CERTIFICATE NUMBER AC105.3

# CERTIFICATE OF APPROVAL

This is to certify that Sherwin Williams UK Limited has carried out the certification of FIRETEX® FX6010 intumescent paint in accordance with the Jensen Hughes FireMark scheme rules document – ATS00 – for the certification of fire protection products in Australia. The products have also been assessed against the requirements of the specific product Technical Schedule ATS56 - Intumescent coatings to protect steel – and are approved for use subject to the conditions outlined in this document.

## *Sherwin Williams UK Limited*

Avenue One, Station Lane, Witney, Oxfordshire, OX28 4XR, United Kingdom

| Certified product | Technical schedule | Approved standard |
|---|---|---|
| **FIRETEX® FX6010** | ATS56 – Intumescent coating for steelwork | AS 1530.4:2014<br>AS 4100:1998 (R2016) |

Jensen Hughes project number: CER220027
On behalf of Jensen Hughes

DocuSigned by:
DFD1B30AAE994A5...
JASON JEFFRESS
Vice President

JENSEN HUGHES FireMark

JAS-ANZ
WWW.JASANZ.ORG/REGISTER

| | |
|---|---|
| Issue date | 30 March 2023 |
| Re-issued date | 20 October 2025 |
| Certificate valid to | 30 March 2028 |

# 1.0 Introduction

This certificate of approval is for the use of FIRETEX® FX6010 intumescent paint for the fire protection of structural steel. The products have been assessed against the requirements of Technical Schedule ATS56 and are approved for use as a fire resisting intumescent coating for the protection of structural steel.

The detailed scope is given in the tables in the approval matrix in section 2 of this certificate. These show the approved applications of the FIRETEX® FX6010 intumescent paint protecting the following structural steel sections:

- I-section beams and columns
- circular hollow columns
- rectangular hollow column and beams.

The precise scope is given in the tables below, which show the total dry film thickness of all FIRETEX® FX6010 (excluding primer and top sealer) required to provide fire resistance periods in accordance with AS 1530.4:2014 of up to 120 minutes for I-section beams, rectangular hollow columns, circular hollow columns and rectangular hollow beams, 150 minutes for I-section columns.

The data referring to three-sided fire exposure of beams relates to beams supporting concrete floor slabs. Separate consideration is required where this is not the case.

The data shown are applicable to steel sections blast cleaned to AS 1627.9-2002, ISO 8501-1 SA2.5, or equivalent, and primed with a suitable and compatible primer. Specifications of surface preparations, primers and top sealers are available from Sherwin-Williams UK Limited, whose responsibility is to ensure that FIRETEX® FX6010 is compatible for use in respect of both ambient and fire conditions. The total dry film thickness of primer should not exceed that tested.

The data shown is applicable to FIRETEX® FX6010 applied by spray to horizontal, vertical, flexural and compression members supporting loads up to the maximum design loads specified in AS 4100:1998 (R2016). Specifications for other steel design temperatures are available from Sherwin-Williams UK Limited.

The approval relates to ongoing production. The product and/or its immediate packaging are identified with the manufacturer's name; the product name or number come up the Jensen Hughes FireMark name or name and mark, together with the Jensen Hughes FireMark certificate number and application where appropriate.

The data shown in the tables is based on assessments that comply with the criteria for acceptability now incorporated within the Jensen Hughes FireMark scheme.

The product is approved based on satisfying the requirements in Table 1 and the factory production control (FPC) audits carried out for each location where the product is manufactured for the Australian market. The audit report has been prepared and is retained in a confidential file by Jensen Hughes. General details are provided in Table 2.

All work and services carried out by Jensen Hughes are subject to and conducted in accordance with our standard terms and conditions. These are available on request.

*Table 1 Basis of evidence*

| Evidence | Comments |
|---|---|
| Evidence of relevant testing and assessments provided | See Appendix A |
| Testing carried out within the last 5 years to validate ongoing quality and performance of the product | Yes |
| Independent sampling of tested product for traceability | Yes |
| Batch number confirmed | Yes |
| The deemed-to-satisfy requirements of technical schedule met | Yes |
| The manufacturing facilities accredited to ISO 9001:2015 | Yes |

*Table 2 FPC audit report*

| Item | Detail |
|---|---|
| Audit company | Jensen Hughes |
| Audit objectives | The objective of the audit is to:<br>+ determine the conformity of the client's management system, or parts of it, with audit criteria,<br>+ determine the ability of the management system to ensure the client meets applicable contractual requirements,<br>+ determine the effectiveness of the management system to ensure the client can reasonably expect to achieve their specified objectives,<br>+ determine adequate process control of product manufacturing,<br>+ as applicable, identify areas for potential improvement in the management system. |
| Date of inspection | 10 May 2023 |
| Outcome | The audit satisfied the requirements of the Jensen Hughes FireMark scheme. |

## *2.0 Formal scope of product certification*

### General product description

FIRETEX® FX6010 is a two-component, ultra-fast-drying, durable, intumescent fire protection coating that is designed to give rapid overcoating and handling times for fire resistance periods up to two hours for structural steel.

A representative image of the product is shown here.

## 3.0 Approval matrix

| Table 1 I-Section / H-Section Beams 15 minutes<br>Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 583 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 50 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 55 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 60 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 65 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 70 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 75 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 80 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 85 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 90 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 95 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 100 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 105 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 110 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 115 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 120 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 125 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 130 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 135 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 140 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 145 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 150 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 155 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 160 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 165 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 170 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 175 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 180 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 185 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 190 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 195 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 200 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 205 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 210 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 215 | 0.375 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 220 | 0.388 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 225 | 0.401 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 230 | 0.414 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 235 | 0.426 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 240 | 0.439 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 245 | 0.452 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 250 | 0.464 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 255 | 0.477 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 260 | 0.490 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 265 | 0.503 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 270 | 0.515 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 275 | 0.528 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 280 | 0.541 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 285 | 0.554 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 290 | 0.566 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 295 | 0.579 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 300 | 0.592 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 305 | 0.605 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 310 | 0.617 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 315 | 0.630 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 320 | 0.643 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 325 | 0.656 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 330 | 0.668 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 335 | 0.681 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 340 | 0.694 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 345 | 0.706 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 350 | 0.719 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 355 | 0.732 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 360 | 0.745 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 365 | 0.757 | 0.378 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 370 | 0.770 | 0.389 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 375 | 0.783 | 0.400 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 380 | 0.796 | 0.411 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 385 | 0.808 | 0.422 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 390 | 0.821 | 0.433 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 395 | 0.834 | 0.444 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 400 | 0.847 | 0.455 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |

The thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 2 I-Section / H-Section Beams 20 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 583 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 50 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 55 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 60 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 65 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 70 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 75 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 80 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 85 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 90 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 95 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 100 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 105 | 0.372 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 110 | 0.387 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 115 | 0.402 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 120 | 0.417 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 125 | 0.432 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 130 | 0.447 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 135 | 0.462 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 140 | 0.477 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 145 | 0.492 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 150 | 0.506 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 155 | 0.521 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 160 | 0.536 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 165 | 0.551 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 170 | 0.566 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 175 | 0.581 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 180 | 0.596 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 185 | 0.611 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 190 | 0.626 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 195 | 0.641 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 200 | 0.656 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 205 | 0.670 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 210 | 0.685 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 215 | 0.700 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 220 | 0.715 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 225 | 0.730 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 230 | 0.745 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 235 | 0.760 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 240 | 0.775 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 245 | 0.790 | 0.369 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 250 | 0.805 | 0.384 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 255 | 0.820 | 0.398 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 260 | 0.835 | 0.413 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 265 | 0.849 | 0.427 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 270 | 0.864 | 0.441 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 275 | 0.879 | 0.456 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 280 | 0.894 | 0.470 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 285 | 0.909 | 0.484 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 290 | 0.924 | 0.499 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 295 | 0.939 | 0.513 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 300 | 0.954 | 0.527 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 305 | 0.969 | 0.542 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 310 | 0.984 | 0.556 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 315 | 0.999 | 0.571 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 320 | 1.013 | 0.585 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 325 | 1.028 | 0.599 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 330 | 1.043 | 0.614 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 335 | 1.058 | 0.628 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 340 | 1.073 | 0.642 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 345 | 1.088 | 0.657 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 350 | 1.103 | 0.671 | 0.370 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 355 | 1.118 | 0.685 | 0.383 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 360 | 1.133 | 0.700 | 0.396 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 365 | 1.148 | 0.714 | 0.408 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 370 | 1.163 | 0.729 | 0.421 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 375 | 1.178 | 0.743 | 0.434 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 380 | 1.192 | 0.757 | 0.447 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 385 | 1.207 | 0.772 | 0.459 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 390 | 1.222 | 0.786 | 0.472 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 395 | 1.237 | 0.800 | 0.485 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 400 | 1.252 | 0.815 | 0.498 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |

The thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 3 I-Section / H-Section Beams 30 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 583 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 50 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 55 | 0.380 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 60 | 0.410 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 65 | 0.440 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 70 | 0.470 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 75 | 0.500 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 80 | 0.530 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 85 | 0.560 | 0.368 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 90 | 0.590 | 0.385 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 95 | 0.620 | 0.402 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 100 | 0.650 | 0.420 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 105 | 0.680 | 0.437 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 110 | 0.710 | 0.454 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 115 | 0.740 | 0.471 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 120 | 0.770 | 0.488 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 125 | 0.800 | 0.506 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 130 | 0.830 | 0.523 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 135 | 0.860 | 0.540 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 140 | 0.890 | 0.557 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 145 | 0.920 | 0.574 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 150 | 0.950 | 0.592 | 0.368 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 155 | 0.980 | 0.609 | 0.384 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 160 | 1.010 | 0.626 | 0.400 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 165 | 1.040 | 0.643 | 0.415 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 170 | 1.070 | 0.660 | 0.431 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 175 | 1.100 | 0.678 | 0.447 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 180 | 1.130 | 0.695 | 0.463 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 185 | 1.160 | 0.712 | 0.478 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 190 | 1.190 | 0.729 | 0.494 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 195 | 1.220 | 0.746 | 0.510 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 200 | 1.250 | 0.764 | 0.526 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 205 | 1.280 | 0.781 | 0.542 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 210 | 1.310 | 0.798 | 0.557 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 215 | 1.340 | 0.815 | 0.573 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 220 | 1.370 | 0.833 | 0.589 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 225 | 1.400 | 0.850 | 0.605 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 230 | 1.430 | 0.867 | 0.620 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 235 | 1.460 | 0.884 | 0.636 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 240 | 1.490 | 0.901 | 0.652 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 245 | 1.517 | 0.919 | 0.668 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 250 | 1.536 | 0.936 | 0.684 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 255 | 1.554 | 0.953 | 0.699 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 260 | 1.573 | 0.970 | 0.715 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 265 | 1.592 | 0.987 | 0.731 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 270 | 1.610 | 1.005 | 0.747 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 275 | 1.629 | 1.022 | 0.763 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 280 | 1.648 | 1.039 | 0.778 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 285 | 1.666 | 1.056 | 0.794 | 0.374 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 290 | 1.685 | 1.073 | 0.810 | 0.392 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 295 | 1.703 | 1.091 | 0.826 | 0.410 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 300 | 1.722 | 1.108 | 0.841 | 0.428 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 305 | 1.741 | 1.125 | 0.857 | 0.446 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 310 | 1.759 | 1.142 | 0.873 | 0.465 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 315 | 1.778 | 1.159 | 0.889 | 0.483 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 320 | 1.797 | 1.177 | 0.905 | 0.501 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 325 | 1.815 | 1.194 | 0.920 | 0.519 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 330 | 1.834 | 1.211 | 0.936 | 0.537 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 335 | 1.853 | 1.228 | 0.952 | 0.555 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 340 | 1.871 | 1.245 | 0.968 | 0.574 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 345 | 1.890 | 1.263 | 0.983 | 0.592 | 0.374 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 350 | 1.908 | 1.280 | 0.999 | 0.610 | 0.391 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 355 | 1.927 | 1.297 | 1.015 | 0.628 | 0.408 | 0.378 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 360 | 1.946 | 1.314 | 1.031 | 0.646 | 0.425 | 0.394 | 0.380 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 365 | 1.964 | 1.331 | 1.047 | 0.665 | 0.442 | 0.411 | 0.396 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 370 | 1.983 | 1.349 | 1.062 | 0.683 | 0.459 | 0.427 | 0.413 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 375 | 2.002 | 1.366 | 1.078 | 0.701 | 0.475 | 0.444 | 0.429 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 380 | 2.020 | 1.383 | 1.094 | 0.719 | 0.492 | 0.461 | 0.446 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 385 | 2.039 | 1.400 | 1.110 | 0.737 | 0.509 | 0.477 | 0.462 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 390 | 2.058 | 1.418 | 1.125 | 0.755 | 0.526 | 0.494 | 0.479 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 395 | 2.076 | 1.435 | 1.141 | 0.774 | 0.543 | 0.510 | 0.495 | 0.377 | 0.372 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 400 | 2.095 | 1.452 | 1.157 | 0.792 | 0.559 | 0.527 | 0.512 | 0.393 | 0.388 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |

The thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 4 I-Section / H-Section Beams 45 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 583 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 50 | 0.744 | 0.420 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 55 | 0.819 | 0.467 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 60 | 0.893 | 0.514 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 65 | 0.968 | 0.560 | 0.374 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 70 | 1.042 | 0.607 | 0.401 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 75 | 1.116 | 0.654 | 0.429 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 80 | 1.191 | 0.701 | 0.456 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 85 | 1.265 | 0.747 | 0.483 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 90 | 1.340 | 0.794 | 0.510 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 95 | 1.414 | 0.841 | 0.537 | 0.386 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 100 | 1.488 | 0.888 | 0.564 | 0.405 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 105 | 1.528 | 0.935 | 0.591 | 0.425 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 110 | 1.550 | 0.981 | 0.618 | 0.444 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 115 | 1.572 | 1.028 | 0.645 | 0.463 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 120 | 1.594 | 1.075 | 0.673 | 0.483 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 125 | 1.617 | 1.122 | 0.700 | 0.502 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 130 | 1.639 | 1.168 | 0.727 | 0.522 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 135 | 1.661 | 1.215 | 0.754 | 0.541 | 0.381 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 140 | 1.683 | 1.262 | 0.781 | 0.561 | 0.400 | 0.371 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 145 | 1.705 | 1.309 | 0.808 | 0.580 | 0.419 | 0.390 | 0.375 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 150 | 1.727 | 1.356 | 0.835 | 0.600 | 0.438 | 0.409 | 0.394 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 155 | 1.750 | 1.402 | 0.862 | 0.619 | 0.457 | 0.428 | 0.413 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 160 | 1.772 | 1.449 | 0.890 | 0.638 | 0.476 | 0.447 | 0.432 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 165 | 1.794 | 1.496 | 0.917 | 0.658 | 0.495 | 0.466 | 0.451 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 170 | 1.816 | 1.526 | 0.944 | 0.677 | 0.514 | 0.485 | 0.470 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 175 | 1.838 | 1.546 | 0.971 | 0.697 | 0.533 | 0.504 | 0.489 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 180 | 1.860 | 1.567 | 0.998 | 0.716 | 0.551 | 0.523 | 0.508 | 0.368 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 185 | 1.883 | 1.587 | 1.025 | 0.736 | 0.570 | 0.542 | 0.527 | 0.388 | 0.380 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 190 | 1.905 | 1.608 | 1.052 | 0.755 | 0.589 | 0.561 | 0.546 | 0.408 | 0.400 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 195 | 1.927 | 1.628 | 1.079 | 0.775 | 0.608 | 0.580 | 0.565 | 0.428 | 0.420 | 0.387 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 200 | 1.949 | 1.649 | 1.106 | 0.794 | 0.627 | 0.599 | 0.584 | 0.448 | 0.440 | 0.407 | 0.381 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 205 | 1.971 | 1.669 | 1.134 | 0.813 | 0.646 | 0.618 | 0.603 | 0.468 | 0.460 | 0.428 | 0.401 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 210 | 1.993 | 1.690 | 1.161 | 0.833 | 0.665 | 0.637 | 0.622 | 0.488 | 0.480 | 0.448 | 0.421 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 215 | 2.016 | 1.710 | 1.188 | 0.852 | 0.684 | 0.656 | 0.641 | 0.508 | 0.500 | 0.468 | 0.442 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 220 | 2.038 | 1.731 | 1.215 | 0.872 | 0.703 | 0.675 | 0.660 | 0.527 | 0.520 | 0.488 | 0.462 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 225 | 2.060 | 1.751 | 1.242 | 0.891 | 0.722 | 0.694 | 0.679 | 0.547 | 0.540 | 0.508 | 0.483 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 230 | 2.082 | 1.771 | 1.269 | 0.911 | 0.741 | 0.713 | 0.698 | 0.567 | 0.560 | 0.528 | 0.503 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 235 | 2.104 | 1.792 | 1.296 | 0.930 | 0.760 | 0.731 | 0.717 | 0.587 | 0.580 | 0.548 | 0.523 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 240 | 2.126 | 1.812 | 1.323 | 0.950 | 0.779 | 0.750 | 0.736 | 0.607 | 0.600 | 0.569 | 0.544 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 245 | 2.149 | 1.833 | 1.350 | 0.969 | 0.798 | 0.769 | 0.755 | 0.627 | 0.620 | 0.589 | 0.564 | 0.374 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 250 | 2.171 | 1.853 | 1.378 | 0.988 | 0.817 | 0.788 | 0.774 | 0.647 | 0.639 | 0.609 | 0.584 | 0.397 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 255 | 2.193 | 1.874 | 1.405 | 1.008 | 0.836 | 0.807 | 0.793 | 0.667 | 0.659 | 0.629 | 0.605 | 0.420 | 0.378 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 260 | 2.215 | 1.894 | 1.432 | 1.027 | 0.855 | 0.826 | 0.812 | 0.686 | 0.679 | 0.649 | 0.625 | 0.443 | 0.402 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 265 | 2.237 | 1.915 | 1.459 | 1.047 | 0.874 | 0.845 | 0.831 | 0.706 | 0.699 | 0.669 | 0.645 | 0.466 | 0.425 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 270 | 2.259 | 1.935 | 1.486 | 1.066 | 0.893 | 0.864 | 0.850 | 0.726 | 0.719 | 0.690 | 0.666 | 0.489 | 0.449 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 275 | 2.282 | 1.956 | 1.513 | 1.086 | 0.912 | 0.883 | 0.869 | 0.746 | 0.739 | 0.710 | 0.686 | 0.512 | 0.472 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 280 | 2.304 | 1.976 | 1.536 | 1.105 | 0.931 | 0.902 | 0.888 | 0.766 | 0.759 | 0.730 | 0.707 | 0.535 | 0.496 | 0.370 | 0.367 | 0.367 | 0.367 | 0.367 |
| 285 | 2.326 | 1.997 | 1.559 | 1.125 | 0.950 | 0.921 | 0.907 | 0.786 | 0.779 | 0.750 | 0.727 | 0.558 | 0.519 | 0.396 | 0.367 | 0.367 | 0.367 | 0.367 |
| 290 | 2.348 | 2.017 | 1.582 | 1.144 | 0.969 | 0.940 | 0.926 | 0.806 | 0.799 | 0.770 | 0.747 | 0.581 | 0.543 | 0.421 | 0.373 | 0.367 | 0.367 | 0.367 |
| 295 | 2.370 | 2.037 | 1.605 | 1.163 | 0.988 | 0.959 | 0.945 | 0.826 | 0.819 | 0.790 | 0.768 | 0.604 | 0.566 | 0.447 | 0.398 | 0.367 | 0.367 | 0.367 |
| 300 | 2.392 | 2.058 | 1.628 | 1.183 | 1.007 | 0.978 | 0.964 | 0.845 | 0.839 | 0.810 | 0.788 | 0.626 | 0.590 | 0.473 | 0.423 | 0.367 | 0.367 | 0.367 |
| 305 | 2.415 | 2.078 | 1.651 | 1.202 | 1.026 | 0.997 | 0.983 | 0.865 | 0.859 | 0.831 | 0.808 | 0.649 | 0.613 | 0.499 | 0.449 | 0.367 | 0.367 | 0.367 |
| 310 | 2.437 | 2.099 | 1.674 | 1.222 | 1.045 | 1.016 | 1.002 | 0.885 | 0.879 | 0.851 | 0.829 | 0.672 | 0.637 | 0.524 | 0.474 | 0.367 | 0.367 | 0.367 |
| 315 | 2.459 | 2.119 | 1.697 | 1.241 | 1.064 | 1.035 | 1.021 | 0.905 | 0.899 | 0.871 | 0.849 | 0.695 | 0.661 | 0.550 | 0.499 | 0.367 | 0.367 | 0.367 |
| 320 | 2.481 | 2.140 | 1.720 | 1.261 | 1.083 | 1.054 | 1.040 | 0.925 | 0.918 | 0.891 | 0.869 | 0.718 | 0.684 | 0.576 | 0.525 | 0.377 | 0.367 | 0.367 |
| 325 | 2.503 | 2.160 | 1.742 | 1.280 | 1.102 | 1.073 | 1.059 | 0.945 | 0.938 | 0.911 | 0.890 | 0.741 | 0.708 | 0.602 | 0.550 | 0.402 | 0.367 | 0.367 |
| 330 | 2.525 | 2.181 | 1.765 | 1.300 | 1.121 | 1.092 | 1.078 | 0.965 | 0.958 | 0.931 | 0.910 | 0.764 | 0.731 | 0.628 | 0.576 | 0.428 | 0.367 | 0.367 |
| 335 | 2.548 | 2.201 | 1.788 | 1.319 | 1.140 | 1.111 | 1.097 | 0.985 | 0.978 | 0.952 | 0.930 | 0.787 | 0.755 | 0.653 | 0.601 | 0.454 | 0.367 | 0.367 |
| 340 | 2.570 | 2.222 | 1.811 | 1.338 | 1.158 | 1.130 | 1.116 | 1.005 | 0.998 | 0.972 | 0.951 | 0.810 | 0.778 | 0.679 | 0.626 | 0.480 | 0.367 | 0.367 |
| 345 | 2.592 | 2.242 | 1.834 | 1.358 | 1.177 | 1.149 | 1.135 | 1.024 | 1.018 | 0.992 | 0.971 | 0.833 | 0.802 | 0.705 | 0.652 | 0.506 | 0.367 | 0.367 |
| 350 | 2.614 | 2.262 | 1.857 | 1.377 | 1.196 | 1.168 | 1.154 | 1.044 | 1.038 | 1.012 | 0.992 | 0.856 | 0.825 | 0.731 | 0.677 | 0.531 | 0.367 | 0.367 |
| 355 | 2.636 | 2.283 | 1.880 | 1.397 | 1.215 | 1.187 | 1.173 | 1.064 | 1.058 | 1.032 | 1.012 | 0.879 | 0.849 | 0.756 | 0.702 | 0.557 | 0.367 | 0.367 |
| 360 | 2.658 | 2.303 | 1.903 | 1.416 | 1.234 | 1.206 | 1.191 | 1.084 | 1.078 | 1.052 | 1.032 | 0.902 | 0.873 | 0.782 | 0.728 | 0.583 | 0.367 | 0.367 |
| 365 | 2.681 | 2.324 | 1.926 | 1.436 | 1.253 | 1.225 | 1.210 | 1.104 | 1.098 | 1.072 | 1.053 | 0.924 | 0.896 | 0.808 | 0.753 | 0.609 | 0.367 | 0.367 |
| 370 | 2.703 | 2.344 | 1.949 | 1.455 | 1.272 | 1.244 | 1.229 | 1.124 | 1.118 | 1.093 | 1.073 | 0.947 | 0.920 | 0.834 | 0.779 | 0.635 | 0.372 | 0.367 |
| 375 | 2.725 | 2.365 | 1.972 | 1.475 | 1.291 | 1.263 | 1.248 | 1.144 | 1.138 | 1.113 | 1.093 | 0.970 | 0.943 | 0.859 | 0.804 | 0.661 | 0.396 | 0.367 |
| 380 | 2.771 | 2.385 | 1.995 | 1.494 | 1.310 | 1.282 | 1.267 | 1.164 | 1.158 | 1.133 | 1.114 | 0.993 | 0.967 | 0.885 | 0.829 | 0.686 | 0.420 | 0.367 |
| 385 | 2.819 | 2.406 | 2.018 | 1.514 | 1.329 | 1.301 | 1.286 | 1.183 | 1.178 | 1.153 | 1.134 | 1.016 | 0.990 | 0.911 | 0.855 | 0.712 | 0.444 | 0.367 |
| 390 | 2.866 | 2.426 | 2.041 | 1.540 | 1.348 | 1.320 | 1.305 | 1.203 | 1.197 | 1.173 | 1.154 | 1.039 | 1.014 | 0.937 | 0.880 | 0.738 | 0.468 | 0.367 |
| 395 | 2.913 | 2.447 | 2.064 | 1.566 | 1.367 | 1.339 | 1.324 | 1.223 | 1.217 | 1.193 | 1.175 | 1.062 | 1.037 | 0.962 | 0.905 | 0.764 | 0.492 | 0.367 |
| 400 | 2.961 | 2.467 | 2.087 | 1.592 | 1.386 | 1.358 | 1.343 | 1.243 | 1.237 | 1.214 | 1.195 | 1.085 | 1.061 | 0.988 | 0.931 | 0.790 | 0.516 | 0.367 |

The thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 5 I-Section / H-Section Beams 60 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 583 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 50 | 1.178 | 0.773 | 0.500 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 55 | 1.296 | 0.855 | 0.555 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 60 | 1.414 | 0.937 | 0.614 | 0.403 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 65 | 1.523 | 1.019 | 0.674 | 0.448 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 70 | 1.588 | 1.102 | 0.734 | 0.493 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 75 | 1.652 | 1.184 | 0.793 | 0.538 | 0.397 | 0.381 | 0.374 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 80 | 1.717 | 1.266 | 0.853 | 0.583 | 0.430 | 0.413 | 0.405 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 85 | 1.782 | 1.348 | 0.912 | 0.628 | 0.464 | 0.445 | 0.436 | 0.375 | 0.372 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 90 | 1.846 | 1.430 | 0.972 | 0.673 | 0.497 | 0.477 | 0.468 | 0.402 | 0.399 | 0.389 | 0.381 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 95 | 1.911 | 1.512 | 1.032 | 0.718 | 0.531 | 0.509 | 0.499 | 0.429 | 0.426 | 0.415 | 0.406 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 100 | 1.975 | 1.543 | 1.091 | 0.763 | 0.564 | 0.541 | 0.530 | 0.457 | 0.453 | 0.441 | 0.432 | 0.382 | 0.374 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 105 | 2.040 | 1.574 | 1.151 | 0.808 | 0.598 | 0.573 | 0.561 | 0.484 | 0.480 | 0.467 | 0.457 | 0.405 | 0.397 | 0.374 | 0.367 | 0.367 | 0.367 | 0.367 |
| 110 | 2.105 | 1.605 | 1.210 | 0.852 | 0.631 | 0.605 | 0.592 | 0.511 | 0.507 | 0.493 | 0.483 | 0.429 | 0.420 | 0.396 | 0.367 | 0.367 | 0.367 | 0.367 |
| 115 | 2.169 | 1.636 | 1.270 | 0.897 | 0.665 | 0.637 | 0.624 | 0.538 | 0.534 | 0.519 | 0.508 | 0.452 | 0.444 | 0.419 | 0.387 | 0.367 | 0.367 | 0.367 |
| 120 | 2.234 | 1.667 | 1.330 | 0.942 | 0.698 | 0.669 | 0.655 | 0.565 | 0.561 | 0.545 | 0.534 | 0.476 | 0.467 | 0.441 | 0.409 | 0.367 | 0.367 | 0.367 |
| 125 | 2.298 | 1.697 | 1.389 | 0.987 | 0.732 | 0.701 | 0.686 | 0.592 | 0.588 | 0.571 | 0.559 | 0.499 | 0.490 | 0.464 | 0.431 | 0.367 | 0.367 | 0.367 |
| 130 | 2.363 | 1.728 | 1.449 | 1.032 | 0.765 | 0.733 | 0.717 | 0.620 | 0.615 | 0.597 | 0.585 | 0.523 | 0.513 | 0.487 | 0.454 | 0.367 | 0.367 | 0.367 |
| 135 | 2.428 | 1.759 | 1.509 | 1.077 | 0.799 | 0.765 | 0.749 | 0.647 | 0.642 | 0.623 | 0.610 | 0.546 | 0.536 | 0.509 | 0.476 | 0.367 | 0.367 | 0.367 |
| 140 | 2.492 | 1.790 | 1.534 | 1.122 | 0.832 | 0.797 | 0.780 | 0.674 | 0.669 | 0.649 | 0.635 | 0.570 | 0.559 | 0.532 | 0.498 | 0.386 | 0.367 | 0.367 |
| 145 | 2.557 | 1.820 | 1.557 | 1.167 | 0.866 | 0.829 | 0.811 | 0.701 | 0.696 | 0.676 | 0.661 | 0.593 | 0.583 | 0.554 | 0.520 | 0.410 | 0.367 | 0.367 |
| 150 | 2.621 | 1.851 | 1.580 | 1.212 | 0.899 | 0.861 | 0.842 | 0.728 | 0.723 | 0.702 | 0.686 | 0.617 | 0.606 | 0.577 | 0.542 | 0.433 | 0.367 | 0.367 |
| 155 | 2.686 | 1.882 | 1.603 | 1.257 | 0.933 | 0.893 | 0.873 | 0.756 | 0.750 | 0.728 | 0.712 | 0.640 | 0.629 | 0.599 | 0.564 | 0.456 | 0.367 | 0.367 |
| 160 | 2.740 | 1.913 | 1.626 | 1.301 | 0.966 | 0.925 | 0.905 | 0.783 | 0.777 | 0.754 | 0.737 | 0.664 | 0.652 | 0.622 | 0.586 | 0.479 | 0.367 | 0.367 |
| 165 | 2.778 | 1.943 | 1.649 | 1.346 | 1.000 | 0.957 | 0.936 | 0.810 | 0.804 | 0.780 | 0.763 | 0.687 | 0.675 | 0.645 | 0.608 | 0.502 | 0.367 | 0.367 |
| 170 | 2.816 | 1.974 | 1.672 | 1.391 | 1.033 | 0.988 | 0.967 | 0.837 | 0.831 | 0.806 | 0.788 | 0.711 | 0.698 | 0.667 | 0.630 | 0.525 | 0.367 | 0.367 |
| 175 | 2.854 | 2.005 | 1.695 | 1.436 | 1.067 | 1.020 | 0.998 | 0.864 | 0.858 | 0.832 | 0.814 | 0.734 | 0.721 | 0.690 | 0.652 | 0.548 | 0.367 | 0.367 |
| 180 | 2.892 | 2.036 | 1.718 | 1.481 | 1.100 | 1.052 | 1.029 | 0.892 | 0.885 | 0.858 | 0.839 | 0.758 | 0.745 | 0.712 | 0.674 | 0.571 | 0.367 | 0.367 |
| 185 | 2.930 | 2.066 | 1.741 | 1.519 | 1.134 | 1.084 | 1.061 | 0.919 | 0.912 | 0.884 | 0.865 | 0.781 | 0.768 | 0.735 | 0.697 | 0.595 | 0.367 | 0.367 |
| 190 | 2.968 | 2.097 | 1.764 | 1.542 | 1.167 | 1.116 | 1.092 | 0.946 | 0.939 | 0.910 | 0.890 | 0.804 | 0.791 | 0.757 | 0.719 | 0.618 | 0.367 | 0.367 |
| 195 | 3.006 | 2.128 | 1.787 | 1.564 | 1.201 | 1.148 | 1.123 | 0.973 | 0.966 | 0.937 | 0.916 | 0.828 | 0.814 | 0.780 | 0.741 | 0.641 | 0.367 | 0.367 |
| 200 | 3.044 | 2.159 | 1.810 | 1.587 | 1.234 | 1.180 | 1.154 | 1.000 | 0.993 | 0.963 | 0.941 | 0.851 | 0.837 | 0.803 | 0.763 | 0.664 | 0.393 | 0.367 |
| 205 | 3.082 | 2.189 | 1.833 | 1.609 | 1.268 | 1.212 | 1.186 | 1.028 | 1.020 | 0.989 | 0.967 | 0.875 | 0.860 | 0.825 | 0.785 | 0.687 | 0.418 | 0.367 |
| 210 | 3.120 | 2.220 | 1.855 | 1.631 | 1.301 | 1.244 | 1.217 | 1.055 | 1.047 | 1.015 | 0.992 | 0.898 | 0.884 | 0.848 | 0.807 | 0.710 | 0.444 | 0.367 |
| 215 | 3.158 | 2.251 | 1.878 | 1.654 | 1.335 | 1.276 | 1.248 | 1.082 | 1.074 | 1.041 | 1.018 | 0.922 | 0.907 | 0.870 | 0.829 | 0.733 | 0.469 | 0.367 |
| 220 | 3.196 | 2.282 | 1.901 | 1.676 | 1.368 | 1.308 | 1.279 | 1.109 | 1.101 | 1.067 | 1.043 | 0.945 | 0.930 | 0.893 | 0.851 | 0.757 | 0.495 | 0.367 |
| 225 | 3.234 | 2.312 | 1.924 | 1.698 | 1.402 | 1.340 | 1.310 | 1.136 | 1.128 | 1.093 | 1.069 | 0.969 | 0.953 | 0.915 | 0.873 | 0.780 | 0.520 | 0.367 |
| 230 | 3.272 | 2.343 | 1.947 | 1.721 | 1.436 | 1.372 | 1.342 | 1.164 | 1.155 | 1.119 | 1.094 | 0.992 | 0.976 | 0.938 | 0.895 | 0.803 | 0.545 | 0.367 |
| 235 | 3.310 | 2.374 | 1.970 | 1.743 | 1.469 | 1.404 | 1.373 | 1.191 | 1.182 | 1.145 | 1.119 | 1.016 | 0.999 | 0.961 | 0.918 | 0.826 | 0.571 | 0.367 |
| 240 | 3.348 | 2.405 | 1.993 | 1.765 | 1.503 | 1.436 | 1.404 | 1.218 | 1.209 | 1.171 | 1.145 | 1.039 | 1.023 | 0.983 | 0.940 | 0.849 | 0.596 | 0.367 |
| 245 | 3.386 | 2.436 | 2.016 | 1.788 | 1.529 | 1.468 | 1.435 | 1.245 | 1.236 | 1.197 | 1.170 | 1.063 | 1.046 | 1.006 | 0.962 | 0.872 | 0.622 | 0.367 |
| 250 | 3.423 | 2.466 | 2.039 | 1.810 | 1.552 | 1.500 | 1.467 | 1.272 | 1.262 | 1.224 | 1.196 | 1.086 | 1.069 | 1.028 | 0.984 | 0.895 | 0.647 | 0.367 |
| 255 | 3.461 | 2.497 | 2.062 | 1.833 | 1.575 | 1.527 | 1.498 | 1.300 | 1.289 | 1.250 | 1.221 | 1.110 | 1.092 | 1.051 | 1.006 | 0.918 | 0.673 | 0.367 |
| 260 | 3.499 | 2.528 | 2.085 | 1.855 | 1.598 | 1.550 | 1.525 | 1.327 | 1.316 | 1.276 | 1.247 | 1.133 | 1.115 | 1.073 | 1.028 | 0.942 | 0.698 | 0.367 |
| 265 | 3.536 | 2.559 | 2.108 | 1.877 | 1.621 | 1.573 | 1.548 | 1.354 | 1.343 | 1.302 | 1.272 | 1.157 | 1.138 | 1.096 | 1.050 | 0.965 | 0.724 | 0.367 |
| 270 | 3.569 | 2.589 | 2.131 | 1.900 | 1.644 | 1.596 | 1.572 | 1.381 | 1.370 | 1.328 | 1.298 | 1.180 | 1.162 | 1.119 | 1.072 | 0.988 | 0.749 | 0.367 |
| 275 | 3.603 | 2.620 | 2.154 | 1.922 | 1.666 | 1.620 | 1.595 | 1.408 | 1.397 | 1.354 | 1.323 | 1.204 | 1.185 | 1.141 | 1.094 | 1.011 | 0.775 | 0.367 |
| 280 | 3.636 | 2.651 | 2.177 | 1.944 | 1.689 | 1.643 | 1.619 | 1.436 | 1.424 | 1.380 | 1.349 | 1.227 | 1.208 | 1.164 | 1.116 | 1.034 | 0.800 | 0.367 |
| 285 | 3.670 | 2.682 | 2.200 | 1.967 | 1.712 | 1.666 | 1.642 | 1.463 | 1.451 | 1.406 | 1.374 | 1.251 | 1.231 | 1.186 | 1.138 | 1.057 | 0.826 | 0.389 |
| 290 | 3.703 | 2.712 | 2.223 | 1.989 | 1.735 | 1.689 | 1.666 | 1.490 | 1.478 | 1.432 | 1.400 | 1.274 | 1.254 | 1.209 | 1.161 | 1.080 | 0.851 | 0.419 |
| 295 | 3.737 | 2.744 | 2.246 | 2.011 | 1.758 | 1.713 | 1.689 | 1.517 | 1.505 | 1.458 | 1.425 | 1.298 | 1.277 | 1.231 | 1.183 | 1.103 | 0.877 | 0.449 |
| 300 | 3.771 | 2.777 | 2.268 | 2.034 | 1.781 | 1.736 | 1.712 | 1.541 | 1.530 | 1.485 | 1.451 | 1.321 | 1.301 | 1.254 | 1.205 | 1.127 | 0.902 | 0.479 |
| 305 | 3.804 | 2.810 | 2.291 | 2.056 | 1.804 | 1.759 | 1.736 | 1.565 | 1.555 | 1.511 | 1.476 | 1.344 | 1.324 | 1.277 | 1.227 | 1.150 | 0.928 | 0.509 |
| 310 | 3.838 | 2.843 | 2.314 | 2.079 | 1.827 | 1.782 | 1.759 | 1.590 | 1.579 | 1.536 | 1.502 | 1.368 | 1.347 | 1.299 | 1.249 | 1.173 | 0.953 | 0.539 |
| 315 | 3.871 | 2.877 | 2.337 | 2.101 | 1.850 | 1.806 | 1.783 | 1.614 | 1.604 | 1.561 | 1.527 | 1.391 | 1.370 | 1.322 | 1.271 | 1.196 | 0.979 | 0.569 |
| 320 | 3.905 | 2.910 | 2.360 | 2.123 | 1.873 | 1.829 | 1.806 | 1.639 | 1.628 | 1.585 | 1.552 | 1.415 | 1.393 | 1.344 | 1.293 | 1.219 | 1.004 | 0.598 |
| 325 | 3.938 | 2.943 | 2.383 | 2.146 | 1.896 | 1.852 | 1.829 | 1.663 | 1.653 | 1.610 | 1.577 | 1.438 | 1.416 | 1.367 | 1.315 | 1.242 | 1.030 | 0.628 |
| 330 | 3.972 | 2.976 | 2.406 | 2.168 | 1.919 | 1.875 | 1.853 | 1.687 | 1.677 | 1.635 | 1.603 | 1.462 | 1.440 | 1.389 | 1.337 | 1.265 | 1.055 | 0.658 |
| 335 | 4.005 | 3.009 | 2.429 | 2.190 | 1.942 | 1.899 | 1.876 | 1.712 | 1.702 | 1.660 | 1.628 | 1.485 | 1.463 | 1.412 | 1.359 | 1.288 | 1.081 | 0.688 |
| 340 | 4.039 | 3.042 | 2.452 | 2.213 | 1.965 | 1.922 | 1.900 | 1.736 | 1.726 | 1.685 | 1.653 | 1.509 | 1.486 | 1.435 | 1.381 | 1.312 | 1.106 | 0.718 |
| 345 | 4.072 | 3.075 | 2.475 | 2.235 | 1.988 | 1.945 | 1.923 | 1.760 | 1.751 | 1.710 | 1.678 | 1.534 | 1.509 | 1.457 | 1.404 | 1.335 | 1.132 | 0.748 |
| 350 | 4.106 | 3.108 | 2.498 | 2.257 | 2.011 | 1.968 | 1.946 | 1.785 | 1.775 | 1.735 | 1.704 | 1.561 | 1.535 | 1.480 | 1.426 | 1.358 | 1.157 | 0.778 |
| 355 | 4.139 | 3.141 | 2.521 | 2.280 | 2.034 | 1.992 | 1.970 | 1.809 | 1.800 | 1.760 | 1.729 | 1.587 | 1.561 | 1.502 | 1.448 | 1.381 | 1.183 | 0.808 |
| 360 | 4.173 | 3.174 | 2.544 | 2.302 | 2.057 | 2.015 | 1.993 | 1.834 | 1.824 | 1.785 | 1.754 | 1.613 | 1.587 | 1.527 | 1.470 | 1.404 | 1.208 | 0.838 |
| 365 | 4.206 | 3.207 | 2.567 | 2.325 | 2.079 | 2.038 | 2.017 | 1.858 | 1.849 | 1.810 | 1.779 | 1.639 | 1.614 | 1.554 | 1.492 | 1.427 | 1.234 | 0.868 |
| 370 | 4.240 | 3.240 | 2.590 | 2.347 | 2.102 | 2.061 | 2.040 | 1.882 | 1.873 | 1.834 | 1.804 | 1.665 | 1.640 | 1.580 | 1.514 | 1.450 | 1.259 | 0.898 |
| 375 | 4.274 | 3.273 | 2.613 | 2.369 | 2.125 | 2.085 | 2.064 | 1.907 | 1.898 | 1.859 | 1.830 | 1.691 | 1.666 | 1.607 | 1.541 | 1.473 | 1.285 | 0.928 |
| 380 | 4.307 | 3.306 | 2.636 | 2.392 | 2.148 | 2.108 | 2.087 | 1.931 | 1.922 | 1.884 | 1.855 | 1.717 | 1.692 | 1.633 | 1.567 | 1.497 | 1.310 | 0.957 |
| 385 | 4.341 | 3.339 | 2.659 | 2.414 | 2.171 | 2.131 | 2.110 | 1.956 | 1.947 | 1.909 | 1.880 | 1.743 | 1.719 | 1.660 | 1.594 | 1.520 | 1.336 | 0.987 |
| 390 | 4.374 | 3.372 | 2.681 | 2.436 | 2.194 | 2.154 | 2.134 | 1.980 | 1.971 | 1.934 | 1.905 | 1.769 | 1.745 | 1.686 | 1.620 | 1.544 | 1.361 | 1.017 |
| 395 | 4.408 | 3.405 | 2.704 | 2.459 | 2.217 | 2.178 | 2.157 | 2.004 | 1.996 | 1.959 | 1.931 | 1.795 | 1.771 | 1.713 | 1.647 | 1.568 | 1.387 | 1.047 |
| 400 | 4.441 | 3.438 | 2.730 | 2.481 | 2.240 | 2.201 | 2.181 | 2.029 | 2.020 | 1.984 | 1.956 | 1.822 | 1.797 | 1.739 | 1.673 | 1.592 | 1.412 | 1.077 |

The thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 6 I-Section / H-Section Beams 75 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 583 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 50 | 1.660 | 1.126 | 0.799 | 0.566 | 0.398 | 0.377 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 55 | 1.773 | 1.244 | 0.887 | 0.628 | 0.441 | 0.419 | 0.410 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 60 | 1.886 | 1.361 | 0.977 | 0.702 | 0.503 | 0.479 | 0.469 | 0.404 | 0.401 | 0.390 | 0.382 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 65 | 1.998 | 1.479 | 1.067 | 0.775 | 0.565 | 0.539 | 0.529 | 0.458 | 0.455 | 0.443 | 0.434 | 0.385 | 0.377 | 0.367 | 0.367 | 0.367 | 0.367 | 0.367 |
| 70 | 2.111 | 1.566 | 1.157 | 0.848 | 0.627 | 0.599 | 0.588 | 0.513 | 0.509 | 0.496 | 0.486 | 0.434 | 0.426 | 0.403 | 0.375 | 0.367 | 0.367 | 0.367 |
| 75 | 2.224 | 1.640 | 1.247 | 0.922 | 0.689 | 0.660 | 0.647 | 0.567 | 0.563 | 0.549 | 0.538 | 0.484 | 0.475 | 0.451 | 0.421 | 0.367 | 0.367 | 0.367 |
| 80 | 2.336 | 1.714 | 1.337 | 0.995 | 0.751 | 0.720 | 0.707 | 0.621 | 0.617 | 0.602 | 0.591 | 0.533 | 0.524 | 0.499 | 0.467 | 0.379 | 0.367 | 0.367 |
| 85 | 2.449 | 1.789 | 1.427 | 1.069 | 0.813 | 0.780 | 0.766 | 0.675 | 0.671 | 0.655 | 0.643 | 0.583 | 0.573 | 0.548 | 0.513 | 0.422 | 0.367 | 0.367 |
| 90 | 2.562 | 1.863 | 1.515 | 1.142 | 0.875 | 0.841 | 0.825 | 0.730 | 0.725 | 0.708 | 0.695 | 0.633 | 0.623 | 0.596 | 0.559 | 0.465 | 0.367 | 0.367 |
| 95 | 2.674 | 1.937 | 1.561 | 1.215 | 0.937 | 0.901 | 0.885 | 0.784 | 0.779 | 0.760 | 0.747 | 0.682 | 0.672 | 0.644 | 0.605 | 0.508 | 0.367 | 0.367 |
| 100 | 2.826 | 2.012 | 1.607 | 1.289 | 0.999 | 0.961 | 0.944 | 0.838 | 0.833 | 0.813 | 0.799 | 0.732 | 0.721 | 0.692 | 0.650 | 0.550 | 0.390 | 0.367 |
| 105 | 3.012 | 2.086 | 1.652 | 1.362 | 1.060 | 1.021 | 1.004 | 0.893 | 0.887 | 0.866 | 0.851 | 0.781 | 0.770 | 0.741 | 0.696 | 0.593 | 0.426 | 0.367 |
| 110 | 3.198 | 2.161 | 1.698 | 1.436 | 1.122 | 1.082 | 1.063 | 0.947 | 0.941 | 0.919 | 0.903 | 0.831 | 0.819 | 0.789 | 0.742 | 0.636 | 0.461 | 0.367 |
| 115 | 3.384 | 2.235 | 1.744 | 1.509 | 1.184 | 1.142 | 1.122 | 1.001 | 0.995 | 0.972 | 0.955 | 0.880 | 0.868 | 0.837 | 0.788 | 0.679 | 0.496 | 0.367 |
| 120 | 3.532 | 2.309 | 1.790 | 1.537 | 1.246 | 1.202 | 1.182 | 1.055 | 1.049 | 1.025 | 1.008 | 0.930 | 0.917 | 0.885 | 0.834 | 0.722 | 0.532 | 0.367 |
| 125 | 3.563 | 2.384 | 1.836 | 1.563 | 1.308 | 1.262 | 1.241 | 1.110 | 1.103 | 1.078 | 1.060 | 0.979 | 0.966 | 0.934 | 0.879 | 0.764 | 0.567 | 0.389 |
| 130 | 3.594 | 2.458 | 1.882 | 1.589 | 1.370 | 1.323 | 1.300 | 1.164 | 1.157 | 1.131 | 1.112 | 1.029 | 1.015 | 0.982 | 0.925 | 0.807 | 0.603 | 0.416 |
| 135 | 3.625 | 2.532 | 1.927 | 1.615 | 1.432 | 1.383 | 1.360 | 1.218 | 1.211 | 1.184 | 1.164 | 1.078 | 1.064 | 1.030 | 0.971 | 0.850 | 0.638 | 0.443 |
| 140 | 3.656 | 2.607 | 1.973 | 1.641 | 1.494 | 1.443 | 1.419 | 1.273 | 1.265 | 1.237 | 1.216 | 1.128 | 1.113 | 1.078 | 1.017 | 0.893 | 0.673 | 0.470 |
| 145 | 3.687 | 2.681 | 2.019 | 1.667 | 1.529 | 1.504 | 1.478 | 1.327 | 1.319 | 1.290 | 1.268 | 1.177 | 1.162 | 1.127 | 1.063 | 0.936 | 0.709 | 0.497 |
| 150 | 3.718 | 2.747 | 2.065 | 1.693 | 1.553 | 1.533 | 1.523 | 1.381 | 1.373 | 1.343 | 1.320 | 1.227 | 1.211 | 1.175 | 1.109 | 0.978 | 0.744 | 0.524 |
| 155 | 3.749 | 2.801 | 2.111 | 1.719 | 1.576 | 1.556 | 1.546 | 1.435 | 1.427 | 1.395 | 1.372 | 1.277 | 1.260 | 1.223 | 1.154 | 1.021 | 0.780 | 0.551 |
| 160 | 3.780 | 2.856 | 2.157 | 1.744 | 1.600 | 1.580 | 1.570 | 1.490 | 1.481 | 1.448 | 1.425 | 1.326 | 1.309 | 1.271 | 1.200 | 1.064 | 0.815 | 0.578 |
| 165 | 3.811 | 2.910 | 2.202 | 1.770 | 1.623 | 1.603 | 1.593 | 1.526 | 1.522 | 1.501 | 1.477 | 1.376 | 1.359 | 1.320 | 1.246 | 1.107 | 0.850 | 0.605 |
| 170 | 3.842 | 2.964 | 2.248 | 1.796 | 1.647 | 1.627 | 1.616 | 1.549 | 1.545 | 1.531 | 1.520 | 1.425 | 1.408 | 1.368 | 1.292 | 1.150 | 0.886 | 0.632 |
| 175 | 3.874 | 3.018 | 2.294 | 1.822 | 1.671 | 1.650 | 1.640 | 1.572 | 1.568 | 1.554 | 1.543 | 1.475 | 1.457 | 1.416 | 1.338 | 1.192 | 0.921 | 0.659 |
| 180 | 3.905 | 3.072 | 2.340 | 1.848 | 1.694 | 1.674 | 1.663 | 1.595 | 1.591 | 1.577 | 1.566 | 1.518 | 1.506 | 1.464 | 1.383 | 1.235 | 0.956 | 0.686 |
| 185 | 3.936 | 3.126 | 2.386 | 1.874 | 1.718 | 1.697 | 1.687 | 1.618 | 1.614 | 1.599 | 1.589 | 1.541 | 1.532 | 1.513 | 1.429 | 1.278 | 0.992 | 0.713 |
| 190 | 3.967 | 3.181 | 2.431 | 1.900 | 1.741 | 1.720 | 1.710 | 1.641 | 1.637 | 1.622 | 1.611 | 1.563 | 1.554 | 1.535 | 1.475 | 1.321 | 1.027 | 0.740 |
| 195 | 3.998 | 3.235 | 2.477 | 1.926 | 1.765 | 1.744 | 1.733 | 1.664 | 1.660 | 1.645 | 1.634 | 1.585 | 1.577 | 1.557 | 1.517 | 1.364 | 1.063 | 0.767 |
| 200 | 4.029 | 3.289 | 2.523 | 1.951 | 1.788 | 1.767 | 1.757 | 1.687 | 1.683 | 1.668 | 1.657 | 1.608 | 1.599 | 1.580 | 1.539 | 1.406 | 1.098 | 0.794 |
| 205 | 4.060 | 3.343 | 2.569 | 1.977 | 1.812 | 1.791 | 1.780 | 1.709 | 1.706 | 1.691 | 1.680 | 1.630 | 1.622 | 1.602 | 1.561 | 1.449 | 1.133 | 0.821 |
| 210 | 4.091 | 3.397 | 2.615 | 2.003 | 1.836 | 1.814 | 1.804 | 1.732 | 1.729 | 1.714 | 1.703 | 1.653 | 1.644 | 1.624 | 1.584 | 1.492 | 1.169 | 0.848 |
| 215 | 4.122 | 3.451 | 2.661 | 2.029 | 1.859 | 1.838 | 1.827 | 1.755 | 1.752 | 1.737 | 1.726 | 1.675 | 1.666 | 1.646 | 1.606 | 1.524 | 1.204 | 0.875 |
| 220 | 4.153 | 3.506 | 2.706 | 2.055 | 1.883 | 1.861 | 1.851 | 1.778 | 1.775 | 1.760 | 1.749 | 1.698 | 1.689 | 1.668 | 1.628 | 1.546 | 1.240 | 0.902 |
| 225 | 4.184 | 3.543 | 2.741 | 2.081 | 1.906 | 1.885 | 1.874 | 1.801 | 1.797 | 1.783 | 1.771 | 1.720 | 1.711 | 1.691 | 1.650 | 1.567 | 1.275 | 0.929 |
| 230 | 4.215 | 3.572 | 2.768 | 2.107 | 1.930 | 1.908 | 1.897 | 1.824 | 1.820 | 1.805 | 1.794 | 1.743 | 1.734 | 1.713 | 1.672 | 1.589 | 1.310 | 0.956 |
| 235 | 4.246 | 3.601 | 2.795 | 2.132 | 1.953 | 1.932 | 1.921 | 1.847 | 1.843 | 1.828 | 1.817 | 1.765 | 1.756 | 1.735 | 1.695 | 1.611 | 1.346 | 0.983 |
| 240 | 4.277 | 3.630 | 2.822 | 2.158 | 1.977 | 1.955 | 1.944 | 1.870 | 1.866 | 1.851 | 1.840 | 1.788 | 1.778 | 1.757 | 1.717 | 1.633 | 1.381 | 1.010 |
| 245 | 4.309 | 3.659 | 2.848 | 2.184 | 2.000 | 1.979 | 1.968 | 1.893 | 1.889 | 1.874 | 1.863 | 1.810 | 1.801 | 1.780 | 1.739 | 1.654 | 1.417 | 1.037 |
| 250 | 4.340 | 3.688 | 2.875 | 2.210 | 2.024 | 2.002 | 1.991 | 1.916 | 1.912 | 1.897 | 1.886 | 1.833 | 1.823 | 1.802 | 1.761 | 1.676 | 1.452 | 1.064 |
| 255 | 4.371 | 3.717 | 2.902 | 2.236 | 2.048 | 2.025 | 2.014 | 1.939 | 1.935 | 1.920 | 1.909 | 1.855 | 1.846 | 1.824 | 1.784 | 1.698 | 1.487 | 1.091 |
| 260 | 4.402 | 3.746 | 2.929 | 2.262 | 2.071 | 2.049 | 2.038 | 1.962 | 1.958 | 1.943 | 1.931 | 1.878 | 1.868 | 1.846 | 1.806 | 1.719 | 1.519 | 1.118 |
| 265 | 4.433 | 3.775 | 2.955 | 2.288 | 2.095 | 2.072 | 2.061 | 1.985 | 1.981 | 1.966 | 1.954 | 1.900 | 1.890 | 1.869 | 1.828 | 1.741 | 1.542 | 1.145 |
| 270 | 4.464 | 3.805 | 2.982 | 2.314 | 2.118 | 2.096 | 2.085 | 2.007 | 2.004 | 1.989 | 1.977 | 1.922 | 1.913 | 1.891 | 1.850 | 1.763 | 1.564 | 1.172 |
| 275 | 4.497 | 3.834 | 3.009 | 2.339 | 2.142 | 2.119 | 2.108 | 2.030 | 2.027 | 2.011 | 2.000 | 1.945 | 1.935 | 1.913 | 1.873 | 1.784 | 1.587 | 1.199 |
| 280 | 4.556 | 3.863 | 3.036 | 2.365 | 2.165 | 2.143 | 2.132 | 2.053 | 2.050 | 2.034 | 2.023 | 1.967 | 1.958 | 1.935 | 1.895 | 1.806 | 1.609 | 1.226 |
| 285 | 4.615 | 3.892 | 3.063 | 2.391 | 2.189 | 2.166 | 2.155 | 2.076 | 2.072 | 2.057 | 2.046 | 1.990 | 1.980 | 1.957 | 1.917 | 1.828 | 1.632 | 1.253 |
| 290 | 4.674 | 3.921 | 3.089 | 2.417 | 2.212 | 2.190 | 2.178 | 2.099 | 2.095 | 2.080 | 2.069 | 2.012 | 2.002 | 1.980 | 1.939 | 1.850 | 1.654 | 1.280 |
| 295 | 4.733 | 3.950 | 3.116 | 2.443 | 2.236 | 2.213 | 2.202 | 2.122 | 2.118 | 2.103 | 2.091 | 2.035 | 2.025 | 2.002 | 1.962 | 1.871 | 1.677 | 1.307 |
| 300 | 4.792 | 3.979 | 3.143 | 2.469 | 2.260 | 2.237 | 2.225 | 2.145 | 2.141 | 2.126 | 2.114 | 2.057 | 2.047 | 2.024 | 1.984 | 1.893 | 1.699 | 1.334 |
| 305 | 4.851 | 4.008 | 3.170 | 2.495 | 2.283 | 2.260 | 2.249 | 2.168 | 2.164 | 2.149 | 2.137 | 2.080 | 2.070 | 2.046 | 2.006 | 1.915 | 1.721 | 1.361 |
| 310 | 4.910 | 4.037 | 3.196 | 2.521 | 2.307 | 2.283 | 2.272 | 2.191 | 2.187 | 2.172 | 2.160 | 2.102 | 2.092 | 2.069 | 2.028 | 1.936 | 1.744 | 1.388 |
| 315 | 4.969 | 4.066 | 3.223 | 2.546 | 2.330 | 2.307 | 2.295 | 2.214 | 2.210 | 2.194 | 2.183 | 2.125 | 2.114 | 2.091 | 2.050 | 1.958 | 1.766 | 1.415 |
| 320 | 5.028 | 4.095 | 3.250 | 2.572 | 2.354 | 2.330 | 2.319 | 2.237 | 2.233 | 2.217 | 2.206 | 2.147 | 2.137 | 2.113 | 2.073 | 1.980 | 1.789 | 1.442 |
| 325 | 5.087 | 4.124 | 3.277 | 2.598 | 2.377 | 2.354 | 2.342 | 2.260 | 2.256 | 2.240 | 2.229 | 2.170 | 2.159 | 2.135 | 2.095 | 2.002 | 1.811 | 1.469 |
| 330 | 5.146 | 4.153 | 3.303 | 2.624 | 2.401 | 2.377 | 2.366 | 2.283 | 2.279 | 2.263 | 2.251 | 2.192 | 2.182 | 2.158 | 2.117 | 2.023 | 1.834 | 1.496 |
| 335 | 5.205 | 4.182 | 3.330 | 2.650 | 2.424 | 2.401 | 2.389 | 2.305 | 2.302 | 2.286 | 2.274 | 2.215 | 2.204 | 2.180 | 2.139 | 2.045 | 1.856 | 1.523 |
| 340 | 5.264 | 4.211 | 3.357 | 2.676 | 2.448 | 2.424 | 2.412 | 2.328 | 2.325 | 2.309 | 2.297 | 2.237 | 2.226 | 2.202 | 2.162 | 2.067 | 1.879 | 1.550 |
| 345 | 5.323 | 4.240 | 3.384 | 2.702 | 2.472 | 2.448 | 2.436 | 2.351 | 2.347 | 2.332 | 2.320 | 2.259 | 2.249 | 2.224 | 2.184 | 2.088 | 1.901 | 1.577 |
| 350 | 5.382 | 4.269 | 3.411 | 2.730 | 2.495 | 2.471 | 2.459 | 2.374 | 2.370 | 2.355 | 2.343 | 2.282 | 2.271 | 2.247 | 2.206 | 2.110 | 1.924 | 1.604 |
| 355 | 5.441 | 4.298 | 3.437 | 2.794 | 2.519 | 2.495 | 2.483 | 2.397 | 2.393 | 2.378 | 2.366 | 2.304 | 2.294 | 2.269 | 2.228 | 2.132 | 1.946 | 1.631 |
| 360 | 5.500 | 4.327 | 3.464 | 2.859 | 2.542 | 2.518 | 2.506 | 2.420 | 2.416 | 2.400 | 2.389 | 2.327 | 2.316 | 2.291 | 2.251 | 2.153 | 1.969 | 1.658 |
| 365 | 5.559 | 4.356 | 3.491 | 2.924 | 2.566 | 2.542 | 2.530 | 2.443 | 2.439 | 2.423 | 2.411 | 2.349 | 2.338 | 2.313 | 2.273 | 2.175 | 1.991 | 1.685 |
| 370 | 5.618 | 4.385 | 3.518 | 2.988 | 2.589 | 2.565 | 2.553 | 2.466 | 2.462 | 2.446 | 2.434 | 2.372 | 2.361 | 2.335 | 2.295 | 2.197 | 2.014 | 1.711 |
| 375 | 5.677 | 4.414 | 3.577 | 3.053 | 2.613 | 2.588 | 2.576 | 2.489 | 2.485 | 2.469 | 2.457 | 2.394 | 2.383 | 2.358 | 2.317 | 2.219 | 2.036 | 1.738 |
| 380 | 5.736 | 4.443 | 3.647 | 3.117 | 2.636 | 2.612 | 2.600 | 2.512 | 2.508 | 2.492 | 2.480 | 2.417 | 2.406 | 2.380 | 2.340 | 2.240 | 2.059 | 1.765 |
| 385 | - | 4.472 | 3.716 | 3.182 | 2.660 | 2.635 | 2.623 | 2.535 | 2.531 | 2.515 | 2.503 | 2.439 | 2.428 | 2.402 | 2.362 | 2.262 | 2.081 | 1.792 |
| 390 | - | 4.524 | 3.786 | 3.246 | 2.684 | 2.659 | 2.647 | 2.558 | 2.554 | 2.538 | 2.526 | 2.462 | 2.450 | 2.424 | 2.384 | 2.284 | 2.104 | 1.819 |
| 395 | - | 4.631 | 3.856 | 3.311 | 2.707 | 2.682 | 2.670 | 2.581 | 2.577 | 2.561 | 2.549 | 2.484 | 2.473 | 2.447 | 2.406 | 2.305 | 2.126 | 1.846 |
| 400 | - | 4.738 | 3.925 | 3.376 | 2.742 | 2.706 | 2.693 | 2.603 | 2.600 | 2.584 | 2.571 | 2.507 | 2.495 | 2.469 | 2.428 | 2.327 | 2.148 | 1.873 |

The thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 7 I-Section / H-Section Beams 90 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 583 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 50 | 2.094 | 1.528 | 1.100 | 0.836 | 0.651 | 0.629 | 0.617 | 0.540 | 0.537 | 0.523 | 0.513 | 0.458 | 0.449 | 0.425 | 0.395 | 0.367 | 0.367 | 0.367 |
| 55 | 2.250 | 1.650 | 1.220 | 0.928 | 0.723 | 0.698 | 0.685 | 0.599 | 0.596 | 0.580 | 0.569 | 0.508 | 0.499 | 0.471 | 0.439 | 0.367 | 0.367 | 0.367 |
| 60 | 2.406 | 1.772 | 1.341 | 1.029 | 0.811 | 0.784 | 0.770 | 0.680 | 0.676 | 0.659 | 0.647 | 0.584 | 0.574 | 0.546 | 0.511 | 0.427 | 0.367 | 0.367 |
| 65 | 2.562 | 1.893 | 1.461 | 1.130 | 0.898 | 0.869 | 0.855 | 0.760 | 0.756 | 0.738 | 0.725 | 0.660 | 0.649 | 0.621 | 0.582 | 0.494 | 0.367 | 0.367 |
| 70 | 2.718 | 2.015 | 1.563 | 1.231 | 0.986 | 0.955 | 0.940 | 0.840 | 0.836 | 0.817 | 0.804 | 0.736 | 0.725 | 0.695 | 0.654 | 0.562 | 0.422 | 0.367 |
| 75 | 3.315 | 2.137 | 1.651 | 1.331 | 1.073 | 1.041 | 1.025 | 0.921 | 0.916 | 0.896 | 0.882 | 0.812 | 0.800 | 0.770 | 0.726 | 0.629 | 0.480 | 0.367 |
| 80 | 3.574 | 2.259 | 1.739 | 1.432 | 1.161 | 1.127 | 1.110 | 1.001 | 0.996 | 0.975 | 0.960 | 0.887 | 0.875 | 0.844 | 0.798 | 0.697 | 0.538 | 0.381 |
| 85 | 3.649 | 2.381 | 1.827 | 1.525 | 1.249 | 1.212 | 1.194 | 1.081 | 1.076 | 1.054 | 1.038 | 0.963 | 0.951 | 0.919 | 0.870 | 0.764 | 0.596 | 0.429 |
| 90 | 3.724 | 2.503 | 1.916 | 1.584 | 1.336 | 1.298 | 1.279 | 1.161 | 1.156 | 1.133 | 1.116 | 1.039 | 1.026 | 0.993 | 0.942 | 0.832 | 0.654 | 0.477 |
| 95 | 3.800 | 2.625 | 2.004 | 1.644 | 1.424 | 1.384 | 1.364 | 1.242 | 1.236 | 1.212 | 1.195 | 1.115 | 1.101 | 1.068 | 1.013 | 0.899 | 0.712 | 0.525 |
| 100 | 3.875 | 2.758 | 2.092 | 1.703 | 1.511 | 1.469 | 1.449 | 1.322 | 1.316 | 1.291 | 1.273 | 1.191 | 1.177 | 1.143 | 1.085 | 0.967 | 0.770 | 0.573 |
| 105 | 3.950 | 2.939 | 2.180 | 1.762 | 1.552 | 1.532 | 1.522 | 1.402 | 1.396 | 1.370 | 1.351 | 1.267 | 1.252 | 1.217 | 1.157 | 1.034 | 0.828 | 0.621 |
| 110 | 4.025 | 3.121 | 2.268 | 1.822 | 1.593 | 1.570 | 1.559 | 1.482 | 1.476 | 1.449 | 1.429 | 1.342 | 1.327 | 1.292 | 1.229 | 1.102 | 0.886 | 0.669 |
| 115 | 4.100 | 3.302 | 2.356 | 1.881 | 1.633 | 1.608 | 1.596 | 1.531 | 1.529 | 1.518 | 1.507 | 1.418 | 1.403 | 1.366 | 1.301 | 1.169 | 0.944 | 0.717 |
| 120 | 4.175 | 3.484 | 2.445 | 1.941 | 1.673 | 1.646 | 1.633 | 1.561 | 1.558 | 1.546 | 1.538 | 1.494 | 1.478 | 1.441 | 1.372 | 1.237 | 1.002 | 0.765 |
| 125 | 4.251 | 3.551 | 2.533 | 2.000 | 1.713 | 1.684 | 1.670 | 1.590 | 1.587 | 1.575 | 1.566 | 1.531 | 1.526 | 1.514 | 1.444 | 1.305 | 1.060 | 0.813 |
| 130 | 4.326 | 3.585 | 2.621 | 2.060 | 1.753 | 1.722 | 1.707 | 1.620 | 1.617 | 1.603 | 1.593 | 1.556 | 1.550 | 1.538 | 1.514 | 1.372 | 1.118 | 0.861 |
| 135 | 4.401 | 3.620 | 2.709 | 2.119 | 1.793 | 1.760 | 1.744 | 1.650 | 1.646 | 1.631 | 1.620 | 1.580 | 1.575 | 1.562 | 1.538 | 1.440 | 1.176 | 0.909 |
| 140 | 4.476 | 3.654 | 2.799 | 2.179 | 1.834 | 1.798 | 1.781 | 1.679 | 1.675 | 1.659 | 1.648 | 1.605 | 1.599 | 1.586 | 1.562 | 1.507 | 1.234 | 0.957 |
| 145 | 4.538 | 3.689 | 2.888 | 2.238 | 1.874 | 1.836 | 1.818 | 1.709 | 1.704 | 1.687 | 1.675 | 1.629 | 1.624 | 1.610 | 1.586 | 1.534 | 1.292 | 1.005 |
| 150 | 4.597 | 3.723 | 2.978 | 2.298 | 1.914 | 1.874 | 1.855 | 1.738 | 1.734 | 1.715 | 1.702 | 1.654 | 1.648 | 1.635 | 1.610 | 1.557 | 1.350 | 1.052 |
| 155 | 4.655 | 3.757 | 3.068 | 2.357 | 1.954 | 1.912 | 1.892 | 1.768 | 1.763 | 1.743 | 1.729 | 1.678 | 1.672 | 1.659 | 1.634 | 1.581 | 1.408 | 1.100 |
| 160 | 4.713 | 3.792 | 3.158 | 2.416 | 1.994 | 1.950 | 1.929 | 1.798 | 1.792 | 1.772 | 1.757 | 1.703 | 1.697 | 1.683 | 1.658 | 1.604 | 1.466 | 1.148 |
| 165 | 4.772 | 3.826 | 3.248 | 2.476 | 2.034 | 1.988 | 1.966 | 1.827 | 1.822 | 1.800 | 1.784 | 1.727 | 1.721 | 1.707 | 1.682 | 1.627 | 1.517 | 1.196 |
| 170 | 4.830 | 3.861 | 3.338 | 2.535 | 2.075 | 2.026 | 2.003 | 1.857 | 1.851 | 1.828 | 1.811 | 1.752 | 1.746 | 1.731 | 1.706 | 1.650 | 1.540 | 1.244 |
| 175 | 4.889 | 3.895 | 3.428 | 2.595 | 2.115 | 2.064 | 2.040 | 1.886 | 1.880 | 1.856 | 1.839 | 1.776 | 1.770 | 1.755 | 1.730 | 1.674 | 1.563 | 1.292 |
| 180 | 4.947 | 3.930 | 3.517 | 2.654 | 2.155 | 2.102 | 2.077 | 1.916 | 1.910 | 1.884 | 1.866 | 1.801 | 1.794 | 1.780 | 1.754 | 1.697 | 1.586 | 1.340 |
| 185 | 5.005 | 3.964 | 3.548 | 2.714 | 2.195 | 2.140 | 2.114 | 1.946 | 1.939 | 1.912 | 1.893 | 1.825 | 1.819 | 1.804 | 1.778 | 1.720 | 1.609 | 1.388 |
| 190 | 5.064 | 3.998 | 3.574 | 2.764 | 2.235 | 2.178 | 2.150 | 1.975 | 1.968 | 1.940 | 1.920 | 1.850 | 1.843 | 1.828 | 1.802 | 1.743 | 1.632 | 1.436 |
| 195 | 5.122 | 4.033 | 3.601 | 2.813 | 2.275 | 2.216 | 2.187 | 2.005 | 1.997 | 1.969 | 1.948 | 1.874 | 1.868 | 1.852 | 1.826 | 1.766 | 1.655 | 1.484 |
| 200 | 5.181 | 4.067 | 3.627 | 2.862 | 2.316 | 2.254 | 2.224 | 2.034 | 2.027 | 1.997 | 1.975 | 1.899 | 1.892 | 1.876 | 1.850 | 1.790 | 1.678 | 1.523 |
| 205 | 5.239 | 4.102 | 3.653 | 2.910 | 2.356 | 2.292 | 2.261 | 2.064 | 2.056 | 2.025 | 2.002 | 1.923 | 1.916 | 1.900 | 1.874 | 1.813 | 1.701 | 1.547 |
| 210 | 5.297 | 4.136 | 3.679 | 2.959 | 2.396 | 2.330 | 2.298 | 2.093 | 2.085 | 2.053 | 2.030 | 1.948 | 1.941 | 1.925 | 1.898 | 1.836 | 1.725 | 1.572 |
| 215 | 5.356 | 4.171 | 3.705 | 3.007 | 2.436 | 2.368 | 2.335 | 2.123 | 2.115 | 2.081 | 2.057 | 1.972 | 1.965 | 1.949 | 1.922 | 1.859 | 1.748 | 1.597 |
| 220 | 5.414 | 4.205 | 3.731 | 3.056 | 2.476 | 2.406 | 2.372 | 2.153 | 2.144 | 2.109 | 2.084 | 1.997 | 1.990 | 1.973 | 1.946 | 1.882 | 1.771 | 1.621 |
| 225 | 5.472 | 4.240 | 3.758 | 3.104 | 2.516 | 2.444 | 2.409 | 2.182 | 2.173 | 2.138 | 2.112 | 2.021 | 2.014 | 1.997 | 1.969 | 1.906 | 1.794 | 1.646 |
| 230 | 5.531 | 4.274 | 3.784 | 3.153 | 2.557 | 2.482 | 2.446 | 2.212 | 2.203 | 2.166 | 2.139 | 2.046 | 2.038 | 2.021 | 1.993 | 1.929 | 1.817 | 1.670 |
| 235 | 5.589 | 4.308 | 3.810 | 3.201 | 2.597 | 2.520 | 2.483 | 2.241 | 2.232 | 2.194 | 2.166 | 2.070 | 2.063 | 2.045 | 2.017 | 1.952 | 1.840 | 1.695 |
| 240 | 5.648 | 4.343 | 3.836 | 3.250 | 2.637 | 2.558 | 2.520 | 2.271 | 2.261 | 2.222 | 2.193 | 2.095 | 2.087 | 2.070 | 2.041 | 1.975 | 1.863 | 1.719 |
| 245 | 5.706 | 4.377 | 3.862 | 3.298 | 2.677 | 2.596 | 2.557 | 2.301 | 2.290 | 2.250 | 2.221 | 2.119 | 2.112 | 2.094 | 2.065 | 1.999 | 1.886 | 1.744 |
| 250 | 5.764 | 4.412 | 3.888 | 3.347 | 2.717 | 2.634 | 2.594 | 2.330 | 2.320 | 2.278 | 2.248 | 2.144 | 2.136 | 2.118 | 2.089 | 2.022 | 1.909 | 1.769 |
| 255 | - | 4.446 | 3.914 | 3.395 | 2.752 | 2.672 | 2.631 | 2.360 | 2.349 | 2.306 | 2.275 | 2.168 | 2.160 | 2.142 | 2.113 | 2.045 | 1.932 | 1.793 |
| 260 | - | 4.481 | 3.941 | 3.444 | 2.786 | 2.710 | 2.668 | 2.389 | 2.378 | 2.335 | 2.303 | 2.193 | 2.185 | 2.166 | 2.137 | 2.068 | 1.955 | 1.818 |
| 265 | - | 4.532 | 3.967 | 3.492 | 2.820 | 2.747 | 2.705 | 2.419 | 2.408 | 2.363 | 2.330 | 2.217 | 2.209 | 2.190 | 2.161 | 2.091 | 1.978 | 1.842 |
| 270 | - | 4.594 | 3.993 | 3.536 | 2.853 | 2.782 | 2.742 | 2.449 | 2.437 | 2.391 | 2.357 | 2.242 | 2.234 | 2.215 | 2.185 | 2.115 | 2.001 | 1.867 |
| 275 | - | 4.655 | 4.019 | 3.569 | 2.887 | 2.818 | 2.779 | 2.478 | 2.466 | 2.419 | 2.384 | 2.266 | 2.258 | 2.239 | 2.209 | 2.138 | 2.024 | 1.891 |
| 280 | - | 4.716 | 4.045 | 3.603 | 2.920 | 2.854 | 2.816 | 2.508 | 2.496 | 2.447 | 2.412 | 2.291 | 2.282 | 2.263 | 2.233 | 2.161 | 2.047 | 1.916 |
| 285 | - | 4.778 | 4.071 | 3.637 | 2.954 | 2.889 | 2.853 | 2.537 | 2.525 | 2.475 | 2.439 | 2.315 | 2.307 | 2.287 | 2.257 | 2.184 | 2.070 | 1.941 |
| 290 | - | 4.839 | 4.098 | 3.670 | 2.988 | 2.925 | 2.890 | 2.567 | 2.554 | 2.503 | 2.466 | 2.340 | 2.331 | 2.311 | 2.281 | 2.208 | 2.093 | 1.965 |
| 295 | - | 4.900 | 4.124 | 3.704 | 3.021 | 2.961 | 2.927 | 2.596 | 2.583 | 2.532 | 2.494 | 2.364 | 2.356 | 2.335 | 2.305 | 2.231 | 2.116 | 1.990 |
| 300 | - | 4.962 | 4.150 | 3.738 | 3.055 | 2.997 | 2.964 | 2.626 | 2.613 | 2.560 | 2.521 | 2.389 | 2.380 | 2.360 | 2.329 | 2.254 | 2.139 | 2.014 |
| 305 | - | 5.023 | 4.176 | 3.771 | 3.089 | 3.032 | 3.000 | 2.656 | 2.642 | 2.588 | 2.548 | 2.413 | 2.404 | 2.384 | 2.353 | 2.277 | 2.162 | 2.039 |
| 310 | - | 5.084 | 4.202 | 3.805 | 3.122 | 3.068 | 3.037 | 2.685 | 2.671 | 2.616 | 2.576 | 2.438 | 2.429 | 2.408 | 2.377 | 2.300 | 2.185 | 2.063 |
| 315 | - | 5.146 | 4.228 | 3.839 | 3.156 | 3.104 | 3.074 | 2.715 | 2.701 | 2.644 | 2.603 | 2.462 | 2.453 | 2.432 | 2.401 | 2.324 | 2.208 | 2.088 |
| 320 | - | 5.207 | 4.255 | 3.872 | 3.189 | 3.139 | 3.111 | 2.760 | 2.734 | 2.672 | 2.630 | 2.487 | 2.478 | 2.456 | 2.425 | 2.347 | 2.231 | 2.113 |
| 325 | - | 5.269 | 4.281 | 3.906 | 3.223 | 3.175 | 3.148 | 2.815 | 2.790 | 2.701 | 2.657 | 2.511 | 2.502 | 2.480 | 2.449 | 2.370 | 2.254 | 2.137 |
| 330 | - | 5.330 | 4.307 | 3.939 | 3.257 | 3.211 | 3.185 | 2.869 | 2.846 | 2.732 | 2.685 | 2.536 | 2.526 | 2.505 | 2.473 | 2.393 | 2.277 | 2.162 |
| 335 | - | 5.391 | 4.333 | 3.973 | 3.290 | 3.247 | 3.222 | 2.924 | 2.902 | 2.795 | 2.712 | 2.560 | 2.551 | 2.529 | 2.497 | 2.416 | 2.300 | 2.186 |
| 340 | - | 5.453 | 4.359 | 4.007 | 3.324 | 3.282 | 3.259 | 2.978 | 2.957 | 2.857 | 2.760 | 2.585 | 2.575 | 2.553 | 2.521 | 2.440 | 2.323 | 2.211 |
| 345 | - | 5.514 | 4.385 | 4.040 | 3.357 | 3.318 | 3.296 | 3.033 | 3.013 | 2.920 | 2.829 | 2.609 | 2.600 | 2.577 | 2.545 | 2.463 | 2.346 | 2.235 |
| 350 | - | 5.575 | 4.412 | 4.074 | 3.391 | 3.354 | 3.333 | 3.088 | 3.069 | 2.983 | 2.899 | 2.634 | 2.624 | 2.601 | 2.569 | 2.486 | 2.369 | 2.260 |
| 355 | - | 5.637 | 4.438 | 4.108 | 3.425 | 3.389 | 3.370 | 3.142 | 3.125 | 3.045 | 2.968 | 2.658 | 2.648 | 2.625 | 2.593 | 2.509 | 2.392 | 2.285 |
| 360 | - | 5.698 | 4.464 | 4.141 | 3.458 | 3.425 | 3.407 | 3.197 | 3.181 | 3.108 | 3.037 | 2.683 | 2.673 | 2.650 | 2.617 | 2.533 | 2.415 | 2.309 |
| 365 | - | 5.759 | 4.490 | 4.175 | 3.492 | 3.461 | 3.444 | 3.251 | 3.237 | 3.171 | 3.107 | 2.707 | 2.697 | 2.674 | 2.641 | 2.556 | 2.439 | 2.334 |
| 370 | - | - | 4.617 | 4.209 | 3.527 | 3.497 | 3.481 | 3.306 | 3.293 | 3.233 | 3.176 | 2.752 | 2.722 | 2.698 | 2.665 | 2.579 | 2.462 | 2.358 |
| 375 | - | - | 4.758 | 4.242 | 3.585 | 3.537 | 3.518 | 3.360 | 3.349 | 3.296 | 3.245 | 2.860 | 2.815 | 2.722 | 2.689 | 2.602 | 2.485 | 2.383 |
| 380 | - | - | 4.898 | 4.276 | 3.642 | 3.594 | 3.571 | 3.415 | 3.405 | 3.359 | 3.315 | 2.969 | 2.924 | 2.818 | 2.713 | 2.625 | 2.508 | 2.407 |
| 385 | - | - | 5.038 | 4.310 | 3.700 | 3.652 | 3.628 | 3.470 | 3.461 | 3.421 | 3.384 | 3.077 | 3.033 | 2.929 | 2.776 | 2.649 | 2.531 | 2.432 |
| 390 | - | - | 5.178 | 4.343 | 3.758 | 3.709 | 3.685 | 3.524 | 3.517 | 3.484 | 3.453 | 3.186 | 3.142 | 3.039 | 2.888 | 2.672 | 2.554 | 2.457 |
| 395 | - | - | 5.318 | 4.377 | 3.816 | 3.766 | 3.741 | 3.580 | 3.572 | 3.544 | 3.523 | 3.294 | 3.251 | 3.149 | 3.001 | 2.695 | 2.577 | 2.481 |
| 400 | - | - | 5.458 | 4.410 | 3.874 | 3.823 | 3.798 | 3.635 | 3.628 | 3.599 | 3.578 | 3.402 | 3.360 | 3.259 | 3.114 | 2.718 | 2.600 | 2.506 |

The thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 8 I-Section / H-Section Beams 105 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 583 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 50 | 2.457 | 1.931 | 1.428 | 1.106 | 0.905 | 0.880 | 0.868 | 0.786 | 0.782 | 0.767 | 0.757 | 0.700 | 0.690 | 0.665 | 0.631 | 0.544 | 0.418 | 0.367 |
| 55 | 2.730 | 2.093 | 1.564 | 1.229 | 1.005 | 0.978 | 0.964 | 0.873 | 0.869 | 0.852 | 0.840 | 0.777 | 0.766 | 0.738 | 0.701 | 0.604 | 0.464 | 0.367 |
| 60 | 3.610 | 2.255 | 1.699 | 1.357 | 1.118 | 1.089 | 1.074 | 0.978 | 0.974 | 0.956 | 0.943 | 0.877 | 0.866 | 0.837 | 0.796 | 0.695 | 0.544 | 0.393 |
| 65 | 3.736 | 2.417 | 1.834 | 1.485 | 1.232 | 1.200 | 1.184 | 1.083 | 1.078 | 1.060 | 1.046 | 0.977 | 0.966 | 0.936 | 0.892 | 0.786 | 0.625 | 0.462 |
| 70 | 3.862 | 2.580 | 1.969 | 1.591 | 1.345 | 1.311 | 1.294 | 1.188 | 1.183 | 1.163 | 1.149 | 1.078 | 1.065 | 1.035 | 0.987 | 0.877 | 0.705 | 0.531 |
| 75 | 3.989 | 2.771 | 2.105 | 1.691 | 1.458 | 1.422 | 1.405 | 1.293 | 1.288 | 1.267 | 1.252 | 1.178 | 1.165 | 1.134 | 1.083 | 0.968 | 0.786 | 0.601 |
| 80 | 4.115 | 3.224 | 2.240 | 1.791 | 1.551 | 1.526 | 1.514 | 1.399 | 1.393 | 1.371 | 1.354 | 1.278 | 1.265 | 1.233 | 1.179 | 1.060 | 0.866 | 0.670 |
| 85 | 4.242 | 3.551 | 2.375 | 1.891 | 1.625 | 1.597 | 1.584 | 1.504 | 1.498 | 1.474 | 1.457 | 1.379 | 1.364 | 1.331 | 1.274 | 1.151 | 0.947 | 0.739 |
| 90 | 4.368 | 3.630 | 2.511 | 1.991 | 1.700 | 1.669 | 1.654 | 1.567 | 1.564 | 1.549 | 1.539 | 1.479 | 1.464 | 1.430 | 1.370 | 1.242 | 1.027 | 0.808 |
| 95 | 4.494 | 3.709 | 2.646 | 2.091 | 1.774 | 1.740 | 1.724 | 1.627 | 1.623 | 1.607 | 1.595 | 1.546 | 1.538 | 1.521 | 1.466 | 1.333 | 1.108 | 0.878 |
| 100 | 4.612 | 3.788 | 2.819 | 2.191 | 1.848 | 1.811 | 1.793 | 1.686 | 1.682 | 1.664 | 1.652 | 1.595 | 1.586 | 1.567 | 1.535 | 1.424 | 1.188 | 0.947 |
| 105 | 4.729 | 3.867 | 3.045 | 2.291 | 1.922 | 1.882 | 1.863 | 1.746 | 1.741 | 1.722 | 1.708 | 1.645 | 1.635 | 1.613 | 1.578 | 1.514 | 1.269 | 1.016 |
| 110 | 4.847 | 3.946 | 3.272 | 2.391 | 1.996 | 1.954 | 1.933 | 1.806 | 1.800 | 1.779 | 1.764 | 1.695 | 1.683 | 1.659 | 1.621 | 1.549 | 1.349 | 1.086 |
| 115 | 4.964 | 4.025 | 3.499 | 2.491 | 2.071 | 2.025 | 2.003 | 1.865 | 1.859 | 1.837 | 1.821 | 1.744 | 1.732 | 1.705 | 1.664 | 1.584 | 1.430 | 1.155 |
| 120 | 5.082 | 4.104 | 3.564 | 2.591 | 2.145 | 2.096 | 2.073 | 1.925 | 1.919 | 1.894 | 1.877 | 1.794 | 1.781 | 1.751 | 1.706 | 1.619 | 1.510 | 1.224 |
| 125 | 5.199 | 4.183 | 3.608 | 2.691 | 2.219 | 2.167 | 2.143 | 1.984 | 1.978 | 1.952 | 1.933 | 1.844 | 1.829 | 1.797 | 1.749 | 1.654 | 1.539 | 1.293 |
| 130 | 5.317 | 4.263 | 3.653 | 2.814 | 2.293 | 2.239 | 2.213 | 2.044 | 2.037 | 2.009 | 1.990 | 1.893 | 1.878 | 1.843 | 1.792 | 1.689 | 1.566 | 1.363 |
| 135 | 5.434 | 4.342 | 3.697 | 2.947 | 2.368 | 2.310 | 2.282 | 2.103 | 2.096 | 2.067 | 2.046 | 1.943 | 1.926 | 1.889 | 1.835 | 1.724 | 1.593 | 1.432 |
| 140 | 5.552 | 4.421 | 3.742 | 3.081 | 2.442 | 2.381 | 2.352 | 2.163 | 2.155 | 2.124 | 2.102 | 1.993 | 1.975 | 1.935 | 1.878 | 1.759 | 1.620 | 1.501 |
| 145 | 5.670 | 4.499 | 3.786 | 3.215 | 2.516 | 2.453 | 2.422 | 2.222 | 2.214 | 2.182 | 2.159 | 2.042 | 2.024 | 1.981 | 1.921 | 1.794 | 1.647 | 1.535 |
| 150 | - | 4.571 | 3.831 | 3.349 | 2.590 | 2.524 | 2.492 | 2.282 | 2.273 | 2.240 | 2.215 | 2.092 | 2.072 | 2.027 | 1.964 | 1.829 | 1.674 | 1.561 |
| 155 | - | 4.643 | 3.875 | 3.483 | 2.664 | 2.595 | 2.562 | 2.341 | 2.333 | 2.297 | 2.271 | 2.142 | 2.121 | 2.073 | 2.007 | 1.864 | 1.701 | 1.588 |
| 160 | - | 4.714 | 3.920 | 3.541 | 2.741 | 2.666 | 2.632 | 2.401 | 2.392 | 2.355 | 2.328 | 2.191 | 2.169 | 2.119 | 2.050 | 1.899 | 1.728 | 1.614 |
| 165 | - | 4.786 | 3.964 | 3.566 | 2.830 | 2.740 | 2.701 | 2.461 | 2.451 | 2.412 | 2.384 | 2.241 | 2.218 | 2.166 | 2.093 | 1.934 | 1.755 | 1.641 |
| 170 | - | 4.858 | 4.009 | 3.591 | 2.919 | 2.824 | 2.779 | 2.520 | 2.510 | 2.470 | 2.440 | 2.291 | 2.266 | 2.212 | 2.136 | 1.969 | 1.782 | 1.668 |
| 175 | - | 4.930 | 4.053 | 3.616 | 3.008 | 2.908 | 2.861 | 2.580 | 2.569 | 2.527 | 2.497 | 2.340 | 2.315 | 2.258 | 2.179 | 2.004 | 1.809 | 1.694 |
| 180 | - | 5.001 | 4.098 | 3.640 | 3.097 | 2.992 | 2.942 | 2.639 | 2.628 | 2.585 | 2.553 | 2.390 | 2.364 | 2.304 | 2.222 | 2.039 | 1.836 | 1.721 |
| 185 | - | 5.073 | 4.142 | 3.665 | 3.186 | 3.076 | 3.024 | 2.699 | 2.687 | 2.642 | 2.609 | 2.440 | 2.412 | 2.350 | 2.265 | 2.074 | 1.863 | 1.747 |
| 190 | - | 5.145 | 4.187 | 3.690 | 3.275 | 3.160 | 3.105 | 2.763 | 2.750 | 2.700 | 2.666 | 2.489 | 2.461 | 2.396 | 2.308 | 2.109 | 1.889 | 1.774 |
| 195 | - | 5.217 | 4.232 | 3.715 | 3.364 | 3.244 | 3.187 | 2.832 | 2.818 | 2.762 | 2.722 | 2.539 | 2.509 | 2.442 | 2.350 | 2.144 | 1.916 | 1.800 |
| 200 | - | 5.288 | 4.276 | 3.740 | 3.453 | 3.328 | 3.268 | 2.900 | 2.886 | 2.828 | 2.786 | 2.589 | 2.558 | 2.488 | 2.393 | 2.179 | 1.943 | 1.827 |
| 205 | - | 5.360 | 4.321 | 3.765 | 3.529 | 3.412 | 3.350 | 2.969 | 2.954 | 2.894 | 2.850 | 2.638 | 2.606 | 2.534 | 2.436 | 2.214 | 1.970 | 1.853 |
| 210 | - | 5.432 | 4.365 | 3.789 | 3.556 | 3.496 | 3.432 | 3.038 | 3.022 | 2.959 | 2.914 | 2.688 | 2.655 | 2.580 | 2.479 | 2.249 | 1.997 | 1.880 |
| 215 | - | 5.503 | 4.410 | 3.814 | 3.583 | 3.542 | 3.513 | 3.106 | 3.090 | 3.025 | 2.979 | 2.739 | 2.704 | 2.626 | 2.522 | 2.284 | 2.024 | 1.906 |
| 220 | - | 5.575 | 4.454 | 3.839 | 3.609 | 3.569 | 3.548 | 3.175 | 3.158 | 3.091 | 3.043 | 2.796 | 2.756 | 2.672 | 2.565 | 2.319 | 2.051 | 1.933 |
| 225 | - | 5.647 | 4.500 | 3.864 | 3.636 | 3.596 | 3.575 | 3.244 | 3.226 | 3.157 | 3.107 | 2.852 | 2.811 | 2.718 | 2.608 | 2.354 | 2.078 | 1.959 |
| 230 | - | 5.719 | 4.554 | 3.889 | 3.662 | 3.623 | 3.603 | 3.312 | 3.294 | 3.223 | 3.172 | 2.909 | 2.866 | 2.769 | 2.651 | 2.389 | 2.105 | 1.986 |
| 235 | - | - | 4.609 | 3.914 | 3.689 | 3.650 | 3.630 | 3.381 | 3.362 | 3.289 | 3.236 | 2.965 | 2.921 | 2.821 | 2.694 | 2.424 | 2.132 | 2.012 |
| 240 | - | - | 4.663 | 3.938 | 3.716 | 3.678 | 3.657 | 3.449 | 3.430 | 3.354 | 3.300 | 3.022 | 2.976 | 2.873 | 2.738 | 2.459 | 2.159 | 2.039 |
| 245 | - | - | 4.718 | 3.963 | 3.742 | 3.705 | 3.685 | 3.518 | 3.498 | 3.420 | 3.365 | 3.078 | 3.031 | 2.925 | 2.786 | 2.494 | 2.186 | 2.065 |
| 250 | - | - | 4.772 | 3.988 | 3.769 | 3.732 | 3.712 | 3.552 | 3.543 | 3.486 | 3.429 | 3.134 | 3.086 | 2.976 | 2.834 | 2.529 | 2.213 | 2.092 |
| 255 | - | - | 4.826 | 4.013 | 3.795 | 3.759 | 3.740 | 3.582 | 3.573 | 3.537 | 3.493 | 3.191 | 3.141 | 3.028 | 2.881 | 2.565 | 2.240 | 2.118 |
| 260 | - | - | 4.881 | 4.038 | 3.822 | 3.786 | 3.767 | 3.612 | 3.604 | 3.568 | 3.541 | 3.247 | 3.196 | 3.080 | 2.929 | 2.600 | 2.267 | 2.145 |
| 265 | - | - | 4.935 | 4.063 | 3.849 | 3.813 | 3.794 | 3.642 | 3.634 | 3.599 | 3.572 | 3.304 | 3.251 | 3.132 | 2.977 | 2.635 | 2.294 | 2.171 |
| 270 | - | - | 4.990 | 4.087 | 3.875 | 3.840 | 3.822 | 3.672 | 3.664 | 3.630 | 3.603 | 3.360 | 3.306 | 3.183 | 3.024 | 2.670 | 2.321 | 2.198 |
| 275 | - | - | 5.044 | 4.112 | 3.902 | 3.867 | 3.849 | 3.702 | 3.695 | 3.661 | 3.635 | 3.417 | 3.361 | 3.235 | 3.072 | 2.705 | 2.348 | 2.224 |
| 280 | - | - | 5.098 | 4.137 | 3.928 | 3.894 | 3.877 | 3.733 | 3.725 | 3.692 | 3.666 | 3.473 | 3.416 | 3.287 | 3.120 | 2.743 | 2.375 | 2.251 |
| 285 | - | - | 5.153 | 4.162 | 3.955 | 3.922 | 3.904 | 3.763 | 3.755 | 3.723 | 3.698 | 3.527 | 3.471 | 3.339 | 3.168 | 2.787 | 2.402 | 2.277 |
| 290 | - | - | 5.207 | 4.187 | 3.982 | 3.949 | 3.931 | 3.793 | 3.785 | 3.754 | 3.729 | 3.563 | 3.525 | 3.390 | 3.215 | 2.830 | 2.429 | 2.304 |
| 295 | - | - | 5.262 | 4.212 | 4.008 | 3.976 | 3.959 | 3.823 | 3.816 | 3.785 | 3.761 | 3.598 | 3.562 | 3.442 | 3.263 | 2.874 | 2.456 | 2.330 |
| 300 | - | - | 5.316 | 4.236 | 4.035 | 4.003 | 3.986 | 3.853 | 3.846 | 3.816 | 3.792 | 3.634 | 3.598 | 3.494 | 3.311 | 2.917 | 2.482 | 2.357 |
| 305 | - | - | 5.370 | 4.261 | 4.061 | 4.030 | 4.014 | 3.883 | 3.876 | 3.847 | 3.824 | 3.669 | 3.634 | 3.540 | 3.358 | 2.961 | 2.509 | 2.383 |
| 310 | - | - | 5.425 | 4.286 | 4.088 | 4.057 | 4.041 | 3.914 | 3.907 | 3.878 | 3.855 | 3.705 | 3.671 | 3.580 | 3.406 | 3.005 | 2.536 | 2.410 |
| 315 | - | - | 5.479 | 4.311 | 4.115 | 4.084 | 4.068 | 3.944 | 3.937 | 3.909 | 3.887 | 3.740 | 3.707 | 3.619 | 3.454 | 3.048 | 2.563 | 2.436 |
| 320 | - | - | 5.533 | 4.336 | 4.141 | 4.111 | 4.096 | 3.974 | 3.967 | 3.940 | 3.918 | 3.776 | 3.743 | 3.659 | 3.502 | 3.092 | 2.590 | 2.463 |
| 325 | - | - | 5.588 | 4.361 | 4.168 | 4.139 | 4.123 | 4.004 | 3.998 | 3.971 | 3.950 | 3.811 | 3.780 | 3.698 | 3.548 | 3.136 | 2.617 | 2.489 |
| 330 | - | - | 5.642 | 4.385 | 4.194 | 4.166 | 4.151 | 4.034 | 4.028 | 4.002 | 3.981 | 3.847 | 3.816 | 3.738 | 3.594 | 3.179 | 2.644 | 2.516 |
| 335 | - | - | 5.697 | 4.410 | 4.221 | 4.193 | 4.178 | 4.065 | 4.058 | 4.033 | 4.013 | 3.882 | 3.852 | 3.777 | 3.639 | 3.223 | 2.671 | 2.542 |
| 340 | - | - | 5.751 | 4.435 | 4.248 | 4.220 | 4.205 | 4.095 | 4.089 | 4.064 | 4.044 | 3.918 | 3.889 | 3.817 | 3.685 | 3.266 | 2.698 | 2.569 |
| 345 | - | - | - | 4.460 | 4.274 | 4.247 | 4.233 | 4.125 | 4.119 | 4.095 | 4.076 | 3.953 | 3.925 | 3.856 | 3.731 | 3.310 | 2.725 | 2.595 |
| 350 | - | - | - | 4.485 | 4.301 | 4.274 | 4.260 | 4.155 | 4.149 | 4.126 | 4.107 | 3.989 | 3.962 | 3.895 | 3.776 | 3.354 | 2.811 | 2.622 |
| 355 | - | - | - | 4.641 | 4.327 | 4.301 | 4.288 | 4.185 | 4.180 | 4.157 | 4.139 | 4.024 | 3.998 | 3.935 | 3.822 | 3.397 | 2.900 | 2.648 |
| 360 | - | - | - | 4.863 | 4.354 | 4.328 | 4.315 | 4.215 | 4.210 | 4.188 | 4.170 | 4.059 | 4.034 | 3.974 | 3.868 | 3.441 | 2.988 | 2.675 |
| 365 | - | - | - | 5.084 | 4.381 | 4.355 | 4.342 | 4.246 | 4.240 | 4.219 | 4.202 | 4.095 | 4.071 | 4.014 | 3.913 | 3.485 | 3.077 | 2.701 |
| 370 | - | - | - | 5.306 | 4.407 | 4.383 | 4.370 | 4.276 | 4.271 | 4.250 | 4.233 | 4.130 | 4.107 | 4.053 | 3.959 | 3.531 | 3.165 | 2.733 |
| 375 | - | - | - | 5.528 | 4.434 | 4.410 | 4.397 | 4.306 | 4.301 | 4.281 | 4.265 | 4.166 | 4.143 | 4.093 | 4.005 | 3.601 | 3.254 | 2.846 |
| 380 | - | - | - | 5.750 | 4.460 | 4.437 | 4.425 | 4.336 | 4.331 | 4.312 | 4.296 | 4.201 | 4.180 | 4.132 | 4.050 | 3.672 | 3.343 | 2.958 |
| 385 | - | - | - | - | 4.487 | 4.464 | 4.452 | 4.366 | 4.362 | 4.343 | 4.327 | 4.237 | 4.216 | 4.172 | 4.096 | 3.743 | 3.431 | 3.070 |
| 390 | - | - | - | - | 4.708 | 4.491 | 4.479 | 4.397 | 4.392 | 4.374 | 4.359 | 4.272 | 4.252 | 4.211 | 4.142 | 3.813 | 3.520 | 3.183 |
| 395 | - | - | - | - | 4.987 | 4.759 | 4.639 | 4.427 | 4.422 | 4.405 | 4.390 | 4.308 | 4.289 | 4.250 | 4.187 | 3.884 | 3.598 | 3.295 |
| 400 | - | - | - | - | 5.267 | 5.045 | 4.930 | 4.457 | 4.453 | 4.436 | 4.422 | 4.343 | 4.325 | 4.290 | 4.233 | 3.954 | 3.677 | 3.407 |

The thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 9 I-Section / H-Section Beams 120 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 583 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 50 | 3.765 | 2.334 | 1.806 | 1.389 | 1.159 | 1.132 | 1.118 | 1.032 | 1.028 | 1.012 | 1.001 | 0.941 | 0.931 | 0.905 | 0.867 | 0.772 | 0.631 | 0.482 |
| 55 | 3.934 | 2.536 | 1.980 | 1.534 | 1.287 | 1.257 | 1.242 | 1.146 | 1.142 | 1.124 | 1.111 | 1.046 | 1.034 | 1.005 | 0.962 | 0.858 | 0.701 | 0.535 |
| 60 | 4.103 | 2.792 | 2.153 | 1.679 | 1.426 | 1.394 | 1.378 | 1.276 | 1.272 | 1.253 | 1.239 | 1.170 | 1.158 | 1.128 | 1.082 | 0.972 | 0.803 | 0.625 |
| 65 | 4.272 | 3.564 | 2.326 | 1.824 | 1.555 | 1.527 | 1.513 | 1.407 | 1.401 | 1.381 | 1.366 | 1.295 | 1.282 | 1.251 | 1.201 | 1.086 | 0.905 | 0.715 |
| 70 | 4.441 | 3.697 | 2.499 | 1.969 | 1.669 | 1.637 | 1.621 | 1.530 | 1.526 | 1.510 | 1.494 | 1.420 | 1.406 | 1.375 | 1.321 | 1.200 | 1.007 | 0.805 |
| 75 | 4.620 | 3.831 | 2.672 | 2.114 | 1.783 | 1.747 | 1.730 | 1.625 | 1.621 | 1.603 | 1.590 | 1.534 | 1.524 | 1.498 | 1.440 | 1.314 | 1.109 | 0.895 |
| 80 | 4.803 | 3.964 | 3.051 | 2.259 | 1.896 | 1.857 | 1.838 | 1.720 | 1.715 | 1.695 | 1.681 | 1.616 | 1.605 | 1.581 | 1.542 | 1.429 | 1.211 | 0.985 |
| 85 | 4.986 | 4.097 | 3.523 | 2.404 | 2.010 | 1.967 | 1.946 | 1.815 | 1.810 | 1.788 | 1.772 | 1.698 | 1.686 | 1.659 | 1.615 | 1.530 | 1.313 | 1.075 |
| 90 | 5.169 | 4.230 | 3.616 | 2.549 | 2.124 | 2.077 | 2.054 | 1.910 | 1.904 | 1.880 | 1.863 | 1.781 | 1.767 | 1.736 | 1.689 | 1.593 | 1.415 | 1.165 |
| 95 | 5.353 | 4.364 | 3.708 | 2.694 | 2.237 | 2.187 | 2.162 | 2.005 | 1.999 | 1.973 | 1.954 | 1.863 | 1.848 | 1.814 | 1.763 | 1.657 | 1.515 | 1.255 |
| 100 | 5.536 | 4.497 | 3.800 | 2.942 | 2.351 | 2.297 | 2.270 | 2.100 | 2.093 | 2.065 | 2.045 | 1.945 | 1.928 | 1.891 | 1.836 | 1.720 | 1.568 | 1.345 |
| 105 | 5.719 | 4.626 | 3.891 | 3.219 | 2.465 | 2.407 | 2.379 | 2.195 | 2.188 | 2.158 | 2.136 | 2.027 | 2.009 | 1.969 | 1.910 | 1.784 | 1.621 | 1.435 |
| 110 | - | 4.756 | 3.983 | 3.495 | 2.578 | 2.516 | 2.487 | 2.290 | 2.282 | 2.250 | 2.227 | 2.109 | 2.090 | 2.047 | 1.984 | 1.848 | 1.674 | 1.520 |
| 115 | - | 4.886 | 4.075 | 3.571 | 2.692 | 2.626 | 2.595 | 2.385 | 2.377 | 2.343 | 2.318 | 2.192 | 2.171 | 2.124 | 2.057 | 1.911 | 1.726 | 1.569 |
| 120 | - | 5.015 | 4.167 | 3.623 | 2.861 | 2.743 | 2.703 | 2.480 | 2.471 | 2.435 | 2.409 | 2.274 | 2.252 | 2.202 | 2.131 | 1.975 | 1.779 | 1.619 |
| 125 | - | 5.145 | 4.259 | 3.676 | 3.053 | 2.926 | 2.867 | 2.575 | 2.566 | 2.527 | 2.499 | 2.356 | 2.333 | 2.279 | 2.205 | 2.038 | 1.832 | 1.669 |
| 130 | - | 5.275 | 4.351 | 3.728 | 3.245 | 3.110 | 3.046 | 2.670 | 2.660 | 2.620 | 2.590 | 2.438 | 2.413 | 2.357 | 2.278 | 2.102 | 1.885 | 1.718 |
| 135 | - | 5.404 | 4.443 | 3.780 | 3.437 | 3.293 | 3.224 | 2.792 | 2.774 | 2.712 | 2.681 | 2.521 | 2.494 | 2.435 | 2.352 | 2.165 | 1.937 | 1.768 |
| 140 | - | 5.534 | 4.538 | 3.832 | 3.538 | 3.476 | 3.403 | 2.950 | 2.931 | 2.857 | 2.803 | 2.603 | 2.575 | 2.512 | 2.426 | 2.229 | 1.990 | 1.818 |
| 145 | - | 5.664 | 4.637 | 3.885 | 3.565 | 3.542 | 3.532 | 3.108 | 3.089 | 3.012 | 2.955 | 2.685 | 2.656 | 2.590 | 2.499 | 2.293 | 2.043 | 1.867 |
| 150 | - | - | 4.735 | 3.937 | 3.591 | 3.566 | 3.556 | 3.266 | 3.246 | 3.166 | 3.107 | 2.797 | 2.744 | 2.667 | 2.573 | 2.356 | 2.096 | 1.917 |
| 155 | - | - | 4.834 | 3.989 | 3.617 | 3.591 | 3.581 | 3.425 | 3.404 | 3.320 | 3.259 | 2.937 | 2.883 | 2.759 | 2.647 | 2.420 | 2.148 | 1.966 |
| 160 | - | - | 4.933 | 4.042 | 3.643 | 3.615 | 3.605 | 3.533 | 3.530 | 3.474 | 3.411 | 3.078 | 3.022 | 2.892 | 2.720 | 2.483 | 2.201 | 2.016 |
| 165 | - | - | 5.031 | 4.094 | 3.670 | 3.640 | 3.630 | 3.558 | 3.555 | 3.541 | 3.530 | 3.219 | 3.160 | 3.026 | 2.843 | 2.547 | 2.254 | 2.066 |
| 170 | - | - | 5.130 | 4.146 | 3.696 | 3.664 | 3.654 | 3.583 | 3.580 | 3.566 | 3.555 | 3.359 | 3.299 | 3.159 | 2.971 | 2.610 | 2.307 | 2.115 |
| 175 | - | - | 5.229 | 4.199 | 3.722 | 3.688 | 3.679 | 3.608 | 3.604 | 3.591 | 3.580 | 3.500 | 3.438 | 3.293 | 3.098 | 2.674 | 2.359 | 2.165 |
| 180 | - | - | 5.327 | 4.251 | 3.748 | 3.713 | 3.703 | 3.633 | 3.629 | 3.616 | 3.605 | 3.545 | 3.534 | 3.427 | 3.226 | 2.745 | 2.412 | 2.215 |
| 185 | - | - | 5.426 | 4.303 | 3.775 | 3.737 | 3.727 | 3.658 | 3.654 | 3.641 | 3.630 | 3.571 | 3.559 | 3.531 | 3.353 | 2.848 | 2.465 | 2.264 |
| 190 | - | - | 5.524 | 4.356 | 3.801 | 3.762 | 3.752 | 3.682 | 3.679 | 3.666 | 3.655 | 3.597 | 3.585 | 3.557 | 3.481 | 2.950 | 2.517 | 2.314 |
| 195 | - | - | 5.623 | 4.408 | 3.827 | 3.786 | 3.776 | 3.707 | 3.704 | 3.691 | 3.680 | 3.622 | 3.611 | 3.584 | 3.542 | 3.053 | 2.570 | 2.363 |
| 200 | - | - | 5.722 | 4.460 | 3.853 | 3.810 | 3.801 | 3.732 | 3.729 | 3.715 | 3.705 | 3.648 | 3.637 | 3.610 | 3.569 | 3.156 | 2.623 | 2.413 |
| 205 | - | - | - | 4.527 | 3.880 | 3.835 | 3.825 | 3.757 | 3.754 | 3.740 | 3.730 | 3.674 | 3.663 | 3.636 | 3.596 | 3.259 | 2.676 | 2.463 |
| 210 | - | - | - | 4.617 | 3.906 | 3.859 | 3.850 | 3.782 | 3.779 | 3.765 | 3.755 | 3.699 | 3.688 | 3.662 | 3.623 | 3.361 | 2.730 | 2.512 |
| 215 | - | - | - | 4.708 | 3.932 | 3.884 | 3.874 | 3.807 | 3.803 | 3.790 | 3.780 | 3.725 | 3.714 | 3.689 | 3.650 | 3.464 | 2.804 | 2.562 |
| 220 | - | - | - | 4.798 | 3.959 | 3.908 | 3.899 | 3.832 | 3.828 | 3.815 | 3.805 | 3.751 | 3.740 | 3.715 | 3.678 | 3.537 | 2.879 | 2.612 |
| 225 | - | - | - | 4.889 | 3.985 | 3.933 | 3.923 | 3.856 | 3.853 | 3.840 | 3.830 | 3.776 | 3.766 | 3.741 | 3.705 | 3.567 | 2.953 | 2.661 |
| 230 | - | - | - | 4.979 | 4.011 | 3.957 | 3.947 | 3.881 | 3.878 | 3.865 | 3.855 | 3.802 | 3.791 | 3.767 | 3.732 | 3.597 | 3.028 | 2.711 |
| 235 | - | - | - | 5.069 | 4.037 | 3.981 | 3.972 | 3.906 | 3.903 | 3.890 | 3.880 | 3.828 | 3.817 | 3.794 | 3.759 | 3.628 | 3.102 | 2.766 |
| 240 | - | - | - | 5.160 | 4.064 | 4.006 | 3.996 | 3.931 | 3.928 | 3.915 | 3.905 | 3.853 | 3.843 | 3.820 | 3.786 | 3.658 | 3.177 | 2.824 |
| 245 | - | - | - | 5.250 | 4.090 | 4.030 | 4.021 | 3.956 | 3.953 | 3.940 | 3.930 | 3.879 | 3.869 | 3.846 | 3.813 | 3.688 | 3.251 | 2.882 |
| 250 | - | - | - | 5.341 | 4.116 | 4.055 | 4.045 | 3.981 | 3.978 | 3.965 | 3.955 | 3.905 | 3.894 | 3.872 | 3.840 | 3.719 | 3.326 | 2.940 |
| 255 | - | - | - | 5.431 | 4.142 | 4.079 | 4.070 | 4.006 | 4.002 | 3.990 | 3.980 | 3.930 | 3.920 | 3.899 | 3.868 | 3.749 | 3.401 | 2.998 |
| 260 | - | - | - | 5.522 | 4.169 | 4.103 | 4.094 | 4.030 | 4.027 | 4.015 | 4.005 | 3.956 | 3.946 | 3.925 | 3.895 | 3.779 | 3.475 | 3.056 |
| 265 | - | - | - | 5.612 | 4.195 | 4.128 | 4.119 | 4.055 | 4.052 | 4.040 | 4.030 | 3.982 | 3.972 | 3.951 | 3.922 | 3.810 | 3.537 | 3.114 |
| 270 | - | - | - | 5.703 | 4.221 | 4.152 | 4.143 | 4.080 | 4.077 | 4.065 | 4.055 | 4.007 | 3.997 | 3.977 | 3.949 | 3.840 | 3.576 | 3.172 |
| 275 | - | - | - | - | 4.247 | 4.177 | 4.167 | 4.105 | 4.102 | 4.090 | 4.080 | 4.033 | 4.023 | 4.004 | 3.976 | 3.870 | 3.615 | 3.230 |
| 280 | - | - | - | - | 4.274 | 4.201 | 4.192 | 4.130 | 4.127 | 4.115 | 4.105 | 4.059 | 4.049 | 4.030 | 4.003 | 3.901 | 3.654 | 3.288 |
| 285 | - | - | - | - | 4.300 | 4.225 | 4.216 | 4.155 | 4.152 | 4.140 | 4.130 | 4.085 | 4.075 | 4.056 | 4.030 | 3.931 | 3.692 | 3.346 |
| 290 | - | - | - | - | 4.326 | 4.250 | 4.241 | 4.180 | 4.177 | 4.165 | 4.155 | 4.110 | 4.101 | 4.082 | 4.058 | 3.961 | 3.731 | 3.403 |
| 295 | - | - | - | - | 4.352 | 4.274 | 4.265 | 4.204 | 4.201 | 4.189 | 4.180 | 4.136 | 4.126 | 4.109 | 4.085 | 3.992 | 3.770 | 3.461 |
| 300 | - | - | - | - | 4.379 | 4.299 | 4.290 | 4.229 | 4.226 | 4.214 | 4.205 | 4.162 | 4.152 | 4.135 | 4.112 | 4.022 | 3.809 | 3.519 |
| 305 | - | - | - | - | 4.405 | 4.323 | 4.314 | 4.254 | 4.251 | 4.239 | 4.230 | 4.187 | 4.178 | 4.161 | 4.139 | 4.052 | 3.847 | 3.558 |
| 310 | - | - | - | - | 4.431 | 4.347 | 4.338 | 4.279 | 4.276 | 4.264 | 4.255 | 4.213 | 4.204 | 4.187 | 4.166 | 4.083 | 3.886 | 3.596 |
| 315 | - | - | - | - | 4.457 | 4.372 | 4.363 | 4.304 | 4.301 | 4.289 | 4.280 | 4.239 | 4.229 | 4.214 | 4.193 | 4.113 | 3.925 | 3.633 |
| 320 | - | - | - | - | 4.484 | 4.396 | 4.387 | 4.329 | 4.326 | 4.314 | 4.305 | 4.264 | 4.255 | 4.240 | 4.220 | 4.143 | 3.964 | 3.671 |
| 325 | - | - | - | - | 4.619 | 4.421 | 4.412 | 4.354 | 4.351 | 4.339 | 4.330 | 4.290 | 4.281 | 4.266 | 4.247 | 4.174 | 4.002 | 3.708 |
| 330 | - | - | - | - | 4.813 | 4.445 | 4.436 | 4.378 | 4.376 | 4.364 | 4.355 | 4.316 | 4.307 | 4.292 | 4.275 | 4.204 | 4.041 | 3.746 |
| 335 | - | - | - | - | 5.008 | 4.470 | 4.461 | 4.403 | 4.400 | 4.389 | 4.380 | 4.341 | 4.332 | 4.319 | 4.302 | 4.234 | 4.080 | 3.783 |
| 340 | - | - | - | - | 5.203 | 4.506 | 4.485 | 4.428 | 4.425 | 4.414 | 4.405 | 4.367 | 4.358 | 4.345 | 4.329 | 4.265 | 4.119 | 3.821 |
| 345 | - | - | - | - | 5.397 | 4.834 | 4.719 | 4.453 | 4.450 | 4.439 | 4.430 | 4.393 | 4.384 | 4.371 | 4.356 | 4.295 | 4.158 | 3.858 |
| 350 | - | - | - | - | 5.592 | 5.163 | 5.052 | 4.478 | 4.475 | 4.464 | 4.455 | 4.418 | 4.410 | 4.397 | 4.383 | 4.325 | 4.196 | 3.896 |
| 355 | - | - | - | - | - | 5.492 | 5.386 | 4.617 | 4.581 | 4.489 | 4.480 | 4.444 | 4.436 | 4.424 | 4.410 | 4.356 | 4.235 | 3.933 |
| 360 | - | - | - | - | - | - | 5.719 | 4.934 | 4.900 | 4.760 | 4.653 | 4.470 | 4.461 | 4.450 | 4.437 | 4.386 | 4.274 | 3.971 |
| 365 | - | - | - | - | - | - | - | 5.252 | 5.218 | 5.081 | 4.977 | 4.495 | 4.487 | 4.476 | 4.465 | 4.416 | 4.313 | 4.008 |
| 370 | - | - | - | - | - | - | - | 5.569 | 5.536 | 5.402 | 5.301 | 4.653 | 4.544 | 4.502 | 4.492 | 4.447 | 4.351 | 4.046 |
| 375 | - | - | - | - | - | - | - | - | - | 5.723 | 5.625 | 4.985 | 4.858 | 4.720 | 4.593 | 4.477 | 4.390 | 4.083 |
| 380 | - | - | - | - | - | - | - | - | - | - | - | 5.317 | 5.171 | 5.017 | 4.846 | 4.507 | 4.429 | 4.121 |
| 385 | - | - | - | - | - | - | - | - | - | - | - | 5.650 | 5.484 | 5.315 | 5.100 | 4.685 | 4.468 | 4.158 |
| 390 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.612 | 5.353 | 4.877 | 4.506 | 4.196 |
| 395 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.607 | 5.068 | 4.645 | 4.233 |
| 400 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.259 | 4.794 | 4.270 |

The thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 10 I-Section / H-Section Columns 15 minutes | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 510 | 530 | 539 | 545 | 550 | 563 | 580 | 600 | 650 | 700 | 750 |
| 50 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 55 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 60 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 65 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 70 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 75 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 80 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 85 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 90 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 95 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 100 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 105 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 110 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 115 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 120 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 125 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 130 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 135 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 140 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 145 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 150 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 155 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 160 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 165 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 170 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 175 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 180 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 185 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 190 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 195 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 200 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 205 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 210 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 215 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 220 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 225 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 230 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 235 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 240 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 245 | 0.487 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 250 | 0.510 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 255 | 0.533 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 260 | 0.556 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 265 | 0.579 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 270 | 0.602 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 275 | 0.625 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 280 | 0.649 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 285 | 0.672 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 290 | 0.695 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 295 | 0.718 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 300 | 0.741 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 305 | 0.764 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 310 | 0.787 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 315 | 0.810 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 320 | 0.833 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 325 | 0.856 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 330 | 0.879 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 335 | 0.902 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 340 | 0.925 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 345 | 0.948 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 350 | 0.971 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 355 | 0.994 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 360 | 1.017 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 365 | 1.040 | 0.488 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 370 | 1.063 | 0.505 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 375 | 1.086 | 0.523 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 380 | 1.109 | 0.540 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 385 | 1.132 | 0.558 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 390 | 1.155 | 0.575 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 395 | 1.178 | 0.592 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 400 | 1.201 | 0.610 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 405 | 1.224 | 0.627 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 410 | 1.247 | 0.645 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 415 | 1.270 | 0.662 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 420 | 1.293 | 0.680 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 425 | 1.316 | 0.697 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 430 | 1.339 | 0.714 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 435 | 1.362 | 0.732 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 440 | 1.385 | 0.749 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 445 | 1.408 | 0.767 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 450 | 1.431 | 0.784 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 455 | 1.454 | 0.801 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 460 | 1.477 | 0.819 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 465 | 1.500 | 0.836 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 470 | 1.523 | 0.854 | 0.476 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 475 | 1.542 | 0.871 | 0.489 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |

Thickness is intumescent only. Results also apply to I/H-section beams exposed on all four sides, limited to a maximum protection thickness of 5.770 mm.

| Table 11 I-Section / H-Section Columns 20 minutes | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 510 | 530 | 539 | 545 | 550 | 563 | 580 | 600 | 650 | 700 | 750 |
| 50 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 55 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 60 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 65 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 70 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 75 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 80 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 85 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 90 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 95 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 100 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 105 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 110 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 115 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 120 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 125 | 0.477 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 130 | 0.501 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 135 | 0.524 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 140 | 0.548 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 145 | 0.572 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 150 | 0.596 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 155 | 0.619 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 160 | 0.643 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 165 | 0.667 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 170 | 0.690 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 175 | 0.714 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 180 | 0.738 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 185 | 0.761 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 190 | 0.785 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 195 | 0.809 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 200 | 0.833 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 205 | 0.856 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 210 | 0.880 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 215 | 0.904 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 220 | 0.927 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 225 | 0.951 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 230 | 0.975 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 235 | 0.998 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 240 | 1.022 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 245 | 1.046 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 250 | 1.070 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 255 | 1.093 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 260 | 1.117 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 265 | 1.141 | 0.480 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 270 | 1.164 | 0.504 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 275 | 1.188 | 0.528 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 280 | 1.212 | 0.552 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 285 | 1.235 | 0.576 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 290 | 1.259 | 0.600 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 295 | 1.283 | 0.623 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 300 | 1.307 | 0.647 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 305 | 1.330 | 0.671 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 310 | 1.354 | 0.695 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 315 | 1.378 | 0.719 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 320 | 1.401 | 0.743 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 325 | 1.425 | 0.766 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 330 | 1.449 | 0.790 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 335 | 1.472 | 0.814 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 340 | 1.496 | 0.838 | 0.480 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 345 | 1.520 | 0.862 | 0.499 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 350 | 1.542 | 0.886 | 0.518 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 355 | 1.562 | 0.909 | 0.537 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 360 | 1.581 | 0.933 | 0.555 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 365 | 1.601 | 0.957 | 0.574 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 370 | 1.621 | 0.981 | 0.593 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 375 | 1.640 | 1.005 | 0.612 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 380 | 1.660 | 1.029 | 0.631 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 385 | 1.680 | 1.052 | 0.650 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 390 | 1.700 | 1.076 | 0.669 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 395 | 1.719 | 1.100 | 0.688 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 400 | 1.739 | 1.124 | 0.707 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 405 | 1.759 | 1.148 | 0.726 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 410 | 1.778 | 1.172 | 0.745 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 415 | 1.798 | 1.195 | 0.763 | 0.477 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 420 | 1.818 | 1.219 | 0.782 | 0.492 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 425 | 1.837 | 1.243 | 0.801 | 0.508 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 430 | 1.857 | 1.267 | 0.820 | 0.524 | 0.473 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 435 | 1.877 | 1.291 | 0.839 | 0.539 | 0.488 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 440 | 1.897 | 1.315 | 0.858 | 0.555 | 0.503 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 445 | 1.916 | 1.338 | 0.877 | 0.571 | 0.518 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 450 | 1.936 | 1.362 | 0.896 | 0.587 | 0.533 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 455 | 1.956 | 1.386 | 0.915 | 0.602 | 0.548 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 460 | 1.975 | 1.410 | 0.934 | 0.618 | 0.564 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 465 | 1.995 | 1.434 | 0.952 | 0.634 | 0.579 | 0.477 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 470 | 2.015 | 1.458 | 0.971 | 0.649 | 0.594 | 0.491 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 475 | 2.034 | 1.481 | 0.990 | 0.665 | 0.609 | 0.505 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |

Thickness is intumescent only. Results also apply to I/H-section beams exposed on all four sides, limited to a maximum protection thickness of 5.770 mm.

| Table 12 I-Section / H-Section Columns 30 minutes | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 510 | 530 | 539 | 545 | 550 | 563 | 580 | 600 | 650 | 700 | 750 |
| 50 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 55 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 60 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 65 | 0.500 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 70 | 0.549 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 75 | 0.598 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 80 | 0.647 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 85 | 0.696 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 90 | 0.746 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 95 | 0.795 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 100 | 0.844 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 105 | 0.893 | 0.486 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 110 | 0.942 | 0.513 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 115 | 0.992 | 0.540 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 120 | 1.041 | 0.567 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 125 | 1.090 | 0.594 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 130 | 1.139 | 0.621 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 135 | 1.188 | 0.648 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 140 | 1.238 | 0.675 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 145 | 1.287 | 0.702 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 150 | 1.336 | 0.729 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 155 | 1.385 | 0.756 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 160 | 1.434 | 0.783 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 165 | 1.484 | 0.810 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 170 | 1.533 | 0.837 | 0.493 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 175 | 1.557 | 0.864 | 0.516 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 180 | 1.581 | 0.891 | 0.539 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 185 | 1.604 | 0.918 | 0.562 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 190 | 1.628 | 0.945 | 0.585 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 195 | 1.651 | 0.972 | 0.608 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 200 | 1.675 | 0.999 | 0.630 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 205 | 1.699 | 1.026 | 0.653 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 210 | 1.722 | 1.053 | 0.676 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 215 | 1.746 | 1.080 | 0.699 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 220 | 1.769 | 1.107 | 0.722 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 225 | 1.793 | 1.134 | 0.745 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 230 | 1.817 | 1.160 | 0.768 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 235 | 1.840 | 1.187 | 0.791 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 240 | 1.864 | 1.214 | 0.814 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 245 | 1.887 | 1.241 | 0.837 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 250 | 1.911 | 1.268 | 0.860 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 255 | 1.935 | 1.295 | 0.882 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 260 | 1.958 | 1.322 | 0.905 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 265 | 1.982 | 1.349 | 0.928 | 0.494 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 270 | 2.005 | 1.376 | 0.951 | 0.519 | 0.474 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 275 | 2.029 | 1.403 | 0.974 | 0.544 | 0.498 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 280 | 2.053 | 1.430 | 0.997 | 0.568 | 0.522 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 285 | 2.076 | 1.457 | 1.020 | 0.593 | 0.546 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 290 | 2.100 | 1.484 | 1.043 | 0.618 | 0.570 | 0.483 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 295 | 2.123 | 1.511 | 1.066 | 0.643 | 0.594 | 0.505 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 300 | 2.147 | 1.537 | 1.089 | 0.668 | 0.618 | 0.528 | 0.490 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 305 | 2.170 | 1.561 | 1.112 | 0.693 | 0.643 | 0.550 | 0.512 | 0.492 | 0.476 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 310 | 2.194 | 1.585 | 1.135 | 0.718 | 0.667 | 0.572 | 0.533 | 0.513 | 0.497 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 315 | 2.218 | 1.608 | 1.157 | 0.743 | 0.691 | 0.594 | 0.555 | 0.534 | 0.517 | 0.477 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 320 | 2.241 | 1.632 | 1.180 | 0.768 | 0.715 | 0.617 | 0.576 | 0.555 | 0.537 | 0.496 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 325 | 2.265 | 1.655 | 1.203 | 0.793 | 0.739 | 0.639 | 0.597 | 0.575 | 0.558 | 0.515 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 330 | 2.288 | 1.679 | 1.226 | 0.818 | 0.763 | 0.661 | 0.619 | 0.596 | 0.578 | 0.534 | 0.484 | 0.472 | 0.472 | 0.472 | 0.472 |
| 335 | 2.312 | 1.702 | 1.249 | 0.843 | 0.787 | 0.683 | 0.640 | 0.617 | 0.598 | 0.553 | 0.501 | 0.472 | 0.472 | 0.472 | 0.472 |
| 340 | 2.336 | 1.726 | 1.272 | 0.868 | 0.811 | 0.706 | 0.662 | 0.638 | 0.619 | 0.572 | 0.519 | 0.472 | 0.472 | 0.472 | 0.472 |
| 345 | 2.359 | 1.749 | 1.295 | 0.893 | 0.835 | 0.728 | 0.683 | 0.659 | 0.639 | 0.592 | 0.536 | 0.479 | 0.472 | 0.472 | 0.472 |
| 350 | 2.383 | 1.773 | 1.318 | 0.918 | 0.859 | 0.750 | 0.705 | 0.680 | 0.659 | 0.611 | 0.554 | 0.495 | 0.472 | 0.472 | 0.472 |
| 355 | 2.406 | 1.796 | 1.341 | 0.943 | 0.883 | 0.772 | 0.726 | 0.701 | 0.680 | 0.630 | 0.572 | 0.510 | 0.472 | 0.472 | 0.472 |
| 360 | 2.430 | 1.820 | 1.364 | 0.968 | 0.907 | 0.795 | 0.748 | 0.721 | 0.700 | 0.649 | 0.589 | 0.526 | 0.472 | 0.472 | 0.472 |
| 365 | 2.454 | 1.843 | 1.387 | 0.993 | 0.931 | 0.817 | 0.769 | 0.742 | 0.721 | 0.668 | 0.607 | 0.542 | 0.472 | 0.472 | 0.472 |
| 370 | 2.477 | 1.867 | 1.410 | 1.017 | 0.955 | 0.839 | 0.791 | 0.763 | 0.741 | 0.687 | 0.624 | 0.558 | 0.472 | 0.472 | 0.472 |
| 375 | 2.501 | 1.890 | 1.432 | 1.042 | 0.979 | 0.861 | 0.812 | 0.784 | 0.761 | 0.706 | 0.642 | 0.574 | 0.472 | 0.472 | 0.472 |
| 380 | 2.524 | 1.914 | 1.455 | 1.067 | 1.003 | 0.884 | 0.834 | 0.805 | 0.782 | 0.725 | 0.659 | 0.590 | 0.472 | 0.472 | 0.472 |
| 385 | 2.548 | 1.937 | 1.478 | 1.092 | 1.027 | 0.906 | 0.855 | 0.826 | 0.802 | 0.745 | 0.677 | 0.606 | 0.472 | 0.472 | 0.472 |
| 390 | 2.572 | 1.961 | 1.501 | 1.117 | 1.051 | 0.928 | 0.876 | 0.847 | 0.822 | 0.764 | 0.695 | 0.622 | 0.472 | 0.472 | 0.472 |
| 395 | 2.595 | 1.984 | 1.524 | 1.142 | 1.075 | 0.950 | 0.898 | 0.867 | 0.843 | 0.783 | 0.712 | 0.638 | 0.481 | 0.472 | 0.472 |
| 400 | 2.619 | 2.008 | 1.547 | 1.167 | 1.099 | 0.973 | 0.919 | 0.888 | 0.863 | 0.802 | 0.730 | 0.654 | 0.493 | 0.472 | 0.472 |
| 405 | 2.642 | 2.031 | 1.570 | 1.192 | 1.123 | 0.995 | 0.941 | 0.909 | 0.883 | 0.821 | 0.747 | 0.669 | 0.505 | 0.472 | 0.472 |
| 410 | 2.666 | 2.055 | 1.594 | 1.217 | 1.147 | 1.017 | 0.962 | 0.930 | 0.904 | 0.840 | 0.765 | 0.685 | 0.517 | 0.472 | 0.472 |
| 415 | 2.690 | 2.078 | 1.617 | 1.242 | 1.171 | 1.039 | 0.984 | 0.951 | 0.924 | 0.859 | 0.783 | 0.701 | 0.530 | 0.472 | 0.472 |
| 420 | 2.713 | 2.102 | 1.640 | 1.267 | 1.195 | 1.062 | 1.005 | 0.972 | 0.944 | 0.878 | 0.800 | 0.717 | 0.542 | 0.472 | 0.472 |
| 425 | 2.737 | 2.125 | 1.663 | 1.292 | 1.219 | 1.084 | 1.027 | 0.992 | 0.965 | 0.897 | 0.818 | 0.733 | 0.554 | 0.472 | 0.472 |
| 430 | 2.760 | 2.149 | 1.687 | 1.317 | 1.244 | 1.106 | 1.048 | 1.013 | 0.985 | 0.917 | 0.835 | 0.749 | 0.566 | 0.472 | 0.472 |
| 435 | 2.784 | 2.173 | 1.710 | 1.342 | 1.268 | 1.128 | 1.070 | 1.034 | 1.006 | 0.936 | 0.853 | 0.765 | 0.579 | 0.472 | 0.472 |
| 440 | 2.811 | 2.196 | 1.733 | 1.367 | 1.292 | 1.151 | 1.091 | 1.055 | 1.026 | 0.955 | 0.870 | 0.781 | 0.591 | 0.472 | 0.472 |
| 445 | 2.846 | 2.220 | 1.756 | 1.392 | 1.316 | 1.173 | 1.112 | 1.076 | 1.046 | 0.974 | 0.888 | 0.797 | 0.603 | 0.472 | 0.472 |
| 450 | 2.882 | 2.243 | 1.780 | 1.417 | 1.340 | 1.195 | 1.134 | 1.097 | 1.067 | 0.993 | 0.906 | 0.812 | 0.615 | 0.472 | 0.472 |
| 455 | 2.917 | 2.267 | 1.803 | 1.442 | 1.364 | 1.217 | 1.155 | 1.118 | 1.087 | 1.012 | 0.923 | 0.828 | 0.628 | 0.472 | 0.472 |
| 460 | 2.952 | 2.290 | 1.826 | 1.466 | 1.388 | 1.240 | 1.177 | 1.138 | 1.107 | 1.031 | 0.941 | 0.844 | 0.640 | 0.472 | 0.472 |
| 465 | 2.988 | 2.314 | 1.850 | 1.491 | 1.412 | 1.262 | 1.198 | 1.159 | 1.128 | 1.050 | 0.958 | 0.860 | 0.652 | 0.472 | 0.472 |
| 470 | 3.023 | 2.337 | 1.873 | 1.516 | 1.436 | 1.284 | 1.220 | 1.180 | 1.148 | 1.070 | 0.976 | 0.876 | 0.664 | 0.482 | 0.472 |
| 475 | 3.058 | 2.361 | 1.896 | 1.540 | 1.460 | 1.306 | 1.241 | 1.201 | 1.168 | 1.089 | 0.993 | 0.892 | 0.677 | 0.491 | 0.472 |

The thickness is intumescent only. Results also apply to I/H-section beams exposed on all four sides, limited to a maximum protection thickness of 5.770 mm.

| Table 13 I-Section / H-Section Columns 45 minutes | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 510 | 530 | 539 | 545 | 550 | 563 | 580 | 600 | 650 | 700 | 750 |
| 50 | 0.755 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 55 | 0.838 | 0.514 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 60 | 0.928 | 0.576 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 65 | 1.017 | 0.637 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 70 | 1.107 | 0.698 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 75 | 1.196 | 0.760 | 0.483 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 80 | 1.286 | 0.821 | 0.525 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 85 | 1.376 | 0.883 | 0.568 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 90 | 1.465 | 0.944 | 0.611 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 95 | 1.544 | 1.005 | 0.654 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 100 | 1.589 | 1.067 | 0.697 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 105 | 1.633 | 1.128 | 0.739 | 0.493 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 110 | 1.678 | 1.189 | 0.782 | 0.523 | 0.483 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 115 | 1.722 | 1.251 | 0.825 | 0.554 | 0.511 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 120 | 1.767 | 1.312 | 0.868 | 0.585 | 0.540 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 125 | 1.811 | 1.373 | 0.910 | 0.615 | 0.568 | 0.488 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 130 | 1.856 | 1.435 | 0.953 | 0.646 | 0.596 | 0.512 | 0.480 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 135 | 1.901 | 1.496 | 0.996 | 0.676 | 0.625 | 0.537 | 0.505 | 0.486 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 140 | 1.945 | 1.544 | 1.039 | 0.707 | 0.653 | 0.562 | 0.529 | 0.511 | 0.495 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 145 | 1.990 | 1.571 | 1.082 | 0.737 | 0.681 | 0.587 | 0.554 | 0.535 | 0.519 | 0.480 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 150 | 2.034 | 1.598 | 1.124 | 0.768 | 0.709 | 0.612 | 0.578 | 0.559 | 0.543 | 0.503 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 155 | 2.079 | 1.625 | 1.167 | 0.799 | 0.738 | 0.637 | 0.603 | 0.583 | 0.567 | 0.526 | 0.475 | 0.472 | 0.472 | 0.472 | 0.472 |
| 160 | 2.123 | 1.652 | 1.210 | 0.829 | 0.766 | 0.662 | 0.627 | 0.607 | 0.591 | 0.549 | 0.497 | 0.472 | 0.472 | 0.472 | 0.472 |
| 165 | 2.168 | 1.679 | 1.253 | 0.860 | 0.794 | 0.687 | 0.652 | 0.631 | 0.615 | 0.572 | 0.519 | 0.472 | 0.472 | 0.472 | 0.472 |
| 170 | 2.212 | 1.706 | 1.296 | 0.890 | 0.823 | 0.711 | 0.676 | 0.656 | 0.639 | 0.596 | 0.542 | 0.480 | 0.472 | 0.472 | 0.472 |
| 175 | 2.257 | 1.733 | 1.338 | 0.921 | 0.851 | 0.736 | 0.701 | 0.680 | 0.663 | 0.619 | 0.564 | 0.502 | 0.472 | 0.472 | 0.472 |
| 180 | 2.301 | 1.760 | 1.381 | 0.951 | 0.879 | 0.761 | 0.725 | 0.704 | 0.687 | 0.642 | 0.586 | 0.523 | 0.472 | 0.472 | 0.472 |
| 185 | 2.346 | 1.787 | 1.424 | 0.982 | 0.908 | 0.786 | 0.750 | 0.728 | 0.710 | 0.665 | 0.609 | 0.544 | 0.472 | 0.472 | 0.472 |
| 190 | 2.390 | 1.814 | 1.467 | 1.013 | 0.936 | 0.811 | 0.774 | 0.752 | 0.734 | 0.689 | 0.631 | 0.566 | 0.472 | 0.472 | 0.472 |
| 195 | 2.435 | 1.841 | 1.510 | 1.043 | 0.964 | 0.836 | 0.799 | 0.776 | 0.758 | 0.712 | 0.653 | 0.587 | 0.472 | 0.472 | 0.472 |
| 200 | 2.480 | 1.868 | 1.545 | 1.074 | 0.993 | 0.861 | 0.823 | 0.801 | 0.782 | 0.735 | 0.675 | 0.608 | 0.472 | 0.472 | 0.472 |
| 205 | 2.524 | 1.895 | 1.572 | 1.104 | 1.021 | 0.886 | 0.848 | 0.825 | 0.806 | 0.758 | 0.698 | 0.629 | 0.472 | 0.472 | 0.472 |
| 210 | 2.569 | 1.922 | 1.599 | 1.135 | 1.049 | 0.910 | 0.872 | 0.849 | 0.830 | 0.781 | 0.720 | 0.651 | 0.488 | 0.472 | 0.472 |
| 215 | 2.613 | 1.949 | 1.625 | 1.166 | 1.077 | 0.935 | 0.897 | 0.873 | 0.854 | 0.805 | 0.742 | 0.672 | 0.506 | 0.472 | 0.472 |
| 220 | 2.658 | 1.976 | 1.652 | 1.196 | 1.106 | 0.960 | 0.921 | 0.897 | 0.878 | 0.828 | 0.765 | 0.693 | 0.525 | 0.472 | 0.472 |
| 225 | 2.702 | 2.003 | 1.679 | 1.227 | 1.134 | 0.985 | 0.946 | 0.921 | 0.902 | 0.851 | 0.787 | 0.715 | 0.544 | 0.472 | 0.472 |
| 230 | 2.747 | 2.030 | 1.705 | 1.257 | 1.162 | 1.010 | 0.970 | 0.946 | 0.926 | 0.874 | 0.809 | 0.736 | 0.563 | 0.472 | 0.472 |
| 235 | 2.791 | 2.057 | 1.732 | 1.288 | 1.191 | 1.035 | 0.995 | 0.970 | 0.949 | 0.897 | 0.832 | 0.757 | 0.582 | 0.472 | 0.472 |
| 240 | 2.833 | 2.084 | 1.759 | 1.318 | 1.219 | 1.060 | 1.019 | 0.994 | 0.973 | 0.921 | 0.854 | 0.778 | 0.600 | 0.472 | 0.472 |
| 245 | 2.874 | 2.111 | 1.785 | 1.349 | 1.247 | 1.085 | 1.044 | 1.018 | 0.997 | 0.944 | 0.876 | 0.800 | 0.619 | 0.472 | 0.472 |
| 250 | 2.915 | 2.138 | 1.812 | 1.380 | 1.276 | 1.109 | 1.068 | 1.042 | 1.021 | 0.967 | 0.899 | 0.821 | 0.638 | 0.472 | 0.472 |
| 255 | 2.955 | 2.165 | 1.839 | 1.410 | 1.304 | 1.134 | 1.093 | 1.066 | 1.045 | 0.990 | 0.921 | 0.842 | 0.657 | 0.476 | 0.472 |
| 260 | 2.996 | 2.192 | 1.865 | 1.441 | 1.332 | 1.159 | 1.117 | 1.091 | 1.069 | 1.014 | 0.943 | 0.864 | 0.676 | 0.492 | 0.472 |
| 265 | 3.037 | 2.219 | 1.892 | 1.471 | 1.360 | 1.184 | 1.142 | 1.115 | 1.093 | 1.037 | 0.966 | 0.885 | 0.694 | 0.509 | 0.472 |
| 270 | 3.078 | 2.246 | 1.919 | 1.502 | 1.389 | 1.209 | 1.166 | 1.139 | 1.117 | 1.060 | 0.988 | 0.906 | 0.713 | 0.526 | 0.472 |
| 275 | 3.119 | 2.273 | 1.945 | 1.532 | 1.417 | 1.234 | 1.191 | 1.163 | 1.141 | 1.083 | 1.010 | 0.927 | 0.732 | 0.542 | 0.472 |
| 280 | 3.160 | 2.300 | 1.972 | 1.561 | 1.445 | 1.259 | 1.215 | 1.187 | 1.165 | 1.106 | 1.033 | 0.949 | 0.751 | 0.559 | 0.472 |
| 285 | 3.201 | 2.327 | 1.998 | 1.590 | 1.474 | 1.283 | 1.240 | 1.211 | 1.188 | 1.130 | 1.055 | 0.970 | 0.770 | 0.576 | 0.472 |
| 290 | 3.241 | 2.354 | 2.025 | 1.618 | 1.502 | 1.308 | 1.264 | 1.236 | 1.212 | 1.153 | 1.077 | 0.991 | 0.788 | 0.592 | 0.472 |
| 295 | 3.282 | 2.381 | 2.052 | 1.647 | 1.530 | 1.333 | 1.289 | 1.260 | 1.236 | 1.176 | 1.100 | 1.013 | 0.807 | 0.609 | 0.472 |
| 300 | 3.323 | 2.408 | 2.078 | 1.676 | 1.560 | 1.358 | 1.313 | 1.284 | 1.260 | 1.199 | 1.122 | 1.034 | 0.826 | 0.626 | 0.484 |
| 305 | 3.364 | 2.435 | 2.105 | 1.704 | 1.589 | 1.383 | 1.338 | 1.308 | 1.284 | 1.223 | 1.144 | 1.055 | 0.845 | 0.642 | 0.498 |
| 310 | 3.405 | 2.462 | 2.132 | 1.733 | 1.619 | 1.408 | 1.362 | 1.332 | 1.308 | 1.246 | 1.167 | 1.077 | 0.864 | 0.659 | 0.511 |
| 315 | 3.446 | 2.489 | 2.158 | 1.762 | 1.649 | 1.433 | 1.386 | 1.357 | 1.332 | 1.269 | 1.189 | 1.098 | 0.882 | 0.675 | 0.525 |
| 320 | 3.486 | 2.516 | 2.185 | 1.790 | 1.678 | 1.458 | 1.411 | 1.381 | 1.356 | 1.292 | 1.211 | 1.119 | 0.901 | 0.692 | 0.539 |
| 325 | 3.527 | 2.543 | 2.212 | 1.819 | 1.708 | 1.482 | 1.435 | 1.405 | 1.380 | 1.315 | 1.234 | 1.140 | 0.920 | 0.709 | 0.552 |
| 330 | 3.568 | 2.570 | 2.238 | 1.848 | 1.738 | 1.507 | 1.460 | 1.429 | 1.403 | 1.339 | 1.256 | 1.162 | 0.939 | 0.725 | 0.566 |
| 335 | 3.609 | 2.597 | 2.265 | 1.876 | 1.767 | 1.532 | 1.484 | 1.453 | 1.427 | 1.362 | 1.278 | 1.183 | 0.958 | 0.742 | 0.579 |
| 340 | 3.650 | 2.624 | 2.292 | 1.905 | 1.797 | 1.563 | 1.509 | 1.477 | 1.451 | 1.385 | 1.301 | 1.204 | 0.976 | 0.759 | 0.593 |
| 345 | 3.691 | 2.651 | 2.318 | 1.934 | 1.827 | 1.595 | 1.533 | 1.502 | 1.475 | 1.408 | 1.323 | 1.226 | 0.995 | 0.775 | 0.606 |
| 350 | 3.732 | 2.678 | 2.345 | 1.962 | 1.856 | 1.626 | 1.564 | 1.526 | 1.499 | 1.431 | 1.345 | 1.247 | 1.014 | 0.792 | 0.620 |
| 355 | 3.772 | 2.705 | 2.372 | 1.991 | 1.886 | 1.658 | 1.596 | 1.554 | 1.523 | 1.455 | 1.368 | 1.268 | 1.033 | 0.809 | 0.634 |
| 360 | 3.813 | 2.732 | 2.398 | 2.020 | 1.916 | 1.689 | 1.627 | 1.585 | 1.550 | 1.478 | 1.390 | 1.289 | 1.052 | 0.825 | 0.647 |
| 365 | 3.854 | 2.759 | 2.425 | 2.048 | 1.945 | 1.721 | 1.658 | 1.616 | 1.581 | 1.501 | 1.412 | 1.311 | 1.070 | 0.842 | 0.661 |
| 370 | 3.895 | 2.786 | 2.452 | 2.077 | 1.975 | 1.753 | 1.689 | 1.647 | 1.612 | 1.524 | 1.435 | 1.332 | 1.089 | 0.859 | 0.674 |
| 375 | 3.936 | 2.828 | 2.478 | 2.106 | 2.005 | 1.784 | 1.720 | 1.677 | 1.642 | 1.551 | 1.457 | 1.353 | 1.108 | 0.875 | 0.688 |
| 380 | 3.977 | 2.889 | 2.505 | 2.134 | 2.034 | 1.816 | 1.751 | 1.708 | 1.673 | 1.581 | 1.479 | 1.375 | 1.127 | 0.892 | 0.701 |
| 385 | 4.017 | 2.949 | 2.531 | 2.163 | 2.064 | 1.847 | 1.782 | 1.739 | 1.703 | 1.611 | 1.502 | 1.396 | 1.146 | 0.908 | 0.715 |
| 390 | 4.058 | 3.010 | 2.558 | 2.192 | 2.094 | 1.879 | 1.813 | 1.770 | 1.734 | 1.641 | 1.524 | 1.417 | 1.164 | 0.925 | 0.728 |
| 395 | 4.099 | 3.070 | 2.585 | 2.220 | 2.123 | 1.910 | 1.844 | 1.801 | 1.764 | 1.671 | 1.550 | 1.438 | 1.183 | 0.942 | 0.742 |
| 400 | 4.140 | 3.131 | 2.611 | 2.249 | 2.153 | 1.942 | 1.875 | 1.832 | 1.795 | 1.701 | 1.579 | 1.460 | 1.202 | 0.958 | 0.756 |
| 405 | 4.181 | 3.191 | 2.638 | 2.278 | 2.183 | 1.973 | 1.907 | 1.862 | 1.826 | 1.731 | 1.608 | 1.481 | 1.221 | 0.975 | 0.769 |
| 410 | 4.222 | 3.252 | 2.665 | 2.306 | 2.212 | 2.005 | 1.938 | 1.893 | 1.856 | 1.761 | 1.637 | 1.502 | 1.240 | 0.992 | 0.783 |
| 415 | 4.263 | 3.312 | 2.691 | 2.335 | 2.242 | 2.036 | 1.969 | 1.924 | 1.887 | 1.791 | 1.666 | 1.524 | 1.258 | 1.008 | 0.796 |
| 420 | 4.303 | 3.373 | 2.718 | 2.364 | 2.272 | 2.068 | 2.000 | 1.955 | 1.917 | 1.821 | 1.695 | 1.548 | 1.277 | 1.025 | 0.810 |
| 425 | 4.344 | 3.433 | 2.745 | 2.392 | 2.301 | 2.099 | 2.031 | 1.986 | 1.948 | 1.850 | 1.724 | 1.576 | 1.296 | 1.042 | 0.823 |
| 430 | 4.385 | 3.494 | 2.771 | 2.421 | 2.331 | 2.131 | 2.062 | 2.016 | 1.978 | 1.880 | 1.753 | 1.604 | 1.315 | 1.058 | 0.837 |
| 435 | 4.426 | 3.554 | 2.798 | 2.450 | 2.361 | 2.163 | 2.093 | 2.047 | 2.009 | 1.910 | 1.782 | 1.632 | 1.334 | 1.075 | 0.851 |
| 440 | 4.467 | 3.615 | 2.868 | 2.478 | 2.390 | 2.194 | 2.124 | 2.078 | 2.039 | 1.940 | 1.811 | 1.660 | 1.352 | 1.091 | 0.864 |
| 445 | 4.508 | 3.675 | 2.944 | 2.507 | 2.420 | 2.226 | 2.155 | 2.109 | 2.070 | 1.970 | 1.840 | 1.688 | 1.371 | 1.108 | 0.878 |
| 450 | 4.548 | 3.736 | 3.020 | 2.536 | 2.450 | 2.257 | 2.187 | 2.140 | 2.101 | 2.000 | 1.869 | 1.715 | 1.390 | 1.125 | 0.891 |
| 455 | 4.589 | 3.796 | 3.095 | 2.564 | 2.479 | 2.289 | 2.218 | 2.171 | 2.131 | 2.030 | 1.898 | 1.743 | 1.409 | 1.141 | 0.905 |
| 460 | 4.698 | 3.857 | 3.171 | 2.593 | 2.509 | 2.320 | 2.249 | 2.201 | 2.162 | 2.060 | 1.927 | 1.771 | 1.428 | 1.158 | 0.918 |
| 465 | 4.877 | 3.917 | 3.247 | 2.622 | 2.539 | 2.352 | 2.280 | 2.232 | 2.192 | 2.090 | 1.956 | 1.799 | 1.446 | 1.175 | 0.932 |
| 470 | 5.056 | 3.978 | 3.322 | 2.650 | 2.568 | 2.383 | 2.311 | 2.263 | 2.223 | 2.119 | 1.985 | 1.827 | 1.465 | 1.191 | 0.946 |
| 475 | 5.235 | 4.038 | 3.398 | 2.679 | 2.598 | 2.415 | 2.342 | 2.294 | 2.253 | 2.149 | 2.014 | 1.855 | 1.484 | 1.208 | 0.959 |

The thickness is intumescent only. Results also apply to I/H-section beams exposed on all four sides limited to a maximum protection thickness of 5.770 mm.

| Table 14 I-Section / H-Section Columns 60 minutes | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 510 | 530 | 539 | 545 | 550 | 563 | 580 | 600 | 650 | 700 | 750 |
| 50 | 1.152 | 0.790 | 0.537 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 55 | 1.280 | 0.878 | 0.596 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 60 | 1.410 | 0.972 | 0.668 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 65 | 1.538 | 1.067 | 0.740 | 0.505 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 70 | 1.635 | 1.161 | 0.812 | 0.562 | 0.522 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 75 | 1.733 | 1.255 | 0.884 | 0.620 | 0.577 | 0.498 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 80 | 1.830 | 1.350 | 0.956 | 0.677 | 0.632 | 0.547 | 0.513 | 0.494 | 0.480 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 85 | 1.927 | 1.444 | 1.028 | 0.735 | 0.686 | 0.597 | 0.560 | 0.540 | 0.524 | 0.485 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 90 | 2.025 | 1.537 | 1.100 | 0.792 | 0.741 | 0.646 | 0.607 | 0.585 | 0.568 | 0.526 | 0.478 | 0.472 | 0.472 | 0.472 | 0.472 |
| 95 | 2.122 | 1.590 | 1.173 | 0.850 | 0.796 | 0.695 | 0.654 | 0.630 | 0.612 | 0.566 | 0.514 | 0.472 | 0.472 | 0.472 | 0.472 |
| 100 | 2.219 | 1.643 | 1.245 | 0.907 | 0.850 | 0.745 | 0.701 | 0.676 | 0.656 | 0.607 | 0.551 | 0.497 | 0.472 | 0.472 | 0.472 |
| 105 | 2.317 | 1.697 | 1.317 | 0.965 | 0.905 | 0.794 | 0.748 | 0.721 | 0.700 | 0.647 | 0.587 | 0.528 | 0.472 | 0.472 | 0.472 |
| 110 | 2.414 | 1.750 | 1.389 | 1.022 | 0.960 | 0.844 | 0.796 | 0.767 | 0.744 | 0.688 | 0.623 | 0.559 | 0.472 | 0.472 | 0.472 |
| 115 | 2.511 | 1.804 | 1.461 | 1.080 | 1.014 | 0.893 | 0.843 | 0.812 | 0.788 | 0.728 | 0.659 | 0.590 | 0.475 | 0.472 | 0.472 |
| 120 | 2.609 | 1.857 | 1.533 | 1.137 | 1.069 | 0.942 | 0.890 | 0.857 | 0.832 | 0.769 | 0.695 | 0.621 | 0.498 | 0.472 | 0.472 |
| 125 | 2.706 | 1.910 | 1.566 | 1.194 | 1.124 | 0.992 | 0.937 | 0.903 | 0.876 | 0.810 | 0.732 | 0.653 | 0.521 | 0.472 | 0.472 |
| 130 | 2.802 | 1.964 | 1.599 | 1.252 | 1.179 | 1.041 | 0.984 | 0.948 | 0.920 | 0.850 | 0.768 | 0.684 | 0.544 | 0.472 | 0.472 |
| 135 | 2.860 | 2.017 | 1.631 | 1.309 | 1.233 | 1.090 | 1.031 | 0.993 | 0.964 | 0.891 | 0.804 | 0.715 | 0.567 | 0.473 | 0.472 |
| 140 | 2.917 | 2.071 | 1.664 | 1.367 | 1.288 | 1.140 | 1.078 | 1.039 | 1.008 | 0.931 | 0.840 | 0.746 | 0.590 | 0.494 | 0.472 |
| 145 | 2.974 | 2.124 | 1.697 | 1.424 | 1.343 | 1.189 | 1.125 | 1.084 | 1.052 | 0.972 | 0.876 | 0.778 | 0.612 | 0.514 | 0.472 |
| 150 | 3.031 | 2.177 | 1.729 | 1.482 | 1.397 | 1.239 | 1.172 | 1.130 | 1.096 | 1.012 | 0.913 | 0.809 | 0.635 | 0.534 | 0.472 |
| 155 | 3.089 | 2.231 | 1.762 | 1.537 | 1.452 | 1.288 | 1.219 | 1.175 | 1.140 | 1.053 | 0.949 | 0.840 | 0.658 | 0.555 | 0.472 |
| 160 | 3.146 | 2.284 | 1.795 | 1.567 | 1.507 | 1.337 | 1.266 | 1.220 | 1.184 | 1.094 | 0.985 | 0.871 | 0.681 | 0.575 | 0.472 |
| 165 | 3.203 | 2.338 | 1.827 | 1.597 | 1.549 | 1.387 | 1.313 | 1.266 | 1.228 | 1.134 | 1.021 | 0.902 | 0.704 | 0.596 | 0.479 |
| 170 | 3.260 | 2.391 | 1.860 | 1.627 | 1.579 | 1.436 | 1.360 | 1.311 | 1.272 | 1.175 | 1.057 | 0.934 | 0.727 | 0.616 | 0.497 |
| 175 | 3.318 | 2.444 | 1.892 | 1.657 | 1.609 | 1.485 | 1.407 | 1.357 | 1.316 | 1.215 | 1.094 | 0.965 | 0.749 | 0.636 | 0.515 |
| 180 | 3.375 | 2.498 | 1.925 | 1.687 | 1.639 | 1.535 | 1.454 | 1.402 | 1.360 | 1.256 | 1.130 | 0.996 | 0.772 | 0.657 | 0.534 |
| 185 | 3.432 | 2.551 | 1.958 | 1.717 | 1.668 | 1.564 | 1.501 | 1.447 | 1.404 | 1.296 | 1.166 | 1.027 | 0.795 | 0.677 | 0.552 |
| 190 | 3.489 | 2.605 | 1.990 | 1.747 | 1.698 | 1.594 | 1.543 | 1.493 | 1.448 | 1.337 | 1.202 | 1.058 | 0.818 | 0.697 | 0.571 |
| 195 | 3.547 | 2.658 | 2.023 | 1.777 | 1.728 | 1.623 | 1.573 | 1.537 | 1.492 | 1.378 | 1.238 | 1.090 | 0.841 | 0.718 | 0.589 |
| 200 | 3.604 | 2.711 | 2.056 | 1.807 | 1.758 | 1.653 | 1.602 | 1.566 | 1.535 | 1.418 | 1.275 | 1.121 | 0.864 | 0.738 | 0.607 |
| 205 | 3.661 | 2.765 | 2.088 | 1.837 | 1.788 | 1.683 | 1.632 | 1.596 | 1.565 | 1.459 | 1.311 | 1.152 | 0.886 | 0.758 | 0.626 |
| 210 | 3.718 | 2.818 | 2.121 | 1.867 | 1.818 | 1.712 | 1.662 | 1.626 | 1.595 | 1.499 | 1.347 | 1.183 | 0.909 | 0.779 | 0.644 |
| 215 | 3.776 | 2.870 | 2.154 | 1.897 | 1.847 | 1.742 | 1.691 | 1.655 | 1.624 | 1.538 | 1.383 | 1.214 | 0.932 | 0.799 | 0.663 |
| 220 | 3.833 | 2.922 | 2.186 | 1.927 | 1.877 | 1.772 | 1.721 | 1.685 | 1.654 | 1.568 | 1.419 | 1.246 | 0.955 | 0.819 | 0.681 |
| 225 | 3.890 | 2.974 | 2.219 | 1.957 | 1.907 | 1.801 | 1.751 | 1.715 | 1.684 | 1.598 | 1.456 | 1.277 | 0.978 | 0.840 | 0.700 |
| 230 | 3.947 | 3.025 | 2.251 | 1.987 | 1.937 | 1.831 | 1.780 | 1.744 | 1.714 | 1.628 | 1.492 | 1.308 | 1.001 | 0.860 | 0.718 |
| 235 | 4.005 | 3.077 | 2.284 | 2.017 | 1.967 | 1.861 | 1.810 | 1.774 | 1.743 | 1.658 | 1.528 | 1.339 | 1.024 | 0.881 | 0.736 |
| 240 | 4.062 | 3.129 | 2.317 | 2.047 | 1.997 | 1.890 | 1.839 | 1.804 | 1.773 | 1.688 | 1.559 | 1.371 | 1.046 | 0.901 | 0.755 |
| 245 | 4.119 | 3.181 | 2.349 | 2.076 | 2.026 | 1.920 | 1.869 | 1.834 | 1.803 | 1.718 | 1.590 | 1.402 | 1.069 | 0.921 | 0.773 |
| 250 | 4.176 | 3.233 | 2.382 | 2.106 | 2.056 | 1.950 | 1.899 | 1.863 | 1.833 | 1.748 | 1.620 | 1.433 | 1.092 | 0.942 | 0.792 |
| 255 | 4.234 | 3.285 | 2.415 | 2.136 | 2.086 | 1.979 | 1.928 | 1.893 | 1.862 | 1.778 | 1.651 | 1.464 | 1.115 | 0.962 | 0.810 |
| 260 | 4.291 | 3.337 | 2.447 | 2.166 | 2.116 | 2.009 | 1.958 | 1.923 | 1.892 | 1.808 | 1.681 | 1.495 | 1.138 | 0.982 | 0.828 |
| 265 | 4.348 | 3.389 | 2.480 | 2.196 | 2.146 | 2.039 | 1.988 | 1.952 | 1.922 | 1.838 | 1.712 | 1.527 | 1.161 | 1.003 | 0.847 |
| 270 | 4.405 | 3.441 | 2.512 | 2.226 | 2.175 | 2.068 | 2.017 | 1.982 | 1.951 | 1.867 | 1.742 | 1.558 | 1.183 | 1.023 | 0.865 |
| 275 | 4.463 | 3.493 | 2.545 | 2.256 | 2.205 | 2.098 | 2.047 | 2.012 | 1.981 | 1.897 | 1.773 | 1.590 | 1.206 | 1.043 | 0.884 |
| 280 | 4.520 | 3.545 | 2.578 | 2.286 | 2.235 | 2.128 | 2.077 | 2.041 | 2.011 | 1.927 | 1.803 | 1.621 | 1.229 | 1.064 | 0.902 |
| 285 | 4.577 | 3.597 | 2.610 | 2.316 | 2.265 | 2.157 | 2.106 | 2.071 | 2.041 | 1.957 | 1.834 | 1.653 | 1.252 | 1.084 | 0.920 |
| 290 | 4.631 | 3.649 | 2.643 | 2.346 | 2.295 | 2.187 | 2.136 | 2.101 | 2.070 | 1.987 | 1.864 | 1.685 | 1.275 | 1.104 | 0.939 |
| 295 | 4.681 | 3.701 | 2.676 | 2.376 | 2.325 | 2.217 | 2.166 | 2.130 | 2.100 | 2.017 | 1.894 | 1.717 | 1.298 | 1.125 | 0.957 |
| 300 | 4.731 | 3.753 | 2.708 | 2.406 | 2.354 | 2.246 | 2.195 | 2.160 | 2.130 | 2.047 | 1.925 | 1.748 | 1.320 | 1.145 | 0.976 |
| 305 | 4.780 | 3.805 | 2.741 | 2.436 | 2.384 | 2.276 | 2.225 | 2.190 | 2.160 | 2.077 | 1.955 | 1.780 | 1.343 | 1.165 | 0.994 |
| 310 | 4.830 | 3.857 | 2.774 | 2.466 | 2.414 | 2.306 | 2.255 | 2.219 | 2.189 | 2.107 | 1.986 | 1.812 | 1.366 | 1.186 | 1.013 |
| 315 | 4.880 | 3.909 | 2.816 | 2.496 | 2.444 | 2.335 | 2.284 | 2.249 | 2.219 | 2.137 | 2.016 | 1.843 | 1.389 | 1.206 | 1.031 |
| 320 | 4.929 | 3.961 | 2.907 | 2.526 | 2.474 | 2.365 | 2.314 | 2.279 | 2.249 | 2.167 | 2.047 | 1.875 | 1.412 | 1.227 | 1.049 |
| 325 | 4.979 | 4.013 | 2.999 | 2.556 | 2.504 | 2.395 | 2.344 | 2.309 | 2.278 | 2.197 | 2.077 | 1.907 | 1.435 | 1.247 | 1.068 |
| 330 | 5.029 | 4.065 | 3.090 | 2.586 | 2.533 | 2.424 | 2.373 | 2.338 | 2.308 | 2.227 | 2.108 | 1.938 | 1.457 | 1.267 | 1.086 |
| 335 | 5.078 | 4.117 | 3.182 | 2.616 | 2.563 | 2.454 | 2.403 | 2.368 | 2.338 | 2.256 | 2.138 | 1.970 | 1.480 | 1.288 | 1.105 |
| 340 | 5.128 | 4.169 | 3.273 | 2.646 | 2.593 | 2.484 | 2.433 | 2.398 | 2.368 | 2.286 | 2.169 | 2.002 | 1.503 | 1.308 | 1.123 |
| 345 | 5.178 | 4.221 | 3.365 | 2.676 | 2.623 | 2.513 | 2.462 | 2.427 | 2.397 | 2.316 | 2.199 | 2.033 | 1.526 | 1.328 | 1.141 |
| 350 | 5.227 | 4.272 | 3.457 | 2.706 | 2.653 | 2.543 | 2.492 | 2.457 | 2.427 | 2.346 | 2.229 | 2.065 | 1.602 | 1.349 | 1.160 |
| 355 | 5.277 | 4.324 | 3.548 | 2.736 | 2.683 | 2.573 | 2.521 | 2.487 | 2.457 | 2.376 | 2.260 | 2.097 | 1.707 | 1.369 | 1.178 |
| 360 | 5.327 | 4.376 | 3.640 | 2.766 | 2.712 | 2.602 | 2.551 | 2.516 | 2.487 | 2.406 | 2.290 | 2.128 | 1.812 | 1.389 | 1.197 |
| 365 | 5.377 | 4.428 | 3.731 | 2.796 | 2.742 | 2.632 | 2.581 | 2.546 | 2.516 | 2.436 | 2.321 | 2.160 | 1.917 | 1.410 | 1.215 |
| 370 | 5.426 | 4.480 | 3.823 | 2.920 | 2.772 | 2.662 | 2.610 | 2.576 | 2.546 | 2.466 | 2.351 | 2.192 | 2.022 | 1.430 | 1.234 |
| 375 | 5.476 | 4.532 | 3.914 | 3.062 | 2.806 | 2.691 | 2.640 | 2.605 | 2.576 | 2.496 | 2.382 | 2.224 | 2.128 | 1.450 | 1.252 |
| 380 | 5.527 | 4.584 | 4.006 | 3.204 | 2.962 | 2.721 | 2.670 | 2.635 | 2.605 | 2.526 | 2.412 | 2.255 | 2.233 | 1.471 | 1.270 |
| 385 | 5.578 | 4.667 | 4.098 | 3.346 | 3.118 | 2.751 | 2.699 | 2.665 | 2.635 | 2.556 | 2.443 | 2.338 | 2.338 | 1.491 | 1.289 |
| 390 | 5.628 | 4.779 | 4.189 | 3.488 | 3.273 | 2.780 | 2.729 | 2.694 | 2.665 | 2.586 | 2.473 | 2.443 | 2.443 | 1.512 | 1.307 |
| 395 | 5.679 | 4.891 | 4.281 | 3.630 | 3.429 | 2.859 | 2.759 | 2.724 | 2.695 | 2.616 | 2.548 | 2.548 | 2.548 | 1.532 | 1.326 |
| 400 | 5.730 | 5.004 | 4.372 | 3.772 | 3.585 | 3.054 | 2.788 | 2.754 | 2.724 | 2.653 | 2.653 | 2.653 | 2.653 | 1.639 | 1.344 |
| 405 | 5.781 | 5.116 | 4.464 | 3.913 | 3.741 | 3.249 | 2.927 | 2.784 | 2.758 | 2.758 | 2.758 | 2.758 | 2.758 | 1.756 | 1.362 |
| 410 | 5.832 | 5.229 | 4.555 | 4.055 | 3.897 | 3.444 | 3.147 | 2.900 | 2.863 | 2.863 | 2.863 | 2.863 | 2.863 | 1.873 | 1.381 |
| 415 | 5.883 | 5.341 | 4.649 | 4.197 | 4.052 | 3.639 | 3.368 | 3.141 | 2.968 | 2.968 | 2.968 | 2.968 | 2.968 | 1.990 | 1.399 |
| 420 | 5.934 | 5.453 | 4.745 | 4.339 | 4.208 | 3.834 | 3.588 | 3.382 | 3.174 | 3.073 | 3.073 | 3.073 | 3.073 | 2.107 | 1.418 |
| 425 | 5.985 | 5.514 | 4.841 | 4.481 | 4.364 | 4.029 | 3.808 | 3.623 | 3.436 | 3.178 | 3.178 | 3.178 | 3.178 | 2.224 | 1.436 |
| 430 | 6.035 | 5.558 | 4.938 | 4.616 | 4.520 | 4.225 | 4.028 | 3.864 | 3.698 | 3.283 | 3.283 | 3.283 | 3.283 | 2.342 | 1.454 |
| 435 | 6.086 | 5.603 | 5.034 | 4.687 | 4.638 | 4.420 | 4.248 | 4.105 | 3.960 | 3.416 | 3.388 | 3.388 | 3.388 | 2.459 | 1.473 |
| 440 | 6.137 | 5.647 | 5.130 | 4.757 | 4.705 | 4.611 | 4.468 | 4.346 | 4.222 | 3.758 | 3.493 | 3.493 | 3.493 | 2.576 | 1.491 |
| 445 | 6.188 | 5.691 | 5.227 | 4.828 | 4.772 | 4.672 | 4.631 | 4.587 | 4.484 | 4.099 | 3.598 | 3.598 | 3.598 | 2.693 | 1.510 |
| 450 | 6.239 | 5.735 | 5.323 | 4.898 | 4.839 | 4.732 | 4.689 | 4.661 | 4.639 | 4.441 | 3.703 | 3.703 | 3.703 | 2.810 | 1.528 |
| 455 | 6.290 | 5.779 | 5.419 | 4.969 | 4.905 | 4.793 | 4.747 | 4.718 | 4.694 | 4.636 | 4.121 | 3.808 | 3.808 | 2.927 | 1.619 |
| 460 | 6.341 | 5.823 | 5.496 | 5.039 | 4.972 | 4.853 | 4.805 | 4.774 | 4.749 | 4.688 | 4.618 | 3.913 | 3.913 | 3.044 | 1.743 |
| 465 | 6.391 | 5.867 | 5.538 | 5.110 | 5.039 | 4.914 | 4.863 | 4.831 | 4.804 | 4.740 | 4.666 | 4.018 | 4.018 | 3.162 | 1.867 |
| 470 | 6.442 | 5.912 | 5.579 | 5.180 | 5.106 | 4.974 | 4.921 | 4.887 | 4.860 | 4.792 | 4.715 | 4.124 | 4.124 | 3.279 | 1.991 |
| 475 | 6.493 | 5.956 | 5.621 | 5.251 | 5.173 | 5.034 | 4.979 | 4.943 | 4.915 | 4.844 | 4.763 | 4.229 | 4.229 | 3.396 | 2.115 |

