrete slab and protection of STEELGUARD™651 on three sides

Table B5 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section beams for R 30

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
65	0.212	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
70	0.235	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
75	0.258	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
80	0.281	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
85	0.304	0.194	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
90	0.327	0.205	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
95	0.350	0.216	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
100	0.373	0.227	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
105	0.396	0.238	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
110	0.419	0.250	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
115	0.442	0.261	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
120	0.466	0.272	0.199	0.193	0.193	0.193	0.193	0.193	0.193	0.193
125	0.489	0.283	0.209	0.193	0.193	0.193	0.193	0.193	0.193	0.193
130	0.512	0.294	0.219	0.193	0.193	0.193	0.193	0.193	0.193	0.193
135	0.535	0.305	0.228	0.193	0.193	0.193	0.193	0.193	0.193	0.193
140	0.558	0.316	0.238	0.193	0.193	0.193	0.193	0.193	0.193	0.193
145	0.581	0.327	0.247	0.193	0.193	0.193	0.193	0.193	0.193	0.193
150	0.604	0.338	0.257	0.193	0.193	0.193	0.193	0.193	0.193	0.193
155	0.627	0.349	0.267	0.193	0.193	0.193	0.193	0.193	0.193	0.193
160	0.650	0.361	0.276	0.193	0.193	0.193	0.193	0.193	0.193	0.193
165	0.673	0.372	0.286	0.193	0.193	0.193	0.193	0.193	0.193	0.193
170	0.696	0.383	0.295	0.193	0.193	0.193	0.193	0.193	0.193	0.193
175	0.699	0.394	0.305	0.202	0.193	0.193	0.193	0.193	0.193	0.193
180	0.699	0.405	0.315	0.211	0.193	0.193	0.193	0.193	0.193	0.193
185	0.699	0.416	0.324	0.220	0.193	0.193	0.193	0.193	0.193	0.193
190	0.699	0.427	0.334	0.229	0.193	0.193	0.193	0.193	0.193	0.193
195	0.699	0.438	0.343	0.238	0.193	0.193	0.193	0.193	0.193	0.193
200	0.699	0.449	0.353	0.247	0.193	0.193	0.193	0.193	0.193	0.193
205	0.699	0.460	0.363	0.256	0.193	0.193	0.193	0.193	0.193	0.193
210	0.699	0.472	0.372	0.265	0.193	0.193	0.193	0.193	0.193	0.193
215	0.699	0.483	0.382	0.274	0.195	0.193	0.193	0.193	0.193	0.193
220	0.726	0.494	0.391	0.283	0.204	0.193	0.193	0.193	0.193	0.193
225	0.758	0.505	0.401	0.292	0.212	0.193	0.193	0.193	0.193	0.193
230	0.789	0.516	0.411	0.301	0.221	0.198	0.193	0.193	0.193	0.193

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
235	0.821	0.527	0.420	0.310	0.229	0.206	0.193	0.193	0.193	0.193
240	1.046	0.538	0.430	0.319	0.238	0.214	0.193	0.193	0.193	0.193
245	1.072	0.549	0.439	0.328	0.246	0.223	0.193	0.193	0.193	0.193
250	1.097	0.560	0.449	0.337	0.255	0.231	0.193	0.193	0.193	0.193
255	1.122	0.571	0.459	0.346	0.263	0.240	0.193	0.193	0.193	0.193
260	1.147	0.583	0.468	0.355	0.272	0.248	0.198	0.193	0.193	0.193
265	1.173	0.594	0.478	0.364	0.280	0.257	0.206	0.193	0.193	0.193
270	1.198	0.605	0.487	0.373	0.289	0.265	0.215	0.193	0.193	0.193
275	1.223	0.616	0.497	0.382	0.297	0.274	0.223	0.193	0.193	0.193
280	1.249	0.627	0.507	0.391	0.306	0.282	0.231	0.193	0.193	0.193
285	1.274	0.638	0.516	0.400	0.314	0.290	0.240	0.193	0.193	0.193
290	1.299	0.649	0.526	0.409	0.323	0.299	0.248	0.193	0.193	0.193
295	1.324	0.660	0.535	0.418	0.331	0.307	0.256	0.193	0.193	0.193
300	1.350	0.671	0.545	0.427	0.340	0.316	0.265	0.201	0.193	0.193
305	1.375	0.682	0.555	0.436	0.348	0.324	0.273	0.209	0.193	0.193
310	1.400	0.693	0.564	0.445	0.357	0.333	0.282	0.217	0.193	0.193
315	1.419	0.705	0.574	0.454	0.365	0.341	0.290	0.225	0.193	0.193
320	1.437	0.716	0.583	0.463	0.374	0.349	0.298	0.233	0.193	0.193
325	1.455	0.727	0.593	0.472	0.382	0.358	0.307	0.241	0.193	0.193
330	1.474	0.760	0.603	0.481	0.391	0.366	0.315	0.249	0.193	0.193
335	1.492	0.812	0.612	0.490	0.399	0.375	0.323	0.257	0.193	0.193

Tables B3 to B9 are applicable to I- and H- section beams with a concrete slab and protection of STEELGUARD™651 on three sides

Table B6 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section beams for R 45

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
65	0.613	0.392	0.231	0.193	0.193	0.193	0.193	0.193	0.193	0.193
70	0.667	0.427	0.254	0.193	0.193	0.193	0.193	0.193	0.193	0.193
75	0.721	0.461	0.276	0.193	0.193	0.193	0.193	0.193	0.193	0.193
80	0.758	0.496	0.299	0.194	0.193	0.193	0.193	0.193	0.193	0.193
85	0.790	0.531	0.322	0.207	0.193	0.193	0.193	0.193	0.193	0.193
90	0.821	0.566	0.345	0.219	0.193	0.193	0.193	0.193	0.193	0.193
95	0.852	0.600	0.367	0.232	0.198	0.193	0.193	0.193	0.193	0.193
100	0.883	0.635	0.390	0.245	0.209	0.200	0.193	0.193	0.193	0.193
105	0.914	0.670	0.413	0.258	0.220	0.211	0.194	0.193	0.193	0.193
110	0.945	0.699	0.436	0.271	0.231	0.222	0.204	0.193	0.193	0.193
115	0.976	0.699	0.458	0.283	0.242	0.233	0.215	0.193	0.193	0.193
120	1.008	0.699	0.481	0.296	0.253	0.243	0.225	0.195	0.193	0.193
125	1.039	0.728	0.504	0.309	0.264	0.254	0.235	0.205	0.193	0.193
130	1.070	0.758	0.527	0.322	0.275	0.265	0.246	0.215	0.193	0.193
135	1.101	0.788	0.549	0.335	0.286	0.276	0.256	0.225	0.193	0.193
140	1.132	0.818	0.572	0.347	0.297	0.287	0.267	0.235	0.193	0.193
145	1.163	0.848	0.595	0.360	0.308	0.298	0.277	0.245	0.193	0.193
150	1.195	0.878	0.618	0.373	0.319	0.308	0.287	0.255	0.193	0.193
155	1.226	0.908	0.640	0.386	0.330	0.319	0.298	0.265	0.194	0.193
160	1.257	0.939	0.663	0.399	0.341	0.330	0.308	0.274	0.203	0.193
165	1.288	0.969	0.686	0.411	0.352	0.341	0.319	0.284	0.212	0.193

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
170	1.319	0.999	0.699	0.424	0.363	0.352	0.329	0.294	0.221	0.193
175	1.350	1.029	0.699	0.437	0.374	0.363	0.340	0.304	0.231	0.193
180	1.381	1.059	0.699	0.450	0.385	0.373	0.350	0.314	0.240	0.193
185	1.413	1.089	0.699	0.463	0.396	0.384	0.360	0.324	0.249	0.193
190	1.444	1.119	0.699	0.475	0.407	0.395	0.371	0.334	0.258	0.193
195	1.475	1.149	0.699	0.488	0.418	0.406	0.381	0.344	0.268	0.193
200	1.506	1.179	0.699	0.501	0.430	0.417	0.392	0.354	0.277	0.193
205	1.537	1.210	0.699	0.514	0.441	0.427	0.402	0.363	0.286	0.193
210	1.568	1.240	0.699	0.527	0.452	0.438	0.412	0.373	0.295	0.193
215	1.600	1.270	0.710	0.539	0.463	0.449	0.423	0.383	0.304	0.193
220	1.631	1.300	0.751	0.552	0.474	0.460	0.433	0.393	0.314	0.198
225	1.662	1.330	0.791	0.565	0.485	0.471	0.444	0.403	0.323	0.207
230	1.693	1.360	0.832	0.578	0.496	0.482	0.454	0.413	0.332	0.215
235	1.721	1.390	0.872	0.591	0.507	0.492	0.465	0.423	0.341	0.224
240	1.739	1.505	1.059	0.603	0.518	0.503	0.475	0.433	0.350	0.233
245	1.757	1.522	1.084	0.616	0.529	0.514	0.485	0.442	0.360	0.241
250	1.774	1.540	1.109	0.629	0.540	0.525	0.496	0.452	0.369	0.250
255	1.792	1.558	1.134	0.642	0.551	0.536	0.506	0.462	0.378	0.259
260	1.810	1.576	1.160	0.655	0.562	0.547	0.517	0.472	0.387	0.268
265	1.827	1.594	1.185	0.667	0.573	0.557	0.527	0.482	0.396	0.276
270	1.845	1.611	1.210	0.680	0.584	0.568	0.538	0.492	0.406	0.285
275	1.862	1.629	1.235	0.693	0.595	0.579	0.548	0.502	0.415	0.294
280	1.880	1.647	1.260	0.706	0.606	0.590	0.558	0.512	0.424	0.302
285	1.898	1.665	1.286	0.719	0.617	0.601	0.569	0.522	0.433	0.311

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
290	1.915	1.682	1.311	0.731	0.628	0.611	0.579	0.531	0.442	0.320
295	1.933	1.700	1.336	0.774	0.639	0.622	0.590	0.541	0.452	0.329
300	1.951	1.718	1.361	0.817	0.650	0.633	0.600	0.551	0.461	0.337
305	1.968	1.736	1.386	0.860	0.661	0.644	0.610	0.561	0.470	0.346
310	1.986	1.754	1.410	0.903	0.672	0.655	0.621	0.571	0.479	0.355
315	2.022	1.771	1.433	0.946	0.683	0.666	0.631	0.581	0.488	0.364
320	2.059	1.789	1.456	0.989	0.695	0.676	0.642	0.591	0.498	0.372
325	2.095	1.807	1.478	1.032	0.706	0.687	0.652	0.601	0.507	0.381
330	2.132	1.825	1.501	1.075	0.717	0.698	0.663	0.611	0.516	0.390
335	2.168	1.843	1.524	1.118	0.728	0.709	0.673	0.620	0.525	0.398

Tables B3 to B9 are applicable to I- and H- section beams with a concrete slab and protection of STEELGUARD™651 on three sides

Table B7 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section beams for R 60

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
65	0.979	0.718	0.515	0.349	0.253	0.231	0.193	0.193	0.193	0.193
70	1.042	0.775	0.560	0.384	0.280	0.257	0.202	0.193	0.193	0.193
75	1.081	0.821	0.605	0.419	0.308	0.282	0.225	0.196	0.193	0.193
80	1.119	0.854	0.649	0.454	0.335	0.308	0.248	0.213	0.193	0.193
85	1.157	0.888	0.694	0.489	0.362	0.333	0.271	0.230	0.193	0.193
90	1.196	0.922	0.720	0.524	0.390	0.359	0.294	0.248	0.198	0.193
95	1.234	0.955	0.754	0.559	0.417	0.385	0.317	0.265	0.210	0.193
100	1.272	0.989	0.789	0.594	0.444	0.410	0.340	0.282	0.221	0.193
105	1.311	1.022	0.823	0.629	0.472	0.436	0.363	0.300	0.233	0.193

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
110	1.349	1.056	0.857	0.664	0.499	0.462	0.386	0.317	0.245	0.193
115	1.388	1.090	0.891	0.699	0.526	0.487	0.409	0.335	0.257	0.202
120	1.426	1.123	0.925	0.699	0.553	0.513	0.432	0.352	0.268	0.213
125	1.464	1.157	0.959	0.699	0.581	0.539	0.455	0.369	0.280	0.224
130	1.503	1.191	0.993	0.729	0.608	0.564	0.478	0.387	0.292	0.234
135	1.541	1.224	1.027	0.765	0.635	0.590	0.500	0.404	0.303	0.245
140	1.579	1.258	1.061	0.800	0.663	0.615	0.523	0.422	0.315	0.256
145	1.618	1.291	1.095	0.836	0.690	0.641	0.546	0.439	0.327	0.266
150	1.656	1.325	1.129	0.871	0.699	0.667	0.569	0.456	0.339	0.277
155	1.694	1.359	1.163	0.907	0.699	0.692	0.592	0.474	0.350	0.288
160	1.733	1.392	1.198	0.942	0.699	0.699	0.615	0.491	0.362	0.298
165	1.771	1.426	1.232	0.978	0.699	0.699	0.638	0.508	0.374	0.309
170	1.809	1.460	1.266	1.013	0.699	0.699	0.661	0.526	0.386	0.320
175	1.848	1.493	1.300	1.049	0.725	0.699	0.684	0.543	0.397	0.330
180	1.886	1.527	1.334	1.084	0.763	0.699	0.699	0.561	0.409	0.341
185	1.925	1.560	1.368	1.119	0.802	0.699	0.699	0.578	0.421	0.352
190	1.963	1.594	1.402	1.155	0.841	0.721	0.699	0.595	0.433	0.362
195	2.005	1.628	1.436	1.190	0.880	0.762	0.699	0.613	0.444	0.373
200	2.052	1.661	1.470	1.224	0.918	0.802	0.699	0.630	0.456	0.384
205	2.100	1.695	1.504	1.254	0.957	0.843	0.699	0.648	0.468	0.394
210	2.148	1.728	1.538	1.285	0.996	0.883	0.718	0.665	0.479	0.405
215	2.195	1.762	1.572	1.315	1.035	0.924	0.760	0.682	0.491	0.416
220	2.243	1.796	1.604	1.346	1.074	0.965	0.801	0.699	0.503	0.426
225	2.291	1.829	1.623	1.377	1.112	1.005	0.843	0.703	0.515	0.437