The thickness is intumescent only. Results also apply to I/H-section beams exposed on all four sides limited to a maximum protection thickness of 5.770 mm.

| Table 15 I-Section / H-Section Columns 75 minutes | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 510 | 530 | 539 | 545 | 550 | 563 | 580 | 600 | 650 | 700 | 750 |
| 50 | 1.602 | 1.117 | 0.817 | 0.595 | 0.556 | 0.481 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 55 | 1.754 | 1.241 | 0.908 | 0.660 | 0.617 | 0.534 | 0.499 | 0.478 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 60 | 1.905 | 1.369 | 1.008 | 0.744 | 0.697 | 0.609 | 0.571 | 0.549 | 0.531 | 0.490 | 0.472 | 0.472 | 0.472 | 0.472 | 0.472 |
| 65 | 2.057 | 1.496 | 1.108 | 0.827 | 0.778 | 0.684 | 0.644 | 0.620 | 0.601 | 0.556 | 0.505 | 0.472 | 0.472 | 0.472 | 0.472 |
| 70 | 2.208 | 1.605 | 1.209 | 0.910 | 0.858 | 0.759 | 0.716 | 0.691 | 0.670 | 0.622 | 0.566 | 0.508 | 0.472 | 0.472 | 0.472 |
| 75 | 2.360 | 1.706 | 1.309 | 0.994 | 0.939 | 0.834 | 0.789 | 0.761 | 0.740 | 0.688 | 0.627 | 0.564 | 0.472 | 0.472 | 0.472 |
| 80 | 2.511 | 1.807 | 1.410 | 1.077 | 1.019 | 0.909 | 0.862 | 0.832 | 0.809 | 0.753 | 0.687 | 0.619 | 0.488 | 0.472 | 0.472 |
| 85 | 2.663 | 1.907 | 1.510 | 1.160 | 1.099 | 0.983 | 0.934 | 0.903 | 0.879 | 0.819 | 0.748 | 0.674 | 0.530 | 0.472 | 0.472 |
| 90 | 2.810 | 2.008 | 1.588 | 1.244 | 1.180 | 1.058 | 1.007 | 0.974 | 0.948 | 0.885 | 0.809 | 0.730 | 0.572 | 0.472 | 0.472 |
| 95 | 2.909 | 2.109 | 1.659 | 1.327 | 1.260 | 1.133 | 1.080 | 1.045 | 1.018 | 0.951 | 0.870 | 0.785 | 0.614 | 0.496 | 0.472 |
| 100 | 3.009 | 2.210 | 1.730 | 1.410 | 1.341 | 1.208 | 1.152 | 1.116 | 1.087 | 1.016 | 0.931 | 0.840 | 0.656 | 0.526 | 0.472 |
| 105 | 3.108 | 2.310 | 1.800 | 1.494 | 1.421 | 1.283 | 1.225 | 1.187 | 1.157 | 1.082 | 0.992 | 0.895 | 0.698 | 0.557 | 0.472 |
| 110 | 3.208 | 2.411 | 1.871 | 1.560 | 1.502 | 1.358 | 1.297 | 1.258 | 1.226 | 1.148 | 1.053 | 0.951 | 0.740 | 0.588 | 0.479 |
| 115 | 3.307 | 2.512 | 1.942 | 1.610 | 1.562 | 1.433 | 1.370 | 1.329 | 1.296 | 1.214 | 1.114 | 1.006 | 0.782 | 0.619 | 0.502 |
| 120 | 3.407 | 2.613 | 2.013 | 1.660 | 1.608 | 1.508 | 1.443 | 1.400 | 1.365 | 1.280 | 1.174 | 1.061 | 0.824 | 0.650 | 0.526 |
| 125 | 3.506 | 2.713 | 2.084 | 1.710 | 1.654 | 1.560 | 1.515 | 1.471 | 1.435 | 1.345 | 1.235 | 1.116 | 0.866 | 0.680 | 0.549 |
| 130 | 3.606 | 2.810 | 2.155 | 1.759 | 1.701 | 1.599 | 1.561 | 1.538 | 1.504 | 1.411 | 1.296 | 1.172 | 0.908 | 0.711 | 0.572 |
| 135 | 3.706 | 2.880 | 2.226 | 1.809 | 1.747 | 1.639 | 1.598 | 1.573 | 1.553 | 1.477 | 1.357 | 1.227 | 0.950 | 0.742 | 0.596 |
| 140 | 3.805 | 2.951 | 2.297 | 1.859 | 1.793 | 1.679 | 1.634 | 1.607 | 1.586 | 1.538 | 1.418 | 1.282 | 0.992 | 0.773 | 0.619 |
| 145 | 3.905 | 3.021 | 2.367 | 1.909 | 1.840 | 1.718 | 1.671 | 1.642 | 1.620 | 1.571 | 1.479 | 1.338 | 1.034 | 0.803 | 0.642 |
| 150 | 4.004 | 3.092 | 2.438 | 1.959 | 1.886 | 1.758 | 1.708 | 1.677 | 1.653 | 1.603 | 1.537 | 1.393 | 1.076 | 0.834 | 0.665 |
| 155 | 4.104 | 3.162 | 2.509 | 2.009 | 1.932 | 1.797 | 1.744 | 1.712 | 1.686 | 1.635 | 1.569 | 1.448 | 1.118 | 0.865 | 0.689 |
| 160 | 4.203 | 3.232 | 2.580 | 2.059 | 1.979 | 1.837 | 1.781 | 1.747 | 1.719 | 1.668 | 1.601 | 1.503 | 1.160 | 0.896 | 0.712 |
| 165 | 4.303 | 3.303 | 2.651 | 2.109 | 2.025 | 1.876 | 1.818 | 1.781 | 1.753 | 1.700 | 1.633 | 1.548 | 1.202 | 0.926 | 0.735 |
| 170 | 4.403 | 3.373 | 2.722 | 2.159 | 2.071 | 1.916 | 1.854 | 1.816 | 1.786 | 1.732 | 1.664 | 1.579 | 1.244 | 0.957 | 0.759 |
| 175 | 4.502 | 3.443 | 2.793 | 2.209 | 2.118 | 1.955 | 1.891 | 1.851 | 1.819 | 1.765 | 1.696 | 1.611 | 1.286 | 0.988 | 0.782 |
| 180 | 4.602 | 3.514 | 2.851 | 2.259 | 2.164 | 1.995 | 1.928 | 1.886 | 1.853 | 1.797 | 1.728 | 1.642 | 1.328 | 1.019 | 0.805 |
| 185 | 4.648 | 3.584 | 2.908 | 2.309 | 2.210 | 2.034 | 1.964 | 1.921 | 1.886 | 1.829 | 1.760 | 1.673 | 1.370 | 1.049 | 0.829 |
| 190 | 4.689 | 3.654 | 2.965 | 2.359 | 2.257 | 2.074 | 2.001 | 1.955 | 1.919 | 1.862 | 1.792 | 1.705 | 1.412 | 1.080 | 0.852 |
| 195 | 4.730 | 3.725 | 3.021 | 2.409 | 2.303 | 2.114 | 2.037 | 1.990 | 1.953 | 1.894 | 1.823 | 1.736 | 1.454 | 1.111 | 0.875 |
| 200 | 4.771 | 3.795 | 3.078 | 2.459 | 2.350 | 2.153 | 2.074 | 2.025 | 1.986 | 1.926 | 1.855 | 1.767 | 1.496 | 1.142 | 0.898 |
| 205 | 4.812 | 3.865 | 3.135 | 2.509 | 2.396 | 2.193 | 2.111 | 2.060 | 2.019 | 1.959 | 1.887 | 1.799 | 1.540 | 1.172 | 0.922 |
| 210 | 4.853 | 3.936 | 3.192 | 2.559 | 2.442 | 2.232 | 2.147 | 2.095 | 2.052 | 1.991 | 1.919 | 1.830 | 1.616 | 1.203 | 0.945 |
| 215 | 4.895 | 4.006 | 3.248 | 2.609 | 2.489 | 2.272 | 2.184 | 2.129 | 2.086 | 2.023 | 1.951 | 1.861 | 1.692 | 1.234 | 0.968 |
| 220 | 4.936 | 4.076 | 3.305 | 2.658 | 2.535 | 2.311 | 2.221 | 2.164 | 2.119 | 2.056 | 1.983 | 1.893 | 1.769 | 1.265 | 0.992 |
| 225 | 4.977 | 4.147 | 3.362 | 2.708 | 2.581 | 2.351 | 2.257 | 2.199 | 2.152 | 2.088 | 2.014 | 1.924 | 1.845 | 1.295 | 1.015 |
| 230 | 5.018 | 4.217 | 3.418 | 2.758 | 2.628 | 2.390 | 2.294 | 2.234 | 2.186 | 2.120 | 2.046 | 1.955 | 1.921 | 1.326 | 1.038 |
| 235 | 5.059 | 4.287 | 3.475 | 2.812 | 2.674 | 2.430 | 2.331 | 2.269 | 2.219 | 2.153 | 2.078 | 1.997 | 1.997 | 1.357 | 1.062 |
| 240 | 5.100 | 4.358 | 3.532 | 2.884 | 2.720 | 2.469 | 2.367 | 2.303 | 2.252 | 2.185 | 2.110 | 2.073 | 2.073 | 1.388 | 1.085 |
| 245 | 5.141 | 4.428 | 3.589 | 2.956 | 2.767 | 2.509 | 2.404 | 2.338 | 2.285 | 2.217 | 2.149 | 2.149 | 2.149 | 1.418 | 1.108 |
| 250 | 5.182 | 4.498 | 3.645 | 3.028 | 2.821 | 2.549 | 2.440 | 2.373 | 2.319 | 2.250 | 2.225 | 2.225 | 2.225 | 1.449 | 1.131 |
| 255 | 5.224 | 4.569 | 3.702 | 3.100 | 2.900 | 2.588 | 2.477 | 2.408 | 2.352 | 2.301 | 2.301 | 2.301 | 2.301 | 1.480 | 1.155 |
| 260 | 5.265 | 4.628 | 3.759 | 3.171 | 2.978 | 2.628 | 2.514 | 2.443 | 2.385 | 2.377 | 2.377 | 2.377 | 2.377 | 1.511 | 1.178 |
| 265 | 5.306 | 4.671 | 3.816 | 3.243 | 3.057 | 2.667 | 2.550 | 2.477 | 2.453 | 2.453 | 2.453 | 2.453 | 2.453 | 1.558 | 1.201 |
| 270 | 5.347 | 4.715 | 3.872 | 3.315 | 3.135 | 2.707 | 2.587 | 2.529 | 2.529 | 2.529 | 2.529 | 2.529 | 2.529 | 1.658 | 1.225 |
| 275 | 5.388 | 4.758 | 3.929 | 3.387 | 3.213 | 2.746 | 2.624 | 2.605 | 2.605 | 2.605 | 2.605 | 2.605 | 2.605 | 1.758 | 1.248 |
| 280 | 5.429 | 4.801 | 3.986 | 3.459 | 3.292 | 2.786 | 2.681 | 2.681 | 2.681 | 2.681 | 2.681 | 2.681 | 2.681 | 1.858 | 1.271 |
| 285 | 5.470 | 4.845 | 4.043 | 3.531 | 3.370 | 2.863 | 2.757 | 2.757 | 2.757 | 2.757 | 2.757 | 2.757 | 2.757 | 1.958 | 1.295 |
| 290 | 5.525 | 4.888 | 4.099 | 3.603 | 3.449 | 2.964 | 2.833 | 2.833 | 2.833 | 2.833 | 2.833 | 2.833 | 2.833 | 2.057 | 1.318 |
| 295 | 5.583 | 4.931 | 4.156 | 3.675 | 3.527 | 3.064 | 2.909 | 2.909 | 2.909 | 2.909 | 2.909 | 2.909 | 2.909 | 2.157 | 1.341 |
| 300 | 5.642 | 4.974 | 4.213 | 3.747 | 3.605 | 3.165 | 2.986 | 2.986 | 2.986 | 2.986 | 2.986 | 2.986 | 2.986 | 2.257 | 1.364 |
| 305 | 5.701 | 5.018 | 4.270 | 3.819 | 3.684 | 3.266 | 3.062 | 3.062 | 3.062 | 3.062 | 3.062 | 3.062 | 3.062 | 2.357 | 1.388 |
| 310 | 5.760 | 5.061 | 4.326 | 3.891 | 3.762 | 3.366 | 3.138 | 3.138 | 3.138 | 3.138 | 3.138 | 3.138 | 3.138 | 2.456 | 1.411 |
| 315 | 5.818 | 5.104 | 4.383 | 3.963 | 3.841 | 3.467 | 3.214 | 3.214 | 3.214 | 3.214 | 3.214 | 3.214 | 3.214 | 2.556 | 1.434 |
| 320 | 5.877 | 5.148 | 4.440 | 4.035 | 3.919 | 3.568 | 3.297 | 3.290 | 3.290 | 3.290 | 3.290 | 3.290 | 3.290 | 2.656 | 1.458 |
| 325 | 5.936 | 5.191 | 4.497 | 4.107 | 3.997 | 3.668 | 3.416 | 3.366 | 3.366 | 3.366 | 3.366 | 3.366 | 3.366 | 2.756 | 1.481 |
| 330 | 5.995 | 5.234 | 4.553 | 4.179 | 4.076 | 3.769 | 3.535 | 3.442 | 3.442 | 3.442 | 3.442 | 3.442 | 3.442 | 2.855 | 1.504 |
| 335 | 6.054 | 5.278 | 4.610 | 4.251 | 4.154 | 3.870 | 3.655 | 3.518 | 3.518 | 3.518 | 3.518 | 3.518 | 3.518 | 2.955 | 1.528 |
| 340 | 6.112 | 5.321 | 4.697 | 4.323 | 4.233 | 3.970 | 3.774 | 3.594 | 3.594 | 3.594 | 3.594 | 3.594 | 3.594 | 3.055 | 1.654 |
| 345 | 6.171 | 5.364 | 4.783 | 4.395 | 4.311 | 4.071 | 3.893 | 3.724 | 3.670 | 3.670 | 3.670 | 3.670 | 3.670 | 3.155 | 1.821 |
| 350 | 6.230 | 5.408 | 4.870 | 4.467 | 4.390 | 4.172 | 4.013 | 3.862 | 3.746 | 3.746 | 3.746 | 3.746 | 3.746 | 3.255 | 1.987 |
| 355 | 6.289 | 5.451 | 4.957 | 4.539 | 4.468 | 4.272 | 4.132 | 4.000 | 3.845 | 3.822 | 3.822 | 3.822 | 3.822 | 3.354 | 2.154 |
| 360 | 6.347 | 5.501 | 5.043 | 4.612 | 4.546 | 4.373 | 4.251 | 4.138 | 4.006 | 3.898 | 3.898 | 3.898 | 3.898 | 3.454 | 2.321 |
| 365 | 6.406 | 5.564 | 5.130 | 4.712 | 4.629 | 4.474 | 4.370 | 4.275 | 4.166 | 3.974 | 3.974 | 3.974 | 3.974 | 3.554 | 2.487 |
| 370 | 6.465 | 5.628 | 5.217 | 4.812 | 4.732 | 4.574 | 4.490 | 4.413 | 4.326 | 4.113 | 4.050 | 4.050 | 4.050 | 3.654 | 2.654 |
| 375 | 6.524 | 5.692 | 5.303 | 4.913 | 4.834 | 4.678 | 4.609 | 4.551 | 4.486 | 4.302 | 4.126 | 4.126 | 4.126 | 3.753 | 2.820 |
| 380 | 6.582 | 5.756 | 5.390 | 5.013 | 4.937 | 4.785 | 4.717 | 4.672 | 4.635 | 4.491 | 4.231 | 4.202 | 4.202 | 3.853 | 2.987 |
| 385 | 6.641 | 5.820 | 5.476 | 5.113 | 5.039 | 4.891 | 4.824 | 4.780 | 4.744 | 4.651 | 4.459 | 4.279 | 4.279 | 3.953 | 3.154 |
| 390 | 6.700 | 5.884 | 5.537 | 5.214 | 5.142 | 4.997 | 4.932 | 4.889 | 4.853 | 4.761 | 4.644 | 4.361 | 4.355 | 4.053 | 3.320 |
| 395 | 6.759 | 5.948 | 5.596 | 5.314 | 5.244 | 5.103 | 5.040 | 4.997 | 4.962 | 4.872 | 4.744 | 4.628 | 4.431 | 4.152 | 3.487 |
| 400 | 6.818 | 6.011 | 5.655 | 5.414 | 5.346 | 5.209 | 5.147 | 5.106 | 5.072 | 4.982 | 4.845 | 4.716 | 4.507 | 4.252 | 3.654 |
| 405 | 6.876 | 6.075 | 5.714 | 5.499 | 5.449 | 5.315 | 5.255 | 5.214 | 5.181 | 5.093 | 4.946 | 4.804 | 4.583 | 4.352 | 3.820 |
| 410 | 6.935 | 6.139 | 5.773 | 5.553 | 5.517 | 5.421 | 5.362 | 5.323 | 5.290 | 5.203 | 5.047 | 4.893 | 4.650 | 4.452 | 3.987 |
| 415 | 6.994 | 6.203 | 5.832 | 5.607 | 5.570 | 5.503 | 5.470 | 5.431 | 5.399 | 5.314 | 5.147 | 4.981 | 4.713 | 4.552 | 4.153 |
| 420 | 7.053 | 6.267 | 5.891 | 5.661 | 5.623 | 5.554 | 5.526 | 5.508 | 5.493 | 5.424 | 5.248 | 5.069 | 4.775 | 4.628 | 4.320 |
| 425 | 7.111 | 6.331 | 5.950 | 5.715 | 5.676 | 5.605 | 5.576 | 5.557 | 5.542 | 5.504 | 5.349 | 5.157 | 4.838 | 4.670 | 4.487 |
| 430 | 7.170 | 6.395 | 6.010 | 5.769 | 5.729 | 5.656 | 5.626 | 5.607 | 5.591 | 5.551 | 5.450 | 5.246 | 4.900 | 4.713 | 4.618 |
| 435 | 7.229 | 6.458 | 6.069 | 5.823 | 5.782 | 5.707 | 5.676 | 5.656 | 5.640 | 5.599 | 5.513 | 5.334 | 4.963 | 4.756 | 4.647 |
| 440 | 7.288 | 6.522 | 6.128 | 5.877 | 5.835 | 5.758 | 5.726 | 5.705 | 5.688 | 5.646 | 5.560 | 5.422 | 5.025 | 4.799 | 4.676 |
| 445 | 7.346 | 6.586 | 6.187 | 5.931 | 5.888 | 5.809 | 5.776 | 5.755 | 5.737 | 5.694 | 5.606 | 5.496 | 5.088 | 4.841 | 4.705 |
| 450 | 7.405 | 6.650 | 6.246 | 5.985 | 5.941 | 5.860 | 5.826 | 5.804 | 5.786 | 5.741 | 5.652 | 5.542 | 5.150 | 4.884 | 4.734 |
| 455 | 7.464 | 6.714 | 6.305 | 6.039 | 5.994 | 5.911 | 5.876 | 5.853 | 5.835 | 5.789 | 5.699 | 5.587 | 5.213 | 4.927 | 4.763 |
| 460 | - | 6.778 | 6.364 | 6.093 | 6.047 | 5.962 | 5.926 | 5.903 | 5.884 | 5.836 | 5.745 | 5.633 | 5.275 | 4.969 | 4.793 |
| 465 | - | 6.842 | 6.423 | 6.147 | 6.100 | 6.013 | 5.976 | 5.952 | 5.932 | 5.884 | 5.792 | 5.679 | 5.338 | 5.012 | 4.822 |
| 470 | - | 6.905 | 6.482 | 6.201 | 6.153 | 6.064 | 6.026 | 6.002 | 5.981 | 5.931 | 5.838 | 5.724 | 5.400 | 5.055 | 4.851 |
| 475 | - | 6.969 | 6.541 | 6.255 | 6.206 | 6.115 | 6.076 | 6.051 | 6.030 | 5.978 | 5.885 | 5.770 | 5.463 | 5.097 | 4.880 |

The thickness is intumescent only. Results also apply to I/H-section beams exposed on all four sides, limited to a maximum protection thickness of 5.770 mm.

| Table 16 I-Section / H-Section Columns 90 minutes | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 510 | 530 | 539 | 545 | 550 | 563 | 580 | 600 | 650 | 700 | 750 |
| 50 | 2.072 | 1.472 | 1.097 | 0.846 | 0.803 | 0.721 | 0.686 | 0.665 | 0.649 | 0.606 | 0.554 | 0.495 | 0.472 | 0.472 | 0.472 |
| 55 | 2.271 | 1.624 | 1.219 | 0.940 | 0.892 | 0.800 | 0.762 | 0.739 | 0.720 | 0.673 | 0.614 | 0.550 | 0.472 | 0.472 | 0.472 |
| 60 | 2.469 | 1.775 | 1.348 | 1.048 | 0.997 | 0.899 | 0.859 | 0.833 | 0.813 | 0.762 | 0.699 | 0.629 | 0.481 | 0.472 | 0.472 |
| 65 | 2.668 | 1.927 | 1.477 | 1.157 | 1.102 | 0.999 | 0.955 | 0.928 | 0.906 | 0.852 | 0.783 | 0.708 | 0.547 | 0.472 | 0.472 |
| 70 | 2.836 | 2.079 | 1.598 | 1.266 | 1.208 | 1.098 | 1.052 | 1.023 | 0.999 | 0.941 | 0.868 | 0.787 | 0.613 | 0.489 | 0.472 |
| 75 | 2.944 | 2.231 | 1.714 | 1.375 | 1.313 | 1.197 | 1.148 | 1.117 | 1.092 | 1.030 | 0.952 | 0.866 | 0.679 | 0.543 | 0.472 |
| 80 | 3.051 | 2.383 | 1.830 | 1.483 | 1.419 | 1.296 | 1.245 | 1.212 | 1.186 | 1.119 | 1.037 | 0.945 | 0.745 | 0.596 | 0.472 |
| 85 | 3.159 | 2.534 | 1.946 | 1.581 | 1.524 | 1.395 | 1.342 | 1.307 | 1.279 | 1.209 | 1.121 | 1.024 | 0.811 | 0.649 | 0.513 |
| 90 | 3.266 | 2.686 | 2.062 | 1.669 | 1.609 | 1.495 | 1.438 | 1.401 | 1.372 | 1.298 | 1.205 | 1.103 | 0.877 | 0.702 | 0.556 |
| 95 | 3.374 | 2.826 | 2.178 | 1.757 | 1.692 | 1.579 | 1.535 | 1.496 | 1.465 | 1.387 | 1.290 | 1.182 | 0.943 | 0.755 | 0.598 |
| 100 | 3.481 | 2.931 | 2.294 | 1.845 | 1.775 | 1.652 | 1.604 | 1.574 | 1.551 | 1.476 | 1.374 | 1.262 | 1.009 | 0.808 | 0.641 |
| 105 | 3.589 | 3.035 | 2.410 | 1.933 | 1.858 | 1.726 | 1.674 | 1.641 | 1.615 | 1.555 | 1.459 | 1.341 | 1.075 | 0.862 | 0.683 |
| 110 | 3.696 | 3.139 | 2.526 | 2.021 | 1.942 | 1.800 | 1.743 | 1.708 | 1.680 | 1.614 | 1.540 | 1.420 | 1.141 | 0.915 | 0.726 |
| 115 | 3.804 | 3.243 | 2.642 | 2.108 | 2.025 | 1.874 | 1.813 | 1.775 | 1.745 | 1.674 | 1.593 | 1.499 | 1.207 | 0.968 | 0.768 |
| 120 | 3.911 | 3.347 | 2.758 | 2.196 | 2.108 | 1.948 | 1.882 | 1.842 | 1.810 | 1.734 | 1.646 | 1.559 | 1.273 | 1.021 | 0.811 |
| 125 | 4.019 | 3.451 | 2.854 | 2.284 | 2.191 | 2.022 | 1.952 | 1.909 | 1.875 | 1.793 | 1.699 | 1.605 | 1.339 | 1.074 | 0.853 |
| 130 | 4.126 | 3.556 | 2.938 | 2.372 | 2.274 | 2.096 | 2.022 | 1.976 | 1.940 | 1.853 | 1.752 | 1.651 | 1.405 | 1.127 | 0.896 |
| 135 | 4.234 | 3.660 | 3.021 | 2.460 | 2.357 | 2.170 | 2.091 | 2.043 | 2.005 | 1.912 | 1.805 | 1.697 | 1.471 | 1.181 | 0.939 |
| 140 | 4.342 | 3.764 | 3.105 | 2.548 | 2.440 | 2.244 | 2.161 | 2.110 | 2.070 | 1.972 | 1.858 | 1.742 | 1.535 | 1.234 | 0.981 |
| 145 | 4.449 | 3.868 | 3.189 | 2.636 | 2.523 | 2.318 | 2.230 | 2.177 | 2.134 | 2.031 | 1.911 | 1.788 | 1.568 | 1.287 | 1.024 |
| 150 | 4.557 | 3.972 | 3.273 | 2.724 | 2.606 | 2.391 | 2.300 | 2.244 | 2.199 | 2.091 | 1.964 | 1.834 | 1.601 | 1.340 | 1.066 |
| 155 | 4.711 | 4.076 | 3.356 | 2.810 | 2.689 | 2.465 | 2.370 | 2.311 | 2.264 | 2.151 | 2.017 | 1.880 | 1.633 | 1.393 | 1.109 |
| 160 | 4.913 | 4.181 | 3.440 | 2.880 | 2.772 | 2.539 | 2.439 | 2.378 | 2.329 | 2.210 | 2.070 | 1.925 | 1.666 | 1.446 | 1.151 |
| 165 | 5.114 | 4.285 | 3.524 | 2.950 | 2.846 | 2.613 | 2.509 | 2.445 | 2.394 | 2.270 | 2.123 | 1.971 | 1.698 | 1.500 | 1.194 |
| 170 | 5.316 | 4.389 | 3.608 | 3.020 | 2.913 | 2.687 | 2.578 | 2.512 | 2.459 | 2.329 | 2.176 | 2.017 | 1.731 | 1.545 | 1.237 |
| 175 | 5.495 | 4.493 | 3.691 | 3.090 | 2.981 | 2.761 | 2.648 | 2.579 | 2.524 | 2.389 | 2.229 | 2.062 | 1.763 | 1.576 | 1.279 |
| 180 | 5.570 | 4.597 | 3.775 | 3.160 | 3.049 | 2.830 | 2.717 | 2.646 | 2.589 | 2.448 | 2.282 | 2.108 | 1.796 | 1.607 | 1.322 |
| 185 | 5.645 | 4.650 | 3.859 | 3.231 | 3.117 | 2.894 | 2.787 | 2.713 | 2.653 | 2.508 | 2.335 | 2.154 | 1.828 | 1.638 | 1.364 |
| 190 | 5.721 | 4.696 | 3.943 | 3.301 | 3.185 | 2.958 | 2.852 | 2.780 | 2.718 | 2.567 | 2.388 | 2.200 | 1.861 | 1.668 | 1.407 |
| 195 | 5.796 | 4.742 | 4.026 | 3.371 | 3.253 | 3.022 | 2.915 | 2.846 | 2.783 | 2.627 | 2.441 | 2.245 | 1.894 | 1.699 | 1.449 |
| 200 | 5.871 | 4.788 | 4.110 | 3.441 | 3.321 | 3.086 | 2.979 | 2.910 | 2.849 | 2.687 | 2.494 | 2.291 | 1.926 | 1.730 | 1.492 |
| 205 | 5.947 | 4.834 | 4.194 | 3.511 | 3.389 | 3.150 | 3.043 | 2.975 | 2.915 | 2.746 | 2.547 | 2.337 | 1.959 | 1.761 | 1.535 |
| 210 | 6.022 | 4.879 | 4.278 | 3.582 | 3.457 | 3.213 | 3.106 | 3.040 | 2.982 | 2.807 | 2.600 | 2.383 | 1.991 | 1.792 | 1.615 |
| 215 | 6.098 | 4.925 | 4.361 | 3.652 | 3.525 | 3.277 | 3.170 | 3.105 | 3.048 | 2.877 | 2.653 | 2.428 | 2.024 | 1.823 | 1.696 |
| 220 | 6.173 | 4.971 | 4.445 | 3.722 | 3.592 | 3.341 | 3.233 | 3.170 | 3.114 | 2.947 | 2.706 | 2.474 | 2.056 | 1.854 | 1.776 |
| 225 | 6.248 | 5.017 | 4.529 | 3.792 | 3.660 | 3.405 | 3.297 | 3.235 | 3.180 | 3.017 | 2.759 | 2.520 | 2.089 | 1.885 | 1.856 |
| 230 | 6.324 | 5.063 | 4.611 | 3.862 | 3.728 | 3.469 | 3.360 | 3.300 | 3.246 | 3.088 | 2.817 | 2.566 | 2.121 | 1.937 | 1.937 |
| 235 | 6.399 | 5.108 | 4.651 | 3.932 | 3.796 | 3.533 | 3.424 | 3.365 | 3.313 | 3.158 | 2.895 | 2.611 | 2.154 | 2.017 | 2.017 |
| 240 | 6.474 | 5.154 | 4.690 | 4.003 | 3.864 | 3.597 | 3.488 | 3.430 | 3.379 | 3.228 | 2.973 | 2.657 | 2.187 | 2.098 | 2.098 |
| 245 | 6.550 | 5.200 | 4.729 | 4.073 | 3.932 | 3.660 | 3.551 | 3.495 | 3.445 | 3.299 | 3.051 | 2.703 | 2.219 | 2.178 | 2.178 |
| 250 | 6.625 | 5.246 | 4.769 | 4.143 | 4.000 | 3.724 | 3.615 | 3.560 | 3.511 | 3.369 | 3.129 | 2.748 | 2.259 | 2.259 | 2.259 |
| 255 | 6.700 | 5.292 | 4.808 | 4.213 | 4.068 | 3.788 | 3.678 | 3.625 | 3.578 | 3.439 | 3.207 | 2.794 | 2.339 | 2.339 | 2.339 |
| 260 | 6.776 | 5.338 | 4.848 | 4.283 | 4.136 | 3.852 | 3.742 | 3.690 | 3.644 | 3.509 | 3.285 | 2.881 | 2.419 | 2.419 | 2.419 |
| 265 | 6.851 | 5.383 | 4.887 | 4.354 | 4.204 | 3.916 | 3.806 | 3.755 | 3.710 | 3.580 | 3.363 | 2.975 | 2.500 | 2.500 | 2.500 |
| 270 | 6.927 | 5.429 | 4.926 | 4.424 | 4.271 | 3.980 | 3.869 | 3.820 | 3.776 | 3.650 | 3.442 | 3.069 | 2.580 | 2.580 | 2.580 |
| 275 | 7.002 | 5.475 | 4.966 | 4.494 | 4.339 | 4.044 | 3.933 | 3.885 | 3.843 | 3.720 | 3.520 | 3.162 | 2.661 | 2.661 | 2.661 |
| 280 | 7.077 | 5.545 | 5.005 | 4.564 | 4.407 | 4.107 | 3.996 | 3.950 | 3.909 | 3.791 | 3.598 | 3.256 | 2.741 | 2.741 | 2.741 |
| 285 | 7.153 | 5.618 | 5.044 | 4.630 | 4.475 | 4.171 | 4.060 | 4.015 | 3.975 | 3.861 | 3.676 | 3.350 | 2.822 | 2.822 | 2.822 |
| 290 | 7.228 | 5.692 | 5.084 | 4.687 | 4.543 | 4.235 | 4.124 | 4.080 | 4.041 | 3.931 | 3.754 | 3.444 | 2.902 | 2.902 | 2.902 |
| 295 | 7.303 | 5.765 | 5.123 | 4.744 | 4.611 | 4.299 | 4.187 | 4.144 | 4.107 | 4.001 | 3.832 | 3.538 | 2.982 | 2.982 | 2.982 |
| 300 | 7.379 | 5.839 | 5.163 | 4.801 | 4.675 | 4.363 | 4.251 | 4.209 | 4.174 | 4.072 | 3.910 | 3.631 | 3.063 | 3.063 | 3.063 |
| 305 | 7.454 | 5.912 | 5.202 | 4.858 | 4.738 | 4.427 | 4.314 | 4.274 | 4.240 | 4.142 | 3.988 | 3.725 | 3.143 | 3.143 | 3.143 |
| 310 | - | 5.986 | 5.241 | 4.915 | 4.802 | 4.491 | 4.378 | 4.339 | 4.306 | 4.212 | 4.066 | 3.819 | 3.224 | 3.224 | 3.224 |
| 315 | - | 6.059 | 5.281 | 4.971 | 4.866 | 4.555 | 4.441 | 4.404 | 4.372 | 4.283 | 4.144 | 3.913 | 3.304 | 3.304 | 3.304 |
| 320 | - | 6.133 | 5.320 | 5.028 | 4.930 | 4.621 | 4.505 | 4.469 | 4.439 | 4.353 | 4.222 | 4.007 | 3.385 | 3.385 | 3.385 |
| 325 | - | 6.206 | 5.359 | 5.085 | 4.993 | 4.707 | 4.569 | 4.534 | 4.505 | 4.423 | 4.300 | 4.100 | 3.465 | 3.465 | 3.465 |
| 330 | - | 6.280 | 5.399 | 5.142 | 5.057 | 4.793 | 4.644 | 4.599 | 4.571 | 4.494 | 4.378 | 4.194 | 3.545 | 3.545 | 3.545 |
| 335 | - | 6.353 | 5.438 | 5.199 | 5.121 | 4.879 | 4.741 | 4.692 | 4.651 | 4.564 | 4.456 | 4.288 | 3.626 | 3.626 | 3.626 |
| 340 | - | 6.427 | 5.478 | 5.256 | 5.185 | 4.965 | 4.839 | 4.791 | 4.751 | 4.645 | 4.534 | 4.382 | 3.706 | 3.706 | 3.706 |
| 345 | - | 6.500 | 5.558 | 5.313 | 5.248 | 5.051 | 4.936 | 4.890 | 4.851 | 4.748 | 4.613 | 4.476 | 3.787 | 3.787 | 3.787 |
| 350 | - | 6.574 | 5.642 | 5.370 | 5.312 | 5.137 | 5.033 | 4.988 | 4.951 | 4.851 | 4.719 | 4.570 | 3.867 | 3.867 | 3.867 |
| 355 | - | 6.647 | 5.726 | 5.427 | 5.376 | 5.223 | 5.131 | 5.087 | 5.051 | 4.953 | 4.825 | 4.672 | 3.948 | 3.948 | 3.948 |
| 360 | - | 6.721 | 5.810 | 5.485 | 5.440 | 5.308 | 5.228 | 5.186 | 5.150 | 5.056 | 4.931 | 4.781 | 4.159 | 4.028 | 4.028 |
| 365 | - | 6.794 | 5.894 | 5.564 | 5.508 | 5.394 | 5.325 | 5.285 | 5.250 | 5.159 | 5.037 | 4.890 | 4.423 | 4.108 | 4.108 |
| 370 | - | 6.868 | 5.978 | 5.643 | 5.586 | 5.480 | 5.423 | 5.383 | 5.350 | 5.261 | 5.142 | 4.999 | 4.643 | 4.189 | 4.189 |
| 375 | - | 6.941 | 6.062 | 5.722 | 5.664 | 5.556 | 5.511 | 5.482 | 5.450 | 5.364 | 5.248 | 5.108 | 4.757 | 4.269 | 4.269 |
| 380 | - | 7.015 | 6.146 | 5.801 | 5.742 | 5.631 | 5.585 | 5.555 | 5.531 | 5.467 | 5.354 | 5.217 | 4.870 | 4.350 | 4.350 |
| 385 | - | 7.088 | 6.230 | 5.880 | 5.820 | 5.707 | 5.659 | 5.629 | 5.604 | 5.542 | 5.460 | 5.326 | 4.984 | 4.656 | 4.430 |
| 390 | - | 7.161 | 6.314 | 5.959 | 5.897 | 5.782 | 5.734 | 5.703 | 5.677 | 5.613 | 5.536 | 5.436 | 5.097 | 4.767 | 4.510 |
| 395 | - | 7.235 | 6.398 | 6.038 | 5.975 | 5.858 | 5.808 | 5.776 | 5.750 | 5.684 | 5.605 | 5.519 | 5.211 | 4.879 | 4.591 |
| 400 | - | 7.308 | 6.482 | 6.117 | 6.053 | 5.933 | 5.882 | 5.850 | 5.823 | 5.755 | 5.673 | 5.585 | 5.324 | 4.990 | 4.662 |
| 405 | - | 7.382 | 6.567 | 6.196 | 6.131 | 6.009 | 5.957 | 5.923 | 5.895 | 5.827 | 5.742 | 5.651 | 5.438 | 5.101 | 4.729 |
| 410 | - | 7.455 | 6.651 | 6.275 | 6.209 | 6.084 | 6.031 | 5.997 | 5.968 | 5.898 | 5.811 | 5.717 | 5.517 | 5.213 | 4.797 |
| 415 | - | - | 6.735 | 6.354 | 6.286 | 6.159 | 6.105 | 6.070 | 6.041 | 5.969 | 5.879 | 5.783 | 5.575 | 5.324 | 4.865 |
| 420 | - | - | 6.819 | 6.433 | 6.364 | 6.235 | 6.180 | 6.144 | 6.114 | 6.040 | 5.948 | 5.849 | 5.633 | 5.436 | 4.932 |
| 425 | - | - | 6.903 | 6.512 | 6.442 | 6.310 | 6.254 | 6.217 | 6.187 | 6.111 | 6.017 | 5.914 | 5.690 | 5.510 | 5.000 |
| 430 | - | - | 6.987 | 6.591 | 6.520 | 6.386 | 6.328 | 6.291 | 6.260 | 6.182 | 6.085 | 5.980 | 5.748 | 5.559 | 5.068 |
| 435 | - | - | 7.071 | 6.670 | 6.598 | 6.461 | 6.403 | 6.364 | 6.332 | 6.253 | 6.154 | 6.046 | 5.806 | 5.608 | 5.135 |
| 440 | - | - | 7.155 | 6.749 | 6.675 | 6.537 | 6.477 | 6.438 | 6.405 | 6.324 | 6.222 | 6.112 | 5.864 | 5.657 | 5.203 |
| 445 | - | - | 7.239 | 6.828 | 6.753 | 6.612 | 6.551 | 6.512 | 6.478 | 6.395 | 6.291 | 6.178 | 5.922 | 5.706 | 5.271 |
| 450 | - | - | 7.323 | 6.907 | 6.831 | 6.688 | 6.626 | 6.585 | 6.551 | 6.466 | 6.360 | 6.244 | 5.980 | 5.754 | 5.339 |
| 455 | - | - | 7.407 | 6.985 | 6.909 | 6.763 | 6.700 | 6.659 | 6.624 | 6.537 | 6.428 | 6.310 | 6.038 | 5.803 | 5.406 |
| 460 | - | - | 7.491 | 7.064 | 6.987 | 6.839 | 6.774 | 6.732 | 6.697 | 6.608 | 6.497 | 6.375 | 6.096 | 5.852 | 5.474 |
| 465 | - | - | - | 7.143 | 7.064 | 6.914 | 6.849 | 6.806 | 6.769 | 6.680 | 6.566 | 6.441 | 6.154 | 5.901 | 5.519 |
| 470 | - | - | - | 7.222 | 7.142 | 6.990 | 6.923 | 6.879 | 6.842 | 6.751 | 6.634 | 6.507 | 6.212 | 5.950 | 5.562 |
| 475 | - | - | - | 7.301 | 7.220 | 7.065 | 6.997 | 6.953 | 6.915 | 6.822 | 6.703 | 6.573 | 6.269 | 5.999 | 5.605 |

The thickness is intumescent only. Results also apply to I/H-section beams exposed on all four sides, limited to a maximum protection thickness of 5.770 mm.

| Table 17 I-Section / H-Section Columns 105 minutes | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 510 | 530 | 539 | 545 | 550 | 563 | 580 | 600 | 650 | 700 | 750 |
| 50 | 2.542 | 1.889 | 1.378 | 1.097 | 1.050 | 0.961 | 0.923 | 0.900 | 0.882 | 0.835 | 0.777 | 0.714 | 0.572 | 0.472 | 0.472 |
| 55 | 2.788 | 2.083 | 1.531 | 1.219 | 1.166 | 1.067 | 1.026 | 1.000 | 0.979 | 0.927 | 0.863 | 0.793 | 0.635 | 0.484 | 0.472 |
| 60 | 2.907 | 2.276 | 1.697 | 1.353 | 1.297 | 1.190 | 1.146 | 1.118 | 1.096 | 1.040 | 0.970 | 0.894 | 0.723 | 0.561 | 0.472 |
| 65 | 3.019 | 2.470 | 1.862 | 1.487 | 1.427 | 1.314 | 1.267 | 1.236 | 1.212 | 1.152 | 1.077 | 0.996 | 0.811 | 0.637 | 0.490 |
| 70 | 3.131 | 2.664 | 2.028 | 1.619 | 1.557 | 1.437 | 1.387 | 1.355 | 1.329 | 1.264 | 1.184 | 1.097 | 0.899 | 0.714 | 0.555 |
| 75 | 3.243 | 2.834 | 2.194 | 1.750 | 1.681 | 1.559 | 1.508 | 1.473 | 1.446 | 1.377 | 1.291 | 1.198 | 0.986 | 0.790 | 0.620 |
| 80 | 3.355 | 2.946 | 2.360 | 1.881 | 1.806 | 1.672 | 1.618 | 1.585 | 1.558 | 1.489 | 1.398 | 1.299 | 1.074 | 0.867 | 0.685 |
| 85 | 3.467 | 3.058 | 2.526 | 2.012 | 1.931 | 1.785 | 1.726 | 1.689 | 1.660 | 1.591 | 1.505 | 1.400 | 1.162 | 0.944 | 0.750 |
| 90 | 3.579 | 3.171 | 2.692 | 2.143 | 2.056 | 1.899 | 1.834 | 1.793 | 1.762 | 1.686 | 1.597 | 1.502 | 1.250 | 1.020 | 0.816 |
| 95 | 3.691 | 3.283 | 2.840 | 2.274 | 2.181 | 2.012 | 1.941 | 1.898 | 1.863 | 1.780 | 1.683 | 1.586 | 1.338 | 1.097 | 0.881 |
| 100 | 3.802 | 3.396 | 2.954 | 2.405 | 2.306 | 2.126 | 2.049 | 2.002 | 1.965 | 1.875 | 1.770 | 1.663 | 1.426 | 1.174 | 0.946 |
| 105 | 3.914 | 3.508 | 3.067 | 2.536 | 2.431 | 2.239 | 2.156 | 2.106 | 2.066 | 1.970 | 1.856 | 1.740 | 1.514 | 1.250 | 1.011 |
| 110 | 4.026 | 3.621 | 3.181 | 2.667 | 2.556 | 2.353 | 2.264 | 2.210 | 2.168 | 2.064 | 1.942 | 1.817 | 1.577 | 1.327 | 1.076 |
| 115 | 4.138 | 3.733 | 3.295 | 2.797 | 2.681 | 2.466 | 2.372 | 2.315 | 2.269 | 2.159 | 2.029 | 1.894 | 1.634 | 1.404 | 1.142 |
| 120 | 4.250 | 3.846 | 3.408 | 2.894 | 2.805 | 2.580 | 2.479 | 2.419 | 2.371 | 2.254 | 2.115 | 1.971 | 1.690 | 1.480 | 1.207 |
| 125 | 4.362 | 3.958 | 3.522 | 2.990 | 2.897 | 2.693 | 2.587 | 2.523 | 2.472 | 2.348 | 2.201 | 2.047 | 1.747 | 1.546 | 1.272 |
| 130 | 4.474 | 4.070 | 3.636 | 3.085 | 2.989 | 2.805 | 2.694 | 2.627 | 2.574 | 2.443 | 2.287 | 2.124 | 1.803 | 1.584 | 1.337 |
| 135 | 4.586 | 4.183 | 3.749 | 3.181 | 3.082 | 2.892 | 2.802 | 2.732 | 2.676 | 2.538 | 2.374 | 2.201 | 1.859 | 1.623 | 1.402 |
| 140 | 5.129 | 4.295 | 3.863 | 3.277 | 3.174 | 2.979 | 2.887 | 2.829 | 2.777 | 2.632 | 2.460 | 2.278 | 1.916 | 1.662 | 1.468 |
| 145 | 5.540 | 4.408 | 3.977 | 3.372 | 3.267 | 3.066 | 2.971 | 2.912 | 2.864 | 2.727 | 2.546 | 2.355 | 1.972 | 1.701 | 1.533 |
| 150 | 5.667 | 4.520 | 4.090 | 3.468 | 3.359 | 3.152 | 3.056 | 2.995 | 2.946 | 2.818 | 2.632 | 2.432 | 2.029 | 1.740 | 1.566 |
| 155 | 5.794 | 4.645 | 4.204 | 3.563 | 3.452 | 3.239 | 3.141 | 3.079 | 3.028 | 2.897 | 2.719 | 2.509 | 2.085 | 1.778 | 1.599 |
| 160 | 5.921 | 4.821 | 4.318 | 3.659 | 3.544 | 3.326 | 3.225 | 3.162 | 3.110 | 2.976 | 2.804 | 2.585 | 2.142 | 1.817 | 1.631 |
| 165 | 6.048 | 4.996 | 4.431 | 3.755 | 3.637 | 3.413 | 3.310 | 3.245 | 3.192 | 3.055 | 2.880 | 2.662 | 2.198 | 1.856 | 1.664 |
| 170 | 6.175 | 5.171 | 4.545 | 3.850 | 3.729 | 3.499 | 3.395 | 3.328 | 3.274 | 3.134 | 2.955 | 2.739 | 2.254 | 1.895 | 1.696 |
| 175 | 6.302 | 5.346 | 4.633 | 3.946 | 3.822 | 3.586 | 3.479 | 3.411 | 3.356 | 3.213 | 3.030 | 2.815 | 2.311 | 1.934 | 1.729 |
| 180 | 6.429 | 5.504 | 4.686 | 4.042 | 3.914 | 3.673 | 3.564 | 3.495 | 3.438 | 3.292 | 3.105 | 2.886 | 2.367 | 1.972 | 1.762 |
| 185 | 6.556 | 5.604 | 4.739 | 4.137 | 4.007 | 3.760 | 3.649 | 3.578 | 3.520 | 3.371 | 3.180 | 2.957 | 2.424 | 2.011 | 1.794 |
| 190 | 6.683 | 5.704 | 4.793 | 4.233 | 4.099 | 3.847 | 3.733 | 3.661 | 3.602 | 3.450 | 3.255 | 3.028 | 2.480 | 2.050 | 1.827 |
| 195 | 6.810 | 5.803 | 4.846 | 4.328 | 4.192 | 3.933 | 3.818 | 3.744 | 3.684 | 3.529 | 3.330 | 3.099 | 2.536 | 2.089 | 1.860 |
| 200 | 6.937 | 5.903 | 4.899 | 4.424 | 4.284 | 4.020 | 3.903 | 3.827 | 3.766 | 3.607 | 3.405 | 3.170 | 2.593 | 2.128 | 1.892 |
| 205 | 7.064 | 6.003 | 4.953 | 4.520 | 4.377 | 4.107 | 3.987 | 3.911 | 3.848 | 3.686 | 3.480 | 3.242 | 2.649 | 2.167 | 1.925 |
| 210 | 7.190 | 6.102 | 5.006 | 4.612 | 4.469 | 4.194 | 4.072 | 3.994 | 3.930 | 3.765 | 3.556 | 3.313 | 2.706 | 2.205 | 1.957 |
| 215 | 7.317 | 6.202 | 5.059 | 4.656 | 4.562 | 4.280 | 4.157 | 4.077 | 4.012 | 3.844 | 3.631 | 3.384 | 2.762 | 2.244 | 1.990 |
| 220 | 7.444 | 6.302 | 5.112 | 4.700 | 4.630 | 4.367 | 4.242 | 4.160 | 4.094 | 3.923 | 3.706 | 3.455 | 2.825 | 2.283 | 2.023 |
| 225 | - | 6.401 | 5.166 | 4.745 | 4.673 | 4.454 | 4.326 | 4.243 | 4.175 | 4.002 | 3.781 | 3.526 | 2.901 | 2.322 | 2.055 |
| 230 | - | 6.501 | 5.219 | 4.789 | 4.716 | 4.541 | 4.411 | 4.327 | 4.257 | 4.081 | 3.856 | 3.597 | 2.978 | 2.361 | 2.088 |
| 235 | - | 6.601 | 5.272 | 4.833 | 4.759 | 4.619 | 4.496 | 4.410 | 4.339 | 4.160 | 3.931 | 3.668 | 3.054 | 2.399 | 2.120 |
| 240 | - | 6.700 | 5.326 | 4.877 | 4.802 | 4.662 | 4.580 | 4.493 | 4.421 | 4.239 | 4.006 | 3.739 | 3.130 | 2.438 | 2.153 |
| 245 | - | 6.800 | 5.379 | 4.921 | 4.844 | 4.705 | 4.639 | 4.576 | 4.503 | 4.318 | 4.081 | 3.811 | 3.207 | 2.477 | 2.186 |
| 250 | - | 6.900 | 5.432 | 4.965 | 4.887 | 4.748 | 4.684 | 4.638 | 4.585 | 4.396 | 4.156 | 3.882 | 3.283 | 2.516 | 2.259 |
| 255 | - | 6.999 | 5.491 | 5.009 | 4.930 | 4.791 | 4.729 | 4.684 | 4.644 | 4.475 | 4.232 | 3.953 | 3.360 | 2.555 | 2.339 |
| 260 | - | 7.099 | 5.602 | 5.053 | 4.973 | 4.834 | 4.774 | 4.731 | 4.692 | 4.554 | 4.307 | 4.024 | 3.436 | 2.593 | 2.419 |
| 265 | - | 7.199 | 5.714 | 5.097 | 5.015 | 4.877 | 4.820 | 4.778 | 4.740 | 4.625 | 4.382 | 4.095 | 3.512 | 2.632 | 2.500 |
| 270 | - | 7.299 | 5.826 | 5.141 | 5.058 | 4.920 | 4.865 | 4.824 | 4.788 | 4.678 | 4.457 | 4.166 | 3.589 | 2.671 | 2.580 |
| 275 | - | 7.398 | 5.938 | 5.185 | 5.101 | 4.963 | 4.910 | 4.871 | 4.836 | 4.731 | 4.532 | 4.237 | 3.665 | 2.710 | 2.661 |
| 280 | - | 7.498 | 6.050 | 5.229 | 5.144 | 5.006 | 4.955 | 4.918 | 4.884 | 4.783 | 4.607 | 4.308 | 3.742 | 2.749 | 2.741 |
| 285 | - | - | 6.162 | 5.273 | 5.187 | 5.049 | 5.000 | 4.964 | 4.932 | 4.836 | 4.668 | 4.379 | 3.818 | 2.822 | 2.822 |
| 290 | - | - | 6.274 | 5.317 | 5.229 | 5.092 | 5.045 | 5.011 | 4.980 | 4.888 | 4.729 | 4.451 | 3.894 | 2.902 | 2.902 |
| 295 | - | - | 6.385 | 5.361 | 5.272 | 5.135 | 5.090 | 5.057 | 5.028 | 4.941 | 4.790 | 4.522 | 3.971 | 3.025 | 2.982 |
| 300 | - | - | 6.497 | 5.405 | 5.315 | 5.178 | 5.135 | 5.104 | 5.076 | 4.993 | 4.851 | 4.593 | 4.047 | 3.161 | 3.063 |
| 305 | - | - | 6.609 | 5.449 | 5.358 | 5.221 | 5.180 | 5.151 | 5.124 | 5.046 | 4.911 | 4.668 | 4.124 | 3.297 | 3.143 |
| 310 | - | - | 6.721 | 5.512 | 5.401 | 5.264 | 5.225 | 5.197 | 5.173 | 5.099 | 4.972 | 4.744 | 4.200 | 3.433 | 3.224 |
| 315 | - | - | 6.833 | 5.625 | 5.443 | 5.307 | 5.270 | 5.244 | 5.221 | 5.151 | 5.033 | 4.820 | 4.276 | 3.569 | 3.304 |
| 320 | - | - | 6.945 | 5.739 | 5.495 | 5.349 | 5.315 | 5.291 | 5.269 | 5.204 | 5.093 | 4.896 | 4.353 | 3.704 | 3.385 |
| 325 | - | - | 7.056 | 5.852 | 5.611 | 5.392 | 5.360 | 5.337 | 5.317 | 5.256 | 5.154 | 4.973 | 4.429 | 3.840 | 3.465 |
| 330 | - | - | 7.168 | 5.966 | 5.726 | 5.435 | 5.405 | 5.384 | 5.365 | 5.309 | 5.215 | 5.049 | 4.506 | 3.976 | 3.545 |
| 335 | - | - | 7.280 | 6.079 | 5.842 | 5.478 | 5.451 | 5.431 | 5.413 | 5.361 | 5.276 | 5.125 | 4.582 | 4.112 | 3.626 |
| 340 | - | - | 7.392 | 6.193 | 5.958 | 5.589 | 5.517 | 5.477 | 5.461 | 5.414 | 5.336 | 5.201 | 4.684 | 4.247 | 3.706 |
| 345 | - | - | 7.504 | 6.306 | 6.074 | 5.704 | 5.626 | 5.579 | 5.543 | 5.467 | 5.397 | 5.278 | 4.800 | 4.383 | 3.787 |
| 350 | - | - | - | 6.420 | 6.190 | 5.819 | 5.736 | 5.686 | 5.648 | 5.556 | 5.458 | 5.354 | 4.917 | 4.519 | 3.867 |
| 355 | - | - | - | 6.533 | 6.305 | 5.933 | 5.846 | 5.792 | 5.754 | 5.660 | 5.543 | 5.430 | 5.034 | 4.649 | 3.948 |
| 360 | - | - | - | 6.647 | 6.421 | 6.048 | 5.955 | 5.899 | 5.859 | 5.763 | 5.644 | 5.513 | 5.150 | 4.767 | 4.074 |
| 365 | - | - | - | 6.760 | 6.537 | 6.163 | 6.065 | 6.005 | 5.965 | 5.867 | 5.745 | 5.611 | 5.267 | 4.885 | 4.382 |
| 370 | - | - | - | 6.874 | 6.653 | 6.278 | 6.175 | 6.112 | 6.070 | 5.970 | 5.845 | 5.708 | 5.384 | 5.003 | 4.640 |
| 375 | - | - | - | 6.987 | 6.768 | 6.393 | 6.284 | 6.219 | 6.176 | 6.074 | 5.946 | 5.806 | 5.495 | 5.122 | 4.756 |
| 380 | - | - | - | 7.101 | 6.884 | 6.508 | 6.394 | 6.325 | 6.281 | 6.177 | 6.047 | 5.903 | 5.582 | 5.240 | 4.873 |
| 385 | - | - | - | 7.214 | 7.000 | 6.622 | 6.504 | 6.432 | 6.387 | 6.281 | 6.147 | 6.000 | 5.670 | 5.358 | 4.989 |
| 390 | - | - | - | 7.328 | 7.116 | 6.737 | 6.614 | 6.539 | 6.492 | 6.385 | 6.248 | 6.098 | 5.757 | 5.476 | 5.106 |
| 395 | - | - | - | 7.442 | 7.232 | 6.852 | 6.723 | 6.645 | 6.598 | 6.488 | 6.349 | 6.195 | 5.844 | 5.552 | 5.222 |
| 400 | - | - | - | - | 7.347 | 6.967 | 6.833 | 6.752 | 6.703 | 6.592 | 6.449 | 6.293 | 5.931 | 5.626 | 5.339 |
| 405 | - | - | - | - | 7.463 | 7.082 | 6.943 | 6.858 | 6.809 | 6.695 | 6.550 | 6.390 | 6.018 | 5.701 | 5.455 |
| 410 | - | - | - | - | - | 7.196 | 7.052 | 6.965 | 6.914 | 6.799 | 6.651 | 6.487 | 6.105 | 5.775 | 5.527 |
| 415 | - | - | - | - | - | 7.311 | 7.162 | 7.072 | 7.020 | 6.903 | 6.752 | 6.585 | 6.192 | 5.849 | 5.586 |
| 420 | - | - | - | - | - | 7.426 | 7.272 | 7.178 | 7.125 | 7.006 | 6.852 | 6.682 | 6.279 | 5.923 | 5.645 |
| 425 | - | - | - | - | - | - | 7.381 | 7.285 | 7.231 | 7.110 | 6.953 | 6.780 | 6.366 | 5.997 | 5.704 |
| 430 | - | - | - | - | - | - | 7.491 | 7.391 | 7.336 | 7.213 | 7.054 | 6.877 | 6.453 | 6.071 | 5.763 |
| 435 | - | - | - | - | - | - | - | 7.498 | 7.442 | 7.317 | 7.154 | 6.975 | 6.541 | 6.146 | 5.822 |
| 440 | - | - | - | - | - | - | - | - | - | 7.420 | 7.255 | 7.072 | 6.628 | 6.220 | 5.881 |
| 445 | - | - | - | - | - | - | - | - | - | - | 7.356 | 7.169 | 6.715 | 6.294 | 5.940 |
| 450 | - | - | - | - | - | - | - | - | - | - | 7.456 | 7.267 | 6.802 | 6.368 | 6.000 |
| 455 | - | - | - | - | - | - | - | - | - | - | - | 7.364 | 6.889 | 6.442 | 6.059 |
| 460 | - | - | - | - | - | - | - | - | - | - | - | 7.462 | 6.976 | 6.516 | 6.118 |
| 465 | - | - | - | - | - | - | - | - | - | - | - | - | 7.063 | 6.591 | 6.177 |
| 470 | - | - | - | - | - | - | - | - | - | - | - | - | 7.150 | 6.665 | 6.236 |
| 475 | - | - | - | - | - | - | - | - | - | - | - | - | 7.237 | 6.739 | 6.295 |