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
230	2.339	1.863	1.641	1.406	1.145	1.036	0.885	0.736	0.526	0.448
235	2.385	1.897	1.659	1.427	1.172	1.058	0.927	0.764	0.538	0.458
240	2.416	1.929	1.678	1.448	1.198	1.081	0.991	0.791	0.550	0.469
245	2.447	1.952	1.696	1.469	1.225	1.104	1.014	0.818	0.562	0.480
250	2.478	1.974	1.714	1.491	1.252	1.126	1.038	0.846	0.573	0.490
255	2.509	2.011	1.733	1.512	1.278	1.149	1.062	0.873	0.585	0.501
260	2.540	2.061	1.751	1.533	1.305	1.171	1.086	0.901	0.597	0.512
265	2.570	2.110	1.769	1.555	1.332	1.194	1.109	0.928	0.609	0.522
270	2.601	2.160	1.788	1.576	1.358	1.216	1.133	0.955	0.620	0.533
275	2.632	2.210	1.806	1.597	1.385	1.239	1.157	0.983	0.632	0.544
280	2.663	2.260	1.825	1.619	1.428	1.262	1.180	1.010	0.644	0.554
285	2.694	2.309	1.843	1.640	1.497	1.284	1.204	1.037	0.655	0.565
290	2.725	2.359	1.861	1.661	1.566	1.307	1.228	1.065	0.667	0.576
295	2.755	2.409	1.880	1.682	1.634	1.329	1.252	1.092	0.679	0.586
300	2.786	2.458	1.898	1.704	1.703	1.352	1.275	1.120	0.691	0.597
305	2.817	2.508	1.916	1.772	1.772	1.374	1.299	1.147	0.702	0.608
310	2.848	2.558	1.935	1.841	1.841	1.397	1.323	1.174	0.714	0.618
315	2.879	2.608	1.953	1.910	1.910	1.473	1.346	1.202	0.726	0.629
320	2.910	2.657	1.979	1.979	1.979	1.563	1.370	1.229	0.752	0.640
325	2.940	2.707	2.048	2.048	2.048	1.653	1.394	1.257	0.794	0.650
330	2.971	2.757	2.137	2.117	2.117	1.743	1.466	1.284	0.835	0.661
335	3.002	2.806	2.261	2.185	2.185	1.833	1.561	1.311	0.877	0.672

Tables B3 to B9 are applicable to I- and H- section beams with a concrete slab and protection of STEELGUARD™651 on three sides

Table B8 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section beams for R 90

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
65	1.668	1.384	1.108	0.924	0.805	0.777	0.722	0.589	0.449	0.308
70	1.719	1.388	1.176	0.977	0.832	0.797	0.748	0.645	0.488	0.337
75	1.806	1.453	1.234	1.023	0.870	0.835	0.785	0.701	0.526	0.366
80	1.892	1.517	1.291	1.069	0.909	0.874	0.823	0.745	0.565	0.395
85	1.979	1.582	1.347	1.115	0.947	0.912	0.861	0.775	0.603	0.424
90	2.098	1.647	1.404	1.162	0.986	0.950	0.899	0.806	0.642	0.452
95	2.220	1.712	1.460	1.208	1.024	0.989	0.936	0.836	0.680	0.481
100	2.343	1.777	1.512	1.254	1.063	1.027	0.974	0.866	0.719	0.510
105	2.465	1.842	1.552	1.300	1.101	1.066	1.012	0.896	0.749	0.539
110	2.588	1.907	1.593	1.346	1.140	1.104	1.049	0.926	0.775	0.568
115	2.710	1.965	1.634	1.392	1.178	1.143	1.087	0.957	0.801	0.597
120	2.833	2.014	1.675	1.438	1.217	1.181	1.124	0.987	0.827	0.625
125	2.955	2.058	1.716	1.484	1.255	1.219	1.161	1.017	0.853	0.654
130	3.042	2.102	1.756	1.514	1.294	1.258	1.197	1.047	0.879	0.683
135	3.095	2.145	1.797	1.541	1.332	1.296	1.234	1.077	0.906	0.712
140	3.149	2.189	1.838	1.569	1.371	1.335	1.271	1.108	0.932	0.740
145	3.203	2.232	1.879	1.597	1.409	1.373	1.307	1.138	0.958	0.768
150	3.256	2.276	1.920	1.624	1.448	1.411	1.344	1.168	0.984	0.795
155	3.310	2.319	1.961	1.652	1.486	1.450	1.380	1.198	1.010	0.822
160	3.364	2.363	2.003	1.679	1.525	1.488	1.415	1.228	1.036	0.850

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
165	3.417	2.406	2.051	1.707	1.563	1.527	1.446	1.258	1.062	0.877
170	3.471	2.450	2.098	1.734	1.602	1.565	1.477	1.289	1.088	0.904
175	3.525	2.493	2.146	1.762	1.635	1.598	1.509	1.319	1.115	0.932
180	3.579	2.537	2.193	1.789	1.664	1.627	1.540	1.349	1.141	0.959
185	3.632	2.580	2.240	1.817	1.693	1.657	1.571	1.379	1.167	0.987
190	3.686	2.624	2.288	1.845	1.722	1.686	1.602	1.411	1.193	1.014
195	3.740	2.668	2.335	1.872	1.751	1.715	1.634	1.448	1.219	1.041
200	3.793	2.711	2.382	1.900	1.779	1.745	1.665	1.485	1.245	1.069
205	-	2.755	2.430	1.927	1.808	1.774	1.696	1.521	1.271	1.096
210	-	2.798	2.477	1.955	1.837	1.803	1.727	1.558	1.297	1.123
215	-	2.842	2.524	1.982	1.866	1.833	1.758	1.595	1.324	1.151
220	-	2.885	2.572	2.038	1.895	1.862	1.790	1.632	1.350	1.178
225	-	2.929	2.619	2.102	1.923	1.891	1.821	1.669	1.376	1.206
230	-	2.972	2.667	2.166	1.952	1.921	1.852	1.706	1.402	1.233
235	-	3.016	2.714	2.229	1.981	1.950	1.883	1.743	1.443	1.260

Tables B3 to B9 are applicable to I- and H- section beams with a concrete slab and protection of STEELGUARD™651 on three sides

Table B9 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section beams for R 120

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
65	2.862	2.247	1.619	1.419	1.270	1.223	1.146	1.046	0.879	0.720
70	2.862	2.247	1.697	1.482	1.329	1.288	1.209	1.100	0.920	0.758
75	3.088	2.446	1.775	1.545	1.389	1.353	1.275	1.164	0.977	0.796
80	3.313	2.644	1.853	1.608	1.444	1.415	1.340	1.223	1.026	0.835

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
85	3.539	2.842	1.931	1.671	1.498	1.465	1.404	1.283	1.075	0.873
90	3.765	3.042	2.028	1.734	1.551	1.515	1.449	1.342	1.124	0.911
95	3.990	3.248	2.181	1.798	1.604	1.566	1.494	1.401	1.173	0.949
100	4.216	3.453	2.333	1.861	1.658	1.616	1.540	1.440	1.222	0.987
105	4.442	3.659	2.486	1.924	1.711	1.667	1.585	1.478	1.271	1.025
110	4.667	3.864	2.639	1.987	1.765	1.717	1.630	1.516	1.320	1.063
115	4.893	4.032	2.791	2.034	1.818	1.767	1.675	1.554	1.369	1.101
120	5.119	4.110	2.944	2.080	1.872	1.818	1.720	1.592	1.412	1.139
125	-	4.189	3.096	2.126	1.925	1.868	1.766	1.630	1.441	1.177
130	-	4.268	3.249	2.173	1.978	1.919	1.811	1.668	1.470	1.215
135	-	4.347	3.401	2.219	2.028	1.969	1.856	1.706	1.499	1.253
140	-	4.425	4.237	2.266	2.077	2.020	1.901	1.744	1.527	1.291
145	-	4.504	4.306	2.312	2.125	2.071	1.947	1.782	1.556	1.329
150	-	4.583	4.375	2.359	2.174	2.121	1.993	1.820	1.585	1.367
155	-	4.661	4.444	2.405	2.223	2.172	2.049	1.858	1.614	1.405
160	-	4.740	4.513	2.451	2.271	2.223	2.105	1.896	1.643	1.438
165	-	4.819	4.582	2.498	2.320	2.274	2.161	1.934	1.672	1.471
170	-	4.898	4.651	2.544	2.369	2.325	2.217	1.972	1.700	1.503
175	-	4.976	4.721	2.591	2.417	2.376	2.273	2.028	1.729	1.536
180	-	5.055	4.790	2.637	2.466	2.426	2.329	2.097	1.758	1.569
185	-	5.134	4.859	2.683	2.515	2.477	2.385	2.167	1.787	1.602
190	-	5.213	4.928	2.730	2.563	2.528	2.442	2.237	1.816	1.635
195	-	-	4.997	2.776	2.612	2.579	2.498	2.307	1.845	1.668
200	-	-	5.066	2.823	2.661	2.630	2.554	2.376	1.874	1.701

Section factor (m-1)	Design temperature (°C)									
	350	400	450	500	540	550	570	600	650	700
205	-	-	5.135	2.869	2.709	2.681	2.610	2.446	1.902	1.733
210	-	-	5.204	2.915	2.758	2.731	2.666	2.516	1.931	1.766
215	-	-	-	2.962	2.806	2.782	2.722	2.585	1.960	1.799
220	-	-	-	3.008	2.855	2.833	2.778	2.655	1.991	1.832
225	-	-	-	3.055	2.904	2.884	2.834	2.725	2.077	1.865
230	-	-	-	3.101	2.952	2.935	2.890	2.795	2.164	1.898
235	-	-	-	3.147	3.001	2.986	2.947	2.864	2.250	1.931

Tables B3 to B9 are applicable to I- and H- section beams with a concrete slab and protection of STEELGUARD™651 on three sides

Table B10 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section columns for R 15

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
70	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
75	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
80	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
85	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
90	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
95	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
100	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
105	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
110	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
115	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
120	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
125	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
130	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
135	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
140	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
145	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
150	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
155	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
160	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
165	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
170	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
175	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
180	0.206	0.198	0.198	0.198	0.198	0.198	0.198	0.198
185	0.220	0.198	0.198	0.198	0.198	0.198	0.198	0.198
190	0.235	0.198	0.198	0.198	0.198	0.198	0.198	0.198
195	0.249	0.198	0.198	0.198	0.198	0.198	0.198	0.198
200	0.264	0.198	0.198	0.198	0.198	0.198	0.198	0.198
205	0.278	0.198	0.198	0.198	0.198	0.198	0.198	0.198
210	0.293	0.198	0.198	0.198	0.198	0.198	0.198	0.198
215	0.307	0.198	0.198	0.198	0.198	0.198	0.198	0.198
220	0.322	0.198	0.198	0.198	0.198	0.198	0.198	0.198
225	0.336	0.198	0.198	0.198	0.198	0.198	0.198	0.198
230	0.351	0.198	0.198	0.198	0.198	0.198	0.198	0.198
235	0.365	0.198	0.198	0.198	0.198	0.198	0.198	0.198
240	0.379	0.198	0.198	0.198	0.198	0.198	0.198	0.198
245	0.394	0.198	0.198	0.198	0.198	0.198	0.198	0.198

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
250	0.408	0.198	0.198	0.198	0.198	0.198	0.198	0.198
255	0.423	0.198	0.198	0.198	0.198	0.198	0.198	0.198
260	0.437	0.198	0.198	0.198	0.198	0.198	0.198	0.198
265	0.452	0.198	0.198	0.198	0.198	0.198	0.198	0.198
270	0.466	0.198	0.198	0.198	0.198	0.198	0.198	0.198
275	0.481	0.198	0.198	0.198	0.198	0.198	0.198	0.198
280	0.495	0.200	0.198	0.198	0.198	0.198	0.198	0.198
285	0.510	0.214	0.198	0.198	0.198	0.198	0.198	0.198
290	0.524	0.228	0.198	0.198	0.198	0.198	0.198	0.198
295	0.539	0.241	0.198	0.198	0.198	0.198	0.198	0.198
300	0.553	0.255	0.198	0.198	0.198	0.198	0.198	0.198
305	0.568	0.268	0.198	0.198	0.198	0.198	0.198	0.198
310	0.582	0.282	0.198	0.198	0.198	0.198	0.198	0.198
315	0.597	0.295	0.198	0.198	0.198	0.198	0.198	0.198
320	0.611	0.309	0.198	0.198	0.198	0.198	0.198	0.198
325	0.626	0.322	0.198	0.198	0.198	0.198	0.198	0.198
330	0.640	0.336	0.198	0.198	0.198	0.198	0.198	0.198
335	0.654	0.349	0.198	0.198	0.198	0.198	0.198	0.198
340	0.669	0.363	0.198	0.198	0.198	0.198	0.198	0.198
345	0.683	0.377	0.198	0.198	0.198	0.198	0.198	0.198
350	0.698	0.390	0.198	0.198	0.198	0.198	0.198	0.198
355	0.712	0.404	0.198	0.198	0.198	0.198	0.198	0.198
360	0.727	0.417	0.198	0.198	0.198	0.198	0.198	0.198
365	0.741	0.431	0.198	0.198	0.198	0.198	0.198	0.198

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
370	0.756	0.444	0.198	0.198	0.198	0.198	0.198	0.198
375	0.770	0.458	0.198	0.198	0.198	0.198	0.198	0.198

Tables B10 to B16 are applicable to I- and H- section columns and beams with four sides protection of STEELGUARD™651, but beams are limited to a maximum protection thickness of 5.226mm.