The thickness is intumescent only. Results also apply to I/H-section beams exposed on all four sides, limited to a maximum protection thickness of 5.770 mm.

| Table 18 I-Section / H-Section Columns 120 minutes | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 510 | 530 | 539 | 545 | 550 | 563 | 580 | 600 | 650 | 700 | 750 |
| 50 | 3.308 | 2.307 | 1.762 | 1.349 | 1.297 | 1.200 | 1.161 | 1.135 | 1.114 | 1.064 | 1.001 | 0.933 | 0.781 | 0.638 | 0.478 |
| 55 | 3.455 | 2.542 | 1.958 | 1.499 | 1.441 | 1.333 | 1.289 | 1.261 | 1.238 | 1.182 | 1.112 | 1.036 | 0.867 | 0.708 | 0.530 |
| 60 | 3.602 | 2.777 | 2.163 | 1.672 | 1.603 | 1.481 | 1.434 | 1.403 | 1.378 | 1.317 | 1.242 | 1.160 | 0.976 | 0.805 | 0.618 |
| 65 | 3.749 | 2.906 | 2.368 | 1.850 | 1.773 | 1.635 | 1.580 | 1.545 | 1.518 | 1.453 | 1.371 | 1.283 | 1.085 | 0.902 | 0.705 |
| 70 | 3.896 | 3.023 | 2.573 | 2.027 | 1.943 | 1.792 | 1.729 | 1.690 | 1.660 | 1.587 | 1.501 | 1.407 | 1.194 | 0.999 | 0.793 |
| 75 | 4.043 | 3.140 | 2.778 | 2.205 | 2.114 | 1.948 | 1.879 | 1.836 | 1.802 | 1.721 | 1.626 | 1.530 | 1.303 | 1.096 | 0.881 |
| 80 | 4.190 | 3.257 | 2.906 | 2.382 | 2.284 | 2.105 | 2.028 | 1.981 | 1.944 | 1.854 | 1.749 | 1.642 | 1.413 | 1.193 | 0.968 |
| 85 | 4.337 | 3.374 | 3.024 | 2.560 | 2.455 | 2.262 | 2.177 | 2.126 | 2.086 | 1.988 | 1.872 | 1.754 | 1.522 | 1.290 | 1.056 |
| 90 | 4.484 | 3.491 | 3.142 | 2.737 | 2.625 | 2.419 | 2.327 | 2.271 | 2.228 | 2.121 | 1.995 | 1.865 | 1.611 | 1.387 | 1.143 |
| 95 | 4.658 | 3.607 | 3.260 | 2.877 | 2.796 | 2.576 | 2.476 | 2.417 | 2.369 | 2.255 | 2.119 | 1.977 | 1.698 | 1.484 | 1.231 |
| 100 | 4.991 | 3.724 | 3.378 | 2.996 | 2.914 | 2.733 | 2.625 | 2.562 | 2.511 | 2.388 | 2.242 | 2.089 | 1.785 | 1.566 | 1.319 |
| 105 | 5.325 | 3.841 | 3.496 | 3.115 | 3.031 | 2.863 | 2.775 | 2.707 | 2.653 | 2.522 | 2.365 | 2.200 | 1.872 | 1.631 | 1.406 |
| 110 | 5.592 | 3.958 | 3.614 | 3.234 | 3.147 | 2.972 | 2.889 | 2.838 | 2.795 | 2.655 | 2.488 | 2.312 | 1.959 | 1.697 | 1.494 |
| 115 | 5.802 | 4.075 | 3.732 | 3.353 | 3.264 | 3.081 | 2.995 | 2.942 | 2.900 | 2.789 | 2.611 | 2.424 | 2.046 | 1.762 | 1.562 |
| 120 | 6.011 | 4.192 | 3.850 | 3.472 | 3.380 | 3.190 | 3.102 | 3.047 | 3.003 | 2.891 | 2.735 | 2.536 | 2.133 | 1.827 | 1.615 |
| 125 | 6.221 | 4.309 | 3.969 | 3.591 | 3.497 | 3.300 | 3.208 | 3.152 | 3.106 | 2.990 | 2.844 | 2.647 | 2.219 | 1.893 | 1.667 |
| 130 | 6.430 | 4.426 | 4.087 | 3.710 | 3.613 | 3.409 | 3.315 | 3.256 | 3.209 | 3.089 | 2.938 | 2.759 | 2.306 | 1.958 | 1.719 |
| 135 | 6.639 | 4.542 | 4.205 | 3.829 | 3.730 | 3.518 | 3.421 | 3.361 | 3.312 | 3.188 | 3.032 | 2.856 | 2.393 | 2.024 | 1.771 |
| 140 | 6.849 | 4.963 | 4.323 | 3.948 | 3.846 | 3.627 | 3.528 | 3.465 | 3.414 | 3.287 | 3.126 | 2.945 | 2.480 | 2.089 | 1.824 |
| 145 | 7.058 | 5.536 | 4.441 | 4.067 | 3.963 | 3.737 | 3.634 | 3.570 | 3.517 | 3.385 | 3.220 | 3.034 | 2.567 | 2.154 | 1.876 |
| 150 | 7.267 | 5.681 | 4.559 | 4.186 | 4.079 | 3.846 | 3.741 | 3.674 | 3.620 | 3.484 | 3.314 | 3.122 | 2.654 | 2.220 | 1.928 |
| 155 | 7.477 | 5.827 | 4.739 | 4.305 | 4.196 | 3.955 | 3.847 | 3.779 | 3.723 | 3.583 | 3.408 | 3.211 | 2.741 | 2.285 | 1.980 |
| 160 | - | 5.972 | 4.965 | 4.424 | 4.313 | 4.064 | 3.954 | 3.883 | 3.826 | 3.682 | 3.502 | 3.299 | 2.825 | 2.351 | 2.033 |
| 165 | - | 6.117 | 5.191 | 4.543 | 4.429 | 4.174 | 4.060 | 3.988 | 3.929 | 3.781 | 3.596 | 3.388 | 2.901 | 2.416 | 2.085 |
| 170 | - | 6.262 | 5.417 | 4.641 | 4.546 | 4.283 | 4.167 | 4.093 | 4.032 | 3.880 | 3.690 | 3.477 | 2.977 | 2.481 | 2.137 |
| 175 | - | 6.408 | 5.579 | 4.713 | 4.638 | 4.392 | 4.273 | 4.197 | 4.135 | 3.979 | 3.784 | 3.565 | 3.054 | 2.547 | 2.189 |
| 180 | - | 6.553 | 5.716 | 4.785 | 4.700 | 4.501 | 4.380 | 4.302 | 4.238 | 4.078 | 3.878 | 3.654 | 3.130 | 2.612 | 2.242 |
| 185 | - | 6.698 | 5.852 | 4.856 | 4.762 | 4.610 | 4.486 | 4.406 | 4.341 | 4.177 | 3.972 | 3.743 | 3.206 | 2.678 | 2.294 |
| 190 | - | 6.843 | 5.989 | 4.928 | 4.824 | 4.666 | 4.593 | 4.511 | 4.444 | 4.276 | 4.066 | 3.831 | 3.283 | 2.743 | 2.346 |
| 195 | - | 6.988 | 6.126 | 5.000 | 4.886 | 4.722 | 4.656 | 4.613 | 4.547 | 4.375 | 4.160 | 3.920 | 3.359 | 2.809 | 2.398 |
| 200 | - | 7.134 | 6.263 | 5.071 | 4.948 | 4.778 | 4.710 | 4.667 | 4.631 | 4.474 | 4.254 | 4.009 | 3.435 | 2.876 | 2.451 |
| 205 | - | 7.279 | 6.400 | 5.143 | 5.011 | 4.834 | 4.765 | 4.720 | 4.684 | 4.573 | 4.348 | 4.097 | 3.512 | 2.944 | 2.503 |
| 210 | - | 7.424 | 6.536 | 5.215 | 5.073 | 4.889 | 4.820 | 4.774 | 4.737 | 4.642 | 4.442 | 4.186 | 3.588 | 3.012 | 2.555 |
| 215 | - | - | 6.673 | 5.287 | 5.135 | 4.945 | 4.874 | 4.828 | 4.790 | 4.694 | 4.536 | 4.275 | 3.665 | 3.079 | 2.608 |
| 220 | - | - | 6.810 | 5.358 | 5.197 | 5.001 | 4.929 | 4.882 | 4.843 | 4.745 | 4.621 | 4.363 | 3.741 | 3.147 | 2.660 |
| 225 | - | - | 6.947 | 5.430 | 5.259 | 5.057 | 4.984 | 4.936 | 4.897 | 4.797 | 4.670 | 4.452 | 3.817 | 3.215 | 2.712 |
| 230 | - | - | 7.083 | 5.534 | 5.321 | 5.113 | 5.038 | 4.989 | 4.950 | 4.849 | 4.720 | 4.540 | 3.894 | 3.283 | 2.764 |
| 235 | - | - | 7.220 | 5.717 | 5.383 | 5.169 | 5.093 | 5.043 | 5.003 | 4.900 | 4.770 | 4.620 | 3.970 | 3.350 | 2.825 |
| 240 | - | - | 7.357 | 5.899 | 5.445 | 5.224 | 5.147 | 5.097 | 5.056 | 4.952 | 4.820 | 4.668 | 4.046 | 3.418 | 2.907 |
| 245 | - | - | 7.494 | 6.081 | 5.559 | 5.280 | 5.202 | 5.151 | 5.109 | 5.004 | 4.870 | 4.716 | 4.123 | 3.486 | 2.988 |
| 250 | - | - | - | 6.264 | 5.742 | 5.336 | 5.257 | 5.205 | 5.162 | 5.055 | 4.919 | 4.764 | 4.199 | 3.553 | 3.069 |
| 255 | - | - | - | 6.446 | 5.924 | 5.392 | 5.311 | 5.259 | 5.216 | 5.107 | 4.969 | 4.812 | 4.275 | 3.621 | 3.150 |
| 260 | - | - | - | 6.629 | 6.107 | 5.448 | 5.366 | 5.312 | 5.269 | 5.158 | 5.019 | 4.860 | 4.352 | 3.689 | 3.232 |
| 265 | - | - | - | 6.811 | 6.290 | 5.538 | 5.420 | 5.366 | 5.322 | 5.210 | 5.069 | 4.907 | 4.428 | 3.757 | 3.313 |
| 270 | - | - | - | 6.994 | 6.473 | 5.680 | 5.475 | 5.420 | 5.375 | 5.262 | 5.119 | 4.955 | 4.504 | 3.824 | 3.394 |
| 275 | - | - | - | 7.176 | 6.656 | 5.821 | 5.603 | 5.474 | 5.428 | 5.313 | 5.168 | 5.003 | 4.581 | 3.892 | 3.475 |
| 280 | - | - | - | 7.359 | 6.838 | 5.963 | 5.740 | 5.601 | 5.483 | 5.365 | 5.218 | 5.051 | 4.649 | 3.960 | 3.557 |
| 285 | - | - | - | - | 7.021 | 6.104 | 5.877 | 5.739 | 5.622 | 5.417 | 5.268 | 5.099 | 4.711 | 4.027 | 3.638 |
| 290 | - | - | - | - | 7.204 | 6.246 | 6.013 | 5.877 | 5.761 | 5.468 | 5.318 | 5.147 | 4.774 | 4.095 | 3.719 |
| 295 | - | - | - | - | 7.387 | 6.387 | 6.150 | 6.015 | 5.900 | 5.589 | 5.368 | 5.194 | 4.837 | 4.163 | 3.800 |
| 300 | - | - | - | - | - | 6.529 | 6.287 | 6.153 | 6.040 | 5.732 | 5.417 | 5.242 | 4.900 | 4.231 | 3.882 |
| 305 | - | - | - | - | - | 6.670 | 6.424 | 6.291 | 6.179 | 5.876 | 5.467 | 5.290 | 4.962 | 4.298 | 3.963 |
| 310 | - | - | - | - | - | 6.812 | 6.561 | 6.429 | 6.318 | 6.019 | 5.590 | 5.338 | 5.025 | 4.366 | 4.044 |
| 315 | - | - | - | - | - | 6.953 | 6.698 | 6.567 | 6.457 | 6.162 | 5.740 | 5.386 | 5.088 | 4.434 | 4.126 |
| 320 | - | - | - | - | - | 7.095 | 6.835 | 6.705 | 6.596 | 6.305 | 5.891 | 5.434 | 5.151 | 4.501 | 4.207 |
| 325 | - | - | - | - | - | 7.236 | 6.971 | 6.843 | 6.736 | 6.449 | 6.041 | 5.483 | 5.213 | 4.569 | 4.288 |
| 330 | - | - | - | - | - | 7.378 | 7.108 | 6.981 | 6.875 | 6.592 | 6.192 | 5.646 | 5.276 | 4.660 | 4.369 |
| 335 | - | - | - | - | - | 7.519 | 7.245 | 7.119 | 7.014 | 6.735 | 6.342 | 5.809 | 5.339 | 4.785 | 4.451 |
| 340 | - | - | - | - | - | - | 7.382 | 7.257 | 7.153 | 6.879 | 6.492 | 5.972 | 5.402 | 4.910 | 4.532 |
| 345 | - | - | - | - | - | - | 7.519 | 7.395 | 7.292 | 7.022 | 6.643 | 6.136 | 5.464 | 5.035 | 4.615 |
| 350 | - | - | - | - | - | - | - | - | 7.432 | 7.165 | 6.793 | 6.299 | 5.582 | 5.160 | 4.742 |
| 355 | - | - | - | - | - | - | - | - | - | 7.308 | 6.944 | 6.462 | 5.719 | 5.285 | 4.869 |
| 360 | - | - | - | - | - | - | - | - | - | 7.452 | 7.094 | 6.625 | 5.856 | 5.410 | 4.996 |
| 365 | - | - | - | - | - | - | - | - | - | - | 7.245 | 6.788 | 5.993 | 5.530 | 5.123 |
| 370 | - | - | - | - | - | - | - | - | - | - | 7.395 | 6.951 | 6.130 | 5.642 | 5.251 |
| 375 | - | - | - | - | - | - | - | - | - | - | - | 7.115 | 6.267 | 5.755 | 5.378 |
| 380 | - | - | - | - | - | - | - | - | - | - | - | 7.278 | 6.404 | 5.867 | 5.498 |
| 385 | - | - | - | - | - | - | - | - | - | - | - | 7.441 | 6.542 | 5.980 | 5.587 |
| 390 | - | - | - | - | - | - | - | - | - | - | - | - | 6.679 | 6.092 | 5.676 |
| 395 | - | - | - | - | - | - | - | - | - | - | - | - | 6.816 | 6.205 | 5.765 |
| 400 | - | - | - | - | - | - | - | - | - | - | - | - | 6.953 | 6.317 | 5.854 |
| 405 | - | - | - | - | - | - | - | - | - | - | - | - | 7.090 | 6.430 | 5.943 |
| 410 | - | - | - | - | - | - | - | - | - | - | - | - | 7.227 | 6.542 | 6.032 |
| 415 | - | - | - | - | - | - | - | - | - | - | - | - | 7.364 | 6.655 | 6.121 |
| 420 | - | - | - | - | - | - | - | - | - | - | - | - | 7.501 | 6.768 | 6.210 |
| 425 | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.880 | 6.299 |
| 430 | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.993 | 6.388 |
| 435 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.105 | 6.477 |
| 440 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.218 | 6.565 |
| 445 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.330 | 6.654 |
| 450 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.443 | 6.743 |
| 455 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.832 |
| 460 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.921 |
| 465 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.010 |
| 470 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.099 |
| 475 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.188 |

Thickness is intumescent only. Results also apply to I/H-section beams exposed on all four sides, limited to a maximum protection thickness of 5.770 mm.

| Table 19 I-Section / H-Section Columns 150 minutes | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 510 | 530 | 539 | 545 | 550 | 563 | 580 | 600 | 650 | 700 | 750 |
| 50 | 4.456 | 3.576 | 2.638 | 2.054 | 1.971 | 1.814 | 1.744 | 1.700 | 1.665 | 1.580 | 1.477 | 1.371 | 1.199 | 1.041 | 0.870 |
| 55 | 4.816 | 3.795 | 2.823 | 2.282 | 2.190 | 2.016 | 1.937 | 1.889 | 1.850 | 1.756 | 1.641 | 1.523 | 1.332 | 1.156 | 0.966 |
| 60 | 5.177 | 4.014 | 3.008 | 2.534 | 2.436 | 2.251 | 2.165 | 2.112 | 2.070 | 1.968 | 1.842 | 1.711 | 1.484 | 1.294 | 1.093 |
| 65 | 5.545 | 4.233 | 3.193 | 2.785 | 2.682 | 2.486 | 2.392 | 2.335 | 2.291 | 2.179 | 2.044 | 1.900 | 1.638 | 1.432 | 1.220 |
| 70 | 5.948 | 4.452 | 3.378 | 2.923 | 2.868 | 2.721 | 2.619 | 2.559 | 2.511 | 2.391 | 2.245 | 2.089 | 1.794 | 1.567 | 1.347 |
| 75 | 6.352 | 4.729 | 3.564 | 3.052 | 2.998 | 2.886 | 2.827 | 2.782 | 2.731 | 2.603 | 2.447 | 2.278 | 1.950 | 1.695 | 1.475 |
| 80 | 6.755 | 5.155 | 3.749 | 3.182 | 3.127 | 3.015 | 2.955 | 2.919 | 2.888 | 2.809 | 2.648 | 2.467 | 2.106 | 1.823 | 1.593 |
| 85 | 7.158 | 5.553 | 3.934 | 3.312 | 3.256 | 3.143 | 3.084 | 3.047 | 3.017 | 2.937 | 2.831 | 2.656 | 2.262 | 1.950 | 1.704 |
| 90 | - | 5.863 | 4.119 | 3.441 | 3.386 | 3.272 | 3.213 | 3.176 | 3.145 | 3.064 | 2.957 | 2.829 | 2.418 | 2.078 | 1.815 |
| 95 | - | 6.172 | 4.304 | 3.571 | 3.515 | 3.401 | 3.342 | 3.305 | 3.273 | 3.191 | 3.082 | 2.951 | 2.574 | 2.206 | 1.926 |
| 100 | - | 6.481 | 4.489 | 3.701 | 3.645 | 3.530 | 3.471 | 3.433 | 3.402 | 3.319 | 3.208 | 3.073 | 2.730 | 2.334 | 2.037 |
| 105 | - | 6.790 | 4.912 | 3.831 | 3.774 | 3.658 | 3.600 | 3.562 | 3.530 | 3.446 | 3.333 | 3.195 | 2.859 | 2.461 | 2.148 |
| 110 | - | 7.100 | 5.561 | 3.960 | 3.904 | 3.787 | 3.728 | 3.690 | 3.658 | 3.573 | 3.458 | 3.317 | 2.966 | 2.589 | 2.258 |
| 115 | - | 7.409 | 5.790 | 4.090 | 4.033 | 3.916 | 3.857 | 3.819 | 3.787 | 3.701 | 3.584 | 3.439 | 3.072 | 2.717 | 2.369 |
| 120 | - | - | 6.018 | 4.220 | 4.163 | 4.045 | 3.986 | 3.948 | 3.915 | 3.828 | 3.709 | 3.561 | 3.179 | 2.832 | 2.480 |
| 125 | - | - | 6.247 | 4.349 | 4.292 | 4.174 | 4.115 | 4.076 | 4.043 | 3.955 | 3.835 | 3.683 | 3.285 | 2.923 | 2.591 |
| 130 | - | - | 6.476 | 4.479 | 4.421 | 4.302 | 4.244 | 4.205 | 4.172 | 4.083 | 3.960 | 3.805 | 3.392 | 3.014 | 2.702 |
| 135 | - | - | 6.704 | 4.609 | 4.551 | 4.431 | 4.373 | 4.334 | 4.300 | 4.210 | 4.086 | 3.927 | 3.498 | 3.105 | 2.809 |
| 140 | - | - | 6.933 | 5.533 | 5.111 | 4.560 | 4.501 | 4.462 | 4.428 | 4.337 | 4.211 | 4.049 | 3.605 | 3.196 | 2.882 |
| 145 | - | - | 7.162 | 5.707 | 5.584 | 4.935 | 4.677 | 4.591 | 4.557 | 4.465 | 4.337 | 4.171 | 3.711 | 3.287 | 2.955 |
| 150 | - | - | 7.390 | 5.882 | 5.756 | 5.469 | 5.103 | 4.924 | 4.804 | 4.592 | 4.462 | 4.293 | 3.818 | 3.378 | 3.028 |
| 155 | - | - | - | 6.056 | 5.928 | 5.649 | 5.501 | 5.292 | 5.136 | 4.816 | 4.587 | 4.415 | 3.924 | 3.470 | 3.102 |
| 160 | - | - | - | 6.230 | 6.100 | 5.821 | 5.676 | 5.567 | 5.468 | 5.056 | 4.745 | 4.537 | 4.031 | 3.561 | 3.175 |
| 165 | - | - | - | 6.404 | 6.271 | 5.994 | 5.851 | 5.745 | 5.654 | 5.295 | 4.911 | 4.657 | 4.137 | 3.652 | 3.248 |
| 170 | - | - | - | 6.578 | 6.443 | 6.166 | 6.025 | 5.922 | 5.834 | 5.524 | 5.076 | 4.774 | 4.244 | 3.743 | 3.321 |
| 175 | - | - | - | 6.752 | 6.615 | 6.338 | 6.200 | 6.100 | 6.014 | 5.718 | 5.241 | 4.891 | 4.350 | 3.834 | 3.394 |
| 180 | - | - | - | 6.927 | 6.787 | 6.510 | 6.375 | 6.277 | 6.194 | 5.912 | 5.406 | 5.008 | 4.457 | 3.925 | 3.468 |
| 185 | - | - | - | 7.101 | 6.959 | 6.683 | 6.550 | 6.455 | 6.374 | 6.105 | 5.605 | 5.125 | 4.563 | 4.016 | 3.541 |
| 190 | - | - | - | 7.275 | 7.131 | 6.855 | 6.724 | 6.632 | 6.553 | 6.299 | 5.832 | 5.242 | 4.736 | 4.107 | 3.614 |
| 195 | - | - | - | 7.449 | 7.302 | 7.027 | 6.899 | 6.810 | 6.733 | 6.493 | 6.059 | 5.359 | 4.960 | 4.198 | 3.687 |
| 200 | - | - | - | - | 7.474 | 7.199 | 7.074 | 6.987 | 6.913 | 6.686 | 6.286 | 5.476 | 5.184 | 4.289 | 3.760 |
| 205 | - | - | - | - | - | 7.372 | 7.249 | 7.165 | 7.093 | 6.880 | 6.513 | 5.772 | 5.407 | 4.380 | 3.834 |
| 210 | - | - | - | - | - | - | 7.424 | 7.342 | 7.273 | 7.074 | 6.740 | 6.076 | 5.631 | 4.471 | 3.907 |
| 215 | - | - | - | - | - | - | - | 7.520 | 7.453 | 7.267 | 6.967 | 6.380 | 5.855 | 4.562 | 3.980 |
| 220 | - | - | - | - | - | - | - | - | - | 7.461 | 7.195 | 6.684 | 6.079 | 4.637 | 4.053 |
| 225 | - | - | - | - | - | - | - | - | - | - | 7.422 | 6.988 | 6.302 | 4.695 | 4.126 |
| 230 | - | - | - | - | - | - | - | - | - | - | - | 7.292 | 6.526 | 4.753 | 4.200 |
| 235 | - | - | - | - | - | - | - | - | - | - | - | - | 6.750 | 4.811 | 4.273 |
| 240 | - | - | - | - | - | - | - | - | - | - | - | - | 6.974 | 4.869 | 4.346 |
| 245 | - | - | - | - | - | - | - | - | - | - | - | - | 7.198 | 4.926 | 4.419 |
| 250 | - | - | - | - | - | - | - | - | - | - | - | - | 7.421 | 4.984 | 4.492 |
| 255 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.042 | 4.566 |
| 260 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.100 | 4.632 |
| 265 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.158 | 4.689 |
| 270 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.215 | 4.746 |
| 275 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.273 | 4.803 |
| 280 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.331 | 4.860 |
| 285 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.389 | 4.917 |
| 290 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.446 | 4.974 |
| 295 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.568 | 5.031 |
| 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.784 | 5.088 |
| 305 | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.001 | 5.145 |
| 310 | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.218 | 5.202 |
| 315 | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.434 | 5.259 |
| 320 | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.651 | 5.316 |
| 325 | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.867 | 5.373 |
| 330 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.084 | 5.430 |
| 335 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.301 | 5.509 |
| 340 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.517 | 5.795 |
| 345 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.081 |
| 350 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.368 |
| 355 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.654 |
| 360 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.940 |
| 365 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.227 |
| 370 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.513 |
| 375 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 380 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 385 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 390 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 395 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 400 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 405 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 410 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 415 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 420 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 425 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 430 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 435 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 440 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 445 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 450 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 455 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 460 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 465 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 470 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 475 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Thickness is intumescent only. Results only apply to I/H-section columns exposed on all four sides.

| Table 20 Circular Hollow Columns 15 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor (m-1) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 55 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 60 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 65 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 70 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 75 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 80 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 85 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 90 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 95 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 100 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 105 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 110 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 115 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 120 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 125 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 130 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 135 | 0.387 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 140 | 0.413 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 145 | 0.439 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 150 | 0.464 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 155 | 0.490 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 160 | 0.516 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 165 | 0.541 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 170 | 0.567 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 175 | 0.593 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 180 | 0.619 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 185 | 0.644 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 190 | 0.670 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 195 | 0.696 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 200 | 0.721 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 205 | 0.747 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 210 | 0.773 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 215 | 0.798 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 220 | 0.824 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 225 | 0.850 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 230 | 0.875 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 235 | 0.901 | 0.384 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 240 | 0.927 | 0.409 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 245 | 0.953 | 0.434 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 250 | 0.978 | 0.460 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 255 | 1.004 | 0.485 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 260 | 1.030 | 0.511 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 265 | 1.055 | 0.536 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 270 | 1.081 | 0.561 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 275 | 1.107 | 0.587 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 280 | 1.132 | 0.612 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 285 | 1.158 | 0.638 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 290 | 1.184 | 0.663 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 295 | 1.209 | 0.689 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 300 | 1.235 | 0.714 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 305 | 1.261 | 0.739 | 0.373 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 310 | 1.286 | 0.765 | 0.396 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 315 | 1.312 | 0.790 | 0.419 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 320 | 1.338 | 0.816 | 0.442 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 325 | 1.364 | 0.841 | 0.465 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 330 | 1.389 | 0.866 | 0.488 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |

Thickness is intumescent only.

| Table 21 Circular Hollow Columns 20 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor (m-1) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 55 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 60 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 65 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 70 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 75 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 80 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 85 | 0.383 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 90 | 0.416 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 95 | 0.449 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 100 | 0.481 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 105 | 0.514 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 110 | 0.547 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 115 | 0.580 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 120 | 0.613 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 125 | 0.646 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 130 | 0.679 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 135 | 0.712 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 140 | 0.745 | 0.376 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 145 | 0.778 | 0.407 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 150 | 0.811 | 0.438 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 155 | 0.844 | 0.469 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 160 | 0.877 | 0.500 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 165 | 0.910 | 0.530 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 170 | 0.943 | 0.561 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 175 | 0.976 | 0.592 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 180 | 1.008 | 0.623 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 185 | 1.041 | 0.654 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 190 | 1.074 | 0.684 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 195 | 1.107 | 0.715 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 200 | 1.140 | 0.746 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 205 | 1.173 | 0.777 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 210 | 1.206 | 0.808 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 215 | 1.239 | 0.838 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 220 | 1.272 | 0.869 | 0.373 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 225 | 1.305 | 0.900 | 0.405 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 230 | 1.338 | 0.931 | 0.437 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 235 | 1.371 | 0.962 | 0.469 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 240 | 1.404 | 0.992 | 0.501 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 245 | 1.437 | 1.023 | 0.533 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 250 | 1.470 | 1.054 | 0.565 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 255 | 1.502 | 1.085 | 0.597 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 260 | 1.535 | 1.116 | 0.628 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 265 | 1.568 | 1.146 | 0.660 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 270 | 1.601 | 1.177 | 0.692 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 275 | 1.634 | 1.208 | 0.724 | 0.420 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 280 | 1.667 | 1.239 | 0.756 | 0.510 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 285 | 1.700 | 1.270 | 0.788 | 0.599 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 290 | 1.733 | 1.300 | 0.820 | 0.688 | 0.430 | 0.404 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 295 | 1.766 | 1.331 | 0.852 | 0.778 | 0.526 | 0.502 | 0.380 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 300 | 1.799 | 1.362 | 0.883 | 0.867 | 0.621 | 0.600 | 0.481 | 0.456 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 305 | 1.832 | 1.393 | 0.956 | 0.956 | 0.717 | 0.698 | 0.582 | 0.558 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 310 | 1.865 | 1.424 | 1.046 | 1.046 | 0.813 | 0.796 | 0.682 | 0.660 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 315 | 1.898 | 1.454 | 1.135 | 1.135 | 0.909 | 0.894 | 0.783 | 0.761 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 320 | 1.931 | 1.485 | 1.224 | 1.224 | 1.004 | 0.992 | 0.884 | 0.863 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 325 | 1.964 | 1.516 | 1.314 | 1.314 | 1.100 | 1.090 | 0.985 | 0.964 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 330 | 1.996 | 1.547 | 1.403 | 1.403 | 1.196 | 1.188 | 1.086 | 1.066 | 0.371 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |

Thickness is intumescent only.

| Table 22 Circular Hollow Columns 30 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor (m-1) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 0.388 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 55 | 0.461 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 60 | 0.533 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 65 | 0.605 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 70 | 0.678 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 75 | 0.750 | 0.390 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 80 | 0.822 | 0.440 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 85 | 0.895 | 0.489 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 90 | 0.967 | 0.539 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 95 | 1.040 | 0.588 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 100 | 1.112 | 0.638 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 105 | 1.184 | 0.688 | 0.394 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 110 | 1.257 | 0.737 | 0.435 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 115 | 1.329 | 0.787 | 0.475 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 120 | 1.401 | 0.836 | 0.515 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 125 | 1.474 | 0.886 | 0.555 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 130 | 1.546 | 0.935 | 0.596 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 135 | 1.618 | 0.985 | 0.636 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 140 | 1.691 | 1.034 | 0.676 | 0.382 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 145 | 1.763 | 1.084 | 0.716 | 0.498 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 150 | 1.835 | 1.134 | 0.757 | 0.614 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 155 | 1.908 | 1.183 | 0.797 | 0.730 | 0.484 | 0.465 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 160 | 1.980 | 1.233 | 0.846 | 0.846 | 0.609 | 0.593 | 0.473 | 0.448 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 165 | 2.041 | 1.282 | 0.962 | 0.962 | 0.734 | 0.721 | 0.606 | 0.582 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 170 | 2.087 | 1.332 | 1.078 | 1.078 | 0.860 | 0.849 | 0.738 | 0.715 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 175 | 2.132 | 1.381 | 1.194 | 1.194 | 0.985 | 0.977 | 0.871 | 0.849 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 180 | 2.177 | 1.431 | 1.310 | 1.310 | 1.110 | 1.105 | 1.003 | 0.982 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 185 | 2.223 | 1.480 | 1.425 | 1.425 | 1.235 | 1.233 | 1.136 | 1.116 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 190 | 2.268 | 1.541 | 1.541 | 1.541 | 1.361 | 1.361 | 1.269 | 1.249 | 0.511 | 0.383 | 0.365 | 0.365 | 0.365 | 0.365 |
| 195 | 2.314 | 1.657 | 1.657 | 1.657 | 1.489 | 1.489 | 1.401 | 1.383 | 0.676 | 0.554 | 0.365 | 0.365 | 0.365 | 0.365 |
| 200 | 2.359 | 1.773 | 1.773 | 1.773 | 1.617 | 1.617 | 1.534 | 1.516 | 0.842 | 0.725 | 0.365 | 0.365 | 0.365 | 0.365 |
| 205 | 2.404 | 1.889 | 1.889 | 1.889 | 1.745 | 1.745 | 1.666 | 1.650 | 1.008 | 0.895 | 0.365 | 0.365 | 0.365 | 0.365 |
| 210 | 2.450 | 2.005 | 2.005 | 2.005 | 1.873 | 1.873 | 1.799 | 1.783 | 1.173 | 1.066 | 0.365 | 0.365 | 0.365 | 0.365 |
| 215 | 2.495 | 2.121 | 2.121 | 2.121 | 2.001 | 2.001 | 1.931 | 1.917 | 1.339 | 1.237 | 0.365 | 0.365 | 0.365 | 0.365 |
| 220 | 2.541 | 2.237 | 2.237 | 2.237 | 2.129 | 2.129 | 2.064 | 2.050 | 1.505 | 1.407 | 0.365 | 0.365 | 0.365 | 0.365 |
| 225 | 2.586 | 2.353 | 2.353 | 2.353 | 2.257 | 2.257 | 2.196 | 2.184 | 1.670 | 1.578 | 0.365 | 0.365 | 0.365 | 0.365 |
| 230 | 2.632 | 2.469 | 2.469 | 2.469 | 2.385 | 2.385 | 2.329 | 2.318 | 1.836 | 1.749 | 0.365 | 0.365 | 0.365 | 0.365 |
| 235 | 2.677 | 2.585 | 2.585 | 2.585 | 2.513 | 2.513 | 2.462 | 2.451 | 2.002 | 1.920 | 0.365 | 0.365 | 0.365 | 0.365 |
| 240 | 2.722 | 2.700 | 2.700 | 2.700 | 2.641 | 2.641 | 2.594 | 2.585 | 2.167 | 2.090 | 0.365 | 0.365 | 0.365 | 0.365 |
| 245 | 2.816 | 2.816 | 2.816 | 2.816 | 2.769 | 2.769 | 2.727 | 2.718 | 2.333 | 2.261 | 0.613 | 0.365 | 0.365 | 0.365 |
| 250 | 2.932 | 2.932 | 2.932 | 2.932 | 2.897 | 2.897 | 2.859 | 2.852 | 2.499 | 2.432 | 0.861 | 0.365 | 0.365 | 0.365 |
| 255 | 3.048 | 3.048 | 3.048 | 3.048 | 3.025 | 3.025 | 2.992 | 2.985 | 2.664 | 2.602 | 1.110 | 0.365 | 0.365 | 0.365 |
| 260 | 3.164 | 3.164 | 3.164 | 3.164 | 3.153 | 3.153 | 3.124 | 3.119 | 2.830 | 2.773 | 1.358 | 0.365 | 0.365 | 0.365 |
| 265 | 3.281 | 3.281 | 3.281 | 3.281 | 3.281 | 3.281 | 3.257 | 3.252 | 2.996 | 2.944 | 1.607 | 0.365 | 0.365 | 0.365 |
| 270 | 3.409 | 3.409 | 3.409 | 3.409 | 3.409 | 3.409 | 3.390 | 3.386 | 3.161 | 3.114 | 1.855 | 0.365 | 0.365 | 0.365 |
| 275 | 3.537 | 3.537 | 3.537 | 3.537 | 3.537 | 3.537 | 3.522 | 3.519 | 3.327 | 3.285 | 2.104 | 0.365 | 0.365 | 0.365 |
| 280 | 3.665 | 3.665 | 3.665 | 3.665 | 3.665 | 3.665 | 3.655 | 3.653 | 3.492 | 3.456 | 2.352 | 0.365 | 0.365 | 0.365 |
| 285 | 3.793 | 3.793 | 3.793 | 3.793 | 3.793 | 3.793 | 3.787 | 3.786 | 3.658 | 3.626 | 2.601 | 0.377 | 0.365 | 0.365 |
| 290 | 3.920 | 3.920 | 3.920 | 3.920 | 3.920 | 3.920 | 3.920 | 3.920 | 3.824 | 3.797 | 2.850 | 0.616 | 0.365 | 0.365 |
| 295 | 4.053 | 4.053 | 4.053 | 4.053 | 4.053 | 4.053 | 4.053 | 4.053 | 3.989 | 3.968 | 3.098 | 0.854 | 0.365 | 0.365 |
| 300 | 4.187 | 4.187 | 4.187 | 4.187 | 4.187 | 4.187 | 4.187 | 4.187 | 4.155 | 4.138 | 3.347 | 1.093 | 0.365 | 0.365 |
| 305 | 4.321 | 4.321 | 4.321 | 4.321 | 4.321 | 4.321 | 4.321 | 4.321 | 4.321 | 4.309 | 3.595 | 1.332 | 0.365 | 0.365 |
| 310 | 4.455 | 4.455 | 4.455 | 4.455 | 4.455 | 4.455 | 4.455 | 4.455 | 4.455 | 4.454 | 3.844 | 1.571 | 0.365 | 0.365 |
| 315 | 4.487 | 4.487 | 4.487 | 4.487 | 4.487 | 4.487 | 4.487 | 4.487 | 4.487 | 4.485 | 4.092 | 1.809 | 0.365 | 0.365 |
| 320 | 4.521 | 4.521 | 4.521 | 4.521 | 4.521 | 4.521 | 4.521 | 4.521 | 4.519 | 4.516 | 4.341 | 2.048 | 0.365 | 0.365 |
| 325 | 4.557 | 4.557 | 4.557 | 4.557 | 4.557 | 4.557 | 4.557 | 4.557 | 4.551 | 4.548 | 4.463 | 2.287 | 0.365 | 0.365 |
| 330 | 4.593 | 4.593 | 4.593 | 4.593 | 4.593 | 4.593 | 4.593 | 4.593 | 4.582 | 4.579 | 4.488 | 2.526 | 0.365 | 0.365 |

Thickness is intumescent only.

| Table 23 Circular Hollow Columns 45 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor (m-1) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 1.051 | 0.560 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 55 | 1.194 | 0.675 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 60 | 1.338 | 0.790 | 0.421 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 65 | 1.481 | 0.906 | 0.514 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 70 | 1.624 | 1.021 | 0.607 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 75 | 1.767 | 1.137 | 0.699 | 0.430 | 0.375 | 0.373 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 80 | 1.911 | 1.252 | 0.792 | 0.502 | 0.444 | 0.441 | 0.419 | 0.414 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 85 | 2.061 | 1.367 | 0.885 | 0.575 | 0.513 | 0.510 | 0.486 | 0.481 | 0.367 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 90 | 2.237 | 1.483 | 0.978 | 0.648 | 0.581 | 0.579 | 0.553 | 0.548 | 0.427 | 0.413 | 0.365 | 0.365 | 0.365 | 0.365 |
| 95 | 2.412 | 1.598 | 1.070 | 0.720 | 0.650 | 0.648 | 0.620 | 0.615 | 0.486 | 0.472 | 0.365 | 0.365 | 0.365 | 0.365 |
| 100 | 2.588 | 1.713 | 1.163 | 0.793 | 0.719 | 0.716 | 0.688 | 0.682 | 0.546 | 0.531 | 0.365 | 0.365 | 0.365 | 0.365 |
| 105 | 2.763 | 1.829 | 1.256 | 0.866 | 0.787 | 0.785 | 0.755 | 0.749 | 0.606 | 0.591 | 0.365 | 0.365 | 0.365 | 0.365 |
| 110 | 2.939 | 1.944 | 1.348 | 0.939 | 0.856 | 0.854 | 0.822 | 0.816 | 0.666 | 0.650 | 0.425 | 0.365 | 0.365 | 0.365 |
| 115 | 3.115 | 2.057 | 1.441 | 1.011 | 0.925 | 0.922 | 0.889 | 0.882 | 0.726 | 0.709 | 0.553 | 0.365 | 0.365 | 0.365 |
| 120 | 3.290 | 2.164 | 1.534 | 1.084 | 0.993 | 0.991 | 0.956 | 0.949 | 0.786 | 0.768 | 0.682 | 0.365 | 0.365 | 0.365 |
| 125 | 3.466 | 2.270 | 1.626 | 1.157 | 1.062 | 1.060 | 1.023 | 1.016 | 0.846 | 0.827 | 0.810 | 0.365 | 0.365 | 0.365 |
| 130 | 3.559 | 2.377 | 1.719 | 1.229 | 1.131 | 1.129 | 1.091 | 1.083 | 0.939 | 0.939 | 0.939 | 0.365 | 0.365 | 0.365 |
| 135 | 3.599 | 2.484 | 1.812 | 1.302 | 1.199 | 1.197 | 1.158 | 1.150 | 1.068 | 1.068 | 1.068 | 0.398 | 0.365 | 0.365 |
| 140 | 3.639 | 2.591 | 1.904 | 1.375 | 1.268 | 1.266 | 1.225 | 1.217 | 1.196 | 1.196 | 1.196 | 0.541 | 0.365 | 0.365 |
| 145 | 3.680 | 2.697 | 1.997 | 1.447 | 1.337 | 1.335 | 1.325 | 1.325 | 1.325 | 1.325 | 1.325 | 0.684 | 0.365 | 0.365 |
| 150 | 3.720 | 2.804 | 2.105 | 1.520 | 1.453 | 1.453 | 1.453 | 1.453 | 1.453 | 1.453 | 1.453 | 0.827 | 0.365 | 0.365 |
| 155 | 3.760 | 2.911 | 2.219 | 1.593 | 1.582 | 1.582 | 1.582 | 1.582 | 1.582 | 1.582 | 1.582 | 0.969 | 0.365 | 0.365 |
| 160 | 3.800 | 3.018 | 2.333 | 1.710 | 1.710 | 1.710 | 1.710 | 1.710 | 1.710 | 1.710 | 1.710 | 1.112 | 0.365 | 0.365 |
| 165 | 3.840 | 3.125 | 2.447 | 1.839 | 1.839 | 1.839 | 1.839 | 1.839 | 1.839 | 1.839 | 1.839 | 1.255 | 0.365 | 0.365 |
| 170 | 3.880 | 3.231 | 2.560 | 1.967 | 1.967 | 1.967 | 1.967 | 1.967 | 1.967 | 1.967 | 1.967 | 1.397 | 0.419 | 0.365 |
| 175 | 3.920 | 3.338 | 2.674 | 2.096 | 2.096 | 2.096 | 2.096 | 2.096 | 2.096 | 2.096 | 2.096 | 1.540 | 0.570 | 0.365 |
| 180 | 3.960 | 3.445 | 2.788 | 2.224 | 2.224 | 2.224 | 2.224 | 2.224 | 2.224 | 2.224 | 2.224 | 1.683 | 0.722 | 0.365 |
| 185 | 4.000 | 3.546 | 2.902 | 2.353 | 2.353 | 2.353 | 2.353 | 2.353 | 2.353 | 2.353 | 2.353 | 1.826 | 0.874 | 0.365 |
| 190 | 4.041 | 3.620 | 3.016 | 2.482 | 2.482 | 2.482 | 2.482 | 2.482 | 2.482 | 2.482 | 2.482 | 1.968 | 1.025 | 0.365 |
| 195 | 4.081 | 3.694 | 3.129 | 2.610 | 2.610 | 2.610 | 2.610 | 2.610 | 2.610 | 2.610 | 2.610 | 2.111 | 1.177 | 0.365 |
| 200 | 4.121 | 3.768 | 3.243 | 2.739 | 2.739 | 2.739 | 2.739 | 2.739 | 2.739 | 2.739 | 2.739 | 2.254 | 1.329 | 0.365 |
| 205 | 4.161 | 3.841 | 3.357 | 2.867 | 2.867 | 2.867 | 2.867 | 2.867 | 2.867 | 2.867 | 2.867 | 2.397 | 1.480 | 0.365 |
| 210 | 4.201 | 3.915 | 3.471 | 2.996 | 2.996 | 2.996 | 2.996 | 2.996 | 2.996 | 2.996 | 2.996 | 2.539 | 1.632 | 0.365 |
| 215 | 4.241 | 3.989 | 3.584 | 3.124 | 3.124 | 3.124 | 3.124 | 3.124 | 3.124 | 3.124 | 3.124 | 2.682 | 1.784 | 0.365 |
| 220 | 4.281 | 4.062 | 3.698 | 3.253 | 3.253 | 3.253 | 3.253 | 3.253 | 3.253 | 3.253 | 3.253 | 2.825 | 1.936 | 0.365 |
| 225 | 4.321 | 4.136 | 3.812 | 3.392 | 3.381 | 3.381 | 3.381 | 3.381 | 3.381 | 3.381 | 3.381 | 2.968 | 2.087 | 0.365 |
| 230 | 4.361 | 4.210 | 3.926 | 3.561 | 3.510 | 3.510 | 3.510 | 3.510 | 3.510 | 3.510 | 3.510 | 3.110 | 2.239 | 0.365 |
| 235 | 4.401 | 4.284 | 4.040 | 3.730 | 3.638 | 3.638 | 3.638 | 3.638 | 3.638 | 3.638 | 3.638 | 3.253 | 2.391 | 0.365 |
| 240 | 4.442 | 4.357 | 4.153 | 3.900 | 3.797 | 3.797 | 3.767 | 3.767 | 3.767 | 3.767 | 3.767 | 3.396 | 2.542 | 0.398 |
| 245 | 4.647 | 4.431 | 4.267 | 4.069 | 3.994 | 3.994 | 3.946 | 3.935 | 3.896 | 3.896 | 3.896 | 3.539 | 2.694 | 0.524 |
| 250 | 4.884 | 4.538 | 4.381 | 4.238 | 4.192 | 4.192 | 4.156 | 4.149 | 4.024 | 4.024 | 4.024 | 3.681 | 2.846 | 0.651 |
| 255 | 5.120 | 4.655 | 4.519 | 4.408 | 4.389 | 4.389 | 4.367 | 4.363 | 4.153 | 4.153 | 4.153 | 3.824 | 2.997 | 0.777 |
| 260 | 5.357 | 4.772 | 4.692 | 4.531 | 4.518 | 4.518 | 4.507 | 4.505 | 4.456 | 4.450 | 4.281 | 3.967 | 3.149 | 0.903 |
| 265 | 5.594 | 4.888 | 4.865 | 4.641 | 4.618 | 4.618 | 4.604 | 4.601 | 4.539 | 4.532 | 4.410 | 4.109 | 3.301 | 1.030 |
| 270 | 5.831 | 5.039 | 5.039 | 4.750 | 4.718 | 4.718 | 4.700 | 4.697 | 4.623 | 4.614 | 4.493 | 4.252 | 3.453 | 1.156 |
| 275 | 6.060 | 5.212 | 5.212 | 4.859 | 4.818 | 4.818 | 4.797 | 4.793 | 4.706 | 4.696 | 4.557 | 4.395 | 3.604 | 1.282 |
| 280 | 6.185 | 5.385 | 5.385 | 4.969 | 4.918 | 4.918 | 4.893 | 4.889 | 4.790 | 4.778 | 4.621 | 4.479 | 3.756 | 1.409 |
| 285 | 6.311 | 5.558 | 5.558 | 5.078 | 5.018 | 5.018 | 4.990 | 4.984 | 4.873 | 4.859 | 4.684 | 4.527 | 3.908 | 1.535 |
| 290 | 6.437 | 5.731 | 5.731 | 5.188 | 5.118 | 5.118 | 5.086 | 5.080 | 4.957 | 4.941 | 4.748 | 4.576 | 4.059 | 1.661 |
| 295 | 6.562 | 5.904 | 5.904 | 5.297 | 5.218 | 5.218 | 5.183 | 5.176 | 5.040 | 5.023 | 4.812 | 4.625 | 4.211 | 1.788 |
| 300 | 6.688 | 6.061 | 6.061 | 5.406 | 5.318 | 5.318 | 5.279 | 5.272 | 5.123 | 5.105 | 4.876 | 4.673 | 4.363 | 1.914 |
| 305 | 6.813 | 6.123 | 6.123 | 5.516 | 5.418 | 5.418 | 5.376 | 5.368 | 5.207 | 5.187 | 4.940 | 4.722 | 4.464 | 2.040 |
| 310 | 6.939 | 6.186 | 6.186 | 5.625 | 5.518 | 5.518 | 5.472 | 5.463 | 5.290 | 5.268 | 5.004 | 4.771 | 4.502 | 2.167 |
| 315 | 7.065 | 6.248 | 6.248 | 5.734 | 5.618 | 5.618 | 5.569 | 5.559 | 5.374 | 5.350 | 5.068 | 4.820 | 4.539 | 2.293 |
| 320 | 7.190 | 6.311 | 6.311 | 5.844 | 5.718 | 5.718 | 5.665 | 5.655 | 5.457 | 5.432 | 5.131 | 4.868 | 4.577 | 2.419 |
| 325 | 7.316 | 6.374 | 6.374 | 5.953 | 5.818 | 5.818 | 5.762 | 5.751 | 5.540 | 5.514 | 5.195 | 4.917 | 4.614 | 2.546 |
| 330 | 7.442 | 6.436 | 6.436 | 6.057 | 5.918 | 5.918 | 5.858 | 5.847 | 5.624 | 5.595 | 5.259 | 4.966 | 4.652 | 2.672 |

Thickness is intumescent only.

| Table 24 Circular Hollow Columns 60 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor (m-1) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 1.741 | 1.153 | 0.719 | 0.444 | 0.390 | 0.388 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 55 | 1.958 | 1.332 | 0.868 | 0.546 | 0.481 | 0.479 | 0.455 | 0.450 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 | 0.365 |
| 60 | 2.313 | 1.511 | 1.018 | 0.670 | 0.600 | 0.597 | 0.571 | 0.566 | 0.449 | 0.437 | 0.365 | 0.365 | 0.365 | 0.365 |
| 65 | 2.727 | 1.690 | 1.168 | 0.793 | 0.718 | 0.716 | 0.687 | 0.682 | 0.555 | 0.541 | 0.365 | 0.365 | 0.365 | 0.365 |
| 70 | 3.140 | 1.870 | 1.317 | 0.917 | 0.836 | 0.834 | 0.803 | 0.798 | 0.661 | 0.646 | 0.430 | 0.365 | 0.365 | 0.365 |
| 75 | 3.537 | 2.067 | 1.467 | 1.040 | 0.954 | 0.952 | 0.920 | 0.913 | 0.766 | 0.750 | 0.519 | 0.365 | 0.365 | 0.365 |
| 80 | 3.578 | 2.365 | 1.617 | 1.164 | 1.073 | 1.071 | 1.036 | 1.029 | 0.872 | 0.855 | 0.608 | 0.394 | 0.365 | 0.365 |
| 85 | 3.618 | 2.662 | 1.766 | 1.288 | 1.191 | 1.189 | 1.152 | 1.145 | 0.978 | 0.960 | 0.697 | 0.469 | 0.365 | 0.365 |
| 90 | 3.659 | 2.960 | 1.916 | 1.411 | 1.309 | 1.307 | 1.268 | 1.261 | 1.083 | 1.064 | 0.786 | 0.545 | 0.365 | 0.365 |
| 95 | 3.700 | 3.258 | 2.062 | 1.535 | 1.427 | 1.425 | 1.384 | 1.376 | 1.189 | 1.169 | 0.875 | 0.620 | 0.399 | 0.365 |
| 100 | 3.741 | 3.538 | 2.197 | 1.658 | 1.546 | 1.544 | 1.501 | 1.492 | 1.295 | 1.274 | 0.964 | 0.696 | 0.463 | 0.365 |
| 105 | 3.782 | 3.583 | 2.333 | 1.782 | 1.664 | 1.662 | 1.617 | 1.608 | 1.400 | 1.378 | 1.053 | 0.771 | 0.526 | 0.365 |
| 110 | 3.822 | 3.628 | 2.468 | 1.906 | 1.782 | 1.780 | 1.733 | 1.724 | 1.506 | 1.483 | 1.142 | 0.847 | 0.589 | 0.365 |
| 115 | 3.863 | 3.674 | 2.604 | 2.027 | 1.901 | 1.899 | 1.849 | 1.839 | 1.612 | 1.588 | 1.231 | 0.923 | 0.653 | 0.365 |
| 120 | 3.904 | 3.719 | 2.739 | 2.119 | 2.019 | 2.017 | 1.965 | 1.955 | 1.717 | 1.692 | 1.320 | 0.998 | 0.716 | 0.365 |
| 125 | 3.945 | 3.764 | 2.875 | 2.210 | 2.102 | 2.101 | 2.063 | 2.055 | 1.823 | 1.797 | 1.409 | 1.074 | 0.779 | 0.394 |
| 130 | 3.985 | 3.809 | 3.010 | 2.301 | 2.185 | 2.184 | 2.142 | 2.134 | 1.928 | 1.901 | 1.498 | 1.149 | 0.843 | 0.448 |
| 135 | 4.026 | 3.854 | 3.146 | 2.392 | 2.268 | 2.267 | 2.222 | 2.213 | 2.037 | 2.006 | 1.587 | 1.225 | 0.906 | 0.502 |
| 140 | 4.067 | 3.899 | 3.281 | 2.484 | 2.350 | 2.350 | 2.302 | 2.292 | 2.170 | 2.136 | 1.676 | 1.301 | 0.969 | 0.557 |
| 145 | 4.108 | 3.945 | 3.417 | 2.575 | 2.433 | 2.433 | 2.381 | 2.371 | 2.302 | 2.269 | 1.765 | 1.376 | 1.033 | 0.611 |
| 150 | 4.149 | 3.990 | 3.545 | 2.666 | 2.516 | 2.516 | 2.461 | 2.450 | 2.435 | 2.403 | 1.854 | 1.452 | 1.096 | 0.665 |
| 155 | 4.189 | 4.035 | 3.618 | 2.757 | 2.599 | 2.599 | 2.568 | 2.568 | 2.568 | 2.537 | 1.943 | 1.527 | 1.159 | 0.719 |
| 160 | 4.230 | 4.080 | 3.691 | 2.849 | 2.700 | 2.700 | 2.700 | 2.700 | 2.700 | 2.671 | 2.039 | 1.603 | 1.223 | 0.773 |
| 165 | 4.271 | 4.125 | 3.765 | 2.940 | 2.833 | 2.833 | 2.833 | 2.833 | 2.833 | 2.805 | 2.200 | 1.678 | 1.286 | 0.827 |
| 170 | 4.312 | 4.170 | 3.838 | 3.031 | 2.966 | 2.966 | 2.966 | 2.966 | 2.966 | 2.939 | 2.361 | 1.754 | 1.349 | 0.881 |
| 175 | 4.353 | 4.216 | 3.911 | 3.122 | 3.098 | 3.098 | 3.098 | 3.098 | 3.098 | 3.073 | 2.522 | 1.830 | 1.413 | 0.936 |
| 180 | 4.393 | 4.261 | 3.985 | 3.231 | 3.231 | 3.231 | 3.231 | 3.231 | 3.231 | 3.206 | 2.683 | 1.905 | 1.476 | 0.990 |
| 185 | 4.434 | 4.306 | 4.058 | 3.363 | 3.363 | 3.363 | 3.363 | 3.363 | 3.363 | 3.340 | 2.844 | 1.981 | 1.539 | 1.044 |
| 190 | 4.647 | 4.351 | 4.131 | 3.496 | 3.496 | 3.496 | 3.496 | 3.496 | 3.496 | 3.474 | 3.004 | 2.117 | 1.603 | 1.098 |
| 195 | 4.950 | 4.396 | 4.205 | 3.629 | 3.629 | 3.629 | 3.629 | 3.629 | 3.629 | 3.608 | 3.165 | 2.328 | 1.666 | 1.152 |
| 200 | 5.252 | 4.442 | 4.278 | 3.761 | 3.761 | 3.761 | 3.761 | 3.761 | 3.761 | 3.742 | 3.326 | 2.538 | 1.729 | 1.206 |
| 205 | 5.555 | 4.624 | 4.352 | 3.894 | 3.894 | 3.894 | 3.894 | 3.894 | 3.894 | 3.876 | 3.487 | 2.748 | 1.793 | 1.261 |
| 210 | 5.858 | 4.830 | 4.425 | 4.052 | 4.027 | 4.027 | 4.027 | 4.027 | 4.027 | 4.010 | 3.648 | 2.958 | 1.856 | 1.315 |
| 215 | 6.126 | 5.036 | 4.691 | 4.260 | 4.159 | 4.159 | 4.159 | 4.159 | 4.159 | 4.143 | 3.809 | 3.168 | 1.919 | 1.369 |
| 220 | 6.333 | 5.242 | 5.044 | 4.474 | 4.359 | 4.359 | 4.292 | 4.292 | 4.292 | 4.277 | 3.970 | 3.378 | 1.983 | 1.423 |
| 225 | 6.541 | 5.448 | 5.398 | 4.737 | 4.649 | 4.649 | 4.607 | 4.599 | 4.424 | 4.411 | 4.130 | 3.588 | 2.128 | 1.477 |
| 230 | 6.748 | 5.751 | 5.751 | 5.000 | 4.895 | 4.895 | 4.847 | 4.838 | 4.630 | 4.606 | 4.291 | 3.798 | 2.406 | 1.531 |
| 235 | 6.956 | 6.065 | 6.065 | 5.264 | 5.142 | 5.142 | 5.088 | 5.077 | 4.851 | 4.825 | 4.452 | 4.008 | 2.684 | 1.585 |
| 240 | 7.163 | 6.160 | 6.160 | 5.527 | 5.388 | 5.388 | 5.328 | 5.317 | 5.073 | 5.043 | 4.617 | 4.218 | 2.963 | 1.640 |
| 245 | 7.371 | 6.255 | 6.255 | 5.790 | 5.635 | 5.635 | 5.569 | 5.556 | 5.294 | 5.262 | 4.783 | 4.428 | 3.241 | 1.694 |
| 250 | 7.578 | 6.360 | 6.350 | 6.052 | 5.882 | 5.882 | 5.809 | 5.795 | 5.516 | 5.480 | 4.948 | 4.555 | 3.520 | 1.748 |
| 255 | 7.786 | 6.509 | 6.444 | 6.135 | 6.076 | 6.076 | 6.050 | 6.035 | 5.737 | 5.699 | 5.113 | 4.673 | 3.798 | 1.802 |
| 260 | 7.993 | 6.658 | 6.539 | 6.218 | 6.157 | 6.157 | 6.131 | 6.125 | 5.959 | 5.917 | 5.278 | 4.791 | 4.076 | 1.856 |
| 265 | 8.201 | 6.806 | 6.634 | 6.302 | 6.238 | 6.238 | 6.210 | 6.205 | 6.094 | 6.080 | 5.444 | 4.908 | 4.355 | 1.910 |
| 270 | 8.408 | 6.955 | 6.729 | 6.385 | 6.319 | 6.319 | 6.290 | 6.285 | 6.169 | 6.154 | 5.609 | 5.026 | 4.507 | 1.965 |
| 275 | - | 7.104 | 6.823 | 6.469 | 6.400 | 6.400 | 6.370 | 6.364 | 6.244 | 6.228 | 5.774 | 5.144 | 4.596 | 2.019 |
| 280 | - | 7.253 | 6.918 | 6.552 | 6.481 | 6.481 | 6.450 | 6.444 | 6.318 | 6.301 | 5.939 | 5.262 | 4.685 | 2.869 |
| 285 | - | 7.402 | 7.013 | 6.635 | 6.562 | 6.562 | 6.530 | 6.524 | 6.393 | 6.375 | 6.072 | 5.380 | 4.774 | 3.771 |
| 290 | - | 7.551 | 7.108 | 6.719 | 6.643 | 6.643 | 6.610 | 6.604 | 6.467 | 6.449 | 6.138 | 5.498 | 4.863 | 4.464 |
| 295 | - | 7.700 | 7.202 | 6.802 | 6.724 | 6.724 | 6.690 | 6.683 | 6.542 | 6.523 | 6.204 | 5.616 | 4.952 | 4.528 |
| 300 | - | 7.849 | 7.297 | 6.886 | 6.805 | 6.805 | 6.770 | 6.763 | 6.616 | 6.597 | 6.270 | 5.733 | 5.041 | 4.592 |
| 305 | - | 7.998 | 7.392 | 6.969 | 6.886 | 6.886 | 6.850 | 6.843 | 6.691 | 6.671 | 6.336 | 5.851 | 5.130 | 4.656 |
| 310 | - | 8.146 | 7.487 | 7.052 | 6.967 | 6.967 | 6.930 | 6.922 | 6.765 | 6.745 | 6.402 | 5.969 | 5.218 | 4.720 |
| 315 | - | 8.295 | 7.581 | 7.136 | 7.048 | 7.048 | 7.010 | 7.002 | 6.840 | 6.819 | 6.468 | 6.070 | 5.307 | 4.784 |
| 320 | - | 8.444 | 7.676 | 7.219 | 7.129 | 7.129 | 7.090 | 7.082 | 6.914 | 6.893 | 6.534 | 6.132 | 5.396 | 4.847 |
| 325 | - | - | 7.771 | 7.303 | 7.210 | 7.210 | 7.169 | 7.161 | 6.989 | 6.966 | 6.600 | 6.193 | 5.485 | 4.911 |
| 330 | - | - | 7.866 | 7.386 | 7.291 | 7.291 | 7.249 | 7.241 | 7.064 | 7.040 | 6.666 | 6.255 | 5.574 | 4.975 |

Thickness is intumescent only.

| Table 25 Circular Hollow Columns 75 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor (m-1) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 3.155 | 1.767 | 1.247 | 0.875 | 0.801 | 0.799 | 0.770 | 0.765 | 0.637 | 0.624 | 0.435 | 0.365 | 0.365 | 0.365 |
| 55 | 3.610 | 2.012 | 1.454 | 1.048 | 0.967 | 0.964 | 0.934 | 0.927 | 0.782 | 0.766 | 0.538 | 0.365 | 0.365 | 0.365 |
| 60 | 3.795 | 2.576 | 1.661 | 1.220 | 1.132 | 1.130 | 1.097 | 1.090 | 0.933 | 0.916 | 0.669 | 0.458 | 0.365 | 0.365 |
| 65 | 3.980 | 3.153 | 1.867 | 1.393 | 1.298 | 1.296 | 1.260 | 1.253 | 1.083 | 1.065 | 0.800 | 0.573 | 0.373 | 0.365 |
| 70 | 4.165 | 3.568 | 2.097 | 1.566 | 1.464 | 1.462 | 1.423 | 1.415 | 1.234 | 1.215 | 0.931 | 0.688 | 0.473 | 0.365 |
| 75 | 4.350 | 3.665 | 2.392 | 1.738 | 1.630 | 1.628 | 1.586 | 1.578 | 1.385 | 1.364 | 1.062 | 0.803 | 0.573 | 0.365 |
| 80 | 4.535 | 3.762 | 2.688 | 1.911 | 1.796 | 1.793 | 1.749 | 1.741 | 1.535 | 1.514 | 1.193 | 0.918 | 0.674 | 0.365 |
| 85 | 4.720 | 3.859 | 2.983 | 2.098 | 1.961 | 1.959 | 1.912 | 1.903 | 1.686 | 1.663 | 1.324 | 1.033 | 0.774 | 0.433 |
| 90 | 4.905 | 3.956 | 3.279 | 2.310 | 2.146 | 2.144 | 2.084 | 2.073 | 1.836 | 1.812 | 1.454 | 1.148 | 0.874 | 0.522 |
| 95 | 5.091 | 4.053 | 3.542 | 2.522 | 2.342 | 2.340 | 2.274 | 2.261 | 1.987 | 1.962 | 1.585 | 1.263 | 0.974 | 0.611 |
| 100 | 5.276 | 4.151 | 3.594 | 2.735 | 2.537 | 2.536 | 2.463 | 2.449 | 2.142 | 2.113 | 1.716 | 1.378 | 1.075 | 0.701 |
| 105 | 5.461 | 4.248 | 3.646 | 2.947 | 2.733 | 2.732 | 2.653 | 2.638 | 2.298 | 2.266 | 1.847 | 1.493 | 1.175 | 0.790 |
| 110 | 5.646 | 4.345 | 3.698 | 3.159 | 2.928 | 2.928 | 2.843 | 2.826 | 2.454 | 2.419 | 1.978 | 1.608 | 1.275 | 0.879 |
| 115 | 5.831 | 4.442 | 3.751 | 3.371 | 3.125 | 3.125 | 3.032 | 3.014 | 2.610 | 2.572 | 2.092 | 1.723 | 1.375 | 0.968 |
| 120 | 6.016 | 4.539 | 3.803 | 3.549 | 3.321 | 3.321 | 3.222 | 3.203 | 2.767 | 2.724 | 2.197 | 1.838 | 1.476 | 1.058 |
| 125 | 6.201 | 4.636 | 3.855 | 3.612 | 3.517 | 3.517 | 3.411 | 3.391 | 2.923 | 2.877 | 2.303 | 1.953 | 1.576 | 1.147 |
| 130 | 6.386 | 4.733 | 3.907 | 3.674 | 3.595 | 3.595 | 3.559 | 3.551 | 3.079 | 3.030 | 2.408 | 2.074 | 1.676 | 1.236 |
| 135 | 6.572 | 4.830 | 3.959 | 3.737 | 3.662 | 3.662 | 3.627 | 3.620 | 3.235 | 3.183 | 2.514 | 2.205 | 1.776 | 1.325 |
| 140 | 6.757 | 4.927 | 4.012 | 3.799 | 3.729 | 3.729 | 3.696 | 3.689 | 3.391 | 3.336 | 2.619 | 2.336 | 1.877 | 1.414 |
| 145 | 6.942 | 5.024 | 4.064 | 3.861 | 3.795 | 3.795 | 3.764 | 3.758 | 3.542 | 3.489 | 2.725 | 2.468 | 1.977 | 1.504 |
| 150 | 7.127 | 5.122 | 4.116 | 3.924 | 3.862 | 3.862 | 3.833 | 3.827 | 3.624 | 3.594 | 2.830 | 2.599 | 2.095 | 1.593 |
| 155 | 7.312 | 5.219 | 4.168 | 3.986 | 3.928 | 3.928 | 3.901 | 3.895 | 3.706 | 3.678 | 2.936 | 2.730 | 2.228 | 1.682 |
| 160 | 7.497 | 5.316 | 4.220 | 4.049 | 3.995 | 3.995 | 3.969 | 3.964 | 3.789 | 3.763 | 3.041 | 2.861 | 2.362 | 1.771 |
| 165 | 7.682 | 5.413 | 4.272 | 4.111 | 4.061 | 4.061 | 4.038 | 4.033 | 3.871 | 3.847 | 3.146 | 2.992 | 2.495 | 1.860 |
| 170 | 7.867 | 5.510 | 4.325 | 4.173 | 4.128 | 4.128 | 4.106 | 4.102 | 3.954 | 3.932 | 3.252 | 3.124 | 2.628 | 1.950 |
| 175 | 8.053 | 5.607 | 4.377 | 4.236 | 4.195 | 4.195 | 4.175 | 4.171 | 4.036 | 4.016 | 3.357 | 3.255 | 2.762 | 2.050 |
| 180 | 8.238 | 5.704 | 4.429 | 4.298 | 4.261 | 4.261 | 4.243 | 4.239 | 4.119 | 4.101 | 3.463 | 3.386 | 2.895 | 2.196 |
| 185 | 8.423 | 5.801 | 4.769 | 4.361 | 4.328 | 4.328 | 4.312 | 4.308 | 4.201 | 4.185 | 3.589 | 3.517 | 3.028 | 2.342 |
| 190 | - | 5.898 | 5.275 | 4.423 | 4.394 | 4.394 | 4.380 | 4.377 | 4.284 | 4.270 | 3.761 | 3.648 | 3.162 | 2.489 |
| 195 | - | 5.995 | 5.781 | 4.691 | 4.522 | 4.522 | 4.450 | 4.446 | 4.366 | 4.354 | 3.933 | 3.780 | 3.295 | 2.635 |
| 200 | - | 6.224 | 6.116 | 5.096 | 4.904 | 4.904 | 4.823 | 4.807 | 4.450 | 4.439 | 4.105 | 3.911 | 3.428 | 2.781 |
| 205 | - | 6.628 | 6.255 | 5.502 | 5.285 | 5.285 | 5.195 | 5.178 | 4.792 | 4.749 | 4.277 | 4.042 | 3.562 | 2.927 |
| 210 | - | 7.033 | 6.394 | 5.907 | 5.666 | 5.666 | 5.568 | 5.549 | 5.133 | 5.086 | 4.450 | 4.173 | 3.695 | 3.074 |
| 215 | - | 7.437 | 6.533 | 6.131 | 6.048 | 6.048 | 5.940 | 5.919 | 5.475 | 5.423 | 4.744 | 4.305 | 3.828 | 3.220 |
| 220 | - | 7.842 | 6.672 | 6.255 | 6.171 | 6.171 | 6.135 | 6.128 | 5.817 | 5.760 | 5.038 | 4.436 | 3.962 | 3.366 |
| 225 | - | 8.246 | 6.811 | 6.378 | 6.292 | 6.292 | 6.255 | 6.247 | 6.087 | 6.066 | 5.332 | 4.680 | 4.095 | 3.513 |
| 230 | - | - | 6.950 | 6.502 | 6.413 | 6.413 | 6.374 | 6.366 | 6.200 | 6.178 | 5.626 | 4.936 | 4.228 | 3.659 |
| 235 | - | - | 7.089 | 6.626 | 6.534 | 6.534 | 6.493 | 6.486 | 6.312 | 6.290 | 5.920 | 5.192 | 4.362 | 3.805 |
| 240 | - | - | 7.228 | 6.750 | 6.655 | 6.655 | 6.613 | 6.605 | 6.425 | 6.402 | 6.105 | 5.448 | 4.530 | 3.952 |
| 245 | - | - | 7.367 | 6.874 | 6.775 | 6.775 | 6.732 | 6.724 | 6.538 | 6.514 | 6.202 | 5.703 | 4.765 | 4.098 |
| 250 | - | - | 7.506 | 6.997 | 6.896 | 6.896 | 6.852 | 6.843 | 6.651 | 6.626 | 6.299 | 5.959 | 4.999 | 4.244 |
| 255 | - | - | 7.645 | 7.121 | 7.017 | 7.017 | 6.971 | 6.962 | 6.764 | 6.738 | 6.396 | 6.106 | 5.233 | 4.391 |
| 260 | - | - | 7.784 | 7.245 | 7.138 | 7.138 | 7.091 | 7.082 | 6.877 | 6.850 | 6.493 | 6.192 | 5.468 | 4.542 |
| 265 | - | - | 7.923 | 7.369 | 7.259 | 7.259 | 7.210 | 7.201 | 6.989 | 6.962 | 6.590 | 6.277 | 5.702 | 4.698 |
| 270 | - | - | 8.062 | 7.493 | 7.380 | 7.380 | 7.330 | 7.320 | 7.102 | 7.074 | 6.687 | 6.363 | 5.937 | 4.853 |
| 275 | - | - | 8.201 | 7.616 | 7.501 | 7.501 | 7.449 | 7.439 | 7.215 | 7.186 | 6.784 | 6.449 | 6.091 | 5.009 |
| 280 | - | - | 8.339 | 7.740 | 7.622 | 7.622 | 7.569 | 7.558 | 7.328 | 7.298 | 6.881 | 6.534 | 6.168 | 5.164 |
| 285 | - | - | 8.478 | 7.864 | 7.743 | 7.743 | 7.688 | 7.678 | 7.441 | 7.410 | 6.978 | 6.620 | 6.246 | 5.320 |
| 290 | - | - | - | 7.988 | 7.864 | 7.864 | 7.808 | 7.797 | 7.554 | 7.522 | 7.075 | 6.706 | 6.323 | 5.476 |
| 295 | - | - | - | 8.112 | 7.985 | 7.985 | 7.927 | 7.916 | 7.667 | 7.634 | 7.172 | 6.791 | 6.400 | 5.631 |
| 300 | - | - | - | 8.235 | 8.106 | 8.106 | 8.047 | 8.035 | 7.779 | 7.746 | 7.269 | 6.877 | 6.478 | 5.787 |
| 305 | - | - | - | 8.359 | 8.226 | 8.226 | 8.166 | 8.154 | 7.892 | 7.858 | 7.366 | 6.962 | 6.555 | 5.942 |
| 310 | - | - | - | 8.483 | 8.347 | 8.347 | 8.286 | 8.274 | 8.005 | 7.970 | 7.463 | 7.048 | 6.633 | 6.074 |
| 315 | - | - | - | - | 8.448 | 8.468 | 8.405 | 8.393 | 8.118 | 8.082 | 7.560 | 7.134 | 6.710 | 6.150 |
| 320 | - | - | - | - | - | - | - | - | 8.231 | 8.194 | 7.657 | 7.219 | 6.788 | 6.226 |
| 325 | - | - | - | - | - | - | - | - | 8.344 | 8.306 | 7.754 | 7.305 | 6.865 | 6.302 |
| 330 | - | - | - | - | - | - | - | - | 8.457 | 8.418 | 7.851 | 7.391 | 6.943 | 6.379 |

Thickness is intumescent only.

| Table 26 Circular Hollow Columns 90 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor (m-1) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | - | 3.212 | 1.792 | 1.340 | 1.251 | 1.248 | 1.214 | 1.208 | 1.049 | 1.032 | 0.786 | 0.587 | 0.411 | 0.365 |
| 55 | - | 3.662 | 2.091 | 1.563 | 1.465 | 1.463 | 1.426 | 1.418 | 1.244 | 1.226 | 0.958 | 0.725 | 0.513 | 0.365 |
| 60 | - | 3.870 | 2.609 | 1.786 | 1.680 | 1.677 | 1.637 | 1.629 | 1.440 | 1.420 | 1.130 | 0.879 | 0.651 | 0.365 |
| 65 | - | 4.079 | 3.127 | 2.009 | 1.894 | 1.892 | 1.848 | 1.839 | 1.636 | 1.615 | 1.302 | 1.033 | 0.788 | 0.471 |
| 70 | - | 4.287 | 3.575 | 2.384 | 2.166 | 2.162 | 2.083 | 2.068 | 1.832 | 1.809 | 1.474 | 1.187 | 0.925 | 0.595 |
| 75 | - | 4.495 | 3.763 | 2.768 | 2.522 | 2.520 | 2.430 | 2.412 | 2.030 | 2.004 | 1.646 | 1.341 | 1.063 | 0.720 |
| 80 | - | 4.704 | 3.951 | 3.152 | 2.879 | 2.877 | 2.776 | 2.757 | 2.321 | 2.280 | 1.818 | 1.495 | 1.200 | 0.845 |
| 85 | - | 4.912 | 4.139 | 3.535 | 3.235 | 3.234 | 3.122 | 3.101 | 2.611 | 2.564 | 1.990 | 1.649 | 1.338 | 0.969 |
| 90 | - | 5.121 | 4.327 | 3.663 | 3.555 | 3.555 | 3.469 | 3.445 | 2.901 | 2.849 | 2.190 | 1.803 | 1.475 | 1.094 |
| 95 | - | 5.329 | 4.515 | 3.790 | 3.684 | 3.684 | 3.640 | 3.631 | 3.192 | 3.134 | 2.397 | 1.956 | 1.613 | 1.218 |
| 100 | - | 5.537 | 4.703 | 3.918 | 3.813 | 3.813 | 3.769 | 3.761 | 3.482 | 3.418 | 2.604 | 2.108 | 1.750 | 1.343 |
| 105 | - | 5.746 | 4.891 | 4.045 | 3.942 | 3.942 | 3.899 | 3.890 | 3.645 | 3.614 | 2.811 | 2.259 | 1.887 | 1.467 |
| 110 | - | 5.954 | 5.080 | 4.173 | 4.071 | 4.071 | 4.028 | 4.020 | 3.779 | 3.749 | 3.018 | 2.410 | 2.024 | 1.592 |
| 115 | - | 6.162 | 5.268 | 4.300 | 4.200 | 4.200 | 4.158 | 4.150 | 3.913 | 3.884 | 3.224 | 2.560 | 2.132 | 1.717 |
| 120 | - | 6.371 | 5.456 | 4.427 | 4.329 | 4.329 | 4.288 | 4.279 | 4.047 | 4.018 | 3.431 | 2.711 | 2.239 | 1.841 |
| 125 | - | 6.579 | 5.644 | 4.555 | 4.458 | 4.458 | 4.417 | 4.409 | 4.181 | 4.153 | 3.569 | 2.862 | 2.347 | 1.966 |
| 130 | - | 6.788 | 5.832 | 4.682 | 4.587 | 4.587 | 4.547 | 4.538 | 4.315 | 4.287 | 3.637 | 3.012 | 2.455 | 2.086 |
| 135 | - | 6.996 | 6.020 | 4.810 | 4.716 | 4.716 | 4.676 | 4.668 | 4.449 | 4.422 | 3.704 | 3.163 | 2.562 | 2.202 |
| 140 | - | 7.204 | 6.208 | 4.937 | 4.845 | 4.845 | 4.806 | 4.798 | 4.584 | 4.557 | 3.772 | 3.313 | 2.670 | 2.319 |
| 145 | - | 7.413 | 6.396 | 5.065 | 4.974 | 4.974 | 4.935 | 4.927 | 4.718 | 4.691 | 3.840 | 3.464 | 2.777 | 2.435 |
| 150 | - | 7.621 | 6.584 | 5.192 | 5.103 | 5.103 | 5.065 | 5.057 | 4.852 | 4.826 | 3.908 | 3.581 | 2.885 | 2.551 |
| 155 | - | 7.830 | 6.772 | 5.319 | 5.232 | 5.232 | 5.194 | 5.187 | 4.986 | 4.960 | 3.976 | 3.667 | 2.993 | 2.668 |
| 160 | - | 8.038 | 6.960 | 5.447 | 5.361 | 5.361 | 5.324 | 5.316 | 5.120 | 5.095 | 4.043 | 3.754 | 3.100 | 2.784 |
| 165 | - | 8.246 | 7.148 | 5.574 | 5.490 | 5.490 | 5.453 | 5.446 | 5.254 | 5.230 | 4.111 | 3.841 | 3.208 | 2.901 |
| 170 | - | 8.455 | 7.336 | 5.702 | 5.619 | 5.619 | 5.583 | 5.576 | 5.388 | 5.364 | 4.179 | 3.927 | 3.315 | 3.017 |
| 175 | - | - | 7.524 | 5.829 | 5.748 | 5.748 | 5.713 | 5.705 | 5.523 | 5.499 | 4.247 | 4.014 | 3.423 | 3.133 |
| 180 | - | - | 7.712 | 5.957 | 5.877 | 5.877 | 5.842 | 5.835 | 5.657 | 5.633 | 4.315 | 4.100 | 3.531 | 3.250 |
| 185 | - | - | 7.901 | 6.123 | 6.006 | 6.006 | 5.972 | 5.965 | 5.791 | 5.768 | 4.382 | 4.187 | 3.660 | 3.366 |
| 190 | - | - | 8.089 | 6.402 | 6.212 | 6.212 | 6.142 | 6.129 | 5.925 | 5.903 | 4.463 | 4.273 | 3.790 | 3.482 |
| 195 | - | - | 8.277 | 6.681 | 6.460 | 6.460 | 6.377 | 6.361 | 6.062 | 6.037 | 4.905 | 4.360 | 3.920 | 3.599 |
| 200 | - | - | 8.465 | 6.960 | 6.709 | 6.709 | 6.612 | 6.594 | 6.249 | 6.214 | 5.347 | 4.446 | 4.050 | 3.715 |
| 205 | - | - | - | 7.239 | 6.957 | 6.957 | 6.848 | 6.827 | 6.436 | 6.396 | 5.789 | 4.817 | 4.180 | 3.832 |
| 210 | - | - | - | 7.518 | 7.205 | 7.205 | 7.083 | 7.060 | 6.623 | 6.577 | 6.108 | 5.192 | 4.310 | 3.948 |
| 215 | - | - | - | 7.797 | 7.453 | 7.453 | 7.318 | 7.292 | 6.810 | 6.759 | 6.248 | 5.568 | 4.440 | 4.064 |
| 220 | - | - | - | 8.076 | 7.701 | 7.701 | 7.553 | 7.525 | 6.997 | 6.940 | 6.388 | 5.943 | 4.792 | 4.181 |
| 225 | - | - | - | 8.355 | 7.950 | 7.950 | 7.788 | 7.758 | 7.184 | 7.122 | 6.528 | 6.141 | 5.156 | 4.297 |
| 230 | - | - | - | - | 8.198 | 8.198 | 8.023 | 7.990 | 7.371 | 7.304 | 6.668 | 6.268 | 5.521 | 4.414 |
| 235 | - | - | - | - | 8.386 | 8.446 | 8.258 | 8.223 | 7.558 | 7.485 | 6.808 | 6.394 | 5.886 | 4.704 |
| 240 | - | - | - | - | - | - | - | 8.456 | 7.745 | 7.667 | 6.949 | 6.520 | 6.114 | 5.069 |
| 245 | - | - | - | - | - | - | - | - | 7.932 | 7.849 | 7.089 | 6.647 | 6.229 | 5.433 |
| 250 | - | - | - | - | - | - | - | - | 8.119 | 8.030 | 7.229 | 6.773 | 6.343 | 5.797 |
| 255 | - | - | - | - | - | - | - | - | 8.306 | 8.212 | 7.369 | 6.899 | 6.458 | 6.082 |
| 260 | - | - | - | - | - | - | - | - | - | 8.393 | 7.509 | 7.026 | 6.573 | 6.186 |
| 265 | - | - | - | - | - | - | - | - | - | - | 7.649 | 7.152 | 6.688 | 6.289 |
| 270 | - | - | - | - | - | - | - | - | - | - | 7.789 | 7.279 | 6.803 | 6.392 |
| 275 | - | - | - | - | - | - | - | - | - | - | 7.929 | 7.405 | 6.918 | 6.496 |
| 280 | - | - | - | - | - | - | - | - | - | - | 8.069 | 7.531 | 7.032 | 6.599 |
| 285 | - | - | - | - | - | - | - | - | - | - | 8.209 | 7.658 | 7.147 | 6.703 |
| 290 | - | - | - | - | - | - | - | - | - | - | 8.349 | 7.784 | 7.262 | 6.806 |
| 295 | - | - | - | - | - | - | - | - | - | - | 8.489 | 7.910 | 7.377 | 6.909 |
| 300 | - | - | - | - | - | - | - | - | - | - | - | 8.037 | 7.492 | 7.013 |
| 305 | - | - | - | - | - | - | - | - | - | - | - | 8.163 | 7.606 | 7.116 |
| 310 | - | - | - | - | - | - | - | - | - | - | - | 8.290 | 7.721 | 7.220 |
| 315 | - | - | - | - | - | - | - | - | - | - | - | 8.416 | 7.836 | 7.323 |
| 320 | - | - | - | - | - | - | - | - | - | - | - | - | 7.951 | 7.426 |
| 325 | - | - | - | - | - | - | - | - | - | - | - | - | 8.066 | 7.530 |
| 330 | - | - | - | - | - | - | - | - | - | - | - | - | 8.180 | 7.633 |

Thickness is intumescent only.

| Table 27 Circular Hollow Columns 105 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor (m-1) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | - | - | 2.923 | 1.818 | 1.712 | 1.710 | 1.670 | 1.662 | 1.476 | 1.456 | 1.173 | 0.931 | 0.716 | 0.453 |
| 55 | - | - | 3.569 | 2.178 | 1.977 | 1.974 | 1.930 | 1.922 | 1.718 | 1.697 | 1.387 | 1.124 | 0.885 | 0.572 |
| 60 | - | - | 3.819 | 2.787 | 2.492 | 2.488 | 2.380 | 2.359 | 1.960 | 1.937 | 1.601 | 1.318 | 1.059 | 0.732 |
| 65 | - | - | 4.069 | 3.396 | 3.059 | 3.056 | 2.932 | 2.908 | 2.369 | 2.318 | 1.815 | 1.511 | 1.233 | 0.892 |
| 70 | - | - | 4.319 | 3.709 | 3.571 | 3.570 | 3.484 | 3.457 | 2.836 | 2.776 | 2.034 | 1.704 | 1.407 | 1.053 |
| 75 | - | - | 4.569 | 3.935 | 3.791 | 3.791 | 3.733 | 3.722 | 3.302 | 3.234 | 2.375 | 1.897 | 1.582 | 1.213 |
| 80 | - | - | 4.819 | 4.161 | 4.012 | 4.012 | 3.952 | 3.940 | 3.639 | 3.606 | 2.717 | 2.113 | 1.756 | 1.373 |
| 85 | - | - | 5.069 | 4.386 | 4.233 | 4.233 | 4.170 | 4.158 | 3.848 | 3.813 | 3.059 | 2.373 | 1.930 | 1.533 |
| 90 | - | - | 5.319 | 4.612 | 4.454 | 4.454 | 4.389 | 4.376 | 4.056 | 4.020 | 3.401 | 2.633 | 2.114 | 1.693 |
| 95 | - | - | 5.569 | 4.837 | 4.675 | 4.675 | 4.607 | 4.594 | 4.265 | 4.227 | 3.617 | 2.892 | 2.310 | 1.853 |
| 100 | - | - | 5.820 | 5.063 | 4.896 | 4.896 | 4.826 | 4.812 | 4.473 | 4.434 | 3.752 | 3.152 | 2.506 | 2.013 |
| 105 | - | - | 6.070 | 5.289 | 5.117 | 5.117 | 5.044 | 5.030 | 4.682 | 4.641 | 3.887 | 3.412 | 2.703 | 2.155 |
| 110 | - | - | 6.320 | 5.514 | 5.338 | 5.338 | 5.263 | 5.248 | 4.890 | 4.848 | 4.022 | 3.567 | 2.899 | 2.295 |
| 115 | - | - | 6.570 | 5.740 | 5.559 | 5.559 | 5.481 | 5.466 | 5.099 | 5.055 | 4.157 | 3.627 | 3.095 | 2.436 |
| 120 | - | - | 6.820 | 5.966 | 5.780 | 5.780 | 5.700 | 5.684 | 5.307 | 5.262 | 4.292 | 3.687 | 3.291 | 2.577 |
| 125 | - | - | 7.070 | 6.191 | 6.001 | 6.001 | 5.919 | 5.902 | 5.516 | 5.469 | 4.427 | 3.747 | 3.487 | 2.717 |
| 130 | - | - | 7.320 | 6.417 | 6.222 | 6.222 | 6.137 | 6.120 | 5.724 | 5.675 | 4.562 | 3.808 | 3.584 | 2.858 |
| 135 | - | - | 7.570 | 6.642 | 6.443 | 6.443 | 6.356 | 6.338 | 5.933 | 5.882 | 4.697 | 3.868 | 3.649 | 2.999 |
| 140 | - | - | 7.820 | 6.868 | 6.664 | 6.664 | 6.574 | 6.556 | 6.141 | 6.089 | 4.832 | 3.928 | 3.714 | 3.139 |
| 145 | - | - | 8.070 | 7.094 | 6.885 | 6.885 | 6.793 | 6.774 | 6.350 | 6.296 | 4.967 | 3.988 | 3.779 | 3.280 |
| 150 | - | - | 8.320 | 7.319 | 7.106 | 7.106 | 7.011 | 6.992 | 6.558 | 6.503 | 5.102 | 4.049 | 3.845 | 3.421 |
| 155 | - | - | - | 7.545 | 7.327 | 7.327 | 7.230 | 7.211 | 6.767 | 6.710 | 5.237 | 4.109 | 3.910 | 3.550 |
| 160 | - | - | - | 7.770 | 7.548 | 7.548 | 7.448 | 7.429 | 6.975 | 6.917 | 5.372 | 4.169 | 3.975 | 3.631 |
| 165 | - | - | - | 7.996 | 7.769 | 7.769 | 7.667 | 7.647 | 7.183 | 7.124 | 5.507 | 4.229 | 4.040 | 3.712 |
| 170 | - | - | - | 8.222 | 7.990 | 7.990 | 7.885 | 7.865 | 7.392 | 7.331 | 5.642 | 4.289 | 4.105 | 3.792 |
| 175 | - | - | - | 8.447 | 8.211 | 8.211 | 8.104 | 8.083 | 7.600 | 7.538 | 5.777 | 4.350 | 4.170 | 3.873 |
| 180 | - | - | - | - | 8.403 | 8.432 | 8.322 | 8.301 | 7.809 | 7.745 | 5.912 | 4.410 | 4.235 | 3.954 |
| 185 | - | - | - | - | - | - | - | - | 8.017 | 7.952 | 6.047 | 4.652 | 4.300 | 4.035 |
| 190 | - | - | - | - | - | - | - | - | 8.226 | 8.159 | 6.392 | 5.207 | 4.365 | 4.115 |
| 195 | - | - | - | - | - | - | - | - | 8.434 | 8.366 | 6.741 | 5.761 | 4.430 | 4.196 |
| 200 | - | - | - | - | - | - | - | - | - | - | 7.091 | 6.157 | 4.822 | 4.277 |
| 205 | - | - | - | - | - | - | - | - | - | - | 7.441 | 6.377 | 5.338 | 4.358 |
| 210 | - | - | - | - | - | - | - | - | - | - | 7.790 | 6.598 | 5.853 | 4.438 |
| 215 | - | - | - | - | - | - | - | - | - | - | 8.140 | 6.819 | 6.153 | 4.921 |
| 220 | - | - | - | - | - | - | - | - | - | - | 8.490 | 7.040 | 6.320 | 5.458 |
| 225 | - | - | - | - | - | - | - | - | - | - | - | 7.260 | 6.486 | 5.995 |
| 230 | - | - | - | - | - | - | - | - | - | - | - | 7.481 | 6.653 | 6.188 |
| 235 | - | - | - | - | - | - | - | - | - | - | - | 7.702 | 6.819 | 6.342 |
| 240 | - | - | - | - | - | - | - | - | - | - | - | 7.923 | 6.986 | 6.495 |
| 245 | - | - | - | - | - | - | - | - | - | - | - | 8.144 | 7.152 | 6.648 |
| 250 | - | - | - | - | - | - | - | - | - | - | - | 8.364 | 7.319 | 6.802 |
| 255 | - | - | - | - | - | - | - | - | - | - | - | - | 7.485 | 6.955 |
| 260 | - | - | - | - | - | - | - | - | - | - | - | - | 7.652 | 7.109 |
| 265 | - | - | - | - | - | - | - | - | - | - | - | - | 7.818 | 7.262 |
| 270 | - | - | - | - | - | - | - | - | - | - | - | - | 7.985 | 7.415 |
| 275 | - | - | - | - | - | - | - | - | - | - | - | - | 8.151 | 7.569 |
| 280 | - | - | - | - | - | - | - | - | - | - | - | - | 8.318 | 7.722 |
| 285 | - | - | - | - | - | - | - | - | - | - | - | - | 8.484 | 7.876 |
| 290 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.029 |
| 295 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.182 |
| 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.336 |
| 305 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.489 |
| 310 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 315 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 320 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 325 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 330 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Thickness is intumescent only.

| Table 28 Circular Hollow Columns 120 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor (m-1) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | - | - | - | 2.878 | 2.528 | 2.521 | 2.385 | 2.358 | 1.914 | 1.892 | 1.569 | 1.299 | 1.054 | 0.748 |
| 55 | - | - | - | 3.166 | 3.301 | 3.297 | 3.151 | 3.123 | 2.451 | 2.390 | 1.826 | 1.532 | 1.265 | 0.935 |
| 60 | - | - | - | - | - | - | 3.673 | 3.662 | 3.137 | 3.064 | 2.144 | 1.765 | 1.477 | 1.131 |
| 65 | - | - | - | - | - | - | 3.949 | 3.938 | 3.646 | 3.614 | 2.655 | 1.998 | 1.688 | 1.327 |
| 70 | - | - | - | - | - | - | 4.225 | 4.213 | 3.910 | 3.876 | 3.166 | 2.380 | 1.899 | 1.523 |
| 75 | - | - | - | - | - | - | 4.501 | 4.489 | 4.174 | 4.138 | 3.601 | 2.780 | 2.153 | 1.718 |
| 80 | - | - | - | - | - | - | 4.777 | 4.764 | 4.438 | 4.401 | 3.837 | 3.179 | 2.465 | 1.914 |
| 85 | - | - | - | - | - | - | 5.053 | 5.040 | 4.702 | 4.663 | 4.073 | 3.558 | 2.778 | 2.128 |
| 90 | - | - | - | - | - | - | 5.329 | 5.315 | 4.966 | 4.925 | 4.309 | 3.772 | 3.090 | 2.363 |
| 95 | - | - | - | - | - | - | 5.605 | 5.591 | 5.231 | 5.188 | 4.545 | 3.987 | 3.403 | 2.597 |
| 100 | - | - | - | - | - | - | 5.882 | 5.866 | 5.495 | 5.450 | 4.781 | 4.201 | 3.612 | 2.832 |
| 105 | - | - | - | - | - | - | 6.158 | 6.142 | 5.759 | 5.712 | 5.018 | 4.415 | 3.745 | 3.067 |
| 110 | - | - | - | - | - | - | 6.434 | 6.417 | 6.023 | 5.975 | 5.254 | 4.629 | 3.878 | 3.302 |
| 115 | - | - | - | - | - | - | 6.710 | 6.693 | 6.287 | 6.237 | 5.490 | 4.843 | 4.012 | 3.536 |
| 120 | - | - | - | - | - | - | 6.986 | 6.968 | 6.551 | 6.500 | 5.726 | 5.057 | 4.145 | 3.594 |
| 125 | - | - | - | - | - | - | 7.262 | 7.244 | 6.815 | 6.762 | 5.962 | 5.271 | 4.278 | 3.652 |
| 130 | - | - | - | - | - | - | 7.538 | 7.519 | 7.080 | 7.024 | 6.198 | 5.485 | 4.412 | 3.711 |
| 135 | - | - | - | - | - | - | 7.814 | 7.795 | 7.344 | 7.287 | 6.435 | 5.699 | 4.545 | 3.769 |
| 140 | - | - | - | - | - | - | 8.090 | 8.070 | 7.608 | 7.549 | 6.671 | 5.913 | 4.678 | 3.827 |
| 145 | - | - | - | - | - | - | 8.366 | 8.346 | 7.872 | 7.811 | 6.907 | 6.128 | 4.812 | 3.886 |
| 150 | - | - | - | - | - | - | - | - | 8.136 | 8.074 | 7.143 | 6.342 | 4.945 | 3.944 |
| 155 | - | - | - | - | - | - | - | - | 8.400 | 8.336 | 7.379 | 6.556 | 5.078 | 4.002 |
| 160 | - | - | - | - | - | - | - | - | - | - | 7.615 | 6.770 | 5.212 | 4.061 |
| 165 | - | - | - | - | - | - | - | - | - | - | 7.852 | 6.984 | 5.345 | 4.119 |
| 170 | - | - | - | - | - | - | - | - | - | - | 8.088 | 7.198 | 5.478 | 4.178 |
| 175 | - | - | - | - | - | - | - | - | - | - | 8.324 | 7.412 | 5.612 | 4.236 |
| 180 | - | - | - | - | - | - | - | - | - | - | - | 7.626 | 5.745 | 4.294 |
| 185 | - | - | - | - | - | - | - | - | - | - | - | 7.840 | 5.878 | 4.353 |
| 190 | - | - | - | - | - | - | - | - | - | - | - | 8.055 | 6.012 | 4.411 |
| 195 | - | - | - | - | - | - | - | - | - | - | - | 8.269 | 6.397 | 4.743 |
| 200 | - | - | - | - | - | - | - | - | - | - | - | 8.483 | 6.888 | 5.548 |
| 205 | - | - | - | - | - | - | - | - | - | - | - | - | 7.378 | 6.168 |
| 210 | - | - | - | - | - | - | - | - | - | - | - | - | 7.869 | 6.478 |
| 215 | - | - | - | - | - | - | - | - | - | - | - | - | 8.360 | 6.789 |
| 220 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.099 |
| 225 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.410 |
| 230 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.720 |
| 235 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.031 |
| 240 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.341 |
| 245 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 255 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 260 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 265 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 270 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 275 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 280 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 285 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 290 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 295 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 305 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 310 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 315 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 320 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 325 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 330 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Thickness is intumescent only.

| Table 29 Rectangular Hollow Columns (RHS / SHS) 15 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 55 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 60 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 65 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 70 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 75 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 80 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 85 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 90 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 95 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 100 | 0.380 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 105 | 0.402 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 110 | 0.423 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 115 | 0.444 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 120 | 0.465 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 125 | 0.486 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 130 | 0.507 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 135 | 0.528 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 140 | 0.549 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 145 | 0.570 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 150 | 0.591 | 0.375 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 155 | 0.612 | 0.394 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 160 | 0.633 | 0.413 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 165 | 0.654 | 0.432 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 170 | 0.675 | 0.451 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 175 | 0.696 | 0.470 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 180 | 0.717 | 0.489 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 185 | 0.738 | 0.508 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 190 | 0.759 | 0.527 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 195 | 0.780 | 0.546 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 200 | 0.801 | 0.565 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 205 | 0.822 | 0.585 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 210 | 0.843 | 0.604 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 215 | 0.864 | 0.623 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 220 | 0.885 | 0.642 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 225 | 0.906 | 0.661 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 230 | 0.927 | 0.680 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 235 | 0.948 | 0.699 | 0.376 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 240 | 0.969 | 0.718 | 0.392 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 245 | 0.990 | 0.737 | 0.408 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 250 | 1.011 | 0.756 | 0.423 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 255 | 1.032 | 0.775 | 0.439 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 260 | 1.053 | 0.794 | 0.455 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 265 | 1.074 | 0.813 | 0.470 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 270 | 1.095 | 0.832 | 0.486 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 275 | 1.116 | 0.852 | 0.502 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 280 | 1.137 | 0.871 | 0.517 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 285 | 1.158 | 0.890 | 0.533 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 290 | 1.179 | 0.909 | 0.549 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 295 | 1.200 | 0.928 | 0.564 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 300 | 1.221 | 0.947 | 0.580 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 305 | 1.242 | 0.966 | 0.596 | 0.394 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 310 | 1.263 | 0.985 | 0.611 | 0.419 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 315 | 1.284 | 1.004 | 0.627 | 0.445 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 320 | 1.305 | 1.023 | 0.643 | 0.471 | 0.387 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 325 | 1.326 | 1.042 | 0.658 | 0.496 | 0.412 | 0.391 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 330 | 1.347 | 1.061 | 0.674 | 0.522 | 0.438 | 0.416 | 0.381 | 0.373 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 335 | 1.368 | 1.080 | 0.689 | 0.548 | 0.463 | 0.441 | 0.405 | 0.398 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 340 | 1.389 | 1.100 | 0.705 | 0.573 | 0.488 | 0.466 | 0.430 | 0.422 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 345 | 1.410 | 1.119 | 0.721 | 0.599 | 0.513 | 0.491 | 0.454 | 0.447 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 350 | 1.431 | 1.138 | 0.736 | 0.625 | 0.538 | 0.516 | 0.479 | 0.472 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 355 | 1.452 | 1.157 | 0.752 | 0.650 | 0.563 | 0.541 | 0.504 | 0.496 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |

Thickness is intumescent only. Results also apply to rectangular hollow beams exposed on all four sides limited to a maximum protection thickness of 5.667 mm.

| Table 30 Rectangular Hollow Columns (RHS / SHS) 20 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 55 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 60 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 65 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 70 | 0.384 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 75 | 0.412 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 80 | 0.440 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 85 | 0.468 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 90 | 0.496 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 95 | 0.524 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 100 | 0.552 | 0.385 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 105 | 0.580 | 0.411 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 110 | 0.609 | 0.436 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 115 | 0.637 | 0.461 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 120 | 0.665 | 0.486 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 125 | 0.693 | 0.511 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 130 | 0.721 | 0.537 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 135 | 0.749 | 0.562 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 140 | 0.777 | 0.587 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 145 | 0.805 | 0.612 | 0.387 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 150 | 0.833 | 0.637 | 0.408 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 155 | 0.861 | 0.663 | 0.428 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 160 | 0.890 | 0.688 | 0.448 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 165 | 0.918 | 0.713 | 0.468 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 170 | 0.946 | 0.738 | 0.489 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 175 | 0.974 | 0.763 | 0.509 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 180 | 1.002 | 0.789 | 0.529 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 185 | 1.030 | 0.814 | 0.550 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 190 | 1.058 | 0.839 | 0.570 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 195 | 1.086 | 0.864 | 0.590 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 200 | 1.114 | 0.889 | 0.610 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 205 | 1.142 | 0.914 | 0.631 | 0.382 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 210 | 1.171 | 0.940 | 0.651 | 0.417 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 215 | 1.199 | 0.965 | 0.671 | 0.453 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 220 | 1.227 | 0.990 | 0.692 | 0.488 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 225 | 1.255 | 1.015 | 0.712 | 0.524 | 0.403 | 0.371 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 230 | 1.283 | 1.040 | 0.732 | 0.560 | 0.438 | 0.407 | 0.376 | 0.370 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 235 | 1.311 | 1.066 | 0.752 | 0.595 | 0.474 | 0.442 | 0.411 | 0.405 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 240 | 1.339 | 1.091 | 0.773 | 0.631 | 0.509 | 0.478 | 0.446 | 0.440 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 245 | 1.367 | 1.116 | 0.793 | 0.666 | 0.545 | 0.513 | 0.482 | 0.475 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 250 | 1.395 | 1.141 | 0.813 | 0.702 | 0.580 | 0.549 | 0.517 | 0.510 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 255 | 1.423 | 1.166 | 0.833 | 0.737 | 0.616 | 0.584 | 0.552 | 0.546 | 0.373 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 260 | 1.452 | 1.192 | 0.854 | 0.773 | 0.652 | 0.620 | 0.587 | 0.581 | 0.408 | 0.387 | 0.369 | 0.369 | 0.369 | 0.369 |
| 265 | 1.480 | 1.217 | 0.874 | 0.809 | 0.687 | 0.655 | 0.623 | 0.616 | 0.443 | 0.422 | 0.369 | 0.369 | 0.369 | 0.369 |
| 270 | 1.508 | 1.242 | 0.894 | 0.844 | 0.723 | 0.691 | 0.658 | 0.651 | 0.478 | 0.456 | 0.369 | 0.369 | 0.369 | 0.369 |
| 275 | 1.536 | 1.267 | 0.915 | 0.880 | 0.758 | 0.726 | 0.693 | 0.686 | 0.513 | 0.491 | 0.369 | 0.369 | 0.369 | 0.369 |
| 280 | 1.564 | 1.292 | 0.935 | 0.915 | 0.794 | 0.762 | 0.728 | 0.721 | 0.548 | 0.526 | 0.369 | 0.369 | 0.369 | 0.369 |
| 285 | 1.592 | 1.318 | 0.955 | 0.951 | 0.829 | 0.797 | 0.764 | 0.757 | 0.582 | 0.560 | 0.369 | 0.369 | 0.369 | 0.369 |
| 290 | 1.620 | 1.343 | 0.987 | 0.987 | 0.865 | 0.833 | 0.799 | 0.792 | 0.617 | 0.595 | 0.369 | 0.369 | 0.369 | 0.369 |
| 295 | 1.648 | 1.368 | 1.022 | 1.022 | 0.900 | 0.868 | 0.834 | 0.827 | 0.652 | 0.630 | 0.369 | 0.369 | 0.369 | 0.369 |
| 300 | 1.676 | 1.393 | 1.058 | 1.058 | 0.936 | 0.904 | 0.869 | 0.862 | 0.687 | 0.664 | 0.369 | 0.369 | 0.369 | 0.369 |
| 305 | 1.704 | 1.418 | 1.093 | 1.093 | 0.972 | 0.940 | 0.904 | 0.897 | 0.722 | 0.699 | 0.369 | 0.369 | 0.369 | 0.369 |
| 310 | 1.733 | 1.444 | 1.129 | 1.129 | 1.007 | 0.975 | 0.940 | 0.932 | 0.757 | 0.734 | 0.369 | 0.369 | 0.369 | 0.369 |
| 315 | 1.761 | 1.469 | 1.164 | 1.164 | 1.043 | 1.011 | 0.975 | 0.968 | 0.792 | 0.768 | 0.369 | 0.369 | 0.369 | 0.369 |
| 320 | 1.789 | 1.494 | 1.200 | 1.200 | 1.078 | 1.046 | 1.010 | 1.003 | 0.827 | 0.803 | 0.376 | 0.369 | 0.369 | 0.369 |
| 325 | 1.817 | 1.519 | 1.236 | 1.236 | 1.114 | 1.082 | 1.045 | 1.038 | 0.862 | 0.838 | 0.409 | 0.369 | 0.369 | 0.369 |
| 330 | 1.845 | 1.544 | 1.271 | 1.271 | 1.149 | 1.117 | 1.081 | 1.073 | 0.897 | 0.872 | 0.441 | 0.369 | 0.369 | 0.369 |
| 335 | 1.873 | 1.569 | 1.307 | 1.307 | 1.185 | 1.153 | 1.116 | 1.108 | 0.932 | 0.907 | 0.473 | 0.369 | 0.369 | 0.369 |
| 340 | 1.901 | 1.595 | 1.342 | 1.342 | 1.220 | 1.188 | 1.151 | 1.144 | 0.967 | 0.942 | 0.506 | 0.369 | 0.369 | 0.369 |
| 345 | 1.929 | 1.620 | 1.378 | 1.378 | 1.256 | 1.224 | 1.186 | 1.179 | 1.002 | 0.976 | 0.538 | 0.369 | 0.369 | 0.369 |
| 350 | 1.957 | 1.645 | 1.414 | 1.414 | 1.291 | 1.259 | 1.222 | 1.214 | 1.036 | 1.011 | 0.571 | 0.369 | 0.369 | 0.369 |
| 355 | 1.985 | 1.670 | 1.449 | 1.449 | 1.327 | 1.295 | 1.257 | 1.249 | 1.071 | 1.046 | 0.603 | 0.369 | 0.369 | 0.369 |

Thickness is intumescent only. Results also apply to rectangular hollow beams exposed on all four sides limited to a maximum protection thickness of 5.667 mm.