Table B11 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section columns for R 20

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
70	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
75	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
80	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
85	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
90	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
95	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
100	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
105	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
110	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
115	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
120	0.212	0.198	0.198	0.198	0.198	0.198	0.198	0.198
125	0.230	0.198	0.198	0.198	0.198	0.198	0.198	0.198
130	0.248	0.198	0.198	0.198	0.198	0.198	0.198	0.198
135	0.267	0.198	0.198	0.198	0.198	0.198	0.198	0.198
140	0.285	0.198	0.198	0.198	0.198	0.198	0.198	0.198
145	0.304	0.198	0.198	0.198	0.198	0.198	0.198	0.198
150	0.322	0.198	0.198	0.198	0.198	0.198	0.198	0.198

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
155	0.340	0.198	0.198	0.198	0.198	0.198	0.198	0.198
160	0.359	0.198	0.198	0.198	0.198	0.198	0.198	0.198
165	0.377	0.198	0.198	0.198	0.198	0.198	0.198	0.198
170	0.396	0.209	0.198	0.198	0.198	0.198	0.198	0.198
175	0.414	0.225	0.198	0.198	0.198	0.198	0.198	0.198
180	0.432	0.241	0.198	0.198	0.198	0.198	0.198	0.198
185	0.451	0.257	0.198	0.198	0.198	0.198	0.198	0.198
190	0.469	0.273	0.198	0.198	0.198	0.198	0.198	0.198
195	0.487	0.289	0.198	0.198	0.198	0.198	0.198	0.198
200	0.506	0.304	0.198	0.198	0.198	0.198	0.198	0.198
205	0.524	0.320	0.198	0.198	0.198	0.198	0.198	0.198
210	0.543	0.336	0.198	0.198	0.198	0.198	0.198	0.198
215	0.561	0.352	0.198	0.198	0.198	0.198	0.198	0.198
220	0.579	0.368	0.198	0.198	0.198	0.198	0.198	0.198
225	0.598	0.384	0.198	0.198	0.198	0.198	0.198	0.198
230	0.616	0.400	0.198	0.198	0.198	0.198	0.198	0.198
235	0.634	0.416	0.198	0.198	0.198	0.198	0.198	0.198
240	0.653	0.432	0.198	0.198	0.198	0.198	0.198	0.198
245	0.671	0.448	0.204	0.198	0.198	0.198	0.198	0.198
250	0.690	0.463	0.219	0.198	0.198	0.198	0.198	0.198
255	0.708	0.479	0.234	0.198	0.198	0.198	0.198	0.198
260	0.726	0.495	0.249	0.198	0.198	0.198	0.198	0.198
265	0.745	0.511	0.264	0.198	0.198	0.198	0.198	0.198
270	0.763	0.527	0.279	0.198	0.198	0.198	0.198	0.198

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
275	0.781	0.543	0.294	0.198	0.198	0.198	0.198	0.198
280	0.800	0.559	0.309	0.198	0.198	0.198	0.198	0.198
285	0.818	0.575	0.324	0.198	0.198	0.198	0.198	0.198
290	0.837	0.591	0.340	0.198	0.198	0.198	0.198	0.198
295	0.855	0.606	0.355	0.198	0.198	0.198	0.198	0.198
300	0.873	0.622	0.370	0.198	0.198	0.198	0.198	0.198
305	0.892	0.638	0.385	0.198	0.198	0.198	0.198	0.198
310	0.910	0.654	0.400	0.198	0.198	0.198	0.198	0.198
315	0.928	0.670	0.415	0.198	0.198	0.198	0.198	0.198
320	0.947	0.686	0.430	0.198	0.198	0.198	0.198	0.198
325	0.965	0.702	0.445	0.198	0.198	0.198	0.198	0.198
330	0.984	0.718	0.460	0.198	0.198	0.198	0.198	0.198
335	1.002	0.734	0.475	0.198	0.198	0.198	0.198	0.198
340	1.020	0.749	0.490	0.198	0.198	0.198	0.198	0.198
345	1.033	0.765	0.505	0.198	0.198	0.198	0.198	0.198
350	1.046	0.781	0.520	0.205	0.198	0.198	0.198	0.198
355	1.059	0.797	0.536	0.221	0.198	0.198	0.198	0.198
360	1.072	0.813	0.551	0.236	0.198	0.198	0.198	0.198
365	1.085	0.829	0.566	0.251	0.198	0.198	0.198	0.198
370	1.098	0.845	0.581	0.266	0.198	0.198	0.198	0.198
375	1.111	0.861	0.596	0.282	0.198	0.198	0.198	0.198

Tables B10 to B16 are applicable to I- and H- section columns and beams with four sides protection of STEELGUARD™651, but beams are limited to a maximum protection thickness of 5.226mm.

Table B12 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section columns for R 30

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
70	0.216	0.198	0.198	0.198	0.198	0.198	0.198	0.198
75	0.243	0.198	0.198	0.198	0.198	0.198	0.198	0.198
80	0.269	0.198	0.198	0.198	0.198	0.198	0.198	0.198
85	0.295	0.198	0.198	0.198	0.198	0.198	0.198	0.198
90	0.321	0.198	0.198	0.198	0.198	0.198	0.198	0.198
95	0.348	0.213	0.198	0.198	0.198	0.198	0.198	0.198
100	0.374	0.235	0.198	0.198	0.198	0.198	0.198	0.198
105	0.400	0.257	0.198	0.198	0.198	0.198	0.198	0.198
110	0.427	0.280	0.198	0.198	0.198	0.198	0.198	0.198
115	0.453	0.302	0.198	0.198	0.198	0.198	0.198	0.198
120	0.479	0.324	0.198	0.198	0.198	0.198	0.198	0.198
125	0.506	0.347	0.204	0.198	0.198	0.198	0.198	0.198
130	0.532	0.369	0.224	0.198	0.198	0.198	0.198	0.198
135	0.558	0.391	0.244	0.198	0.198	0.198	0.198	0.198
140	0.585	0.413	0.264	0.198	0.198	0.198	0.198	0.198
145	0.611	0.436	0.283	0.198	0.198	0.198	0.198	0.198
150	0.637	0.458	0.303	0.198	0.198	0.198	0.198	0.198
155	0.664	0.480	0.323	0.198	0.198	0.198	0.198	0.198
160	0.690	0.503	0.343	0.198	0.198	0.198	0.198	0.198
165	0.716	0.525	0.363	0.198	0.198	0.198	0.198	0.198
170	0.742	0.547	0.382	0.199	0.198	0.198	0.198	0.198
175	0.769	0.570	0.402	0.218	0.198	0.198	0.198	0.198
180	0.795	0.592	0.422	0.237	0.198	0.198	0.198	0.198

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
185	0.821	0.614	0.442	0.256	0.198	0.198	0.198	0.198
190	0.848	0.636	0.462	0.274	0.198	0.198	0.198	0.198
195	0.874	0.659	0.481	0.293	0.198	0.198	0.198	0.198
200	0.900	0.681	0.501	0.312	0.198	0.198	0.198	0.198
205	0.927	0.703	0.521	0.330	0.198	0.198	0.198	0.198
210	0.953	0.726	0.541	0.349	0.198	0.198	0.198	0.198
215	0.979	0.748	0.561	0.368	0.211	0.198	0.198	0.198
220	1.006	0.770	0.581	0.387	0.228	0.198	0.198	0.198
225	1.029	0.793	0.600	0.405	0.245	0.198	0.198	0.198
230	1.049	0.815	0.620	0.424	0.262	0.198	0.198	0.198
235	1.069	0.837	0.640	0.443	0.280	0.198	0.198	0.198
240	1.089	0.859	0.660	0.462	0.297	0.198	0.198	0.198
245	1.109	0.882	0.680	0.480	0.314	0.198	0.198	0.198
250	1.129	0.904	0.699	0.499	0.331	0.198	0.198	0.198
255	1.149	0.926	0.719	0.518	0.348	0.198	0.198	0.198
260	1.169	0.949	0.739	0.536	0.365	0.213	0.198	0.198
265	1.189	0.971	0.759	0.555	0.382	0.228	0.198	0.198
270	1.209	0.993	0.779	0.574	0.399	0.243	0.198	0.198
275	1.229	1.016	0.798	0.593	0.416	0.259	0.198	0.198
280	1.249	1.033	0.818	0.611	0.433	0.274	0.198	0.198
285	1.269	1.051	0.838	0.630	0.450	0.289	0.198	0.198
290	1.289	1.068	0.858	0.649	0.467	0.305	0.198	0.198
295	1.309	1.085	0.878	0.668	0.485	0.320	0.198	0.198
300	1.329	1.102	0.897	0.686	0.502	0.335	0.198	0.198

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
305	1.349	1.120	0.917	0.705	0.519	0.351	0.198	0.198
310	1.369	1.137	0.937	0.724	0.536	0.366	0.198	0.198
315	1.389	1.154	0.957	0.743	0.553	0.381	0.200	0.198
320	1.409	1.171	0.977	0.761	0.570	0.397	0.214	0.198
325	1.429	1.189	0.996	0.780	0.587	0.412	0.227	0.198
330	1.449	1.206	1.016	0.799	0.604	0.427	0.241	0.198
335	1.469	1.223	1.032	0.817	0.621	0.442	0.254	0.198
340	1.489	1.241	1.048	0.836	0.638	0.458	0.267	0.198
345	1.509	1.258	1.064	0.855	0.655	0.473	0.281	0.198
350	1.529	1.275	1.080	0.874	0.673	0.488	0.294	0.198
355	1.549	1.292	1.096	0.892	0.690	0.504	0.308	0.198
360	1.569	1.310	1.111	0.911	0.707	0.519	0.321	0.198
365	1.589	1.327	1.127	0.930	0.724	0.534	0.335	0.198
370	1.609	1.344	1.143	0.949	0.741	0.550	0.348	0.198
375	1.629	1.361	1.159	0.967	0.758	0.565	0.361	0.202

Tables B10 to B16 are applicable to I- and H- section columns and beams with four sides protection of STEELGUARD™651, but beams are limited to a maximum protection thickness of 5.226mm.

Table B13 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section columns for R 45

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
70	0.628	0.408	0.198	0.198	0.198	0.198	0.198	0.198
75	0.683	0.436	0.226	0.198	0.198	0.198	0.198	0.198
80	0.738	0.463	0.255	0.198	0.198	0.198	0.198	0.198
85	0.792	0.491	0.284	0.198	0.198	0.198	0.198	0.198

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
90	0.847	0.518	0.313	0.198	0.198	0.198	0.198	0.198
95	0.902	0.546	0.342	0.213	0.198	0.198	0.198	0.198
100	0.957	0.574	0.371	0.239	0.198	0.198	0.198	0.198
105	1.011	0.601	0.400	0.265	0.198	0.198	0.198	0.198
110	1.041	0.629	0.429	0.291	0.198	0.198	0.198	0.198
115	1.066	0.656	0.458	0.317	0.221	0.198	0.198	0.198
120	1.092	0.684	0.488	0.343	0.244	0.198	0.198	0.198
125	1.118	0.711	0.517	0.369	0.268	0.198	0.198	0.198
130	1.144	0.739	0.546	0.395	0.291	0.204	0.198	0.198
135	1.170	0.767	0.575	0.421	0.314	0.225	0.198	0.198
140	1.196	0.794	0.604	0.447	0.338	0.246	0.198	0.198
145	1.222	0.822	0.633	0.473	0.361	0.267	0.198	0.198
150	1.248	0.849	0.662	0.499	0.385	0.289	0.198	0.198
155	1.274	0.877	0.691	0.525	0.408	0.310	0.211	0.198
160	1.300	0.905	0.720	0.551	0.431	0.331	0.230	0.198
165	1.325	0.932	0.749	0.577	0.455	0.352	0.250	0.198
170	1.351	0.960	0.778	0.603	0.478	0.373	0.269	0.198
175	1.377	0.987	0.808	0.629	0.502	0.394	0.288	0.198
180	1.403	1.015	0.837	0.655	0.525	0.415	0.307	0.198
185	1.429	1.043	0.866	0.681	0.548	0.437	0.326	0.209
190	1.455	1.071	0.895	0.707	0.572	0.458	0.345	0.226
195	1.481	1.100	0.924	0.733	0.595	0.479	0.364	0.243
200	1.507	1.128	0.953	0.759	0.619	0.500	0.383	0.259
205	1.533	1.156	0.982	0.785	0.642	0.521	0.402	0.276

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
210	1.559	1.184	1.011	0.811	0.666	0.542	0.421	0.293
215	1.585	1.213	1.036	0.837	0.689	0.564	0.440	0.310
220	1.610	1.241	1.060	0.863	0.712	0.585	0.459	0.327
225	1.636	1.269	1.084	0.889	0.736	0.606	0.479	0.344
230	1.662	1.298	1.108	0.915	0.759	0.627	0.498	0.360
235	1.688	1.326	1.132	0.941	0.783	0.648	0.517	0.377
240	1.714	1.354	1.156	0.967	0.806	0.669	0.536	0.394
245	1.740	1.382	1.180	0.993	0.829	0.691	0.555	0.411
250	1.766	1.411	1.204	1.019	0.853	0.712	0.574	0.428
255	1.792	1.439	1.228	1.042	0.876	0.733	0.593	0.444
260	1.818	1.467	1.252	1.065	0.900	0.754	0.612	0.461
265	1.844	1.495	1.276	1.088	0.923	0.775	0.631	0.478
270	1.869	1.524	1.300	1.110	0.936	0.796	0.650	0.495
275	1.895	1.552	1.324	1.133	0.941	0.817	0.669	0.512
280	1.921	1.580	1.348	1.156	0.978	0.839	0.688	0.528
285	1.947	1.608	1.372	1.179	1.016	0.860	0.708	0.545
290	1.973	1.637	1.396	1.202	1.054	0.881	0.727	0.562
295	1.999	1.665	1.420	1.225	1.092	0.902	0.746	0.579
300	2.025	1.693	1.444	1.248	1.130	0.923	0.765	0.596
305	2.051	1.721	1.468	1.271	1.167	0.936	0.784	0.612
310	2.077	1.750	1.492	1.294	1.205	0.936	0.803	0.629
315	2.103	1.778	1.516	1.316	1.243	0.964	0.822	0.646
320	2.128	1.806	1.540	1.339	1.281	1.001	0.841	0.663
325	2.154	1.834	1.564	1.362	1.319	1.037	0.860	0.680

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
330	2.180	1.863	1.588	1.385	1.356	1.074	0.879	0.697
335	2.206	1.891	1.612	1.408	1.394	1.111	0.898	0.713
340	2.232	1.919	1.636	1.432	1.432	1.148	0.918	0.730
345	2.258	1.943	1.660	1.470	1.470	1.184	0.936	0.747
350	2.284	1.967	1.684	1.508	1.508	1.221	0.936	0.764
355	2.310	1.991	1.708	1.545	1.545	1.258	0.939	0.781
360	2.336	2.014	1.733	1.583	1.583	1.295	0.974	0.797
365	2.362	2.038	1.757	1.621	1.621	1.331	1.009	0.814
370	2.387	2.062	1.781	1.659	1.659	1.368	1.044	0.831
375	2.413	2.085	1.805	1.696	1.696	1.405	1.079	0.848

Tables B10 to B16 are applicable to I- and H- section columns and beams with four sides protection of STEELGUARD™651, but beams are limited to a maximum protection thickness of 5.226mm.

Table B14 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section columns for R 60

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
70	1.119	0.736	0.507	0.297	0.198	0.198	0.198	0.198
75	1.175	0.800	0.559	0.340	0.199	0.198	0.198	0.198
80	1.230	0.864	0.610	0.383	0.233	0.198	0.198	0.198
85	1.284	0.928	0.661	0.426	0.266	0.198	0.198	0.198
90	1.339	0.992	0.712	0.469	0.299	0.221	0.198	0.198
95	1.394	1.036	0.764	0.512	0.333	0.249	0.198	0.198
100	1.448	1.067	0.815	0.555	0.366	0.277	0.200	0.198
105	1.503	1.097	0.866	0.598	0.399	0.305	0.225	0.198
110	1.558	1.128	0.917	0.641	0.433	0.333	0.251	0.198

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
115	1.613	1.159	0.969	0.684	0.466	0.361	0.276	0.198
120	1.667	1.189	1.019	0.727	0.499	0.388	0.302	0.210
125	1.722	1.220	1.047	0.770	0.533	0.416	0.328	0.234
130	1.777	1.251	1.075	0.813	0.566	0.444	0.353	0.257
135	1.831	1.281	1.102	0.855	0.599	0.472	0.379	0.280
140	1.886	1.312	1.130	0.898	0.633	0.500	0.404	0.303
145	1.941	1.343	1.158	0.941	0.666	0.528	0.430	0.327
150	1.996	1.373	1.186	0.984	0.699	0.556	0.455	0.350
155	2.050	1.404	1.214	1.024	0.733	0.583	0.481	0.373
160	2.105	1.434	1.242	1.051	0.766	0.611	0.507	0.396
165	2.160	1.465	1.269	1.079	0.799	0.639	0.532	0.420
170	2.214	1.496	1.297	1.106	0.833	0.667	0.558	0.443
175	2.269	1.526	1.325	1.134	0.866	0.695	0.583	0.466
180	2.324	1.557	1.353	1.161	0.900	0.723	0.609	0.489
185	2.379	1.588	1.381	1.189	0.933	0.751	0.634	0.513
190	2.433	1.618	1.409	1.216	0.941	0.778	0.660	0.536
195	2.491	1.649	1.436	1.244	0.991	0.806	0.685	0.559
200	2.554	1.680	1.464	1.271	1.040	0.834	0.711	0.582
205	2.617	1.710	1.492	1.299	1.090	0.862	0.737	0.606
210	2.679	1.741	1.520	1.326	1.139	0.890	0.762	0.629
215	2.742	1.772	1.548	1.354	1.189	0.918	0.788	0.652
220	2.805	1.802	1.576	1.381	1.238	0.936	0.813	0.675
225	2.867	1.833	1.603	1.409	1.287	0.937	0.839	0.699
230	2.930	1.864	1.631	1.436	1.337	0.988	0.864	0.722

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
235	2.993	1.894	1.659	1.464	1.386	1.039	0.890	0.745
240	3.055	1.925	1.687	1.491	1.436	1.089	0.916	0.768
245	3.118	1.956	1.715	1.519	1.485	1.140	0.936	0.792
250	3.181	1.986	1.743	1.546	1.535	1.191	0.936	0.815
255	3.243	2.017	1.770	1.584	1.584	1.242	0.968	0.838
260	3.306	2.048	1.798	1.634	1.634	1.293	1.018	0.861
265	3.369	2.078	1.826	1.683	1.683	1.343	1.067	0.885
270	3.431	2.109	1.854	1.733	1.733	1.394	1.117	0.908
275	3.494	2.140	1.882	1.782	1.782	1.445	1.166	0.931
280	3.552	2.170	1.910	1.831	1.831	1.496	1.216	0.936
285	3.609	2.201	1.937	1.881	1.881	1.547	1.265	0.936
290	3.667	2.231	1.965	1.930	1.930	1.597	1.314	0.983
295	3.725	2.262	1.993	1.980	1.980	1.648	1.364	1.031
300	3.783	2.293	2.029	2.029	2.029	1.699	1.413	1.078
305	3.840	2.323	2.079	2.079	2.079	1.750	1.463	1.125
310	3.898	2.354	2.128	2.128	2.128	1.801	1.512	1.173
315	3.956	2.385	2.178	2.178	2.178	1.852	1.562	1.220
320	4.014	2.415	2.227	2.227	2.227	1.902	1.611	1.268
325	4.072	2.446	2.276	2.276	2.276	1.953	1.660	1.315
330	4.129	2.520	2.326	2.326	2.326	2.004	1.710	1.363
335	4.187	2.669	2.375	2.375	2.375	2.055	1.759	1.410
340	4.245	2.819	2.425	2.425	2.425	2.106	1.809	1.457
345	4.303	2.969	2.474	2.474	2.474	2.156	1.858	1.505
350	4.360	3.119	2.524	2.524	2.524	2.207	1.908	1.552

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
355	4.418	3.269	2.573	2.573	2.573	2.258	1.957	1.600
360	4.506	3.418	2.623	2.623	2.623	2.309	2.006	1.647
365	4.626	3.552	2.672	2.672	2.672	2.360	2.056	1.695
370	4.745	3.671	2.721	2.721	2.721	2.410	2.105	1.742
375	4.865	3.789	2.771	2.771	2.771	2.461	2.155	1.789

Tables B10 to B16 are applicable to I- and H- section columns and beams with four sides protection of STEELGUARD™651, but beams are limited to a maximum protection thickness of 5.226mm.

Table B15 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section columns for R 90

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
70	2.179	1.665	1.244	0.894	0.698	0.534	0.380	0.224
75	2.310	1.768	1.328	0.980	0.770	0.596	0.434	0.271
80	2.440	1.871	1.412	1.057	0.843	0.659	0.488	0.317
85	2.609	1.974	1.496	1.127	0.916	0.721	0.542	0.364
90	2.788	2.077	1.580	1.197	0.989	0.784	0.596	0.410
95	2.966	2.180	1.665	1.268	1.052	0.846	0.650	0.457
100	3.145	2.283	1.749	1.338	1.109	0.908	0.704	0.503
105	3.323	2.386	1.833	1.408	1.166	0.971	0.758	0.550
110	3.501	2.501	1.917	1.479	1.222	1.029	0.812	0.596
115	3.674	2.655	2.001	1.549	1.279	1.075	0.866	0.643
120	3.846	2.810	2.085	1.619	1.336	1.122	0.919	0.689
125	4.018	2.964	2.169	1.689	1.393	1.168	0.958	0.736
130	4.190	3.118	2.253	1.760	1.449	1.215	1.031	0.782
135	4.362	3.272	2.338	1.830	1.506	1.261	1.103	0.829
140	4.516	3.427	2.422	1.900	1.563	1.307	1.175	0.875

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
145	4.653	3.572	2.535	1.970	1.619	1.354	1.247	0.922
150	4.789	3.710	2.682	2.041	1.676	1.400	1.319	0.947
155	4.925	3.848	2.828	2.111	1.733	1.447	1.391	1.014
160	5.061	3.986	2.974	2.181	1.790	1.493	1.463	1.080
165	5.198	4.124	3.121	2.252	1.846	1.539	1.535	1.146
170	5.334	4.262	3.267	2.322	1.903	1.608	1.608	1.213
175	5.470	4.400	3.413	2.392	1.960	1.680	1.680	1.279
180	5.606	4.502	3.541	2.462	2.016	1.752	1.752	1.346
185	5.743	4.585	3.647	2.655	2.073	1.824	1.824	1.412
190	-	4.668	3.753	2.854	2.130	1.896	1.896	1.478
195	-	4.750	3.859	3.052	2.187	1.968	1.968	1.545
200	-	4.833	3.965	3.250	2.243	2.040	2.040	1.611
205	-	4.916	4.071	3.449	2.300	2.112	2.112	1.678
210	-	4.999	4.177	3.550	2.357	2.185	2.185	1.744
215	-	5.082	4.283	3.623	2.413	2.257	2.257	1.811
220	-	5.164	4.389	3.696	2.492	2.329	2.329	1.877
225	-	5.247	4.472	3.769	2.825	2.401	2.401	1.943
230	-	5.330	4.527	3.842	3.158	2.473	2.473	2.010
235	-	5.413	4.582	3.915	3.491	2.545	2.545	2.076
240	-	5.496	4.637	3.989	3.566	2.617	2.617	2.143
245	-	5.578	4.691	4.062	3.640	2.689	2.689	2.209
250	-	5.661	4.746	4.135	3.714	2.762	2.762	2.275
255	-	5.744	4.801	4.208	3.788	2.834	2.834	2.342
260	-	5.827	4.856	4.281	3.862	2.906	2.906	2.408

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
265	-	-	4.910	4.354	3.936	2.978	2.978	2.475
270	-	-	4.965	4.428	4.010	3.561	3.050	2.541
275	-	-	5.020	4.492	4.084	3.645	3.122	2.608
280	-	-	5.075	4.553	4.158	3.729	3.194	2.674
285	-	-	5.129	4.613	4.232	3.813	3.266	2.740
290	-	-	5.184	4.674	4.306	3.897	3.339	2.807
295	-	-	5.239	4.735	4.380	3.981	3.411	2.873
300	-	-	5.294	4.796	4.454	4.065	3.483	2.940
305	-	-	5.348	4.856	4.529	4.149	3.593	3.006
310	-	-	5.403	4.917	4.604	4.233	3.709	3.072
315	-	-	5.458	4.978	4.679	4.317	3.825	3.139
320	-	-	5.513	5.039	4.754	4.401	3.942	3.205
325	-	-	5.567	5.100	4.829	4.488	4.058	3.272
330	-	-	5.622	5.160	4.904	4.577	4.174	3.338
335	-	-	5.677	5.221	4.979	4.667	4.290	3.405
340	-	-	5.732	5.282	5.055	4.756	4.406	3.471
345	-	-	5.786	5.343	5.130	4.845	4.511	3.697
350	-	-	5.841	5.403	5.205	4.935	4.609	3.998
355	-	-	-	5.464	5.280	5.024	4.708	4.300
360	-	-	-	5.523	5.355	5.114	4.807	4.497
365	-	-	-	5.580	5.430	5.203	4.905	4.594
370	-	-	-	5.638	5.504	5.292	5.004	4.691
375	-	-	-	5.695	5.576	5.382	5.102	4.788

Tables B10 to B16 are applicable to I- and H- section columns and beams with four sides protection of STEELGUARD™651, but beams are limited to a maximum protection thickness of 5.226mm.

Table B16 Required thickness (mm) of STEELGUARD™651 applied to I- and H-section columns for R 120

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
70	3.633	2.700	2.117	1.714	1.386	1.090	0.841	0.650
75	3.972	2.953	2.264	1.842	1.501	1.195	0.928	0.726
80	4.311	3.205	2.410	1.969	1.617	1.299	1.014	0.803
85	4.610	3.457	2.607	2.097	1.732	1.404	1.108	0.880
90	4.882	3.788	2.835	2.224	1.847	1.509	1.201	0.954
95	5.154	4.131	3.063	2.352	1.963	1.613	1.294	1.035
100	5.426	4.462	3.291	2.492	2.078	1.718	1.388	1.115
105	5.698	4.645	3.529	2.738	2.193	1.823	1.481	1.196
110	-	4.828	3.835	2.984	2.309	1.927	1.574	1.277
115	-	5.012	4.141	3.230	2.424	2.032	1.668	1.357
120	-	5.195	4.447	3.475	2.639	2.137	1.761	1.438
125	-	5.378	4.582	3.710	2.909	2.241	1.854	1.519
130	-	5.562	4.718	3.944	3.179	2.346	1.948	1.599
135	-	5.745	4.853	4.179	3.449	2.451	2.041	1.680
140	-	-	4.988	4.413	3.702	2.742	2.134	1.761
145	-	-	5.123	4.545	3.951	3.064	2.228	1.841
150	-	-	5.258	4.658	4.200	3.385	2.321	1.922
155	-	-	5.393	4.772	4.449	3.684	2.414	2.003
160	-	-	5.528	4.886	4.555	3.970	2.665	2.083
165	-	-	5.664	5.000	4.661	4.256	3.105	2.164
170	-	-	5.799	5.114	4.767	4.481	3.532	2.245
175	-	-	-	5.228	4.874	4.581	3.862	2.325

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
180	-	-	-	5.342	4.980	4.682	4.192	2.406
185	-	-	-	5.455	5.086	4.782	4.470	2.681
190	-	-	-	5.567	5.192	4.882	4.567	3.497
195	-	-	-	5.677	5.298	4.983	4.665	3.885
200	-	-	-	5.788	5.405	5.083	4.763	4.273
205	-	-	-	-	5.511	5.183	4.861	4.501
210	-	-	-	-	5.615	5.283	4.958	4.599
215	-	-	-	-	5.719	5.384	5.056	4.696
220	-	-	-	-	5.823	5.484	5.154	4.793
225	-	-	-	-	-	5.584	5.251	4.890
230	-	-	-	-	-	5.683	5.349	4.987
235	-	-	-	-	-	5.782	5.447	5.085
240	-	-	-	-	-	-	5.545	5.182
245	-	-	-	-	-	-	5.642	5.279
250	-	-	-	-	-	-	5.740	5.376
255	-	-	-	-	-	-	5.838	5.473
260	-	-	-	-	-	-	-	5.569
265	-	-	-	-	-	-	-	5.665
270	-	-	-	-	-	-	-	5.761
275	-	-	-	-	-	-	-	5.856
280	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
300	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-
370	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-

Tables B10 to B16 are applicable to I- and H- section columns and beams with four sides protection of STEELGUARD™651, but beams are limited to a maximum protection thickness of 5.226mm.