| Table 31 Rectangular Hollow Columns (RHS / SHS) 30 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 0.507 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 55 | 0.566 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 60 | 0.626 | 0.390 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 65 | 0.685 | 0.436 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 70 | 0.744 | 0.482 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 75 | 0.804 | 0.528 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 80 | 0.863 | 0.574 | 0.396 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 85 | 0.922 | 0.620 | 0.426 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 90 | 0.981 | 0.666 | 0.456 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 95 | 1.041 | 0.711 | 0.485 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 100 | 1.100 | 0.757 | 0.515 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 105 | 1.159 | 0.803 | 0.545 | 0.412 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 110 | 1.219 | 0.849 | 0.575 | 0.464 | 0.401 | 0.385 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 115 | 1.278 | 0.895 | 0.605 | 0.515 | 0.452 | 0.436 | 0.408 | 0.402 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 120 | 1.337 | 0.941 | 0.635 | 0.567 | 0.503 | 0.486 | 0.458 | 0.453 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 125 | 1.396 | 0.987 | 0.665 | 0.618 | 0.554 | 0.537 | 0.509 | 0.503 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 130 | 1.456 | 1.032 | 0.695 | 0.669 | 0.605 | 0.588 | 0.560 | 0.554 | 0.401 | 0.382 | 0.369 | 0.369 | 0.369 | 0.369 |
| 135 | 1.515 | 1.078 | 0.725 | 0.721 | 0.655 | 0.639 | 0.610 | 0.605 | 0.452 | 0.433 | 0.369 | 0.369 | 0.369 | 0.369 |
| 140 | 1.574 | 1.124 | 0.772 | 0.772 | 0.706 | 0.690 | 0.661 | 0.655 | 0.503 | 0.484 | 0.369 | 0.369 | 0.369 | 0.369 |
| 145 | 1.634 | 1.170 | 0.823 | 0.823 | 0.757 | 0.740 | 0.711 | 0.706 | 0.555 | 0.535 | 0.369 | 0.369 | 0.369 | 0.369 |
| 150 | 1.693 | 1.216 | 0.875 | 0.875 | 0.808 | 0.791 | 0.762 | 0.756 | 0.606 | 0.586 | 0.369 | 0.369 | 0.369 | 0.369 |
| 155 | 1.752 | 1.262 | 0.926 | 0.926 | 0.859 | 0.842 | 0.813 | 0.807 | 0.657 | 0.637 | 0.369 | 0.369 | 0.369 | 0.369 |
| 160 | 1.812 | 1.308 | 0.977 | 0.977 | 0.910 | 0.893 | 0.863 | 0.857 | 0.709 | 0.689 | 0.369 | 0.369 | 0.369 | 0.369 |
| 165 | 1.871 | 1.353 | 1.029 | 1.029 | 0.961 | 0.944 | 0.914 | 0.908 | 0.760 | 0.740 | 0.369 | 0.369 | 0.369 | 0.369 |
| 170 | 1.930 | 1.399 | 1.080 | 1.080 | 1.012 | 0.994 | 0.964 | 0.958 | 0.812 | 0.791 | 0.406 | 0.369 | 0.369 | 0.369 |
| 175 | 1.989 | 1.445 | 1.131 | 1.131 | 1.063 | 1.045 | 1.015 | 1.009 | 0.863 | 0.842 | 0.457 | 0.369 | 0.369 | 0.369 |
| 180 | 2.049 | 1.491 | 1.183 | 1.183 | 1.114 | 1.096 | 1.066 | 1.060 | 0.914 | 0.893 | 0.509 | 0.369 | 0.369 | 0.369 |
| 185 | 2.106 | 1.537 | 1.234 | 1.234 | 1.165 | 1.147 | 1.116 | 1.110 | 0.966 | 0.945 | 0.561 | 0.369 | 0.369 | 0.369 |
| 190 | 2.164 | 1.583 | 1.286 | 1.286 | 1.216 | 1.198 | 1.167 | 1.161 | 1.017 | 0.996 | 0.612 | 0.369 | 0.369 | 0.369 |
| 195 | 2.221 | 1.628 | 1.337 | 1.337 | 1.267 | 1.248 | 1.218 | 1.211 | 1.068 | 1.047 | 0.664 | 0.369 | 0.369 | 0.369 |
| 200 | 2.279 | 1.674 | 1.388 | 1.388 | 1.317 | 1.299 | 1.268 | 1.262 | 1.120 | 1.098 | 0.715 | 0.369 | 0.369 | 0.369 |
| 205 | 2.336 | 1.720 | 1.440 | 1.440 | 1.368 | 1.350 | 1.319 | 1.312 | 1.171 | 1.149 | 0.767 | 0.369 | 0.369 | 0.369 |
| 210 | 2.394 | 1.766 | 1.491 | 1.491 | 1.419 | 1.401 | 1.369 | 1.363 | 1.222 | 1.200 | 0.819 | 0.369 | 0.369 | 0.369 |
| 215 | 2.451 | 1.812 | 1.542 | 1.542 | 1.470 | 1.452 | 1.420 | 1.413 | 1.274 | 1.252 | 0.870 | 0.369 | 0.369 | 0.369 |
| 220 | 2.509 | 1.858 | 1.594 | 1.594 | 1.521 | 1.502 | 1.471 | 1.464 | 1.325 | 1.303 | 0.922 | 0.369 | 0.369 | 0.369 |
| 225 | 2.566 | 1.904 | 1.645 | 1.645 | 1.572 | 1.553 | 1.521 | 1.515 | 1.376 | 1.354 | 0.973 | 0.407 | 0.369 | 0.369 |
| 230 | 2.624 | 1.949 | 1.696 | 1.696 | 1.623 | 1.604 | 1.572 | 1.565 | 1.428 | 1.405 | 1.025 | 0.446 | 0.369 | 0.369 |
| 235 | 2.681 | 1.995 | 1.748 | 1.748 | 1.674 | 1.655 | 1.622 | 1.616 | 1.479 | 1.456 | 1.077 | 0.485 | 0.369 | 0.369 |
| 240 | 2.739 | 2.041 | 1.799 | 1.799 | 1.725 | 1.706 | 1.673 | 1.666 | 1.530 | 1.508 | 1.128 | 0.525 | 0.369 | 0.369 |
| 245 | 2.796 | 2.099 | 1.851 | 1.851 | 1.776 | 1.756 | 1.724 | 1.717 | 1.582 | 1.559 | 1.180 | 0.564 | 0.369 | 0.369 |
| 250 | 2.854 | 2.156 | 1.902 | 1.902 | 1.827 | 1.807 | 1.774 | 1.767 | 1.633 | 1.610 | 1.231 | 0.603 | 0.369 | 0.369 |
| 255 | 2.911 | 2.214 | 1.953 | 1.953 | 1.878 | 1.858 | 1.825 | 1.818 | 1.684 | 1.661 | 1.283 | 0.642 | 0.369 | 0.369 |
| 260 | 2.969 | 2.272 | 2.005 | 2.005 | 1.929 | 1.909 | 1.875 | 1.868 | 1.736 | 1.712 | 1.335 | 0.681 | 0.369 | 0.369 |
| 265 | 3.026 | 2.330 | 2.056 | 2.056 | 1.979 | 1.960 | 1.926 | 1.919 | 1.787 | 1.763 | 1.386 | 0.720 | 0.369 | 0.369 |
| 270 | 3.084 | 2.387 | 2.107 | 2.107 | 2.030 | 2.010 | 1.977 | 1.970 | 1.839 | 1.815 | 1.438 | 0.759 | 0.369 | 0.369 |
| 275 | 3.141 | 2.445 | 2.159 | 2.159 | 2.081 | 2.061 | 2.027 | 2.020 | 1.890 | 1.866 | 1.489 | 0.798 | 0.369 | 0.369 |
| 280 | 3.199 | 2.503 | 2.210 | 2.210 | 2.132 | 2.112 | 2.078 | 2.071 | 1.941 | 1.917 | 1.541 | 0.837 | 0.397 | 0.369 |
| 285 | 3.257 | 2.560 | 2.261 | 2.261 | 2.183 | 2.163 | 2.128 | 2.121 | 1.993 | 1.968 | 1.593 | 0.876 | 0.432 | 0.369 |
| 290 | 3.314 | 2.618 | 2.313 | 2.313 | 2.234 | 2.214 | 2.179 | 2.172 | 2.044 | 2.019 | 1.644 | 0.916 | 0.466 | 0.369 |
| 295 | 3.372 | 2.676 | 2.364 | 2.364 | 2.285 | 2.265 | 2.230 | 2.222 | 2.095 | 2.071 | 1.696 | 0.955 | 0.500 | 0.369 |
| 300 | 3.429 | 2.734 | 2.415 | 2.415 | 2.336 | 2.315 | 2.280 | 2.273 | 2.147 | 2.122 | 1.747 | 0.994 | 0.534 | 0.369 |
| 305 | 3.482 | 2.791 | 2.467 | 2.467 | 2.387 | 2.366 | 2.331 | 2.323 | 2.198 | 2.173 | 1.799 | 1.033 | 0.568 | 0.369 |
| 310 | 3.519 | 2.849 | 2.518 | 2.518 | 2.438 | 2.417 | 2.381 | 2.374 | 2.249 | 2.224 | 1.851 | 1.072 | 0.602 | 0.369 |
| 315 | 3.556 | 2.907 | 2.570 | 2.570 | 2.489 | 2.468 | 2.432 | 2.425 | 2.301 | 2.275 | 1.902 | 1.111 | 0.636 | 0.369 |
| 320 | 3.593 | 2.964 | 2.621 | 2.621 | 2.540 | 2.519 | 2.483 | 2.475 | 2.352 | 2.326 | 1.954 | 1.150 | 0.671 | 0.369 |
| 325 | 3.630 | 3.022 | 2.672 | 2.672 | 2.591 | 2.569 | 2.533 | 2.526 | 2.403 | 2.378 | 2.005 | 1.189 | 0.705 | 0.369 |
| 330 | 3.667 | 3.080 | 2.724 | 2.724 | 2.641 | 2.620 | 2.584 | 2.576 | 2.455 | 2.429 | 2.057 | 1.228 | 0.739 | 0.369 |
| 335 | 3.704 | 3.138 | 2.775 | 2.775 | 2.692 | 2.671 | 2.634 | 2.627 | 2.506 | 2.480 | 2.109 | 1.267 | 0.773 | 0.369 |
| 340 | 3.741 | 3.195 | 2.826 | 2.826 | 2.743 | 2.722 | 2.685 | 2.677 | 2.557 | 2.531 | 2.160 | 1.306 | 0.807 | 0.369 |
| 345 | 3.778 | 3.253 | 2.878 | 2.878 | 2.794 | 2.773 | 2.736 | 2.728 | 2.609 | 2.582 | 2.212 | 1.346 | 0.841 | 0.369 |
| 350 | 3.815 | 3.311 | 2.929 | 2.929 | 2.845 | 2.823 | 2.786 | 2.778 | 2.660 | 2.634 | 2.263 | 1.385 | 0.875 | 0.369 |
| 355 | 3.852 | 3.369 | 2.980 | 2.980 | 2.896 | 2.874 | 2.837 | 2.829 | 2.711 | 2.685 | 2.315 | 1.424 | 0.909 | 0.369 |

Thickness is intumescent only. Results also apply to rectangular hollow beams exposed on all four sides limited to a maximum protection thickness of 5.667 mm.

| Table 32 Rectangular Hollow Columns (RHS / SHS) 45 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 1.030 | 0.710 | 0.457 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 55 | 1.141 | 0.802 | 0.523 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 60 | 1.253 | 0.895 | 0.590 | 0.408 | 0.378 | 0.371 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 65 | 1.364 | 0.988 | 0.656 | 0.461 | 0.428 | 0.420 | 0.407 | 0.405 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 70 | 1.476 | 1.081 | 0.723 | 0.514 | 0.478 | 0.470 | 0.455 | 0.453 | 0.376 | 0.369 | 0.369 | 0.369 | 0.369 | 0.369 |
| 75 | 1.588 | 1.173 | 0.789 | 0.568 | 0.528 | 0.519 | 0.504 | 0.501 | 0.459 | 0.445 | 0.369 | 0.369 | 0.369 | 0.369 |
| 80 | 1.699 | 1.266 | 0.856 | 0.621 | 0.578 | 0.568 | 0.552 | 0.548 | 0.543 | 0.528 | 0.369 | 0.369 | 0.369 | 0.369 |
| 85 | 1.811 | 1.359 | 0.922 | 0.674 | 0.629 | 0.626 | 0.626 | 0.626 | 0.626 | 0.611 | 0.369 | 0.369 | 0.369 | 0.369 |
| 90 | 1.922 | 1.452 | 0.989 | 0.727 | 0.709 | 0.709 | 0.709 | 0.709 | 0.709 | 0.694 | 0.441 | 0.369 | 0.369 | 0.369 |
| 95 | 2.034 | 1.544 | 1.055 | 0.792 | 0.792 | 0.792 | 0.792 | 0.792 | 0.792 | 0.776 | 0.521 | 0.369 | 0.369 | 0.369 |
| 100 | 2.156 | 1.637 | 1.122 | 0.875 | 0.875 | 0.875 | 0.875 | 0.875 | 0.875 | 0.859 | 0.602 | 0.369 | 0.369 | 0.369 |
| 105 | 2.279 | 1.730 | 1.188 | 0.959 | 0.959 | 0.959 | 0.959 | 0.959 | 0.959 | 0.942 | 0.682 | 0.387 | 0.369 | 0.369 |
| 110 | 2.403 | 1.823 | 1.255 | 1.042 | 1.042 | 1.042 | 1.042 | 1.042 | 1.042 | 1.025 | 0.762 | 0.446 | 0.369 | 0.369 |
| 115 | 2.526 | 1.915 | 1.321 | 1.125 | 1.125 | 1.125 | 1.125 | 1.125 | 1.125 | 1.107 | 0.842 | 0.505 | 0.369 | 0.369 |
| 120 | 2.649 | 2.008 | 1.387 | 1.208 | 1.208 | 1.208 | 1.208 | 1.208 | 1.208 | 1.190 | 0.922 | 0.565 | 0.369 | 0.369 |
| 125 | 2.772 | 2.105 | 1.454 | 1.292 | 1.292 | 1.292 | 1.292 | 1.292 | 1.292 | 1.273 | 1.002 | 0.624 | 0.369 | 0.369 |
| 130 | 2.896 | 2.204 | 1.520 | 1.375 | 1.375 | 1.375 | 1.375 | 1.375 | 1.375 | 1.355 | 1.083 | 0.683 | 0.388 | 0.369 |
| 135 | 3.019 | 2.303 | 1.587 | 1.458 | 1.458 | 1.458 | 1.458 | 1.458 | 1.458 | 1.438 | 1.163 | 0.743 | 0.444 | 0.369 |
| 140 | 3.142 | 2.402 | 1.653 | 1.541 | 1.541 | 1.541 | 1.541 | 1.541 | 1.541 | 1.521 | 1.243 | 0.802 | 0.501 | 0.369 |
| 145 | 3.265 | 2.501 | 1.720 | 1.624 | 1.624 | 1.624 | 1.624 | 1.624 | 1.624 | 1.604 | 1.323 | 0.861 | 0.558 | 0.369 |
| 150 | 3.389 | 2.600 | 1.786 | 1.708 | 1.708 | 1.708 | 1.708 | 1.708 | 1.708 | 1.686 | 1.403 | 0.920 | 0.614 | 0.369 |
| 155 | 3.487 | 2.699 | 1.853 | 1.791 | 1.791 | 1.791 | 1.791 | 1.791 | 1.791 | 1.769 | 1.483 | 0.980 | 0.671 | 0.369 |
| 160 | 3.530 | 2.798 | 1.919 | 1.874 | 1.874 | 1.874 | 1.874 | 1.874 | 1.874 | 1.852 | 1.564 | 1.039 | 0.727 | 0.369 |
| 165 | 3.573 | 2.898 | 1.986 | 1.957 | 1.957 | 1.957 | 1.957 | 1.957 | 1.957 | 1.935 | 1.644 | 1.098 | 0.784 | 0.369 |
| 170 | 3.616 | 2.997 | 2.065 | 2.041 | 2.041 | 2.041 | 2.041 | 2.041 | 2.041 | 2.017 | 1.724 | 1.158 | 0.840 | 0.369 |
| 175 | 3.659 | 3.096 | 2.217 | 2.124 | 2.124 | 2.124 | 2.124 | 2.124 | 2.124 | 2.100 | 1.804 | 1.217 | 0.897 | 0.369 |
| 180 | 3.702 | 3.195 | 2.369 | 2.207 | 2.207 | 2.207 | 2.207 | 2.207 | 2.207 | 2.183 | 1.884 | 1.276 | 0.953 | 0.417 |
| 185 | 3.745 | 3.294 | 2.521 | 2.290 | 2.290 | 2.290 | 2.290 | 2.290 | 2.290 | 2.266 | 1.964 | 1.336 | 1.010 | 0.472 |
| 190 | 3.788 | 3.393 | 2.673 | 2.373 | 2.373 | 2.373 | 2.373 | 2.373 | 2.373 | 2.348 | 2.045 | 1.395 | 1.066 | 0.526 |
| 195 | 3.831 | 3.480 | 2.825 | 2.457 | 2.457 | 2.457 | 2.457 | 2.457 | 2.457 | 2.431 | 2.125 | 1.454 | 1.123 | 0.581 |
| 200 | 3.874 | 3.513 | 2.976 | 2.540 | 2.540 | 2.540 | 2.540 | 2.540 | 2.540 | 2.514 | 2.205 | 1.514 | 1.180 | 0.636 |
| 205 | 3.917 | 3.547 | 3.128 | 2.623 | 2.623 | 2.623 | 2.623 | 2.623 | 2.623 | 2.597 | 2.285 | 1.573 | 1.236 | 0.691 |
| 210 | 3.960 | 3.580 | 3.280 | 2.706 | 2.706 | 2.706 | 2.706 | 2.706 | 2.706 | 2.679 | 2.365 | 1.632 | 1.293 | 0.746 |
| 215 | 4.003 | 3.613 | 3.432 | 2.790 | 2.790 | 2.790 | 2.790 | 2.790 | 2.790 | 2.762 | 2.445 | 1.691 | 1.349 | 0.801 |
| 220 | 4.046 | 3.647 | 3.496 | 2.873 | 2.873 | 2.873 | 2.873 | 2.873 | 2.873 | 2.845 | 2.526 | 1.751 | 1.406 | 0.855 |
| 225 | 4.090 | 3.680 | 3.526 | 2.956 | 2.956 | 2.956 | 2.956 | 2.956 | 2.956 | 2.928 | 2.606 | 1.810 | 1.462 | 0.910 |
| 230 | 4.133 | 3.713 | 3.556 | 3.075 | 3.039 | 3.039 | 3.039 | 3.039 | 3.039 | 3.010 | 2.686 | 1.869 | 1.519 | 0.965 |
| 235 | 4.176 | 3.747 | 3.586 | 3.386 | 3.122 | 3.122 | 3.122 | 3.122 | 3.122 | 3.093 | 2.766 | 1.929 | 1.575 | 1.020 |
| 240 | 4.219 | 3.780 | 3.616 | 3.493 | 3.213 | 3.206 | 3.206 | 3.206 | 3.206 | 3.176 | 2.846 | 1.988 | 1.632 | 1.075 |
| 245 | 4.262 | 3.813 | 3.645 | 3.520 | 3.484 | 3.475 | 3.289 | 3.289 | 3.289 | 3.259 | 2.927 | 2.047 | 1.689 | 1.130 |
| 250 | 4.305 | 3.847 | 3.675 | 3.547 | 3.510 | 3.501 | 3.486 | 3.483 | 3.372 | 3.341 | 3.007 | 2.107 | 1.745 | 1.184 |
| 255 | 4.348 | 3.880 | 3.705 | 3.574 | 3.536 | 3.527 | 3.512 | 3.509 | 3.455 | 3.424 | 3.087 | 2.166 | 1.802 | 1.239 |
| 260 | 4.391 | 3.913 | 3.735 | 3.600 | 3.563 | 3.554 | 3.538 | 3.535 | 3.493 | 3.483 | 3.167 | 2.225 | 1.858 | 1.294 |
| 265 | 4.434 | 3.947 | 3.765 | 3.627 | 3.589 | 3.580 | 3.564 | 3.561 | 3.517 | 3.507 | 3.247 | 2.285 | 1.915 | 1.349 |
| 270 | 4.477 | 3.980 | 3.795 | 3.654 | 3.615 | 3.606 | 3.590 | 3.586 | 3.541 | 3.531 | 3.327 | 2.344 | 1.971 | 1.404 |
| 275 | 4.520 | 4.013 | 3.825 | 3.681 | 3.642 | 3.632 | 3.616 | 3.612 | 3.565 | 3.555 | 3.408 | 2.403 | 2.028 | 1.459 |
| 280 | 4.635 | 4.047 | 3.855 | 3.708 | 3.668 | 3.658 | 3.642 | 3.638 | 3.589 | 3.579 | 3.478 | 2.462 | 2.084 | 1.513 |
| 285 | 4.770 | 4.080 | 3.885 | 3.735 | 3.694 | 3.684 | 3.668 | 3.664 | 3.613 | 3.603 | 3.498 | 2.522 | 2.141 | 1.568 |
| 290 | 4.906 | 4.114 | 3.915 | 3.761 | 3.721 | 3.711 | 3.694 | 3.690 | 3.636 | 3.627 | 3.519 | 2.581 | 2.197 | 1.623 |
| 295 | 5.041 | 4.147 | 3.945 | 3.788 | 3.747 | 3.737 | 3.720 | 3.716 | 3.660 | 3.651 | 3.540 | 2.640 | 2.254 | 1.678 |
| 300 | 5.176 | 4.180 | 3.975 | 3.815 | 3.773 | 3.763 | 3.746 | 3.742 | 3.684 | 3.674 | 3.561 | 2.700 | 2.311 | 1.733 |
| 305 | 5.312 | 4.214 | 4.005 | 3.842 | 3.800 | 3.789 | 3.772 | 3.768 | 3.708 | 3.698 | 3.582 | 2.759 | 2.367 | 1.788 |
| 310 | 5.447 | 4.247 | 4.035 | 3.869 | 3.826 | 3.815 | 3.798 | 3.794 | 3.732 | 3.722 | 3.603 | 2.818 | 2.424 | 1.842 |
| 315 | 5.582 | 4.280 | 4.065 | 3.895 | 3.852 | 3.842 | 3.824 | 3.820 | 3.756 | 3.746 | 3.623 | 2.878 | 2.480 | 1.897 |
| 320 | 5.717 | 4.314 | 4.095 | 3.922 | 3.879 | 3.868 | 3.850 | 3.846 | 3.780 | 3.770 | 3.644 | 2.937 | 2.537 | 1.952 |
| 325 | 5.853 | 4.347 | 4.125 | 3.949 | 3.905 | 3.894 | 3.876 | 3.872 | 3.804 | 3.794 | 3.665 | 2.996 | 2.593 | 2.007 |
| 330 | 5.988 | 4.380 | 4.155 | 3.976 | 3.931 | 3.920 | 3.902 | 3.898 | 3.828 | 3.818 | 3.686 | 3.056 | 2.650 | 2.062 |
| 335 | 6.098 | 4.414 | 4.185 | 4.003 | 3.958 | 3.946 | 3.928 | 3.924 | 3.852 | 3.841 | 3.707 | 3.115 | 2.706 | 2.117 |
| 340 | 6.150 | 4.447 | 4.215 | 4.029 | 3.984 | 3.973 | 3.954 | 3.950 | 3.876 | 3.865 | 3.728 | 3.174 | 2.763 | 2.171 |
| 345 | 6.203 | 4.480 | 4.245 | 4.056 | 4.010 | 3.999 | 3.980 | 3.976 | 3.900 | 3.889 | 3.748 | 3.233 | 2.820 | 2.226 |
| 350 | 6.256 | 4.514 | 4.274 | 4.083 | 4.037 | 4.025 | 4.006 | 4.002 | 3.924 | 3.913 | 3.769 | 3.293 | 2.876 | 2.281 |
| 355 | 6.309 | 4.715 | 4.304 | 4.110 | 4.063 | 4.051 | 4.032 | 4.028 | 3.948 | 3.937 | 3.790 | 3.352 | 2.933 | 2.336 |

Thickness is intumescent only. Results also apply to rectangular hollow beams exposed on all four sides limited to a maximum protection thickness of 5.667 mm.

| Table 33 Rectangular Hollow Columns (RHS / SHS) 60 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 1.552 | 1.166 | 0.843 | 0.616 | 0.567 | 0.555 | 0.535 | 0.531 | 0.438 | 0.428 | 0.369 | 0.369 | 0.369 | 0.369 |
| 55 | 1.716 | 1.305 | 0.948 | 0.705 | 0.653 | 0.640 | 0.619 | 0.615 | 0.511 | 0.500 | 0.369 | 0.369 | 0.369 | 0.369 |
| 60 | 1.880 | 1.443 | 1.053 | 0.794 | 0.739 | 0.725 | 0.703 | 0.698 | 0.588 | 0.576 | 0.415 | 0.369 | 0.369 | 0.369 |
| 65 | 2.044 | 1.582 | 1.158 | 0.883 | 0.824 | 0.810 | 0.786 | 0.782 | 0.665 | 0.652 | 0.480 | 0.369 | 0.369 | 0.369 |
| 70 | 2.234 | 1.720 | 1.263 | 0.972 | 0.910 | 0.895 | 0.870 | 0.865 | 0.742 | 0.728 | 0.546 | 0.406 | 0.369 | 0.369 |
| 75 | 2.424 | 1.859 | 1.368 | 1.061 | 0.996 | 0.980 | 0.953 | 0.948 | 0.818 | 0.804 | 0.612 | 0.461 | 0.369 | 0.369 |
| 80 | 2.614 | 1.997 | 1.473 | 1.151 | 1.082 | 1.065 | 1.037 | 1.032 | 0.895 | 0.880 | 0.677 | 0.515 | 0.369 | 0.369 |
| 85 | 2.804 | 2.148 | 1.578 | 1.240 | 1.168 | 1.150 | 1.121 | 1.115 | 0.972 | 0.956 | 0.743 | 0.570 | 0.444 | 0.369 |
| 90 | 2.994 | 2.305 | 1.684 | 1.329 | 1.253 | 1.235 | 1.204 | 1.198 | 1.049 | 1.032 | 0.809 | 0.625 | 0.528 | 0.369 |
| 95 | 3.184 | 2.461 | 1.789 | 1.418 | 1.339 | 1.320 | 1.288 | 1.282 | 1.125 | 1.108 | 0.874 | 0.680 | 0.613 | 0.369 |
| 100 | 3.373 | 2.618 | 1.894 | 1.507 | 1.425 | 1.405 | 1.372 | 1.365 | 1.202 | 1.184 | 0.940 | 0.735 | 0.697 | 0.369 |
| 105 | 3.531 | 2.775 | 1.999 | 1.596 | 1.511 | 1.490 | 1.455 | 1.448 | 1.279 | 1.260 | 1.005 | 0.790 | 0.782 | 0.444 |
| 110 | 3.652 | 2.932 | 2.156 | 1.686 | 1.596 | 1.575 | 1.539 | 1.532 | 1.355 | 1.336 | 1.071 | 0.866 | 0.866 | 0.524 |
| 115 | 3.774 | 3.088 | 2.349 | 1.775 | 1.682 | 1.660 | 1.622 | 1.615 | 1.432 | 1.412 | 1.137 | 0.951 | 0.951 | 0.604 |
| 120 | 3.895 | 3.245 | 2.542 | 1.864 | 1.768 | 1.745 | 1.706 | 1.698 | 1.509 | 1.488 | 1.202 | 1.035 | 1.035 | 0.684 |
| 125 | 4.016 | 3.402 | 2.735 | 1.953 | 1.854 | 1.830 | 1.790 | 1.782 | 1.586 | 1.564 | 1.268 | 1.120 | 1.120 | 0.764 |
| 130 | 4.138 | 3.518 | 2.928 | 2.043 | 1.939 | 1.914 | 1.873 | 1.865 | 1.662 | 1.640 | 1.334 | 1.204 | 1.204 | 0.844 |
| 135 | 4.259 | 3.598 | 3.121 | 2.286 | 2.025 | 1.999 | 1.957 | 1.949 | 1.739 | 1.716 | 1.399 | 1.289 | 1.289 | 0.924 |
| 140 | 4.380 | 3.679 | 3.314 | 2.529 | 2.248 | 2.172 | 2.041 | 2.032 | 1.816 | 1.792 | 1.465 | 1.374 | 1.374 | 1.004 |
| 145 | 4.502 | 3.759 | 3.482 | 2.772 | 2.505 | 2.433 | 2.305 | 2.278 | 1.893 | 1.868 | 1.531 | 1.458 | 1.458 | 1.084 |
| 150 | 4.651 | 3.840 | 3.527 | 3.015 | 2.761 | 2.693 | 2.572 | 2.547 | 1.969 | 1.944 | 1.596 | 1.543 | 1.543 | 1.164 |
| 155 | 4.808 | 3.920 | 3.572 | 3.258 | 3.017 | 2.954 | 2.840 | 2.816 | 2.063 | 2.020 | 1.662 | 1.627 | 1.627 | 1.244 |
| 160 | 4.965 | 4.001 | 3.617 | 3.478 | 3.274 | 3.215 | 3.107 | 3.085 | 2.447 | 2.323 | 1.728 | 1.712 | 1.712 | 1.324 |
| 165 | 5.122 | 4.082 | 3.662 | 3.511 | 3.481 | 3.474 | 3.375 | 3.354 | 2.832 | 2.720 | 1.796 | 1.796 | 1.796 | 1.404 |
| 170 | 5.279 | 4.162 | 3.707 | 3.544 | 3.514 | 3.506 | 3.494 | 3.492 | 3.216 | 3.117 | 1.881 | 1.881 | 1.881 | 1.484 |
| 175 | 5.436 | 4.243 | 3.752 | 3.577 | 3.546 | 3.539 | 3.526 | 3.524 | 3.484 | 3.477 | 1.965 | 1.965 | 1.965 | 1.564 |
| 180 | 5.594 | 4.323 | 3.797 | 3.610 | 3.578 | 3.571 | 3.558 | 3.556 | 3.514 | 3.507 | 2.050 | 2.050 | 2.050 | 1.644 |
| 185 | 5.751 | 4.404 | 3.842 | 3.643 | 3.611 | 3.603 | 3.590 | 3.588 | 3.544 | 3.537 | 2.366 | 2.134 | 2.134 | 1.724 |
| 190 | 5.908 | 4.484 | 3.887 | 3.676 | 3.643 | 3.636 | 3.623 | 3.620 | 3.574 | 3.567 | 3.481 | 2.219 | 2.219 | 1.804 |
| 195 | 6.065 | 4.581 | 3.932 | 3.709 | 3.676 | 3.668 | 3.655 | 3.652 | 3.604 | 3.597 | 3.508 | 2.303 | 2.303 | 1.884 |
| 200 | 6.125 | 4.696 | 3.977 | 3.742 | 3.708 | 3.700 | 3.687 | 3.684 | 3.635 | 3.627 | 3.535 | 2.388 | 2.388 | 1.964 |
| 205 | 6.174 | 4.811 | 4.022 | 3.775 | 3.741 | 3.733 | 3.719 | 3.716 | 3.665 | 3.657 | 3.562 | 2.473 | 2.473 | 2.044 |
| 210 | 6.224 | 4.926 | 4.067 | 3.808 | 3.773 | 3.765 | 3.751 | 3.748 | 3.695 | 3.687 | 3.589 | 2.557 | 2.557 | 2.124 |
| 215 | 6.273 | 5.042 | 4.112 | 3.841 | 3.806 | 3.797 | 3.783 | 3.780 | 3.725 | 3.717 | 3.616 | 2.642 | 2.642 | 2.203 |
| 220 | 6.322 | 5.157 | 4.157 | 3.874 | 3.838 | 3.830 | 3.815 | 3.812 | 3.755 | 3.747 | 3.643 | 2.726 | 2.726 | 2.283 |
| 225 | 6.371 | 5.272 | 4.202 | 3.907 | 3.871 | 3.862 | 3.847 | 3.844 | 3.785 | 3.777 | 3.670 | 2.811 | 2.811 | 2.363 |
| 230 | 6.420 | 5.388 | 4.247 | 3.940 | 3.903 | 3.894 | 3.879 | 3.876 | 3.815 | 3.807 | 3.696 | 2.895 | 2.895 | 2.443 |
| 235 | 6.469 | 5.503 | 4.292 | 3.973 | 3.936 | 3.927 | 3.911 | 3.908 | 3.846 | 3.837 | 3.723 | 3.225 | 2.980 | 2.523 |
| 240 | 6.519 | 5.618 | 4.337 | 4.006 | 3.968 | 3.959 | 3.943 | 3.940 | 3.876 | 3.867 | 3.750 | 3.488 | 3.064 | 2.603 |
| 245 | 6.568 | 5.734 | 4.382 | 4.039 | 4.001 | 3.991 | 3.975 | 3.972 | 3.906 | 3.897 | 3.777 | 3.531 | 3.149 | 2.683 |
| 250 | 6.617 | 5.849 | 4.427 | 4.072 | 4.033 | 4.024 | 4.008 | 4.004 | 3.936 | 3.927 | 3.804 | 3.573 | 3.233 | 2.763 |
| 255 | 6.666 | 5.964 | 4.472 | 4.105 | 4.065 | 4.056 | 4.040 | 4.036 | 3.966 | 3.957 | 3.831 | 3.616 | 3.318 | 2.843 |
| 260 | 6.715 | 6.080 | 4.517 | 4.138 | 4.098 | 4.088 | 4.072 | 4.068 | 3.996 | 3.987 | 3.858 | 3.659 | 3.402 | 2.923 |
| 265 | 6.765 | 6.136 | 4.652 | 4.171 | 4.130 | 4.120 | 4.104 | 4.101 | 4.026 | 4.017 | 3.885 | 3.702 | 3.480 | 3.003 |
| 270 | 6.814 | 6.192 | 4.821 | 4.204 | 4.163 | 4.153 | 4.136 | 4.133 | 4.057 | 4.047 | 3.912 | 3.744 | 3.517 | 3.083 |
| 275 | 6.863 | 6.248 | 4.990 | 4.237 | 4.195 | 4.185 | 4.168 | 4.165 | 4.087 | 4.077 | 3.938 | 3.787 | 3.555 | 3.163 |
| 280 | 6.912 | 6.305 | 5.159 | 4.270 | 4.228 | 4.217 | 4.200 | 4.197 | 4.117 | 4.107 | 3.965 | 3.830 | 3.593 | 3.243 |
| 285 | 6.961 | 6.361 | 5.328 | 4.303 | 4.260 | 4.250 | 4.232 | 4.229 | 4.147 | 4.137 | 3.992 | 3.873 | 3.631 | 3.323 |
| 290 | 7.010 | 6.417 | 5.497 | 4.336 | 4.293 | 4.282 | 4.264 | 4.261 | 4.177 | 4.167 | 4.019 | 3.915 | 3.668 | 3.403 |
| 295 | 7.060 | 6.473 | 5.666 | 4.369 | 4.325 | 4.314 | 4.296 | 4.293 | 4.207 | 4.197 | 4.046 | 3.958 | 3.706 | 3.478 |
| 300 | 7.109 | 6.529 | 5.835 | 4.402 | 4.358 | 4.347 | 4.328 | 4.325 | 4.237 | 4.227 | 4.073 | 4.001 | 3.744 | 3.510 |
| 305 | 7.158 | 6.585 | 6.004 | 4.435 | 4.390 | 4.379 | 4.361 | 4.357 | 4.268 | 4.257 | 4.100 | 4.044 | 3.781 | 3.543 |
| 310 | 7.207 | 6.641 | 6.121 | 4.468 | 4.423 | 4.411 | 4.393 | 4.389 | 4.298 | 4.287 | 4.127 | 4.086 | 3.819 | 3.575 |
| 315 | 7.256 | 6.697 | 6.194 | 4.501 | 4.455 | 4.444 | 4.425 | 4.421 | 4.328 | 4.317 | 4.153 | 4.129 | 3.857 | 3.608 |
| 320 | 7.306 | 6.753 | 6.267 | 4.621 | 4.488 | 4.476 | 4.457 | 4.453 | 4.358 | 4.347 | 4.180 | 4.172 | 3.894 | 3.640 |
| 325 | 7.355 | 6.809 | 6.340 | 5.245 | 4.520 | 4.508 | 4.489 | 4.485 | 4.388 | 4.377 | 4.215 | 4.215 | 3.932 | 3.673 |
| 330 | 7.404 | 6.865 | 6.413 | 5.869 | 4.962 | 4.741 | 4.521 | 4.517 | 4.418 | 4.407 | 4.257 | 4.257 | 3.970 | 3.706 |
| 335 | 7.453 | 6.921 | 6.486 | 6.135 | 5.559 | 5.335 | 5.076 | 4.986 | 4.448 | 4.437 | 4.300 | 4.300 | 4.007 | 3.738 |
| 340 | 7.502 | 6.977 | 6.560 | 6.217 | 6.092 | 5.929 | 5.806 | 5.715 | 4.479 | 4.467 | 4.343 | 4.343 | 4.045 | 3.771 |
| 345 | 7.551 | 7.033 | 6.633 | 6.299 | 6.176 | 6.143 | 6.132 | 6.121 | 4.509 | 4.497 | 4.386 | 4.386 | 4.083 | 3.803 |
| 350 | 7.601 | 7.089 | 6.706 | 6.381 | 6.259 | 6.227 | 6.213 | 6.203 | 4.838 | 4.527 | 4.428 | 4.428 | 4.120 | 3.836 |
| 355 | 7.650 | 7.146 | 6.779 | 6.463 | 6.343 | 6.311 | 6.294 | 6.284 | 5.787 | 5.416 | 4.471 | 4.471 | 4.158 | 3.869 |

Thickness is intumescent only. Results also apply to rectangular hollow beams exposed on all four sides limited to a maximum protection thickness of 5.667 mm.

| Table 34 Rectangular Hollow Columns (RHS / SHS) 75 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 2.089 | 1.623 | 1.229 | 0.964 | 0.909 | 0.895 | 0.873 | 0.868 | 0.759 | 0.747 | 0.567 | 0.398 | 0.369 | 0.369 |
| 55 | 2.345 | 1.807 | 1.373 | 1.088 | 1.029 | 1.014 | 0.990 | 0.985 | 0.868 | 0.855 | 0.661 | 0.472 | 0.369 | 0.369 |
| 60 | 2.600 | 1.991 | 1.516 | 1.212 | 1.148 | 1.133 | 1.107 | 1.102 | 0.977 | 0.964 | 0.760 | 0.562 | 0.399 | 0.369 |
| 65 | 2.855 | 2.198 | 1.660 | 1.336 | 1.268 | 1.252 | 1.225 | 1.219 | 1.087 | 1.072 | 0.858 | 0.653 | 0.479 | 0.369 |
| 70 | 3.111 | 2.413 | 1.804 | 1.460 | 1.388 | 1.371 | 1.342 | 1.336 | 1.196 | 1.180 | 0.957 | 0.744 | 0.559 | 0.378 |
| 75 | 3.366 | 2.627 | 1.947 | 1.584 | 1.508 | 1.490 | 1.459 | 1.453 | 1.305 | 1.289 | 1.055 | 0.835 | 0.639 | 0.447 |
| 80 | 3.611 | 2.842 | 2.124 | 1.708 | 1.628 | 1.609 | 1.577 | 1.570 | 1.414 | 1.397 | 1.154 | 0.926 | 0.719 | 0.517 |
| 85 | 3.848 | 3.057 | 2.364 | 1.832 | 1.748 | 1.728 | 1.694 | 1.687 | 1.523 | 1.505 | 1.252 | 1.016 | 0.799 | 0.587 |
| 90 | 4.085 | 3.272 | 2.605 | 1.956 | 1.868 | 1.847 | 1.811 | 1.804 | 1.633 | 1.614 | 1.351 | 1.107 | 0.879 | 0.656 |
| 95 | 4.322 | 3.489 | 2.845 | 2.125 | 1.988 | 1.965 | 1.929 | 1.921 | 1.742 | 1.722 | 1.449 | 1.198 | 0.959 | 0.726 |
| 100 | 4.571 | 3.741 | 3.086 | 2.391 | 2.191 | 2.139 | 2.051 | 2.038 | 1.851 | 1.830 | 1.548 | 1.289 | 1.039 | 0.796 |
| 105 | 4.895 | 3.992 | 3.326 | 2.658 | 2.463 | 2.413 | 2.327 | 2.310 | 1.960 | 1.939 | 1.646 | 1.380 | 1.119 | 0.865 |
| 110 | 5.219 | 4.244 | 3.526 | 2.925 | 2.734 | 2.686 | 2.603 | 2.586 | 2.123 | 2.057 | 1.744 | 1.470 | 1.199 | 0.935 |
| 115 | 5.544 | 4.496 | 3.660 | 3.192 | 3.006 | 2.960 | 2.879 | 2.863 | 2.444 | 2.381 | 1.843 | 1.561 | 1.279 | 1.004 |
| 120 | 5.868 | 4.709 | 3.794 | 3.458 | 3.277 | 3.233 | 3.155 | 3.139 | 2.766 | 2.706 | 1.941 | 1.652 | 1.359 | 1.074 |
| 125 | 6.101 | 4.917 | 3.928 | 3.552 | 3.495 | 3.483 | 3.431 | 3.416 | 3.087 | 3.030 | 2.040 | 1.743 | 1.439 | 1.144 |
| 130 | 6.159 | 5.125 | 4.062 | 3.635 | 3.570 | 3.556 | 3.533 | 3.529 | 3.409 | 3.355 | 2.446 | 1.834 | 1.519 | 1.213 |
| 135 | 6.217 | 5.333 | 4.196 | 3.718 | 3.645 | 3.630 | 3.604 | 3.599 | 3.518 | 3.508 | 2.859 | 1.925 | 1.599 | 1.283 |
| 140 | 6.274 | 5.541 | 4.331 | 3.802 | 3.721 | 3.703 | 3.675 | 3.669 | 3.573 | 3.562 | 3.272 | 2.015 | 1.679 | 1.353 |
| 145 | 6.332 | 5.748 | 4.465 | 3.885 | 3.796 | 3.777 | 3.745 | 3.739 | 3.629 | 3.616 | 3.492 | 2.206 | 1.759 | 1.422 |
| 150 | 6.390 | 5.956 | 4.628 | 3.968 | 3.871 | 3.850 | 3.816 | 3.809 | 3.684 | 3.670 | 3.527 | 2.439 | 1.839 | 1.492 |
| 155 | 6.448 | 6.100 | 4.817 | 4.051 | 3.947 | 3.924 | 3.886 | 3.879 | 3.740 | 3.724 | 3.562 | 2.672 | 1.919 | 1.562 |
| 160 | 6.506 | 6.149 | 5.006 | 4.134 | 4.022 | 3.997 | 3.957 | 3.949 | 3.795 | 3.779 | 3.597 | 2.905 | 1.999 | 1.631 |
| 165 | 6.563 | 6.198 | 5.196 | 4.217 | 4.097 | 4.071 | 4.027 | 4.019 | 3.850 | 3.833 | 3.632 | 3.138 | 2.171 | 1.701 |
| 170 | 6.621 | 6.247 | 5.385 | 4.300 | 4.173 | 4.144 | 4.098 | 4.089 | 3.906 | 3.887 | 3.668 | 3.371 | 2.450 | 1.770 |
| 175 | 6.679 | 6.296 | 5.574 | 4.383 | 4.248 | 4.218 | 4.169 | 4.159 | 3.961 | 3.941 | 3.703 | 3.513 | 2.730 | 1.840 |
| 180 | 6.737 | 6.344 | 5.763 | 4.467 | 4.323 | 4.291 | 4.239 | 4.229 | 4.016 | 3.995 | 3.738 | 3.583 | 3.010 | 1.910 |
| 185 | 6.795 | 6.393 | 5.953 | 4.575 | 4.399 | 4.365 | 4.310 | 4.299 | 4.072 | 4.049 | 3.773 | 3.653 | 3.289 | 1.979 |
| 190 | 6.853 | 6.442 | 6.100 | 4.763 | 4.474 | 4.438 | 4.380 | 4.369 | 4.127 | 4.103 | 3.808 | 3.723 | 3.489 | 2.096 |
| 195 | 6.910 | 6.491 | 6.157 | 4.950 | 4.576 | 4.512 | 4.451 | 4.439 | 4.182 | 4.157 | 3.843 | 3.793 | 3.533 | 2.643 |
| 200 | 6.968 | 6.540 | 6.215 | 5.137 | 4.753 | 4.662 | 4.521 | 4.509 | 4.238 | 4.211 | 3.878 | 3.863 | 3.577 | 3.189 |
| 205 | 7.026 | 6.588 | 6.272 | 5.324 | 4.929 | 4.835 | 4.696 | 4.663 | 4.293 | 4.265 | 3.933 | 3.933 | 3.620 | 3.492 |
| 210 | 7.084 | 6.637 | 6.330 | 5.511 | 5.105 | 5.009 | 4.883 | 4.849 | 4.349 | 4.319 | 4.003 | 4.003 | 3.664 | 3.531 |
| 215 | 7.142 | 6.686 | 6.388 | 5.698 | 5.281 | 5.182 | 5.070 | 5.035 | 4.404 | 4.373 | 4.073 | 4.073 | 3.708 | 3.569 |
| 220 | 7.200 | 6.735 | 6.445 | 5.885 | 5.457 | 5.355 | 5.257 | 5.221 | 4.459 | 4.427 | 4.143 | 4.143 | 3.752 | 3.608 |
| 225 | 7.257 | 6.783 | 6.503 | 6.072 | 5.634 | 5.529 | 5.444 | 5.407 | 4.515 | 4.481 | 4.213 | 4.213 | 3.796 | 3.646 |
| 230 | 7.315 | 6.832 | 6.560 | 6.149 | 5.810 | 5.702 | 5.631 | 5.593 | 4.667 | 4.551 | 4.283 | 4.283 | 3.840 | 3.684 |
| 235 | 7.373 | 6.881 | 6.618 | 6.220 | 5.986 | 5.876 | 5.818 | 5.779 | 4.854 | 4.735 | 4.353 | 4.353 | 3.883 | 3.723 |
| 240 | 7.431 | 6.930 | 6.676 | 6.291 | 6.116 | 6.049 | 6.005 | 5.965 | 5.040 | 4.919 | 4.423 | 4.423 | 3.927 | 3.761 |
| 245 | 7.489 | 6.979 | 6.733 | 6.363 | 6.193 | 6.145 | 6.126 | 6.110 | 5.227 | 5.103 | 4.494 | 4.494 | 3.971 | 3.800 |
| 250 | 7.546 | 7.027 | 6.791 | 6.434 | 6.270 | 6.223 | 6.203 | 6.187 | 5.413 | 5.287 | 4.574 | 4.574 | 4.015 | 3.838 |
| 255 | 7.604 | 7.076 | 6.849 | 6.505 | 6.347 | 6.301 | 6.280 | 6.265 | 5.600 | 5.472 | 4.665 | 4.665 | 4.059 | 3.876 |
| 260 | 7.662 | 7.125 | 6.906 | 6.576 | 6.424 | 6.378 | 6.357 | 6.342 | 5.786 | 5.656 | 4.756 | 4.756 | 4.103 | 3.915 |
| 265 | 7.720 | 7.174 | 6.964 | 6.648 | 6.500 | 6.456 | 6.434 | 6.419 | 5.973 | 5.840 | 4.846 | 4.846 | 4.146 | 3.953 |
| 270 | 7.778 | 7.223 | 7.021 | 6.719 | 6.577 | 6.534 | 6.511 | 6.496 | 6.117 | 6.024 | 4.937 | 4.937 | 4.190 | 3.992 |
| 275 | 7.836 | 7.271 | 7.079 | 6.790 | 6.654 | 6.612 | 6.587 | 6.573 | 6.204 | 6.142 | 5.028 | 5.028 | 4.234 | 4.030 |
| 280 | 7.893 | 7.320 | 7.137 | 6.862 | 6.731 | 6.690 | 6.664 | 6.651 | 6.291 | 6.231 | 5.119 | 5.119 | 4.278 | 4.069 |
| 285 | 7.951 | 7.369 | 7.194 | 6.933 | 6.808 | 6.768 | 6.741 | 6.728 | 6.378 | 6.319 | 5.210 | 5.210 | 4.322 | 4.107 |
| 290 | 8.009 | 7.418 | 7.252 | 7.004 | 6.884 | 6.846 | 6.818 | 6.805 | 6.465 | 6.408 | 5.301 | 5.301 | 4.366 | 4.145 |
| 295 | 8.067 | 7.466 | 7.309 | 7.076 | 6.961 | 6.924 | 6.895 | 6.882 | 6.551 | 6.496 | 5.391 | 5.391 | 4.409 | 4.184 |
| 300 | 8.125 | 7.515 | 7.367 | 7.147 | 7.038 | 7.002 | 6.971 | 6.959 | 6.638 | 6.585 | 5.482 | 5.482 | 4.453 | 4.222 |
| 305 | - | 7.564 | 7.425 | 7.218 | 7.115 | 7.080 | 7.048 | 7.036 | 6.725 | 6.673 | 6.084 | 5.573 | 4.497 | 4.261 |
| 310 | - | 7.613 | 7.482 | 7.289 | 7.192 | 7.158 | 7.125 | 7.114 | 6.812 | 6.762 | 6.176 | 5.664 | 4.565 | 4.299 |
| 315 | - | 7.662 | 7.540 | 7.361 | 7.268 | 7.236 | 7.202 | 7.191 | 6.899 | 6.850 | 6.268 | 5.755 | 4.696 | 4.337 |
| 320 | - | 7.710 | 7.597 | 7.432 | 7.345 | 7.313 | 7.279 | 7.268 | 6.985 | 6.939 | 6.360 | 5.846 | 4.828 | 4.376 |
| 325 | - | 7.759 | 7.655 | 7.503 | 7.422 | 7.391 | 7.356 | 7.345 | 7.072 | 7.027 | 6.452 | 5.936 | 4.959 | 4.414 |
| 330 | - | 7.808 | 7.713 | 7.575 | 7.499 | 7.469 | 7.432 | 7.422 | 7.159 | 7.116 | 6.544 | 6.027 | 5.091 | 4.453 |
| 335 | - | 7.857 | 7.770 | 7.646 | 7.575 | 7.547 | 7.509 | 7.499 | 7.246 | 7.205 | 6.636 | 6.135 | 5.223 | 4.491 |
| 340 | - | 7.906 | 7.828 | 7.717 | 7.652 | 7.625 | 7.586 | 7.577 | 7.333 | 7.293 | 6.728 | 6.268 | 5.354 | 4.530 |
| 345 | - | 7.954 | 7.886 | 7.788 | 7.729 | 7.703 | 7.663 | 7.654 | 7.419 | 7.382 | 6.820 | 6.401 | 5.486 | 4.641 |
| 350 | - | 8.003 | 7.943 | 7.860 | 7.806 | 7.781 | 7.740 | 7.731 | 7.506 | 7.470 | 6.912 | 6.533 | 5.617 | 4.751 |
| 355 | - | 8.052 | 8.001 | 7.931 | 7.883 | 7.859 | 7.817 | 7.808 | 7.593 | 7.559 | 7.004 | 6.666 | 5.749 | 4.861 |

Thickness is intumescent only. Results also apply to rectangular hollow beams exposed on all four sides limited to a maximum protection thickness of 5.667 mm.

| Table 35 Rectangular Hollow Columns (RHS / SHS) 90 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 2.728 | 2.095 | 1.615 | 1.313 | 1.250 | 1.235 | 1.210 | 1.205 | 1.084 | 1.070 | 0.878 | 0.707 | 0.534 | 0.369 |
| 55 | 3.045 | 2.366 | 1.797 | 1.472 | 1.404 | 1.388 | 1.361 | 1.356 | 1.225 | 1.211 | 1.008 | 0.825 | 0.631 | 0.397 |
| 60 | 3.363 | 2.638 | 1.980 | 1.630 | 1.558 | 1.541 | 1.512 | 1.506 | 1.367 | 1.351 | 1.138 | 0.948 | 0.747 | 0.510 |
| 65 | 3.727 | 2.909 | 2.232 | 1.789 | 1.712 | 1.694 | 1.663 | 1.657 | 1.509 | 1.492 | 1.268 | 1.071 | 0.864 | 0.622 |
| 70 | 4.118 | 3.181 | 2.522 | 1.948 | 1.866 | 1.847 | 1.814 | 1.808 | 1.650 | 1.633 | 1.398 | 1.194 | 0.980 | 0.735 |
| 75 | 4.508 | 3.452 | 2.811 | 2.166 | 2.020 | 1.999 | 1.965 | 1.958 | 1.792 | 1.773 | 1.528 | 1.317 | 1.097 | 0.848 |
| 80 | 5.027 | 4.148 | 3.101 | 2.469 | 2.304 | 2.262 | 2.192 | 2.178 | 1.933 | 1.914 | 1.658 | 1.440 | 1.213 | 0.960 |
| 85 | 5.553 | 4.673 | 3.390 | 2.772 | 2.608 | 2.568 | 2.498 | 2.485 | 2.120 | 2.072 | 1.787 | 1.563 | 1.330 | 1.073 |
| 90 | 6.079 | 4.974 | 3.706 | 3.075 | 2.912 | 2.873 | 2.804 | 2.791 | 2.453 | 2.407 | 1.917 | 1.685 | 1.447 | 1.185 |
| 95 | 6.194 | 5.275 | 4.032 | 3.379 | 3.216 | 3.178 | 3.110 | 3.097 | 2.787 | 2.742 | 2.057 | 1.808 | 1.563 | 1.298 |
| 100 | 6.307 | 5.576 | 4.358 | 3.605 | 3.500 | 3.479 | 3.416 | 3.404 | 3.120 | 3.077 | 2.422 | 1.931 | 1.680 | 1.410 |
| 105 | 6.421 | 5.877 | 4.668 | 3.796 | 3.673 | 3.648 | 3.606 | 3.598 | 3.454 | 3.412 | 2.786 | 2.066 | 1.796 | 1.523 |
| 110 | 6.534 | 6.107 | 4.961 | 3.987 | 3.846 | 3.817 | 3.768 | 3.759 | 3.593 | 3.575 | 3.151 | 2.302 | 1.913 | 1.635 |
| 115 | 6.648 | 6.186 | 5.253 | 4.178 | 4.019 | 3.986 | 3.930 | 3.920 | 3.721 | 3.700 | 3.484 | 2.538 | 2.029 | 1.748 |
| 120 | 6.761 | 6.266 | 5.545 | 4.370 | 4.192 | 4.155 | 4.092 | 4.081 | 3.848 | 3.824 | 3.567 | 2.774 | 2.250 | 1.860 |
| 125 | 6.875 | 6.345 | 5.837 | 4.578 | 4.365 | 4.323 | 4.254 | 4.242 | 3.975 | 3.948 | 3.651 | 3.011 | 2.483 | 1.973 |
| 130 | 6.988 | 6.425 | 6.094 | 4.876 | 4.544 | 4.492 | 4.417 | 4.403 | 4.102 | 4.073 | 3.735 | 3.247 | 2.716 | 2.146 |
| 135 | 7.101 | 6.504 | 6.175 | 5.173 | 4.831 | 4.751 | 4.621 | 4.593 | 4.229 | 4.197 | 3.818 | 3.481 | 2.949 | 2.418 |
| 140 | 7.215 | 6.584 | 6.256 | 5.471 | 5.117 | 5.034 | 4.920 | 4.891 | 4.356 | 4.322 | 3.902 | 3.647 | 3.182 | 2.690 |
| 145 | 7.328 | 6.663 | 6.337 | 5.769 | 5.404 | 5.318 | 5.219 | 5.190 | 4.484 | 4.446 | 3.986 | 3.813 | 3.415 | 2.961 |
| 150 | 7.442 | 6.743 | 6.417 | 6.066 | 5.691 | 5.601 | 5.519 | 5.488 | 4.720 | 4.627 | 4.070 | 3.979 | 3.558 | 3.233 |
| 155 | 7.555 | 6.822 | 6.498 | 6.160 | 5.977 | 5.884 | 5.818 | 5.786 | 5.018 | 4.922 | 4.153 | 4.145 | 3.672 | 3.482 |
| 160 | 7.669 | 6.902 | 6.579 | 6.243 | 6.133 | 6.106 | 6.090 | 6.082 | 5.315 | 5.216 | 4.311 | 4.311 | 3.785 | 3.556 |
| 165 | 7.782 | 6.981 | 6.660 | 6.326 | 6.216 | 6.187 | 6.168 | 6.159 | 5.613 | 5.511 | 4.477 | 4.477 | 3.898 | 3.629 |
| 170 | 7.895 | 7.061 | 6.741 | 6.409 | 6.298 | 6.268 | 6.246 | 6.237 | 5.910 | 5.805 | 4.596 | 4.596 | 4.011 | 3.703 |
| 175 | 8.009 | 7.140 | 6.821 | 6.492 | 6.380 | 6.349 | 6.324 | 6.314 | 6.110 | 6.085 | 4.693 | 4.693 | 4.124 | 3.776 |
| 180 | 8.122 | 7.220 | 6.902 | 6.575 | 6.462 | 6.430 | 6.402 | 6.391 | 6.180 | 6.153 | 4.789 | 4.789 | 4.238 | 3.850 |
| 185 | 8.236 | 7.299 | 6.983 | 6.658 | 6.545 | 6.511 | 6.479 | 6.469 | 6.249 | 6.221 | 4.967 | 4.886 | 4.351 | 3.924 |
| 190 | - | 7.379 | 7.064 | 6.741 | 6.627 | 6.592 | 6.557 | 6.546 | 6.318 | 6.289 | 5.256 | 4.983 | 4.464 | 3.997 |
| 195 | - | 7.458 | 7.144 | 6.824 | 6.709 | 6.673 | 6.635 | 6.624 | 6.387 | 6.357 | 5.546 | 5.080 | 4.561 | 4.071 |
| 200 | - | 7.538 | 7.225 | 6.908 | 6.791 | 6.754 | 6.713 | 6.701 | 6.456 | 6.425 | 5.835 | 5.177 | 4.635 | 4.144 |
| 205 | - | 7.617 | 7.306 | 6.991 | 6.873 | 6.835 | 6.790 | 6.778 | 6.525 | 6.493 | 6.091 | 5.274 | 4.709 | 4.218 |
| 210 | - | 7.697 | 7.387 | 7.074 | 6.956 | 6.916 | 6.868 | 6.856 | 6.594 | 6.561 | 6.161 | 5.370 | 4.784 | 4.291 |
| 215 | - | 7.776 | 7.468 | 7.157 | 7.038 | 6.998 | 6.946 | 6.933 | 6.663 | 6.629 | 6.231 | 5.467 | 4.858 | 4.365 |
| 220 | - | 7.856 | 7.548 | 7.240 | 7.120 | 7.079 | 7.024 | 7.011 | 6.732 | 6.697 | 6.301 | 5.564 | 4.932 | 4.439 |
| 225 | - | 7.935 | 7.629 | 7.323 | 7.202 | 7.160 | 7.102 | 7.088 | 6.801 | 6.765 | 6.371 | 5.661 | 5.006 | 4.512 |
| 230 | - | 8.015 | 7.710 | 7.406 | 7.284 | 7.241 | 7.179 | 7.165 | 6.870 | 6.833 | 6.441 | 5.758 | 5.081 | 4.588 |
| 235 | - | 8.094 | 7.791 | 7.489 | 7.367 | 7.322 | 7.257 | 7.243 | 6.939 | 6.901 | 6.510 | 5.855 | 5.155 | 4.665 |
| 240 | - | 8.174 | 7.871 | 7.572 | 7.449 | 7.403 | 7.335 | 7.320 | 7.008 | 6.969 | 6.580 | 5.951 | 5.229 | 4.742 |
| 245 | - | - | 7.952 | 7.655 | 7.531 | 7.484 | 7.413 | 7.398 | 7.077 | 7.037 | 6.650 | 6.048 | 5.304 | 4.819 |
| 250 | - | - | 8.033 | 7.738 | 7.613 | 7.565 | 7.491 | 7.475 | 7.146 | 7.104 | 6.720 | 6.156 | 5.378 | 4.896 |
| 255 | - | - | 8.114 | 7.821 | 7.696 | 7.646 | 7.568 | 7.552 | 7.215 | 7.172 | 6.790 | 6.269 | 5.452 | 4.973 |
| 260 | - | - | 8.195 | 7.904 | 7.778 | 7.727 | 7.646 | 7.630 | 7.284 | 7.240 | 6.859 | 6.382 | 5.526 | 5.050 |
| 265 | - | - | - | 7.987 | 7.860 | 7.808 | 7.724 | 7.707 | 7.353 | 7.308 | 6.929 | 6.495 | 5.601 | 5.127 |
| 270 | - | - | - | 8.071 | 7.942 | 7.889 | 7.802 | 7.785 | 7.422 | 7.376 | 6.999 | 6.608 | 5.675 | 5.204 |
| 275 | - | - | - | 8.154 | 8.024 | 7.970 | 7.880 | 7.862 | 7.491 | 7.444 | 7.069 | 6.721 | 5.749 | 5.281 |
| 280 | - | - | - | 8.237 | 8.107 | 8.051 | 7.957 | 7.939 | 7.560 | 7.512 | 7.139 | 6.834 | 5.824 | 5.358 |
| 285 | - | - | - | - | 8.189 | 8.132 | 8.035 | 8.017 | 7.629 | 7.580 | 7.208 | 6.947 | 5.898 | 5.435 |
| 290 | - | - | - | - | 8.271 | 8.214 | 8.113 | 8.094 | 7.698 | 7.648 | 7.278 | 7.060 | 5.972 | 5.512 |
| 295 | - | - | - | - | - | - | 8.191 | 8.171 | 7.767 | 7.716 | 7.348 | 7.173 | 6.046 | 5.589 |
| 300 | - | - | - | - | - | - | - | 8.249 | 7.837 | 7.784 | 7.418 | 7.286 | 6.151 | 5.666 |
| 305 | - | - | - | - | - | - | - | - | 7.906 | 7.852 | 7.488 | 7.399 | 6.283 | 5.743 |
| 310 | - | - | - | - | - | - | - | - | 7.975 | 7.920 | 7.558 | 7.512 | 6.414 | 5.820 |
| 315 | - | - | - | - | - | - | - | - | 8.044 | 7.988 | 7.627 | 7.625 | 6.546 | 5.897 |
| 320 | - | - | - | - | - | - | - | - | 8.113 | 8.056 | 7.738 | 7.738 | 6.677 | 5.974 |
| 325 | - | - | - | - | - | - | - | - | 8.182 | 8.124 | 7.851 | 7.851 | 6.809 | 6.051 |
| 330 | - | - | - | - | - | - | - | - | 8.251 | 8.192 | 7.964 | 7.964 | 6.940 | 6.147 |
| 335 | - | - | - | - | - | - | - | - | - | 8.260 | 8.077 | 8.077 | 7.072 | 6.256 |
| 340 | - | - | - | - | - | - | - | - | - | - | 8.190 | 8.190 | 7.203 | 6.365 |
| 345 | - | - | - | - | - | - | - | - | - | - | 8.303 | 8.303 | 7.335 | 6.474 |
| 350 | - | - | - | - | - | - | - | - | - | - | 8.416 | 8.416 | 7.466 | 6.583 |
| 355 | - | - | - | - | - | - | - | - | - | - | - | - | 7.598 | 6.691 |