Table B17 Required thickness (mm) of STEELGUARD™651 applied to circular hollow section columns for R 15

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
55	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
60	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
65	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
70	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
75	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
80	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
85	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
90	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
95	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
100	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
105	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
110	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
115	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
120	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
125	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
130	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
135	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
140	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
145	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
150	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
155	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
160	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
165	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
170	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
175	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
180	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
185	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
190	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
195	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
200	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
205	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
210	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
215	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
220	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
225	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
230	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
235	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
240	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
245	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
250	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
255	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
260	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
265	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
270	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
275	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
280	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
285	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
290	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
295	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
300	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
305	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
310	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
315	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
320	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
325	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
330	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
335	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
340	0.497	0.490	0.490	0.490	0.490	0.490	0.490	0.490
345	0.526	0.490	0.490	0.490	0.490	0.490	0.490	0.490
350	0.554	0.490	0.490	0.490	0.490	0.490	0.490	0.490
355	0.583	0.490	0.490	0.490	0.490	0.490	0.490	0.490
360	0.612	0.490	0.490	0.490	0.490	0.490	0.490	0.490

Tables B17 to B23 are applicable to circular hollow columns with protection on all round exposure

Table B18 Required thickness (mm) of STEELGUARD™651 applied to circular hollow section columns for R 20

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
55	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
60	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
65	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
70	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
75	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
80	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
85	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
90	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
95	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
100	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
105	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
110	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
115	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
120	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
125	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
130	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
135	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
140	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
145	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
150	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
155	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
160	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
165	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
170	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
175	0.494	0.490	0.490	0.490	0.490	0.490	0.490	0.490
180	0.530	0.490	0.490	0.490	0.490	0.490	0.490	0.490
185	0.566	0.490	0.490	0.490	0.490	0.490	0.490	0.490
190	0.601	0.490	0.490	0.490	0.490	0.490	0.490	0.490
195	0.637	0.490	0.490	0.490	0.490	0.490	0.490	0.490
200	0.673	0.490	0.490	0.490	0.490	0.490	0.490	0.490

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
205	0.709	0.490	0.490	0.490	0.490	0.490	0.490	0.490
210	0.745	0.490	0.490	0.490	0.490	0.490	0.490	0.490
215	0.776	0.490	0.490	0.490	0.490	0.490	0.490	0.490
220	0.803	0.490	0.490	0.490	0.490	0.490	0.490	0.490
225	0.831	0.490	0.490	0.490	0.490	0.490	0.490	0.490
230	0.859	0.490	0.490	0.490	0.490	0.490	0.490	0.490
235	0.886	0.490	0.490	0.490	0.490	0.490	0.490	0.490
240	0.914	0.490	0.490	0.490	0.490	0.490	0.490	0.490
245	0.942	0.490	0.490	0.490	0.490	0.490	0.490	0.490
250	0.969	0.490	0.490	0.490	0.490	0.490	0.490	0.490
255	0.997	0.490	0.490	0.490	0.490	0.490	0.490	0.490
260	1.024	0.490	0.490	0.490	0.490	0.490	0.490	0.490
265	1.052	0.490	0.490	0.490	0.490	0.490	0.490	0.490
270	1.080	0.490	0.490	0.490	0.490	0.490	0.490	0.490
275	1.107	0.490	0.490	0.490	0.490	0.490	0.490	0.490
280	1.135	0.490	0.490	0.490	0.490	0.490	0.490	0.490
285	1.163	0.490	0.490	0.490	0.490	0.490	0.490	0.490
290	1.190	0.490	0.490	0.490	0.490	0.490	0.490	0.490
295	1.218	0.490	0.490	0.490	0.490	0.490	0.490	0.490
300	1.246	0.490	0.490	0.490	0.490	0.490	0.490	0.490
305	1.273	0.490	0.490	0.490	0.490	0.490	0.490	0.490
310	1.301	0.490	0.490	0.490	0.490	0.490	0.490	0.490
315	1.329	0.490	0.490	0.490	0.490	0.490	0.490	0.490
320	1.356	0.490	0.490	0.490	0.490	0.490	0.490	0.490

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
325	1.384	0.490	0.490	0.490	0.490	0.490	0.490	0.490
330	1.412	0.490	0.490	0.490	0.490	0.490	0.490	0.490
335	1.439	0.490	0.490	0.490	0.490	0.490	0.490	0.490
340	1.467	0.497	0.490	0.490	0.490	0.490	0.490	0.490
345	1.495	0.539	0.490	0.490	0.490	0.490	0.490	0.490
350	1.522	0.581	0.490	0.490	0.490	0.490	0.490	0.490
355	1.550	0.623	0.490	0.490	0.490	0.490	0.490	0.490
360	1.578	0.665	0.490	0.490	0.490	0.490	0.490	0.490

Tables B17 to B23 are applicable to circular hollow columns with protection on all round exposure

Table B19 Required thickness (mm) of STEELGUARD™651 applied to circular hollow section columns for R 30

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
55	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
60	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
65	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
70	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
75	0.509	0.490	0.490	0.490	0.490	0.490	0.490	0.490
80	0.551	0.490	0.490	0.490	0.490	0.490	0.490	0.490
85	0.593	0.490	0.490	0.490	0.490	0.490	0.490	0.490
90	0.635	0.490	0.490	0.490	0.490	0.490	0.490	0.490
95	0.677	0.490	0.490	0.490	0.490	0.490	0.490	0.490
100	0.719	0.490	0.490	0.490	0.490	0.490	0.490	0.490

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
105	0.761	0.490	0.490	0.490	0.490	0.490	0.490	0.490
110	0.803	0.490	0.490	0.490	0.490	0.490	0.490	0.490
115	0.845	0.508	0.490	0.490	0.490	0.490	0.490	0.490
120	0.887	0.543	0.490	0.490	0.490	0.490	0.490	0.490
125	0.929	0.578	0.490	0.490	0.490	0.490	0.490	0.490
130	0.971	0.613	0.490	0.490	0.490	0.490	0.490	0.490
135	1.013	0.648	0.490	0.490	0.490	0.490	0.490	0.490
140	1.055	0.683	0.490	0.490	0.490	0.490	0.490	0.490
145	1.097	0.718	0.490	0.490	0.490	0.490	0.490	0.490
150	1.140	0.753	0.490	0.490	0.490	0.490	0.490	0.490
155	1.182	0.788	0.490	0.490	0.490	0.490	0.490	0.490
160	1.224	0.823	0.490	0.490	0.490	0.490	0.490	0.490
165	1.266	0.858	0.490	0.490	0.490	0.490	0.490	0.490
170	1.308	0.893	0.490	0.490	0.490	0.490	0.490	0.490
175	1.350	0.928	0.490	0.490	0.490	0.490	0.490	0.490
180	1.392	0.962	0.490	0.490	0.490	0.490	0.490	0.490
185	1.434	0.997	0.529	0.490	0.490	0.490	0.490	0.490
190	1.476	1.032	0.568	0.490	0.490	0.490	0.490	0.490
195	1.518	1.067	0.606	0.490	0.490	0.490	0.490	0.490
200	1.560	1.102	0.645	0.490	0.490	0.490	0.490	0.490
205	1.602	1.137	0.684	0.490	0.490	0.490	0.490	0.490
210	1.644	1.172	0.722	0.490	0.490	0.490	0.490	0.490
215	1.686	1.207	0.761	0.490	0.490	0.490	0.490	0.490
220	1.728	1.242	0.800	0.490	0.490	0.490	0.490	0.490

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
225	1.770	1.277	0.839	0.490	0.490	0.490	0.490	0.490
230	1.812	1.312	0.877	0.490	0.490	0.490	0.490	0.490
235	1.854	1.347	0.916	0.490	0.490	0.490	0.490	0.490
240	1.896	1.382	0.955	0.490	0.490	0.490	0.490	0.490
245	1.938	1.417	0.994	0.490	0.490	0.490	0.490	0.490
250	1.980	1.451	1.032	0.503	0.490	0.490	0.490	0.490
255	2.022	1.486	1.071	0.546	0.490	0.490	0.490	0.490
260	2.064	1.521	1.110	0.588	0.490	0.490	0.490	0.490
265	2.106	1.556	1.149	0.631	0.490	0.490	0.490	0.490
270	2.142	1.591	1.187	0.673	0.490	0.490	0.490	0.490
275	2.172	1.626	1.226	0.716	0.490	0.490	0.490	0.490
280	2.202	1.661	1.265	0.758	0.490	0.490	0.490	0.490
285	2.233	1.696	1.304	0.801	0.490	0.490	0.490	0.490
290	2.263	1.731	1.342	0.843	0.490	0.490	0.490	0.490
295	2.293	1.766	1.381	0.886	0.490	0.490	0.490	0.490
300	2.324	1.801	1.420	0.928	0.490	0.490	0.490	0.490
305	2.354	1.836	1.459	0.971	0.490	0.490	0.490	0.490
310	2.384	1.871	1.497	1.013	0.490	0.490	0.490	0.490
315	2.415	1.906	1.536	1.056	0.490	0.490	0.490	0.490
320	2.445	1.940	1.575	1.098	0.490	0.490	0.490	0.490
325	2.475	1.975	1.614	1.141	0.490	0.490	0.490	0.490
330	2.506	2.010	1.652	1.184	0.490	0.490	0.490	0.490
335	2.536	2.045	1.691	1.226	0.490	0.490	0.490	0.490
340	2.566	2.080	1.730	1.269	0.490	0.490	0.490	0.490

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
345	2.596	2.115	1.769	1.311	0.490	0.490	0.490	0.490
350	2.627	2.150	1.807	1.354	0.490	0.490	0.490	0.490
355	2.657	2.185	1.846	1.396	0.490	0.490	0.490	0.490
360	2.687	2.220	1.885	1.439	0.490	0.490	0.490	0.490

Tables B17 to B23 are applicable to circular hollow columns with protection on all round exposure

Table B20 Required thickness (mm) of STEELGUARD™651 applied to circular hollow section columns for R 45

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	0.724	0.490	0.490	0.490	0.490	0.490	0.490	0.490
55	0.817	0.523	0.490	0.490	0.490	0.490	0.490	0.490
60	0.909	0.601	0.490	0.490	0.490	0.490	0.490	0.490
65	0.991	0.679	0.490	0.490	0.490	0.490	0.490	0.490
70	1.062	0.757	0.501	0.490	0.490	0.490	0.490	0.490
75	1.133	0.821	0.567	0.490	0.490	0.490	0.490	0.490
80	1.203	0.879	0.633	0.490	0.490	0.490	0.490	0.490
85	1.274	0.936	0.698	0.498	0.490	0.490	0.490	0.490
90	1.345	0.993	0.764	0.549	0.490	0.490	0.490	0.490
95	1.415	1.050	0.817	0.600	0.490	0.490	0.490	0.490
100	1.486	1.108	0.870	0.651	0.490	0.490	0.490	0.490
105	1.557	1.165	0.922	0.702	0.490	0.490	0.490	0.490
110	1.627	1.222	0.975	0.753	0.490	0.490	0.490	0.490
115	1.698	1.279	1.028	0.803	0.490	0.490	0.490	0.490
120	1.769	1.337	1.080	0.854	0.525	0.490	0.490	0.490

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
125	1.839	1.394	1.133	0.905	0.570	0.490	0.490	0.490
130	1.910	1.451	1.186	0.956	0.615	0.490	0.490	0.490
135	1.981	1.508	1.238	1.007	0.660	0.490	0.490	0.490
140	2.051	1.565	1.291	1.057	0.704	0.490	0.490	0.490
145	2.122	1.623	1.344	1.108	0.749	0.490	0.490	0.490
150	2.179	1.680	1.397	1.159	0.794	0.490	0.490	0.490
155	2.228	1.737	1.449	1.210	0.839	0.490	0.490	0.490
160	2.278	1.794	1.502	1.261	0.884	0.522	0.490	0.490
165	2.328	1.852	1.555	1.312	0.928	0.564	0.490	0.490
170	2.378	1.909	1.607	1.362	0.973	0.606	0.490	0.490
175	2.427	1.966	1.660	1.413	1.018	0.648	0.490	0.490
180	2.477	2.023	1.713	1.464	1.063	0.690	0.490	0.490
185	2.527	2.080	1.765	1.515	1.108	0.732	0.490	0.490
190	2.577	2.138	1.818	1.566	1.152	0.774	0.490	0.490
195	2.626	2.195	1.871	1.617	1.197	0.816	0.490	0.490
200	2.676	2.253	1.923	1.667	1.242	0.858	0.490	0.490
205	2.726	2.310	1.976	1.718	1.287	0.900	0.490	0.490
210	2.776	2.368	2.029	1.769	1.331	0.942	0.490	0.490
215	2.825	2.425	2.081	1.820	1.376	0.984	0.512	0.490
220	2.875	2.483	2.134	1.871	1.421	1.026	0.557	0.490
225	2.925	2.540	2.190	1.922	1.466	1.068	0.602	0.490
230	3.046	2.574	2.355	2.035	1.511	1.110	0.647	0.490
235	3.090	2.605	2.386	2.087	1.555	1.152	0.693	0.490
240	3.134	2.636	2.418	2.134	1.600	1.194	0.738	0.490

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
245	3.178	2.667	2.449	2.168	1.645	1.236	0.783	0.490
250	3.223	2.698	2.481	2.202	1.690	1.278	0.828	0.490
255	3.268	2.729	2.513	2.236	1.734	1.320	0.874	0.490
260	3.313	2.760	2.544	2.269	1.779	1.362	0.919	0.490
265	3.358	2.791	2.576	2.303	1.824	1.404	0.964	0.490
270	3.403	2.822	2.608	2.337	1.869	1.446	1.009	0.490
275	3.448	2.853	2.639	2.370	1.914	1.488	1.054	0.490
280	3.493	2.884	2.671	2.404	1.958	1.530	1.100	0.490
285	3.538	2.915	2.702	2.438	2.003	1.572	1.145	0.490
290	3.583	2.946	2.734	2.471	2.048	1.614	1.190	0.490
295	3.628	2.977	2.766	2.505	2.093	1.656	1.235	0.490
300	3.673	3.008	2.797	2.539	2.136	1.698	1.281	0.490
305	3.717	3.039	2.829	2.573	2.175	1.740	1.326	0.490
310	3.762	3.070	2.860	2.606	2.215	1.782	1.371	0.490
315	3.807	3.101	2.892	2.640	2.254	1.824	1.416	0.490
320	3.852	3.132	2.924	2.674	2.293	1.866	1.461	0.490
325	3.897	3.171	2.955	2.707	2.333	1.908	1.507	0.552
330	3.942	3.238	2.987	2.741	2.372	1.950	1.552	0.617
335	3.987	3.306	3.019	2.775	2.412	1.992	1.597	0.681
340	4.032	3.373	3.050	2.808	2.451	2.034	1.642	0.745
345	4.077	3.440	3.082	2.842	2.490	2.076	1.687	0.809
350	4.122	3.507	3.113	2.876	2.530	2.118	1.733	0.873
355	4.167	3.575	3.145	2.910	2.569	2.160	1.778	0.937
360	4.212	3.642	3.196	2.943	2.608	2.202	1.823	1.001

Tables B17 to B23 are applicable to circular hollow columns with protection on all round exposure

Table B21 Required thickness (mm) of STEELGUARD™651 applied to circular hollow section columns for R 60

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	1.216	0.904	0.659	0.507	0.490	0.490	0.490	0.490
55	1.357	1.027	0.765	0.539	0.490	0.490	0.490	0.490
60	1.489	1.149	0.872	0.632	0.490	0.490	0.490	0.490
65	1.607	1.264	0.979	0.726	0.522	0.490	0.490	0.490
70	1.725	1.364	1.072	0.819	0.602	0.490	0.490	0.490
75	1.843	1.464	1.158	0.895	0.670	0.490	0.490	0.490
80	1.961	1.564	1.244	0.967	0.730	0.521	0.490	0.490
85	2.079	1.665	1.330	1.039	0.789	0.590	0.490	0.490
90	2.180	1.765	1.415	1.111	0.849	0.659	0.490	0.490
95	2.258	1.865	1.501	1.184	0.908	0.723	0.490	0.490
100	2.336	1.965	1.587	1.256	0.968	0.778	0.539	0.490
105	2.414	2.065	1.673	1.328	1.027	0.834	0.597	0.490
110	2.493	2.156	1.758	1.400	1.087	0.889	0.656	0.490
115	2.571	2.207	1.844	1.472	1.146	0.945	0.714	0.490
120	2.649	2.258	1.930	1.545	1.206	1.001	0.772	0.490
125	2.727	2.310	2.016	1.617	1.265	1.056	0.830	0.502
130	2.805	2.361	2.101	1.689	1.325	1.112	0.887	0.551
135	2.883	2.412	2.171	1.761	1.384	1.168	0.941	0.600
140	2.961	2.463	2.223	1.834	1.444	1.223	0.994	0.649
145	3.040	2.515	2.274	1.906	1.503	1.279	1.047	0.698
150	3.118	2.566	2.326	1.978	1.563	1.334	1.101	0.747
155	3.198	2.617	2.378	2.050	1.622	1.390	1.154	0.797
160	3.281	2.669	2.430	2.122	1.682	1.446	1.208	0.846

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
165	3.363	2.720	2.482	2.183	1.741	1.501	1.261	0.895
170	3.445	2.771	2.534	2.239	1.801	1.557	1.315	0.944
175	3.527	2.823	2.586	2.294	1.860	1.612	1.368	0.993
180	3.609	2.874	2.637	2.349	1.920	1.668	1.421	1.042
185	3.691	2.925	2.689	2.405	1.979	1.724	1.475	1.091
190	3.773	2.977	2.741	2.460	2.039	1.779	1.528	1.140
195	3.855	3.028	2.793	2.515	2.099	1.835	1.582	1.190
200	3.937	3.079	2.845	2.571	2.159	1.891	1.635	1.239
205	4.019	3.130	2.897	2.626	2.224	1.946	1.688	1.288
210	4.101	3.249	2.949	2.682	2.288	2.002	1.742	1.337
215	4.183	3.396	3.000	2.737	2.353	2.057	1.795	1.386
220	4.278	3.544	3.052	2.792	2.418	2.113	1.849	1.435
225	4.428	3.691	3.104	2.848	2.483	2.172	1.902	1.484
230	4.906	3.772	3.410	2.981	2.579	2.363	2.049	1.534
235	5.029	3.816	3.453	3.028	2.614	2.399	2.107	1.583
240	5.151	3.861	3.495	3.076	2.649	2.434	2.150	1.632
245	5.273	3.905	3.537	3.123	2.684	2.469	2.187	1.681
250	5.395	3.950	3.579	3.169	2.719	2.505	2.224	1.730
255	5.517	3.994	3.621	3.211	2.754	2.540	2.261	1.779
260	5.639	4.039	3.663	3.253	2.789	2.576	2.298	1.828
265	5.761	4.083	3.705	3.295	2.824	2.611	2.335	1.878
270	5.883	4.128	3.747	3.337	2.859	2.646	2.372	1.927
275	6.005	4.172	3.789	3.379	2.894	2.682	2.409	1.976
280	6.127	4.216	3.831	3.422	2.929	2.717	2.446	2.025

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
285	6.249	4.328	3.873	3.464	2.964	2.752	2.483	2.074
290	6.371	4.549	3.915	3.506	2.999	2.788	2.520	2.123
295	6.493	4.770	3.957	3.548	3.034	2.823	2.557	2.163
300	6.615	4.992	3.999	3.590	3.069	2.858	2.594	2.203
305	6.738	5.213	4.042	3.632	3.104	2.894	2.631	2.243
310	6.860	5.434	4.084	3.674	3.139	2.929	2.668	2.283
315	6.982	5.655	4.126	3.716	3.192	2.964	2.705	2.323
320	7.104	5.876	4.168	3.758	3.264	3.000	2.742	2.362
325	-	6.097	4.210	3.801	3.337	3.035	2.779	2.402
330	-	6.318	4.302	3.843	3.409	3.070	2.816	2.442
335	-	6.539	4.610	3.885	3.482	3.106	2.853	2.482
340	-	6.760	4.919	3.927	3.554	3.141	2.890	2.522
345	-	6.981	5.227	3.969	3.626	3.196	2.927	2.561
350	-	-	5.535	4.011	3.699	3.265	2.964	2.601
355	-	-	5.844	4.053	3.771	3.335	3.001	2.641
360	-	-	6.152	4.095	3.844	3.405	3.038	2.681

Tables B17 to B23 are applicable to circular hollow columns with protection on all round exposure

Table B22 Required thickness (mm) of STEELGUARD™651 applied to circular hollow section columns for R 90

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	2.275	1.804	1.487	1.253	1.009	0.799	0.605	0.490
55	2.557	2.016	1.677	1.413	1.159	0.933	0.724	0.495
60	2.832	2.227	1.848	1.558	1.305	1.068	0.842	0.601

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
65	3.107	2.437	2.013	1.704	1.433	1.182	0.940	0.688
70	3.363	2.648	2.177	1.850	1.561	1.295	1.039	0.773
75	3.616	2.858	2.339	1.995	1.689	1.408	1.137	0.858
80	3.869	3.068	2.502	2.141	1.818	1.521	1.236	0.943
85	4.122	3.270	2.664	2.264	1.946	1.634	1.335	1.028
90	4.315	3.467	2.826	2.387	2.074	1.747	1.433	1.113
95	4.446	3.663	2.988	2.509	2.186	1.860	1.532	1.198
100	4.576	3.860	3.150	2.632	2.279	1.973	1.631	1.283
105	4.707	4.056	3.298	2.754	2.371	2.086	1.729	1.368
110	4.838	4.252	3.446	2.877	2.464	2.179	1.828	1.453
115	4.968	4.361	3.593	3.000	2.556	2.250	1.926	1.538
120	5.099	4.470	3.741	3.122	2.649	2.322	2.025	1.623
125	5.230	4.579	3.889	3.233	2.741	2.393	2.124	1.708
130	5.361	4.688	4.036	3.340	2.833	2.464	2.192	1.793
135	5.481	4.797	4.184	3.447	2.926	2.535	2.251	1.878
140	5.585	4.907	4.304	3.555	3.018	2.606	2.310	1.963
145	5.688	5.016	4.401	3.662	3.111	2.677	2.369	2.048
150	5.792	5.125	4.498	3.769	3.203	2.748	2.428	2.133
155	5.895	5.234	4.595	3.877	3.294	2.819	2.487	2.199
160	5.999	5.343	4.692	3.984	3.386	2.890	2.546	2.261
165	6.102	5.453	4.789	4.091	3.477	2.961	2.605	2.323
170	6.206	5.578	4.886	4.199	3.569	3.033	2.664	2.385
175	6.309	5.702	4.983	4.319	3.661	3.104	2.723	2.447
180	6.413	5.827	5.080	4.451	3.752	3.196	2.782	2.510

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
185	6.517	5.951	5.177	4.583	3.844	3.319	2.841	2.572
190	6.620	6.075	5.274	4.714	3.936	3.442	2.900	2.634
195	6.724	6.200	5.371	4.846	4.027	3.565	2.959	2.696
200	6.827	6.324	5.486	4.978	4.119	3.688	3.018	2.758
205	6.931	6.448	5.653	5.110	4.211	3.811	3.077	2.821
210	7.034	6.573	5.820	5.242	4.377	3.934	3.136	2.883
215	7.130	6.697	5.987	5.354	4.601	4.057	3.302	2.945
220	-	6.822	6.154	5.462	4.826	4.180	3.490	3.007
225	-	6.946	6.321	5.641	4.966	4.337	3.678	3.069
230	-	7.067	6.614	5.820	5.035	4.880	3.899	3.408
235	-	7.174	6.743	5.999	5.103	5.030	3.961	3.458
240	-	-	6.873	6.178	5.179	5.179	4.023	3.508
245	-	-	7.002	6.357	5.329	5.329	4.084	3.558
250	-	-	7.132	6.535	5.479	5.479	4.146	3.608
255	-	-	-	6.714	5.628	5.628	4.208	3.658
260	-	-	-	6.893	5.778	5.778	4.331	3.708
265	-	-	-	7.072	5.927	5.927	4.539	3.758
270	-	-	-	-	6.164	6.077	4.748	3.808
275	-	-	-	-	6.512	6.226	4.956	3.858
280	-	-	-	-	6.860	6.376	5.165	3.908
285	-	-	-	-	-	6.526	5.373	3.958
290	-	-	-	-	-	6.675	5.582	4.008
295	-	-	-	-	-	6.825	5.790	4.057
300	-	-	-	-	-	6.974	5.999	4.107

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
305	-	-	-	-	-	7.124	6.207	4.157
310	-	-	-	-	-	-	6.416	4.207
315	-	-	-	-	-	-	6.625	4.337
320	-	-	-	-	-	-	6.833	4.689
325	-	-	-	-	-	-	7.042	5.041
330	-	-	-	-	-	-	-	5.393
335	-	-	-	-	-	-	-	5.745
340	-	-	-	-	-	-	-	6.097
345	-	-	-	-	-	-	-	6.449
350	-	-	-	-	-	-	-	6.801
355	-	-	-	-	-	-	-	7.153
360	-	-	-	-	-	-	-	-

Tables B17 to B23 are applicable to circular hollow columns with protection on all round exposure

Table B23 Required thickness (mm) of STEELGUARD™651 applied to circular hollow section columns for R 120

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	4.150	3.058	2.458	1.953	1.718	1.463	1.222	0.975
55	4.388	3.580	2.806	2.246	1.929	1.661	1.400	1.134
60	4.626	4.043	3.143	2.544	2.126	1.838	1.559	1.273
65	4.864	4.360	3.561	2.842	2.360	2.016	1.717	1.412
70	5.101	4.557	3.979	3.139	2.598	2.197	1.876	1.552
75	5.339	4.754	4.311	3.487	2.836	2.391	2.034	1.691
80	5.577	4.952	4.482	3.837	3.074	2.585	2.192	1.831

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
85	5.815	5.149	4.652	4.186	3.345	2.779	2.349	1.970
90	6.053	5.347	4.823	4.374	3.630	2.974	2.505	2.109
95	6.291	5.668	4.994	4.526	3.916	3.171	2.662	2.237
100	6.529	6.107	5.165	4.678	4.201	3.398	2.819	2.361
105	6.766	6.546	5.335	4.830	4.365	3.624	2.976	2.485
110	7.004	6.985	5.534	4.982	4.504	3.851	3.133	2.609
115	-	-	5.780	5.133	4.642	4.077	3.310	2.732
120	-	-	6.027	5.285	4.781	4.280	3.489	2.856
125	-	-	6.273	5.437	4.920	4.407	3.668	2.980
130	-	-	6.519	5.590	5.058	4.533	3.847	3.104
135	-	-	6.765	5.742	5.197	4.659	4.026	3.241
140	-	-	7.011	5.895	5.335	4.786	4.206	3.385
145	-	-	-	6.047	5.470	4.912	4.337	3.530
150	-	-	-	6.200	5.592	5.038	4.451	3.674
155	-	-	-	6.353	5.715	5.165	4.566	3.818
160	-	-	-	6.505	5.837	5.291	4.681	3.963
165	-	-	-	6.658	5.959	5.417	4.795	4.107
170	-	-	-	6.810	6.082	5.556	4.910	4.251
175	-	-	-	6.963	6.204	5.696	5.025	4.384
180	-	-	-	7.110	6.326	5.837	5.139	4.516
185	-	-	-	-	6.448	5.978	5.254	4.649
190	-	-	-	-	6.571	6.119	5.369	4.781
195	-	-	-	-	6.693	6.260	5.507	4.914
200	-	-	-	-	6.815	6.401	5.687	5.046

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
205	-	-	-	-	6.937	6.542	5.867	5.179
210	-	-	-	-	7.059	6.683	6.047	5.310
215	-	-	-	-	7.170	6.824	6.226	5.396
220	-	-	-	-	-	6.965	6.406	5.543
225	-	-	-	-	-	7.097	6.586	5.754
230	-	-	-	-	-	-	6.803	5.964
235	-	-	-	-	-	-	6.959	6.175
240	-	-	-	-	-	-	7.115	6.386
245	-	-	-	-	-	-	-	6.597
250	-	-	-	-	-	-	-	6.807
255	-	-	-	-	-	-	-	7.018
260	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
325	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-

Tables B17 to B23 are applicable to circular hollow columns with protection on all round exposure

Table B24 Required thickness (mm) of STEELGUARD™651 applied to rectangular hollow section columns for R 15

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
55	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
60	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
65	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
70	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
75	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
80	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
85	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
90	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
95	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
100	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
105	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
110	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
115	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
120	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
125	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
130	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
135	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
140	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
145	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
150	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
155	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
160	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
165	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
170	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
175	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
180	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
185	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
190	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
195	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
200	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
205	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
210	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
215	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
220	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
225	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
230	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
235	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
240	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
245	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
250	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
255	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
260	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
265	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
270	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
275	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
280	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
285	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
290	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
295	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
300	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
305	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
310	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
315	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
320	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
325	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
330	0.469	0.464	0.464	0.464	0.464	0.464	0.464	0.464
335	0.489	0.464	0.464	0.464	0.464	0.464	0.464	0.464
340	0.510	0.464	0.464	0.464	0.464	0.464	0.464	0.464

Tables B24 to B30 are applicable to rectangular hollow section columns and beams with protection on four sides exposure but rectangular hollow section beams are limited to a maximum protection thickness of 5.465.

Table B25 Required thickness (mm) of STEELGUARD™651 applied to rectangular hollow section columns for R 20

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
55	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
60	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
65	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
70	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
75	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
80	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
85	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
90	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
95	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
100	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
105	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
110	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
115	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
120	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
125	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
130	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
135	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
140	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
145	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
150	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
155	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
160	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
165	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
170	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
175	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
180	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
185	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
190	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
195	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
200	0.469	0.464	0.464	0.464	0.464	0.464	0.464	0.464
205	0.493	0.464	0.464	0.464	0.464	0.464	0.464	0.464
210	0.517	0.464	0.464	0.464	0.464	0.464	0.464	0.464
215	0.541	0.464	0.464	0.464	0.464	0.464	0.464	0.464
220	0.565	0.464	0.464	0.464	0.464	0.464	0.464	0.464
225	0.589	0.464	0.464	0.464	0.464	0.464	0.464	0.464
230	0.613	0.464	0.464	0.464	0.464	0.464	0.464	0.464
235	0.637	0.464	0.464	0.464	0.464	0.464	0.464	0.464
240	0.661	0.464	0.464	0.464	0.464	0.464	0.464	0.464
245	0.685	0.464	0.464	0.464	0.464	0.464	0.464	0.464
250	0.709	0.464	0.464	0.464	0.464	0.464	0.464	0.464
255	0.733	0.464	0.464	0.464	0.464	0.464	0.464	0.464
260	0.757	0.464	0.464	0.464	0.464	0.464	0.464	0.464
265	0.781	0.464	0.464	0.464	0.464	0.464	0.464	0.464
270	0.805	0.464	0.464	0.464	0.464	0.464	0.464	0.464
275	0.829	0.464	0.464	0.464	0.464	0.464	0.464	0.464
280	0.853	0.464	0.464	0.464	0.464	0.464	0.464	0.464

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
285	0.877	0.464	0.464	0.464	0.464	0.464	0.464	0.464
290	0.901	0.464	0.464	0.464	0.464	0.464	0.464	0.464
295	0.925	0.464	0.464	0.464	0.464	0.464	0.464	0.464
300	0.949	0.464	0.464	0.464	0.464	0.464	0.464	0.464
305	0.973	0.464	0.464	0.464	0.464	0.464	0.464	0.464
310	0.997	0.464	0.464	0.464	0.464	0.464	0.464	0.464
315	1.021	0.464	0.464	0.464	0.464	0.464	0.464	0.464
320	1.045	0.478	0.464	0.464	0.464	0.464	0.464	0.464
325	1.069	0.504	0.464	0.464	0.464	0.464	0.464	0.464
330	1.093	0.530	0.464	0.464	0.464	0.464	0.464	0.464
335	1.117	0.555	0.464	0.464	0.464	0.464	0.464	0.464
340	1.140	0.581	0.464	0.464	0.464	0.464	0.464	0.464

Tables B24 to B30 are applicable to rectangular hollow section columns and beams with protection on four sides exposure but rectangular hollow section beams are limited to a maximum protection thickness of 5.465.

Table B26 Required thickness (mm) of STEELGUARD™651 applied to rectangular hollow section columns for R 30

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
55	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
60	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
65	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
70	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
75	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
80	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
85	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
90	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
95	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
100	0.490	0.464	0.464	0.464	0.464	0.464	0.464	0.464
105	0.530	0.464	0.464	0.464	0.464	0.464	0.464	0.464
110	0.566	0.464	0.464	0.464	0.464	0.464	0.464	0.464
115	0.598	0.464	0.464	0.464	0.464	0.464	0.464	0.464
120	0.630	0.464	0.464	0.464	0.464	0.464	0.464	0.464
125	0.661	0.464	0.464	0.464	0.464	0.464	0.464	0.464
130	0.693	0.464	0.464	0.464	0.464	0.464	0.464	0.464
135	0.724	0.464	0.464	0.464	0.464	0.464	0.464	0.464
140	0.756	0.464	0.464	0.464	0.464	0.464	0.464	0.464
145	0.787	0.464	0.464	0.464	0.464	0.464	0.464	0.464
150	0.819	0.495	0.464	0.464	0.464	0.464	0.464	0.464
155	0.850	0.534	0.464	0.464	0.464	0.464	0.464	0.464
160	0.882	0.573	0.464	0.464	0.464	0.464	0.464	0.464
165	0.913	0.613	0.464	0.464	0.464	0.464	0.464	0.464
170	0.945	0.646	0.464	0.464	0.464	0.464	0.464	0.464
175	0.976	0.677	0.464	0.464	0.464	0.464	0.464	0.464
180	1.008	0.707	0.464	0.464	0.464	0.464	0.464	0.464
185	1.039	0.737	0.464	0.464	0.464	0.464	0.464	0.464
190	1.071	0.767	0.464	0.464	0.464	0.464	0.464	0.464
195	1.102	0.797	0.464	0.464	0.464	0.464	0.464	0.464
200	1.134	0.827	0.464	0.464	0.464	0.464	0.464	0.464

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
205	1.165	0.857	0.464	0.464	0.464	0.464	0.464	0.464
210	1.197	0.887	0.495	0.464	0.464	0.464	0.464	0.464
215	1.228	0.917	0.525	0.464	0.464	0.464	0.464	0.464
220	1.260	0.947	0.556	0.464	0.464	0.464	0.464	0.464
225	1.291	0.977	0.586	0.464	0.464	0.464	0.464	0.464
230	1.323	1.007	0.617	0.464	0.464	0.464	0.464	0.464
235	1.355	1.037	0.648	0.464	0.464	0.464	0.464	0.464
240	1.386	1.067	0.678	0.464	0.464	0.464	0.464	0.464
245	1.418	1.097	0.709	0.464	0.464	0.464	0.464	0.464
250	1.449	1.127	0.739	0.464	0.464	0.464	0.464	0.464
255	1.481	1.157	0.770	0.464	0.464	0.464	0.464	0.464
260	1.512	1.187	0.800	0.464	0.464	0.464	0.464	0.464
265	1.544	1.217	0.831	0.464	0.464	0.464	0.464	0.464
270	1.575	1.247	0.862	0.464	0.464	0.464	0.464	0.464
275	1.607	1.277	0.892	0.464	0.464	0.464	0.464	0.464
280	1.638	1.307	0.923	0.464	0.464	0.464	0.464	0.464
285	1.670	1.337	0.953	0.464	0.464	0.464	0.464	0.464
290	1.701	1.367	0.984	0.464	0.464	0.464	0.464	0.464
295	1.733	1.397	1.014	0.465	0.464	0.464	0.464	0.464
300	1.764	1.427	1.045	0.499	0.464	0.464	0.464	0.464
305	1.796	1.457	1.076	0.532	0.464	0.464	0.464	0.464
310	1.827	1.488	1.106	0.566	0.464	0.464	0.464	0.464
315	1.859	1.518	1.137	0.599	0.464	0.464	0.464	0.464
320	1.890	1.548	1.167	0.633	0.464	0.464	0.464	0.464

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
325	1.922	1.578	1.198	0.667	0.464	0.464	0.464	0.464
330	1.953	1.608	1.229	0.700	0.464	0.464	0.464	0.464
335	1.985	1.638	1.259	0.734	0.464	0.464	0.464	0.464
340	2.016	1.668	1.290	0.767	0.464	0.464	0.464	0.464

Tables B24 to B30 are applicable to rectangular hollow section columns and beams with protection on four sides exposure but rectangular hollow section beams are limited to a maximum protection thickness of 5.465.

Table B27 Required thickness (mm) of STEELGUARD™651 applied to rectangular hollow section columns for R 45

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
55	0.483	0.464	0.464	0.464	0.464	0.464	0.464	0.464
60	0.555	0.464	0.464	0.464	0.464	0.464	0.464	0.464
65	0.623	0.464	0.464	0.464	0.464	0.464	0.464	0.464
70	0.686	0.464	0.464	0.464	0.464	0.464	0.464	0.464
75	0.750	0.505	0.464	0.464	0.464	0.464	0.464	0.464
80	0.813	0.556	0.464	0.464	0.464	0.464	0.464	0.464
85	0.877	0.607	0.464	0.464	0.464	0.464	0.464	0.464
90	0.940	0.659	0.464	0.464	0.464	0.464	0.464	0.464
95	1.003	0.710	0.464	0.464	0.464	0.464	0.464	0.464
100	1.067	0.761	0.512	0.464	0.464	0.464	0.464	0.464
105	1.130	0.812	0.561	0.464	0.464	0.464	0.464	0.464
110	1.194	0.863	0.609	0.464	0.464	0.464	0.464	0.464
115	1.257	0.915	0.647	0.464	0.464	0.464	0.464	0.464
120	1.321	0.966	0.685	0.464	0.464	0.464	0.464	0.464

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
125	1.384	1.017	0.723	0.476	0.464	0.464	0.464	0.464
130	1.448	1.068	0.761	0.523	0.464	0.464	0.464	0.464
135	1.511	1.119	0.798	0.571	0.464	0.464	0.464	0.464
140	1.574	1.171	0.836	0.618	0.464	0.464	0.464	0.464
145	1.638	1.222	0.874	0.665	0.464	0.464	0.464	0.464
150	1.701	1.273	0.912	0.706	0.464	0.464	0.464	0.464
155	1.765	1.324	0.950	0.742	0.464	0.464	0.464	0.464
160	1.828	1.375	0.988	0.777	0.495	0.464	0.464	0.464
165	1.892	1.426	1.026	0.813	0.542	0.464	0.464	0.464
170	1.955	1.477	1.064	0.849	0.588	0.464	0.464	0.464
175	2.018	1.528	1.102	0.885	0.635	0.464	0.464	0.464
180	2.082	1.579	1.140	0.921	0.680	0.464	0.464	0.464
185	2.145	1.630	1.178	0.956	0.714	0.464	0.464	0.464
190	2.218	1.681	1.216	0.992	0.749	0.464	0.464	0.464
195	2.295	1.732	1.254	1.028	0.783	0.497	0.464	0.464
200	2.371	1.783	1.292	1.064	0.818	0.531	0.464	0.464
205	2.434	1.834	1.330	1.099	0.853	0.565	0.464	0.464
210	2.477	1.885	1.368	1.135	0.887	0.599	0.464	0.464
215	2.520	1.936	1.406	1.171	0.922	0.633	0.464	0.464
220	2.563	1.987	1.443	1.207	0.956	0.667	0.464	0.464
225	2.606	2.038	1.481	1.242	0.991	0.701	0.464	0.464
230	2.649	2.089	1.519	1.278	1.025	0.735	0.464	0.464
235	2.692	2.139	1.557	1.314	1.060	0.769	0.464	0.464
240	2.734	2.194	1.595	1.350	1.094	0.803	0.464	0.464

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
245	2.777	2.244	1.633	1.385	1.129	0.837	0.464	0.464
250	2.820	2.295	1.671	1.421	1.163	0.871	0.489	0.464
255	2.863	2.346	1.709	1.457	1.198	0.905	0.523	0.464
260	2.906	2.397	1.747	1.493	1.232	0.939	0.557	0.464
265	2.949	2.447	1.785	1.528	1.267	0.973	0.591	0.464
270	2.992	2.498	1.823	1.564	1.301	1.006	0.625	0.464
275	3.035	2.549	1.861	1.600	1.336	1.040	0.660	0.464
280	3.078	2.599	1.899	1.636	1.370	1.074	0.694	0.464
285	3.121	2.650	1.937	1.671	1.405	1.108	0.728	0.464
290	3.165	2.701	1.975	1.707	1.439	1.142	0.762	0.464
295	3.215	2.752	2.013	1.743	1.474	1.176	0.796	0.464
300	3.265	2.802	2.051	1.779	1.508	1.210	0.830	0.464
305	3.314	2.853	2.089	1.815	1.543	1.244	0.865	0.464
310	3.364	2.904	2.126	1.850	1.577	1.278	0.899	0.474
315	3.413	2.954	2.209	1.886	1.612	1.312	0.933	0.507
320	3.463	3.005	2.298	1.922	1.646	1.346	0.967	0.540
325	3.512	3.056	2.386	1.958	1.681	1.380	1.001	0.572
330	3.562	3.107	2.475	1.993	1.715	1.414	1.035	0.605
335	3.612	3.158	2.563	2.029	1.750	1.448	1.070	0.637
340	3.661	3.209	2.651	2.065	1.784	1.482	1.104	0.670

Tables B24 to B30 are applicable to rectangular hollow section columns and beams with protection on four sides exposure but rectangular hollow section beams are limited to a maximum protection thickness of 5.465.

Table B28 Required thickness (mm) of STEELGUARD™651 applied to rectangular hollow section columns for R 60

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	0.874	0.508	0.464	0.464	0.464	0.464	0.464	0.464
55	0.998	0.611	0.464	0.464	0.464	0.464	0.464	0.464
60	1.120	0.714	0.466	0.464	0.464	0.464	0.464	0.464
65	1.234	0.812	0.541	0.464	0.464	0.464	0.464	0.464
70	1.348	0.904	0.611	0.464	0.464	0.464	0.464	0.464
75	1.462	0.995	0.682	0.492	0.464	0.464	0.464	0.464
80	1.576	1.087	0.753	0.548	0.464	0.464	0.464	0.464
85	1.689	1.178	0.823	0.604	0.464	0.464	0.464	0.464
90	1.803	1.270	0.894	0.660	0.485	0.464	0.464	0.464
95	1.917	1.361	0.965	0.716	0.538	0.464	0.464	0.464
100	2.031	1.452	1.035	0.773	0.591	0.464	0.464	0.464
105	2.145	1.544	1.106	0.829	0.643	0.464	0.464	0.464
110	2.261	1.635	1.177	0.885	0.691	0.505	0.464	0.464
115	2.377	1.727	1.247	0.941	0.739	0.556	0.464	0.464
120	2.493	1.818	1.318	0.997	0.787	0.597	0.464	0.464
125	2.609	1.909	1.389	1.053	0.835	0.636	0.464	0.464
130	2.725	2.001	1.459	1.109	0.882	0.676	0.473	0.464
135	2.842	2.092	1.530	1.165	0.930	0.715	0.522	0.464
140	2.958	2.183	1.601	1.221	0.978	0.754	0.570	0.464
145	3.074	2.271	1.671	1.277	1.026	0.794	0.617	0.464
150	3.177	2.359	1.742	1.334	1.074	0.833	0.654	0.464
155	3.243	2.447	1.813	1.390	1.121	0.873	0.692	0.464
160	3.309	2.535	1.883	1.446	1.169	0.912	0.729	0.470

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
165	3.373	2.623	1.954	1.502	1.217	0.951	0.766	0.517
170	3.415	2.711	2.025	1.558	1.265	0.991	0.803	0.563
175	3.456	2.799	2.095	1.614	1.313	1.030	0.841	0.599
180	3.498	2.887	2.168	1.670	1.361	1.069	0.878	0.635
185	3.540	2.975	2.265	1.726	1.408	1.109	0.915	0.671
190	3.581	3.063	2.362	1.782	1.456	1.148	0.952	0.706
195	3.623	3.151	2.459	1.838	1.504	1.188	0.990	0.742
200	3.665	3.234	2.556	1.895	1.552	1.227	1.027	0.778
205	3.707	3.316	2.653	1.951	1.600	1.266	1.064	0.813
210	3.748	3.398	2.750	2.007	1.648	1.306	1.102	0.849
215	3.790	3.435	2.847	2.063	1.695	1.345	1.139	0.885
220	3.832	3.472	2.944	2.119	1.743	1.384	1.176	0.921
225	3.873	3.509	3.040	2.201	1.791	1.424	1.213	0.956
230	3.915	3.546	3.137	2.365	1.839	1.463	1.251	0.992
235	3.957	3.583	3.235	2.516	1.887	1.503	1.288	1.028
240	3.998	3.620	3.298	2.580	1.934	1.542	1.325	1.063
245	4.040	3.657	3.341	2.643	1.982	1.581	1.363	1.099
250	4.082	3.694	3.384	2.706	2.030	1.621	1.400	1.135
255	4.123	3.731	3.427	2.770	2.078	1.660	1.437	1.171
260	4.165	3.768	3.470	2.833	2.126	1.699	1.474	1.206
265	4.207	3.805	3.513	2.897	2.201	1.739	1.512	1.242
270	4.248	3.842	3.556	2.960	2.278	1.778	1.549	1.278
275	4.296	3.879	3.599	3.024	2.356	1.818	1.586	1.313
280	4.546	3.916	3.642	3.087	2.434	1.857	1.623	1.349

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
285	4.796	3.953	3.685	3.151	2.511	1.896	1.661	1.385
290	5.046	3.990	3.728	3.205	2.589	1.936	1.698	1.421
295	5.295	4.027	3.771	3.259	2.667	1.975	1.735	1.456
300	5.545	4.064	3.813	3.314	2.745	2.014	1.773	1.492
305	5.795	4.101	3.856	3.368	2.822	2.054	1.810	1.528
310	6.044	4.138	3.899	3.423	2.900	2.093	1.847	1.563
315	6.294	4.175	3.942	3.477	2.978	2.137	1.884	1.599
320	6.544	4.212	3.985	3.532	3.056	2.261	1.922	1.635
325	6.793	4.249	4.028	3.586	3.133	2.385	1.959	1.671
330	7.043	4.286	4.071	3.640	3.196	2.509	1.996	1.706
335	-	4.825	4.114	3.695	3.255	2.633	2.034	1.742
340	-	5.410	4.157	3.749	3.314	2.757	2.071	1.778

Tables B24 to B30 are applicable to rectangular hollow section columns and beams with protection on four sides exposure but rectangular hollow section beams are limited to a maximum protection thickness of 5.465.

Table B29 Required thickness (mm) of STEELGUARD™651 applied to rectangular hollow section columns for R 90

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	1.877	1.436	1.077	0.786	0.533	0.464	0.464	0.464
55	2.089	1.622	1.241	0.934	0.663	0.464	0.464	0.464
60	2.431	1.804	1.400	1.070	0.788	0.567	0.464	0.464
65	2.841	1.985	1.558	1.206	0.906	0.668	0.486	0.464
70	3.214	2.172	1.717	1.342	1.024	0.768	0.573	0.464
75	3.458	2.522	1.875	1.478	1.142	0.868	0.655	0.466

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
80	3.690	2.871	2.034	1.614	1.260	0.968	0.737	0.535
85	3.910	3.189	2.219	1.749	1.378	1.068	0.819	0.602
90	4.131	3.361	2.517	1.885	1.496	1.167	0.901	0.669
95	4.337	3.533	2.814	2.021	1.614	1.267	0.983	0.736
100	4.470	3.705	3.112	2.157	1.732	1.367	1.065	0.803
105	4.591	3.876	3.267	2.398	1.850	1.467	1.147	0.869
110	4.713	4.048	3.394	2.644	1.968	1.567	1.229	0.936
115	4.834	4.220	3.522	2.889	2.086	1.667	1.311	1.003
120	4.955	4.334	3.650	3.134	2.232	1.767	1.393	1.070
125	5.077	4.429	3.778	3.238	2.428	1.866	1.475	1.137
130	5.198	4.524	3.906	3.326	2.624	1.966	1.556	1.204
135	5.319	4.619	4.033	3.414	2.821	2.066	1.638	1.271
140	5.441	4.714	4.161	3.502	3.017	2.168	1.720	1.338
145	5.540	4.809	4.280	3.590	3.178	2.323	1.802	1.405
150	5.633	4.903	4.363	3.677	3.248	2.478	1.884	1.471
155	5.726	4.998	4.446	3.765	3.317	2.632	1.966	1.538
160	5.819	5.093	4.529	3.853	3.386	2.787	2.048	1.605
165	5.912	5.188	4.612	3.941	3.456	2.942	2.130	1.672
170	6.005	5.283	4.695	4.029	3.525	3.097	2.237	1.739
175	6.098	5.378	4.778	4.117	3.594	3.207	2.358	1.806
180	6.191	5.474	4.861	4.205	3.664	3.287	2.480	1.873
185	6.284	5.615	4.943	4.301	3.733	3.367	2.601	1.940
190	6.376	5.755	5.026	4.415	3.802	3.446	2.722	2.007
195	6.469	5.895	5.109	4.529	3.872	3.526	2.844	2.074

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
200	6.562	6.036	5.192	4.642	3.941	3.606	2.965	2.140
205	6.655	6.176	5.275	4.756	4.011	3.674	3.087	2.268
210	6.748	6.316	5.358	4.870	4.080	3.766	3.201	2.423
215	6.841	6.456	5.441	4.949	4.149	3.846	3.306	2.578
220	6.934	6.597	5.625	5.021	4.219	3.926	3.410	2.733
225	7.027	6.737	5.859	5.092	4.327	4.006	3.514	2.889
230	7.120	6.877	6.094	5.163	4.508	4.086	3.618	3.044
235	7.213	7.005	6.328	5.262	4.690	4.165	3.723	3.187
240	-	7.099	6.714	5.449	5.449	4.716	4.716	3.630
245	-	7.193	6.863	5.636	5.636	4.864	4.864	3.800
250	-	-	7.012	5.823	5.823	5.013	5.013	3.971
255	-	-	7.162	6.010	6.010	5.162	5.162	4.141
260	-	-	-	6.444	6.197	5.311	5.311	4.311
265	-	-	-	6.915	6.384	5.460	5.460	4.481
270	-	-	-	-	6.571	5.609	5.609	4.652
275	-	-	-	-	6.758	5.757	5.757	4.822
280	-	-	-	-	6.945	5.906	5.906	4.992
285	-	-	-	-	7.132	6.072	6.055	5.162
290	-	-	-	-	-	6.442	6.204	5.333
295	-	-	-	-	-	6.813	6.353	5.503
300	-	-	-	-	-	7.183	6.501	5.673
305	-	-	-	-	-	-	6.650	5.844
310	-	-	-	-	-	-	6.799	6.014
315	-	-	-	-	-	-	6.948	6.184

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
320	-	-	-	-	-	-	7.097	6.354
325	-	-	-	-	-	-	7.246	6.525
330	-	-	-	-	-	-	-	6.695
335	-	-	-	-	-	-	-	6.865
340	-	-	-	-	-	-	-	7.035

Tables B24 to B30 are applicable to rectangular hollow section columns and beams with protection on four sides exposure but rectangular hollow section beams are limited to a maximum protection thickness of 5.465.

Table B30 Required thickness (mm) of STEELGUARD™651 applied to rectangular hollow section columns for R 120

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
50	3.719	2.676	1.927	1.576	1.276	1.002	0.743	0.481
55	4.165	3.290	2.182	1.790	1.472	1.182	0.905	0.622
60	4.541	3.748	2.819	2.003	1.664	1.353	1.059	0.764
65	4.857	4.196	3.345	2.302	1.855	1.523	1.209	0.897
70	5.151	4.495	3.745	2.844	2.046	1.694	1.360	1.029
75	5.446	4.751	4.145	3.293	2.337	1.864	1.510	1.161
80	5.741	5.007	4.430	3.611	2.784	2.034	1.661	1.293
85	6.035	5.264	4.667	3.929	3.199	2.255	1.811	1.425
90	6.330	5.535	4.905	4.247	3.448	2.627	1.962	1.557
95	6.624	5.866	5.142	4.437	3.696	2.998	2.112	1.689
100	6.919	6.198	5.379	4.621	3.944	3.267	2.373	1.821
105	7.213	6.529	5.621	4.804	4.192	3.458	2.687	1.953
110	-	6.860	5.867	4.988	4.363	3.648	3.001	2.085

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
115	-	7.156	6.114	5.171	4.502	3.839	3.230	2.272
120	-	-	6.360	5.355	4.642	4.029	3.372	2.534
125	-	-	6.606	5.546	4.781	4.220	3.514	2.796
130	-	-	6.852	5.752	4.921	4.347	3.657	3.058
135	-	-	7.094	5.958	5.060	4.455	3.799	3.223
140	-	-	-	6.163	5.199	4.563	3.941	3.327
145	-	-	-	6.369	5.339	4.671	4.083	3.431
150	-	-	-	6.574	5.482	4.780	4.225	3.535
155	-	-	-	6.780	5.677	4.888	4.329	3.639
160	-	-	-	6.985	5.872	4.996	4.419	3.743
165	-	-	-	7.168	6.067	5.104	4.509	3.847
170	-	-	-	-	6.263	5.212	4.599	3.951
175	-	-	-	-	6.458	5.320	4.689	4.055
180	-	-	-	-	6.653	5.429	4.779	4.159
185	-	-	-	-	6.848	5.596	4.869	4.263
190	-	-	-	-	7.028	5.799	4.959	4.383
195	-	-	-	-	7.180	6.002	5.049	4.503
200	-	-	-	-	-	6.205	5.139	4.623
205	-	-	-	-	-	6.407	5.229	4.743
210	-	-	-	-	-	6.610	5.319	4.863
215	-	-	-	-	-	6.813	5.409	4.983
220	-	-	-	-	-	7.003	5.668	5.103
225	-	-	-	-	-	7.137	6.256	5.224
230	-	-	-	-	-	-	6.844	5.344

Section factor (m-1)	Design temperature (°C)							
	350	400	450	500	550	600	650	700
235	-	-	-	-	-	-	7.130	5.464
240	-	-	-	-	-	-	-	6.335
245	-	-	-	-	-	-	-	7.020
250	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-

Tables B24 to B30 are applicable to rectangular hollow section columns and beams with protection on four sides exposure but rectangular hollow section beams are limited to a maximum protection thickness of 5.465.

Table B31 Required thickness (mm) of STEELGUARD™651 applied to rectangular hollow section beams for R 30

Section factor (m-1)	Design temperature (°C)					
	350	400	450	500	540	550
70	3.509	3.509	3.509	3.509	3.509	3.509
75	3.541	3.541	3.541	3.541	3.541	3.541
80	3.573	3.573	3.573	3.573	3.573	3.573
85	3.605	3.605	3.605	3.605	3.605	3.605
90	3.638	3.638	3.638	3.638	3.638	3.638
95	3.670	3.670	3.670	3.670	3.670	3.670
100	3.702	3.702	3.702	3.702	3.702	3.702
105	3.734	3.734	3.734	3.734	3.734	3.734
110	3.766	3.766	3.766	3.766	3.766	3.766
115	3.799	3.799	3.799	3.799	3.799	3.799
120	3.831	3.831	3.831	3.831	3.831	3.831
125	3.863	3.863	3.863	3.863	3.863	3.863
130	3.895	3.895	3.895	3.895	3.895	3.895
135	3.927	3.927	3.927	3.927	3.927	3.927
140	3.960	3.960	3.960	3.960	3.960	3.960
145	3.992	3.992	3.992	3.992	3.992	3.992
150	4.024	4.024	4.024	4.024	4.024	4.024
155	4.056	4.056	4.056	4.056	4.056	4.056
160	4.088	4.088	4.088	4.088	4.088	4.088
165	4.121	4.121	4.121	4.121	4.121	4.121
170	4.153	4.153	4.153	4.153	4.153	4.153
175	4.185	4.185	4.185	4.185	4.185	4.185

Tables B31 to B32 are applicable to rectangular hollow section beams with a concrete slab and protection to three sides in accordance with clause EN13381-8[3] section 7.1

Table B32 Required thickness (mm) of STEELGUARD™651 applied to rectangular hollow section beams for R 60

Section factor (m-1)	Design temperature (°C)					
	350	400	450	500	540	550
70	3.509	3.509	3.509	3.509	3.509	3.509
75	3.541	3.541	3.541	3.541	3.541	3.541
80	3.573	3.573	3.573	3.573	3.573	3.573
85	3.605	3.605	3.605	3.605	3.605	3.605
90	3.638	3.638	3.638	3.638	3.638	3.638
95	3.753	3.753	3.753	3.753	3.753	3.753
100	3.878	3.878	3.878	3.878	3.878	3.878
105	4.003	4.003	4.003	4.003	4.003	4.003
110	4.128	4.128	4.128	4.128	4.128	4.128
115	4.253	4.253	4.253	4.253	4.253	4.253
120	4.378	4.378	4.378	4.378	4.378	4.378
125	4.786	4.503	4.503	4.503	4.503	4.503
130	5.117	4.829	4.643	4.643	4.635	4.628
135	5.448	5.170	4.899	4.820	4.768	4.753
140	-	-	5.201	4.998	4.901	4.877
145	-	-	-	5.176	5.033	5.002
150	-	-	-	5.354	5.166	5.127
155	-	-	-	-	5.299	5.252
160	-	-	-	-	5.431	5.377
165	-	-	-	-	-	-
170	-	-	-	-	-	-
175	-	-	-	-	-	-

Tables B31 to B32 are applicable to rectangular hollow section beams with a concrete slab and protection to three sides in accordance with clause EN13381-8[3] section 7.1

Note: where a cell shows [–] this indicates that the system as assessed is not suitable for this particular application.

==========REPORT ENDS==========