Thickness is intumescent only. Results also apply to rectangular hollow beams exposed on all four sides limited to a maximum protection thickness of 5.667 mm.

| Table 36 Rectangular Hollow Columns (RHS / SHS) 105 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 3.350 | 2.651 | 1.988 | 1.661 | 1.592 | 1.575 | 1.547 | 1.542 | 1.408 | 1.393 | 1.193 | 1.023 | 0.859 | 0.664 |
| 55 | 3.907 | 2.977 | 2.314 | 1.855 | 1.780 | 1.762 | 1.732 | 1.726 | 1.582 | 1.566 | 1.354 | 1.178 | 1.002 | 0.786 |
| 60 | 4.464 | 3.302 | 2.654 | 2.054 | 1.968 | 1.948 | 1.917 | 1.910 | 1.756 | 1.739 | 1.516 | 1.333 | 1.153 | 0.937 |
| 65 | 5.194 | 4.589 | 2.995 | 2.397 | 2.250 | 2.213 | 2.152 | 2.140 | 1.930 | 1.912 | 1.677 | 1.488 | 1.303 | 1.087 |
| 70 | 5.946 | 4.983 | 3.336 | 2.741 | 2.592 | 2.556 | 2.495 | 2.483 | 2.172 | 2.132 | 1.839 | 1.644 | 1.453 | 1.238 |
| 75 | 6.227 | 5.378 | 3.944 | 3.084 | 2.934 | 2.899 | 2.837 | 2.825 | 2.533 | 2.494 | 2.000 | 1.799 | 1.604 | 1.388 |
| 80 | 6.405 | 5.772 | 4.632 | 3.428 | 3.277 | 3.242 | 3.180 | 3.168 | 2.894 | 2.856 | 2.316 | 1.954 | 1.754 | 1.539 |
| 85 | 6.582 | 6.110 | 5.028 | 3.823 | 3.626 | 3.587 | 3.521 | 3.510 | 3.256 | 3.218 | 2.687 | 2.152 | 1.904 | 1.689 |
| 90 | 6.760 | 6.245 | 5.424 | 4.226 | 3.986 | 3.938 | 3.857 | 3.843 | 3.575 | 3.547 | 3.057 | 2.409 | 2.062 | 1.840 |
| 95 | 6.938 | 6.379 | 5.821 | 4.630 | 4.346 | 4.288 | 4.192 | 4.175 | 3.831 | 3.798 | 3.428 | 2.666 | 2.301 | 1.990 |
| 100 | 7.116 | 6.514 | 6.128 | 5.040 | 4.725 | 4.653 | 4.528 | 4.508 | 4.088 | 4.048 | 3.620 | 2.922 | 2.539 | 2.209 |
| 105 | 7.294 | 6.648 | 6.265 | 5.449 | 5.124 | 5.048 | 4.940 | 4.915 | 4.344 | 4.299 | 3.786 | 3.179 | 2.778 | 2.464 |
| 110 | 7.471 | 6.783 | 6.401 | 5.858 | 5.523 | 5.444 | 5.353 | 5.326 | 4.642 | 4.562 | 3.952 | 3.436 | 3.017 | 2.720 |
| 115 | 7.649 | 6.917 | 6.538 | 6.145 | 5.922 | 5.839 | 5.765 | 5.738 | 5.051 | 4.967 | 4.119 | 3.710 | 3.255 | 2.975 |
| 120 | 7.827 | 7.052 | 6.675 | 6.285 | 6.164 | 6.134 | 6.112 | 6.103 | 5.460 | 5.372 | 4.285 | 3.987 | 3.491 | 3.230 |
| 125 | 8.005 | 7.186 | 6.811 | 6.425 | 6.303 | 6.272 | 6.245 | 6.235 | 5.868 | 5.777 | 4.452 | 4.264 | 3.692 | 3.481 |
| 130 | 8.182 | 7.321 | 6.948 | 6.564 | 6.442 | 6.409 | 6.378 | 6.367 | 6.139 | 6.111 | 4.741 | 4.538 | 3.892 | 3.633 |
| 135 | - | 7.455 | 7.085 | 6.704 | 6.581 | 6.547 | 6.511 | 6.500 | 6.260 | 6.230 | 5.137 | 4.728 | 4.093 | 3.784 |
| 140 | - | 7.590 | 7.222 | 6.844 | 6.720 | 6.684 | 6.643 | 6.632 | 6.381 | 6.350 | 5.532 | 4.919 | 4.294 | 3.936 |
| 145 | - | 7.724 | 7.358 | 6.984 | 6.859 | 6.822 | 6.776 | 6.764 | 6.502 | 6.470 | 5.928 | 5.109 | 4.494 | 4.088 |
| 150 | - | 7.859 | 7.495 | 7.124 | 6.998 | 6.959 | 6.909 | 6.896 | 6.623 | 6.589 | 6.139 | 5.300 | 4.643 | 4.240 |
| 155 | - | 7.993 | 7.632 | 7.264 | 7.137 | 7.096 | 7.042 | 7.029 | 6.744 | 6.709 | 6.235 | 5.490 | 4.781 | 4.391 |
| 160 | - | 8.128 | 7.769 | 7.404 | 7.276 | 7.234 | 7.174 | 7.161 | 6.866 | 6.829 | 6.330 | 5.681 | 4.919 | 4.537 |
| 165 | - | 8.263 | 7.905 | 7.543 | 7.414 | 7.371 | 7.307 | 7.293 | 6.987 | 6.948 | 6.425 | 5.871 | 5.057 | 4.628 |
| 170 | - | - | 8.042 | 7.683 | 7.553 | 7.509 | 7.440 | 7.425 | 7.108 | 7.068 | 6.520 | 6.062 | 5.195 | 4.718 |
| 175 | - | - | 8.179 | 7.823 | 7.692 | 7.646 | 7.573 | 7.558 | 7.229 | 7.188 | 6.615 | 6.162 | 5.333 | 4.808 |
| 180 | - | - | 8.315 | 7.963 | 7.831 | 7.784 | 7.706 | 7.690 | 7.350 | 7.307 | 6.711 | 6.253 | 5.471 | 4.898 |
| 185 | - | - | - | 8.103 | 7.970 | 7.921 | 7.838 | 7.822 | 7.471 | 7.427 | 6.806 | 6.343 | 5.609 | 4.988 |
| 190 | - | - | - | 8.243 | 8.109 | 8.059 | 7.971 | 7.954 | 7.592 | 7.547 | 6.901 | 6.434 | 5.747 | 5.078 |
| 195 | - | - | - | - | 8.248 | 8.196 | 8.104 | 8.087 | 7.713 | 7.666 | 6.996 | 6.524 | 5.885 | 5.168 |
| 200 | - | - | - | - | - | 8.334 | 8.237 | 8.219 | 7.834 | 7.786 | 7.091 | 6.615 | 6.023 | 5.258 |
| 205 | - | - | - | - | - | - | - | - | 7.955 | 7.906 | 7.187 | 6.705 | 6.132 | 5.348 |
| 210 | - | - | - | - | - | - | - | - | 8.076 | 8.025 | 7.282 | 6.796 | 6.219 | 5.438 |
| 215 | - | - | - | - | - | - | - | - | 8.197 | 8.145 | 7.377 | 6.886 | 6.306 | 5.528 |
| 220 | - | - | - | - | - | - | - | - | 8.318 | 8.265 | 7.472 | 6.977 | 6.393 | 5.619 |
| 225 | - | - | - | - | - | - | - | - | - | 8.384 | 7.567 | 7.067 | 6.481 | 5.709 |
| 230 | - | - | - | - | - | - | - | - | - | - | 7.663 | 7.158 | 6.568 | 5.799 |
| 235 | - | - | - | - | - | - | - | - | - | - | 7.758 | 7.248 | 6.655 | 5.889 |
| 240 | - | - | - | - | - | - | - | - | - | - | 7.853 | 7.338 | 6.742 | 5.979 |
| 245 | - | - | - | - | - | - | - | - | - | - | 7.948 | 7.429 | 6.829 | 6.069 |
| 250 | - | - | - | - | - | - | - | - | - | - | 8.043 | 7.519 | 6.917 | 6.164 |
| 255 | - | - | - | - | - | - | - | - | - | - | 8.138 | 7.610 | 7.004 | 6.260 |
| 260 | - | - | - | - | - | - | - | - | - | - | 8.234 | 7.700 | 7.091 | 6.356 |
| 265 | - | - | - | - | - | - | - | - | - | - | - | 7.791 | 7.178 | 6.452 |
| 270 | - | - | - | - | - | - | - | - | - | - | - | 7.881 | 7.265 | 6.548 |
| 275 | - | - | - | - | - | - | - | - | - | - | - | 7.972 | 7.353 | 6.644 |
| 280 | - | - | - | - | - | - | - | - | - | - | - | 8.062 | 7.440 | 6.740 |
| 285 | - | - | - | - | - | - | - | - | - | - | - | 8.153 | 7.527 | 6.836 |
| 290 | - | - | - | - | - | - | - | - | - | - | - | 8.243 | 7.614 | 6.931 |
| 295 | - | - | - | - | - | - | - | - | - | - | - | 8.334 | 7.701 | 7.027 |
| 300 | - | - | - | - | - | - | - | - | - | - | - | 8.424 | 7.789 | 7.123 |
| 305 | - | - | - | - | - | - | - | - | - | - | - | - | 7.876 | 7.219 |
| 310 | - | - | - | - | - | - | - | - | - | - | - | - | 7.963 | 7.315 |
| 315 | - | - | - | - | - | - | - | - | - | - | - | - | 8.050 | 7.411 |
| 320 | - | - | - | - | - | - | - | - | - | - | - | - | 8.137 | 7.507 |
| 325 | - | - | - | - | - | - | - | - | - | - | - | - | 8.225 | 7.603 |
| 330 | - | - | - | - | - | - | - | - | - | - | - | - | 8.312 | 7.699 |
| 335 | - | - | - | - | - | - | - | - | - | - | - | - | 8.399 | 7.795 |
| 340 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.890 |
| 345 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.986 |
| 350 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.082 |
| 355 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.178 |

Thickness is intumescent only. Results also apply to rectangular hollow beams exposed on all four sides limited to a maximum protection thickness of 5.667 mm.

| Table 37 Rectangular Hollow Columns (RHS / SHS) 120 minutes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 512 | 515 | 520 | 521 | 547 | 550 | 600 | 650 | 700 | 750 |
| 50 | 4.429 | 4.279 | 2.545 | 2.020 | 1.901 | 1.884 | 1.884 | 1.878 | 1.733 | 1.717 | 1.508 | 1.345 | 1.190 | 1.018 |
| 55 | 5.404 | 4.767 | 2.941 | 2.363 | 2.233 | 2.201 | 2.148 | 2.137 | 1.939 | 1.922 | 1.701 | 1.532 | 1.374 | 1.191 |
| 60 | 6.157 | 5.255 | 3.337 | 2.753 | 2.617 | 2.585 | 2.530 | 2.519 | 2.240 | 2.206 | 1.894 | 1.719 | 1.558 | 1.379 |
| 65 | 6.405 | 5.744 | 4.646 | 3.142 | 3.001 | 2.969 | 2.912 | 2.901 | 2.635 | 2.601 | 2.132 | 1.906 | 1.742 | 1.566 |
| 70 | 6.653 | 6.142 | 5.147 | 3.602 | 3.385 | 3.352 | 3.294 | 3.283 | 3.030 | 2.996 | 2.524 | 2.119 | 1.926 | 1.753 |
| 75 | 6.901 | 6.338 | 5.648 | 4.473 | 4.054 | 3.973 | 3.840 | 3.817 | 3.425 | 3.391 | 2.916 | 2.402 | 2.137 | 1.941 |
| 80 | 7.150 | 6.535 | 6.108 | 5.017 | 4.719 | 4.651 | 4.532 | 4.503 | 3.911 | 3.858 | 3.308 | 2.684 | 2.393 | 2.164 |
| 85 | 7.398 | 6.731 | 6.307 | 5.539 | 5.231 | 5.159 | 5.058 | 5.034 | 4.409 | 4.344 | 3.651 | 2.967 | 2.649 | 2.429 |
| 90 | 7.646 | 6.928 | 6.507 | 6.061 | 5.743 | 5.667 | 5.585 | 5.559 | 4.924 | 4.848 | 3.958 | 3.250 | 2.905 | 2.695 |
| 95 | 7.894 | 7.124 | 6.706 | 6.276 | 6.149 | 6.118 | 6.092 | 6.082 | 5.444 | 5.364 | 4.265 | 3.562 | 3.161 | 2.960 |
| 100 | 8.142 | 7.320 | 6.905 | 6.479 | 6.351 | 6.318 | 6.286 | 6.275 | 5.964 | 5.880 | 4.600 | 3.990 | 3.416 | 3.226 |
| 105 | - | 7.517 | 7.104 | 6.681 | 6.552 | 6.517 | 6.480 | 6.469 | 6.220 | 6.189 | 5.103 | 4.418 | 3.717 | 3.490 |
| 110 | - | 7.713 | 7.304 | 6.884 | 6.754 | 6.717 | 6.673 | 6.662 | 6.399 | 6.367 | 5.606 | 4.769 | 4.031 | 3.733 |
| 115 | - | 7.910 | 7.503 | 7.087 | 6.955 | 6.917 | 6.867 | 6.855 | 6.578 | 6.544 | 6.089 | 5.092 | 4.344 | 3.976 |
| 120 | - | 8.106 | 7.702 | 7.289 | 7.157 | 7.117 | 7.061 | 7.048 | 6.758 | 6.722 | 6.236 | 5.416 | 4.630 | 4.218 |
| 125 | - | 8.303 | 7.901 | 7.492 | 7.358 | 7.317 | 7.255 | 7.241 | 6.937 | 6.899 | 6.383 | 5.739 | 4.876 | 4.461 |
| 130 | - | - | 8.101 | 7.695 | 7.559 | 7.516 | 7.448 | 7.434 | 7.116 | 7.077 | 6.530 | 6.063 | 5.123 | 4.648 |
| 135 | - | - | 8.300 | 7.897 | 7.761 | 7.716 | 7.642 | 7.627 | 7.295 | 7.255 | 6.677 | 6.168 | 5.369 | 4.814 |
| 140 | - | - | - | 8.100 | 7.962 | 7.916 | 7.836 | 7.820 | 7.475 | 7.432 | 6.824 | 6.260 | 5.615 | 4.980 |
| 145 | - | - | - | 8.303 | 8.164 | 8.116 | 8.030 | 8.013 | 7.654 | 7.610 | 6.971 | 6.352 | 5.861 | 5.145 |
| 150 | - | - | - | - | 8.365 | 8.316 | 8.224 | 8.207 | 7.833 | 7.787 | 7.118 | 6.444 | 6.090 | 5.311 |
| 155 | - | - | - | - | - | - | - | - | 8.012 | 7.965 | 7.265 | 6.536 | 6.176 | 5.477 |
| 160 | - | - | - | - | - | - | - | - | 8.192 | 8.142 | 7.412 | 6.628 | 6.261 | 5.642 |
| 165 | - | - | - | - | - | - | - | - | 8.371 | 8.320 | 7.560 | 6.720 | 6.347 | 5.808 |
| 170 | - | - | - | - | - | - | - | - | - | - | 7.707 | 6.812 | 6.432 | 5.973 |
| 175 | - | - | - | - | - | - | - | - | - | - | 7.854 | 6.903 | 6.517 | 6.109 |
| 180 | - | - | - | - | - | - | - | - | - | - | 8.001 | 6.995 | 6.603 | 6.189 |
| 185 | - | - | - | - | - | - | - | - | - | - | 8.148 | 7.087 | 6.688 | 6.269 |
| 190 | - | - | - | - | - | - | - | - | - | - | 8.295 | 7.179 | 6.774 | 6.348 |
| 195 | - | - | - | - | - | - | - | - | - | - | - | 7.271 | 6.859 | 6.428 |
| 200 | - | - | - | - | - | - | - | - | - | - | - | 7.363 | 6.945 | 6.508 |
| 205 | - | - | - | - | - | - | - | - | - | - | - | 7.455 | 7.030 | 6.588 |
| 210 | - | - | - | - | - | - | - | - | - | - | - | 7.547 | 7.115 | 6.667 |
| 215 | - | - | - | - | - | - | - | - | - | - | - | 7.639 | 7.201 | 6.747 |
| 220 | - | - | - | - | - | - | - | - | - | - | - | 7.731 | 7.286 | 6.827 |
| 225 | - | - | - | - | - | - | - | - | - | - | - | 7.823 | 7.372 | 6.907 |
| 230 | - | - | - | - | - | - | - | - | - | - | - | 7.915 | 7.457 | 6.987 |
| 235 | - | - | - | - | - | - | - | - | - | - | - | 8.007 | 7.543 | 7.066 |
| 240 | - | - | - | - | - | - | - | - | - | - | - | 8.099 | 7.628 | 7.146 |
| 245 | - | - | - | - | - | - | - | - | - | - | - | 8.191 | 7.713 | 7.226 |
| 250 | - | - | - | - | - | - | - | - | - | - | - | 8.283 | 7.799 | 7.306 |
| 255 | - | - | - | - | - | - | - | - | - | - | - | 8.375 | 7.884 | 7.385 |
| 260 | - | - | - | - | - | - | - | - | - | - | - | - | 7.970 | 7.465 |
| 265 | - | - | - | - | - | - | - | - | - | - | - | - | 8.055 | 7.545 |
| 270 | - | - | - | - | - | - | - | - | - | - | - | - | 8.141 | 7.625 |
| 275 | - | - | - | - | - | - | - | - | - | - | - | - | 8.226 | 7.705 |
| 280 | - | - | - | - | - | - | - | - | - | - | - | - | 8.312 | 7.784 |
| 285 | - | - | - | - | - | - | - | - | - | - | - | - | 8.397 | 7.864 |
| 290 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.944 |
| 295 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.024 |
| 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.103 |
| 305 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.183 |
| 310 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.263 |
| 315 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.343 |
| 320 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.423 |
| 325 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 330 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 335 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 340 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 345 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 350 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 355 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Thickness is intumescent only. Results also apply to rectangular hollow beams exposed on all four sides limited to a maximum protection thickness of 5.667 mm.

| Table 38 Rectangular Hollow Beams 15 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 580 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 40 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 45 | 0.404 | 0.404 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 50 | 0.414 | 0.414 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 55 | 0.424 | 0.424 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 60 | 0.434 | 0.434 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 65 | 0.444 | 0.444 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 70 | 0.453 | 0.453 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 75 | 0.463 | 0.463 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 80 | 0.473 | 0.473 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 85 | 0.483 | 0.483 | 0.397 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 90 | 0.493 | 0.493 | 0.419 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 95 | 0.503 | 0.503 | 0.441 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 100 | 0.513 | 0.513 | 0.462 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 105 | 0.523 | 0.523 | 0.484 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 110 | 0.533 | 0.533 | 0.506 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 115 | 0.543 | 0.543 | 0.527 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 120 | 0.552 | 0.552 | 0.549 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 125 | 0.571 | 0.571 | 0.571 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 130 | 0.592 | 0.592 | 0.592 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 135 | 0.614 | 0.614 | 0.614 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 140 | 0.636 | 0.636 | 0.636 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 145 | 0.657 | 0.657 | 0.657 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 150 | 0.679 | 0.679 | 0.679 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 155 | 0.700 | 0.700 | 0.700 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 160 | 0.722 | 0.722 | 0.722 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 165 | 0.744 | 0.744 | 0.744 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 170 | 0.765 | 0.765 | 0.765 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 175 | 0.787 | 0.787 | 0.787 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 180 | 0.809 | 0.809 | 0.809 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 185 | 0.830 | 0.830 | 0.830 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 190 | 0.852 | 0.852 | 0.852 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 195 | 0.874 | 0.874 | 0.874 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 200 | 0.895 | 0.895 | 0.895 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 205 | 0.917 | 0.917 | 0.917 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 210 | 0.939 | 0.939 | 0.939 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 215 | 0.960 | 0.960 | 0.960 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 220 | 0.982 | 0.982 | 0.982 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 225 | 1.004 | 1.004 | 1.004 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 230 | 1.025 | 1.025 | 1.025 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 235 | 1.047 | 1.047 | 1.047 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 240 | 1.068 | 1.068 | 1.068 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 245 | 1.090 | 1.090 | 1.090 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 250 | 1.112 | 1.112 | 1.112 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 255 | 1.133 | 1.133 | 1.133 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 260 | 1.155 | 1.155 | 1.155 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 265 | 1.177 | 1.177 | 1.177 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 270 | 1.198 | 1.198 | 1.198 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 275 | 1.220 | 1.220 | 1.220 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 280 | 1.242 | 1.242 | 1.242 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 285 | 1.263 | 1.263 | 1.263 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 290 | 1.285 | 1.285 | 1.285 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 295 | 1.307 | 1.307 | 1.307 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 300 | 1.328 | 1.328 | 1.328 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 305 | 1.350 | 1.350 | 1.350 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 310 | 1.371 | 1.371 | 1.371 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 315 | 1.393 | 1.393 | 1.393 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 320 | 1.415 | 1.415 | 1.415 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 325 | 1.436 | 1.436 | 1.436 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 330 | 1.458 | 1.458 | 1.458 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 335 | 1.480 | 1.480 | 1.480 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 340 | 1.501 | 1.501 | 1.501 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |

Thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 39 Rectangular Hollow Beams 20 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 580 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 40 | 0.454 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 45 | 0.471 | 0.406 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 50 | 0.487 | 0.420 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 55 | 0.503 | 0.434 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 60 | 0.520 | 0.447 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 65 | 0.536 | 0.461 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 70 | 0.553 | 0.475 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 75 | 0.569 | 0.489 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 80 | 0.585 | 0.503 | 0.416 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 85 | 0.602 | 0.516 | 0.447 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 90 | 0.618 | 0.530 | 0.478 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 95 | 0.635 | 0.544 | 0.509 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 100 | 0.651 | 0.558 | 0.539 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 105 | 0.667 | 0.572 | 0.570 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 110 | 0.684 | 0.601 | 0.601 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 115 | 0.700 | 0.632 | 0.632 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 120 | 0.716 | 0.663 | 0.663 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 125 | 0.733 | 0.693 | 0.693 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 130 | 0.749 | 0.724 | 0.724 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 135 | 0.766 | 0.755 | 0.755 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 140 | 0.786 | 0.786 | 0.786 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 145 | 0.817 | 0.817 | 0.817 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 150 | 0.847 | 0.847 | 0.847 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 155 | 0.878 | 0.878 | 0.878 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 160 | 0.909 | 0.909 | 0.909 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 165 | 0.940 | 0.940 | 0.940 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 170 | 0.971 | 0.971 | 0.971 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 175 | 1.002 | 1.002 | 1.002 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 180 | 1.032 | 1.032 | 1.032 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 185 | 1.063 | 1.063 | 1.063 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 190 | 1.094 | 1.094 | 1.094 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 195 | 1.125 | 1.125 | 1.125 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 200 | 1.156 | 1.156 | 1.156 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 205 | 1.186 | 1.186 | 1.186 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 210 | 1.217 | 1.217 | 1.217 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 215 | 1.248 | 1.248 | 1.248 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 220 | 1.279 | 1.279 | 1.279 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 225 | 1.310 | 1.310 | 1.310 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 230 | 1.340 | 1.340 | 1.340 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 235 | 1.371 | 1.371 | 1.371 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 240 | 1.402 | 1.402 | 1.402 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 245 | 1.433 | 1.433 | 1.433 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 250 | 1.464 | 1.464 | 1.464 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 255 | 1.494 | 1.494 | 1.494 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 260 | 1.525 | 1.525 | 1.525 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 265 | 1.556 | 1.556 | 1.556 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 270 | 1.587 | 1.587 | 1.587 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 275 | 1.618 | 1.618 | 1.618 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 280 | 1.648 | 1.648 | 1.648 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 285 | 1.679 | 1.679 | 1.679 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 290 | 1.710 | 1.710 | 1.710 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 295 | 1.741 | 1.741 | 1.741 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 300 | 1.772 | 1.772 | 1.772 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 305 | 1.802 | 1.802 | 1.802 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 310 | 1.833 | 1.833 | 1.833 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 315 | 1.864 | 1.864 | 1.864 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 320 | 1.895 | 1.895 | 1.895 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 325 | 1.926 | 1.926 | 1.926 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 330 | 1.956 | 1.956 | 1.956 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 335 | 1.987 | 1.987 | 1.987 | 0.404 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 340 | 2.018 | 2.018 | 2.018 | 0.452 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |

Thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 40 Rectangular Hollow Beams 30 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 580 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 40 | 0.671 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 45 | 0.693 | 0.413 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 50 | 0.716 | 0.435 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 55 | 0.738 | 0.457 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 60 | 0.761 | 0.479 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 65 | 0.783 | 0.501 | 0.402 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 70 | 0.806 | 0.524 | 0.452 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 75 | 0.829 | 0.546 | 0.502 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 80 | 0.851 | 0.568 | 0.552 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 85 | 0.874 | 0.602 | 0.602 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 90 | 0.896 | 0.652 | 0.652 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 95 | 0.919 | 0.702 | 0.702 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 100 | 0.941 | 0.752 | 0.752 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 105 | 0.964 | 0.802 | 0.802 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 110 | 0.986 | 0.851 | 0.851 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 115 | 1.009 | 0.901 | 0.901 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 120 | 1.031 | 0.951 | 0.951 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 125 | 1.054 | 1.001 | 1.001 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 130 | 1.076 | 1.051 | 1.051 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 135 | 1.101 | 1.101 | 1.101 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 140 | 1.151 | 1.151 | 1.151 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 145 | 1.201 | 1.201 | 1.201 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 150 | 1.251 | 1.251 | 1.251 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 155 | 1.301 | 1.301 | 1.301 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 160 | 1.351 | 1.351 | 1.351 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 165 | 1.401 | 1.401 | 1.401 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 170 | 1.451 | 1.451 | 1.451 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 175 | 1.501 | 1.501 | 1.501 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 180 | 1.551 | 1.551 | 1.551 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 185 | 1.601 | 1.601 | 1.601 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 190 | 1.651 | 1.651 | 1.651 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 195 | 1.701 | 1.701 | 1.701 | 0.442 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 200 | 1.751 | 1.751 | 1.751 | 0.513 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 205 | 1.801 | 1.801 | 1.801 | 0.584 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 210 | 1.851 | 1.851 | 1.851 | 0.655 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 215 | 1.901 | 1.901 | 1.901 | 0.726 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 220 | 1.951 | 1.951 | 1.951 | 0.797 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 225 | 2.001 | 2.001 | 2.001 | 0.868 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 230 | 2.051 | 2.051 | 2.051 | 0.940 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 235 | 2.101 | 2.101 | 2.101 | 1.011 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 240 | 2.151 | 2.151 | 2.151 | 1.082 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 245 | 2.201 | 2.201 | 2.201 | 1.153 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 250 | 2.251 | 2.251 | 2.251 | 1.224 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 255 | 2.300 | 2.300 | 2.300 | 1.295 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 260 | 2.350 | 2.350 | 2.350 | 1.366 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 265 | 2.400 | 2.400 | 2.400 | 1.437 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 270 | 2.450 | 2.450 | 2.450 | 1.509 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 275 | 2.500 | 2.500 | 2.500 | 1.580 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 280 | 2.550 | 2.550 | 2.550 | 1.651 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 285 | 2.600 | 2.600 | 2.600 | 1.722 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 290 | 2.650 | 2.650 | 2.650 | 1.793 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 295 | 2.700 | 2.700 | 2.700 | 1.864 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 300 | 2.750 | 2.750 | 2.750 | 1.935 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 305 | 2.800 | 2.800 | 2.800 | 2.007 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 310 | 2.850 | 2.850 | 2.850 | 2.078 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 315 | 2.900 | 2.900 | 2.900 | 2.149 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 320 | 2.950 | 2.950 | 2.950 | 2.220 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 325 | 3.000 | 3.000 | 3.000 | 2.291 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 330 | 3.050 | 3.050 | 3.050 | 2.362 | 0.431 | 0.431 | 0.431 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 335 | 3.100 | 3.100 | 3.100 | 2.433 | 0.550 | 0.550 | 0.550 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 340 | 3.150 | 3.150 | 3.150 | 2.504 | 0.669 | 0.669 | 0.669 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |

Thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 41 Rectangular Hollow Beams 45 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 580 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 40 | 0.997 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 45 | 1.055 | 0.445 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 50 | 1.113 | 0.499 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 55 | 1.171 | 0.552 | 0.447 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 60 | 1.229 | 0.605 | 0.527 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 65 | 1.287 | 0.658 | 0.607 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 70 | 1.345 | 0.711 | 0.687 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 75 | 1.403 | 0.767 | 0.767 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 80 | 1.461 | 0.847 | 0.847 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 85 | 1.519 | 0.927 | 0.927 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 90 | 1.577 | 1.007 | 1.007 | 0.403 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 95 | 1.635 | 1.087 | 1.087 | 0.494 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 100 | 1.693 | 1.167 | 1.167 | 0.586 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 105 | 1.751 | 1.248 | 1.248 | 0.677 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 110 | 1.809 | 1.328 | 1.328 | 0.769 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 115 | 1.867 | 1.408 | 1.408 | 0.861 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 120 | 1.925 | 1.488 | 1.488 | 0.952 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 125 | 1.983 | 1.568 | 1.568 | 1.044 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 130 | 2.068 | 1.648 | 1.648 | 1.135 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 135 | 2.160 | 1.728 | 1.728 | 1.227 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 140 | 2.251 | 1.808 | 1.808 | 1.319 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 145 | 2.343 | 1.888 | 1.888 | 1.410 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 150 | 2.434 | 1.968 | 1.968 | 1.502 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 155 | 2.526 | 2.048 | 2.048 | 1.594 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 160 | 2.617 | 2.129 | 2.129 | 1.685 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 165 | 2.709 | 2.209 | 2.209 | 1.777 | 0.488 | 0.488 | 0.488 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 170 | 2.800 | 2.289 | 2.289 | 1.868 | 0.616 | 0.616 | 0.616 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 175 | 2.892 | 2.369 | 2.369 | 1.960 | 0.744 | 0.744 | 0.744 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 180 | 2.983 | 2.449 | 2.449 | 2.052 | 0.872 | 0.872 | 0.872 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 185 | 3.057 | 2.529 | 2.529 | 2.143 | 1.000 | 1.000 | 1.000 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 190 | 3.123 | 2.609 | 2.609 | 2.235 | 1.128 | 1.128 | 1.128 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 195 | 3.190 | 2.689 | 2.689 | 2.326 | 1.256 | 1.256 | 1.256 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 200 | 3.256 | 2.769 | 2.769 | 2.418 | 1.384 | 1.384 | 1.384 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 205 | 3.323 | 2.849 | 2.849 | 2.510 | 1.512 | 1.512 | 1.512 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 210 | 3.389 | 2.930 | 2.930 | 2.601 | 1.640 | 1.640 | 1.640 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 215 | 3.456 | 3.010 | 3.010 | 2.693 | 1.768 | 1.768 | 1.768 | 0.541 | 0.428 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 220 | 3.522 | 3.090 | 3.090 | 2.784 | 1.896 | 1.896 | 1.896 | 0.721 | 0.613 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 225 | 3.589 | 3.170 | 3.170 | 2.876 | 2.024 | 2.024 | 2.024 | 0.901 | 0.798 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 230 | 3.656 | 3.250 | 3.250 | 2.968 | 2.153 | 2.153 | 2.153 | 1.082 | 0.984 | 0.485 | 0.485 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 235 | 3.722 | 3.330 | 3.330 | 3.059 | 2.281 | 2.281 | 2.281 | 1.262 | 1.169 | 0.697 | 0.697 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 240 | 3.789 | 3.410 | 3.410 | 3.151 | 2.409 | 2.409 | 2.409 | 1.442 | 1.355 | 0.908 | 0.908 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 245 | 3.855 | 3.490 | 3.490 | 3.243 | 2.537 | 2.537 | 2.537 | 1.623 | 1.540 | 1.119 | 1.119 | 0.421 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 250 | 3.922 | 3.570 | 3.570 | 3.334 | 2.665 | 2.665 | 2.665 | 1.803 | 1.725 | 1.330 | 1.330 | 0.656 | 0.550 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 255 | 3.988 | 3.650 | 3.650 | 3.426 | 2.793 | 2.793 | 2.793 | 1.983 | 1.911 | 1.541 | 1.541 | 0.891 | 0.788 | 0.530 | 0.385 | 0.385 | 0.385 | 0.385 |
| 260 | 4.055 | 3.745 | 3.730 | 3.517 | 2.921 | 2.921 | 2.921 | 2.164 | 2.096 | 1.753 | 1.753 | 1.125 | 1.026 | 0.776 | 0.385 | 0.385 | 0.385 | 0.385 |
| 265 | 4.121 | 3.872 | 3.811 | 3.609 | 3.049 | 3.049 | 3.049 | 2.344 | 2.281 | 1.964 | 1.964 | 1.360 | 1.264 | 1.023 | 0.516 | 0.385 | 0.385 | 0.385 |
| 270 | 4.188 | 3.999 | 3.891 | 3.701 | 3.177 | 3.177 | 3.177 | 2.524 | 2.467 | 2.175 | 2.175 | 1.594 | 1.501 | 1.269 | 0.801 | 0.385 | 0.385 | 0.385 |
| 275 | 4.254 | 4.125 | 3.971 | 3.792 | 3.305 | 3.305 | 3.305 | 2.704 | 2.652 | 2.386 | 2.386 | 1.829 | 1.739 | 1.515 | 1.086 | 0.385 | 0.385 | 0.385 |
| 280 | 4.321 | 4.252 | 4.051 | 3.884 | 3.433 | 3.433 | 3.433 | 2.885 | 2.837 | 2.598 | 2.598 | 2.063 | 1.977 | 1.762 | 1.371 | 0.385 | 0.385 | 0.385 |
| 285 | 4.387 | 4.379 | 4.131 | 3.975 | 3.561 | 3.561 | 3.561 | 3.065 | 3.023 | 2.809 | 2.809 | 2.298 | 2.215 | 2.008 | 1.656 | 0.385 | 0.385 | 0.385 |
| 290 | - | - | 4.211 | 4.067 | 3.689 | 3.689 | 3.689 | 3.245 | 3.208 | 3.020 | 3.020 | 2.532 | 2.452 | 2.254 | 1.942 | 0.385 | 0.385 | 0.385 |
| 295 | - | - | 4.291 | 4.159 | 3.817 | 3.817 | 3.817 | 3.426 | 3.393 | 3.231 | 3.231 | 2.767 | 2.690 | 2.501 | 2.227 | 0.588 | 0.385 | 0.385 |
| 300 | - | - | 4.371 | 4.250 | 3.945 | 3.945 | 3.945 | 3.606 | 3.579 | 3.442 | 3.442 | 3.002 | 2.928 | 2.747 | 2.512 | 0.926 | 0.385 | 0.385 |
| 305 | - | - | - | 4.342 | 4.210 | 4.109 | 4.073 | 3.786 | 3.764 | 3.654 | 3.654 | 3.236 | 3.166 | 2.993 | 2.797 | 1.264 | 0.385 | 0.385 |
| 310 | - | - | - | - | - | - | 4.201 | 3.967 | 3.950 | 3.865 | 3.865 | 3.471 | 3.403 | 3.240 | 3.082 | 1.602 | 0.385 | 0.385 |
| 315 | - | - | - | - | - | - | 4.329 | 4.147 | 4.135 | 4.076 | 4.076 | 3.705 | 3.641 | 3.486 | 3.367 | 1.940 | 0.385 | 0.385 |
| 320 | - | - | - | - | - | - | - | 4.327 | 4.320 | 4.287 | 4.287 | 3.940 | 3.879 | 3.732 | 3.652 | 2.278 | 0.385 | 0.385 |
| 325 | - | - | - | - | - | - | - | - | - | - | - | 4.174 | 4.117 | 3.979 | 3.937 | 2.616 | 0.385 | 0.385 |
| 330 | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.225 | 4.222 | 2.954 | 0.385 | 0.385 |
| 335 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.292 | 0.385 | 0.385 |
| 340 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.630 | 0.385 | 0.385 |

Thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 42 Rectangular Hollow Beams 60 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 580 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 40 | 1.322 | 0.547 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 45 | 1.421 | 0.667 | 0.426 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 50 | 1.520 | 0.787 | 0.512 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 55 | 1.619 | 0.907 | 0.597 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 60 | 1.717 | 1.026 | 0.683 | 0.419 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 65 | 1.816 | 1.146 | 0.769 | 0.479 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 70 | 1.915 | 1.266 | 0.854 | 0.540 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 75 | 2.034 | 1.386 | 0.940 | 0.601 | 0.410 | 0.410 | 0.410 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 80 | 2.241 | 1.506 | 1.025 | 0.662 | 0.524 | 0.524 | 0.524 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 85 | 2.449 | 1.626 | 1.111 | 0.723 | 0.638 | 0.638 | 0.638 | 0.468 | 0.458 | 0.415 | 0.415 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 90 | 2.656 | 1.745 | 1.197 | 0.783 | 0.752 | 0.752 | 0.752 | 0.583 | 0.573 | 0.531 | 0.531 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 95 | 2.863 | 1.865 | 1.282 | 0.866 | 0.866 | 0.866 | 0.866 | 0.698 | 0.688 | 0.647 | 0.647 | 0.397 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 100 | 3.030 | 1.985 | 1.368 | 0.980 | 0.980 | 0.980 | 0.980 | 0.813 | 0.804 | 0.763 | 0.763 | 0.517 | 0.473 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 105 | 3.099 | 2.122 | 1.453 | 1.094 | 1.094 | 1.094 | 1.094 | 0.928 | 0.919 | 0.878 | 0.878 | 0.637 | 0.593 | 0.481 | 0.385 | 0.385 | 0.385 | 0.385 |
| 110 | 3.169 | 2.260 | 1.539 | 1.207 | 1.207 | 1.207 | 1.207 | 1.043 | 1.034 | 0.994 | 0.994 | 0.757 | 0.714 | 0.605 | 0.385 | 0.385 | 0.385 | 0.385 |
| 115 | 3.238 | 2.399 | 1.625 | 1.321 | 1.321 | 1.321 | 1.321 | 1.158 | 1.149 | 1.110 | 1.110 | 0.877 | 0.835 | 0.728 | 0.483 | 0.385 | 0.385 | 0.385 |
| 120 | 3.308 | 2.537 | 1.710 | 1.435 | 1.435 | 1.435 | 1.435 | 1.274 | 1.264 | 1.226 | 1.226 | 0.997 | 0.956 | 0.851 | 0.615 | 0.385 | 0.385 | 0.385 |
| 125 | 3.378 | 2.675 | 1.796 | 1.549 | 1.549 | 1.549 | 1.549 | 1.389 | 1.379 | 1.341 | 1.341 | 1.117 | 1.077 | 0.974 | 0.746 | 0.385 | 0.385 | 0.385 |
| 130 | 3.447 | 2.814 | 1.881 | 1.663 | 1.663 | 1.663 | 1.663 | 1.504 | 1.495 | 1.457 | 1.457 | 1.237 | 1.198 | 1.098 | 0.878 | 0.385 | 0.385 | 0.385 |
| 135 | 3.517 | 2.952 | 1.967 | 1.777 | 1.777 | 1.777 | 1.777 | 1.619 | 1.610 | 1.573 | 1.573 | 1.357 | 1.319 | 1.221 | 1.009 | 0.385 | 0.385 | 0.385 |
| 140 | 3.586 | 3.064 | 2.065 | 1.891 | 1.891 | 1.891 | 1.891 | 1.734 | 1.725 | 1.689 | 1.689 | 1.477 | 1.439 | 1.344 | 1.141 | 0.385 | 0.385 | 0.385 |
| 145 | 3.656 | 3.156 | 2.169 | 2.005 | 2.005 | 2.005 | 2.005 | 1.849 | 1.840 | 1.804 | 1.804 | 1.597 | 1.560 | 1.468 | 1.272 | 0.385 | 0.385 | 0.385 |
| 150 | 3.725 | 3.249 | 2.274 | 2.119 | 2.119 | 2.119 | 2.119 | 1.964 | 1.955 | 1.920 | 1.920 | 1.717 | 1.681 | 1.591 | 1.404 | 0.385 | 0.385 | 0.385 |
| 155 | 3.795 | 3.341 | 2.378 | 2.232 | 2.232 | 2.232 | 2.232 | 2.079 | 2.071 | 2.036 | 2.036 | 1.837 | 1.802 | 1.714 | 1.535 | 0.544 | 0.385 | 0.385 |
| 160 | 3.865 | 3.434 | 2.482 | 2.346 | 2.346 | 2.346 | 2.346 | 2.194 | 2.186 | 2.152 | 2.152 | 1.957 | 1.923 | 1.837 | 1.667 | 0.711 | 0.385 | 0.385 |
| 165 | 3.934 | 3.526 | 2.587 | 2.460 | 2.460 | 2.460 | 2.460 | 2.309 | 2.301 | 2.268 | 2.268 | 2.077 | 2.044 | 1.961 | 1.798 | 0.877 | 0.385 | 0.385 |
| 170 | 4.004 | 3.619 | 2.691 | 2.574 | 2.574 | 2.574 | 2.574 | 2.424 | 2.416 | 2.383 | 2.383 | 2.197 | 2.165 | 2.084 | 1.930 | 1.043 | 0.385 | 0.385 |
| 175 | 4.073 | 3.712 | 2.795 | 2.688 | 2.688 | 2.688 | 2.688 | 2.539 | 2.531 | 2.499 | 2.499 | 2.317 | 2.285 | 2.207 | 2.061 | 1.210 | 0.385 | 0.385 |
| 180 | 4.143 | 3.804 | 2.900 | 2.802 | 2.802 | 2.802 | 2.802 | 2.654 | 2.647 | 2.615 | 2.615 | 2.437 | 2.406 | 2.330 | 2.193 | 1.376 | 0.385 | 0.385 |
| 185 | 4.213 | 3.897 | 3.004 | 2.916 | 2.916 | 2.916 | 2.916 | 2.769 | 2.762 | 2.731 | 2.731 | 2.557 | 2.527 | 2.454 | 2.324 | 1.542 | 0.385 | 0.385 |
| 190 | 4.282 | 3.989 | 3.220 | 3.030 | 3.030 | 3.030 | 3.030 | 2.884 | 2.877 | 2.846 | 2.846 | 2.677 | 2.648 | 2.577 | 2.456 | 1.709 | 0.385 | 0.385 |
| 195 | 4.352 | 4.082 | 3.443 | 3.144 | 3.144 | 3.144 | 3.144 | 2.999 | 2.992 | 2.962 | 2.962 | 2.797 | 2.769 | 2.700 | 2.588 | 1.875 | 0.385 | 0.385 |
| 200 | - | 4.175 | 3.665 | 3.257 | 3.257 | 3.257 | 3.257 | 3.114 | 3.107 | 3.078 | 3.078 | 2.917 | 2.890 | 2.823 | 2.719 | 2.041 | 0.385 | 0.385 |
| 205 | - | 4.267 | 3.887 | 3.371 | 3.371 | 3.371 | 3.371 | 3.230 | 3.223 | 3.194 | 3.194 | 3.037 | 3.011 | 2.947 | 2.851 | 2.208 | 0.385 | 0.385 |
| 210 | - | 4.360 | 4.110 | 3.485 | 3.485 | 3.485 | 3.485 | 3.345 | 3.338 | 3.309 | 3.309 | 3.157 | 3.132 | 3.070 | 2.982 | 2.374 | 0.385 | 0.385 |
| 215 | - | - | - | 3.623 | 3.599 | 3.599 | 3.599 | 3.460 | 3.453 | 3.425 | 3.425 | 3.277 | 3.252 | 3.193 | 3.114 | 2.540 | 0.385 | 0.385 |
| 220 | - | - | - | 3.944 | 3.713 | 3.713 | 3.713 | 3.575 | 3.568 | 3.541 | 3.541 | 3.397 | 3.373 | 3.316 | 3.245 | 2.707 | 0.385 | 0.385 |
| 225 | - | - | - | 4.265 | 3.827 | 3.827 | 3.827 | 3.690 | 3.683 | 3.657 | 3.657 | 3.516 | 3.494 | 3.440 | 3.377 | 2.873 | 0.385 | 0.385 |
| 230 | - | - | - | - | 3.941 | 3.941 | 3.941 | 3.805 | 3.799 | 3.772 | 3.772 | 3.636 | 3.615 | 3.563 | 3.508 | 3.039 | 0.385 | 0.385 |
| 235 | - | - | - | - | - | 4.055 | 4.055 | 3.920 | 3.914 | 3.888 | 3.888 | 3.756 | 3.736 | 3.686 | 3.640 | 3.206 | 0.385 | 0.385 |
| 240 | - | - | - | - | - | 4.169 | 4.169 | 4.035 | 4.029 | 4.004 | 4.004 | 3.876 | 3.857 | 3.809 | 3.771 | 3.372 | 0.708 | 0.675 |
| 245 | - | - | - | - | - | 4.338 | 4.283 | 4.150 | 4.144 | 4.120 | 4.120 | 3.996 | 3.978 | 3.933 | 3.903 | 3.538 | 1.210 | 0.984 |
| 250 | - | - | - | - | - | - | 4.396 | 4.265 | 4.259 | 4.235 | 4.235 | 4.116 | 4.098 | 4.056 | 4.034 | 3.705 | 1.712 | 1.293 |
| 255 | - | - | - | - | - | - | - | 4.380 | 4.374 | 4.351 | 4.351 | 4.236 | 4.219 | 4.179 | 4.166 | 3.871 | 2.213 | 1.602 |
| 260 | - | - | - | - | - | - | - | - | - | - | - | 4.356 | 4.340 | 4.302 | 4.297 | 4.037 | 2.715 | 1.911 |
| 265 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.204 | 3.217 | 2.22 |
| 270 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.370 | 3.718 | 2.529 |
| 275 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2.838 |
| 280 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.147 |
| 285 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.456 |
| 290 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.765 |
| 295 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.074 |
| 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 305 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 310 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 315 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 320 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 325 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 330 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 335 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 340 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 43 Rectangular Hollow Beams 75 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 580 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 40 | 1.648 | 1.001 | 0.586 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 45 | 1.788 | 1.178 | 0.734 | 0.436 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 50 | 1.927 | 1.355 | 0.882 | 0.553 | 0.427 | 0.427 | 0.427 | 0.389 | 0.387 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 55 | 2.166 | 1.531 | 1.031 | 0.671 | 0.509 | 0.509 | 0.509 | 0.460 | 0.457 | 0.447 | 0.447 | 0.395 | 0.387 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 60 | 2.500 | 1.708 | 1.179 | 0.789 | 0.591 | 0.591 | 0.591 | 0.530 | 0.527 | 0.515 | 0.515 | 0.455 | 0.446 | 0.425 | 0.385 | 0.385 | 0.385 | 0.385 |
| 65 | 2.834 | 1.885 | 1.327 | 0.906 | 0.711 | 0.672 | 0.672 | 0.601 | 0.597 | 0.583 | 0.583 | 0.516 | 0.505 | 0.492 | 0.492 | 0.385 | 0.385 | 0.385 |
| 70 | 3.049 | 2.090 | 1.475 | 1.024 | 0.872 | 0.793 | 0.754 | 0.671 | 0.667 | 0.652 | 0.652 | 0.617 | 0.617 | 0.617 | 0.617 | 0.385 | 0.385 | 0.385 |
| 75 | 3.132 | 2.343 | 1.624 | 1.141 | 1.034 | 0.952 | 0.836 | 0.742 | 0.742 | 0.742 | 0.742 | 0.742 | 0.742 | 0.742 | 0.742 | 0.446 | 0.385 | 0.385 |
| 80 | 3.215 | 2.595 | 1.772 | 1.259 | 1.195 | 1.111 | 0.918 | 0.866 | 0.866 | 0.866 | 0.866 | 0.866 | 0.866 | 0.866 | 0.866 | 0.573 | 0.385 | 0.385 |
| 85 | 3.298 | 2.848 | 1.920 | 1.377 | 1.357 | 1.269 | 1.000 | 0.991 | 0.991 | 0.991 | 0.991 | 0.991 | 0.991 | 0.991 | 0.991 | 0.701 | 0.385 | 0.385 |
| 90 | 3.382 | 3.040 | 2.100 | 1.518 | 1.518 | 1.428 | 1.116 | 1.116 | 1.116 | 1.116 | 1.116 | 1.116 | 1.116 | 1.116 | 1.116 | 0.829 | 0.385 | 0.385 |
| 95 | 3.465 | 3.124 | 2.310 | 1.679 | 1.679 | 1.586 | 1.241 | 1.241 | 1.241 | 1.241 | 1.241 | 1.241 | 1.241 | 1.241 | 1.241 | 0.957 | 0.385 | 0.385 |
| 100 | 3.548 | 3.209 | 2.521 | 1.841 | 1.841 | 1.745 | 1.365 | 1.365 | 1.365 | 1.365 | 1.365 | 1.365 | 1.365 | 1.365 | 1.365 | 1.085 | 0.385 | 0.385 |
| 105 | 3.631 | 3.294 | 2.732 | 2.002 | 2.002 | 1.904 | 1.490 | 1.490 | 1.490 | 1.490 | 1.490 | 1.490 | 1.490 | 1.490 | 1.490 | 1.213 | 0.498 | 0.385 |
| 110 | 3.714 | 3.379 | 2.943 | 2.164 | 2.164 | 2.062 | 1.615 | 1.615 | 1.615 | 1.615 | 1.615 | 1.615 | 1.615 | 1.615 | 1.615 | 1.340 | 0.643 | 0.385 |
| 115 | 3.798 | 3.463 | 3.076 | 2.325 | 2.325 | 2.221 | 1.740 | 1.740 | 1.740 | 1.740 | 1.740 | 1.740 | 1.740 | 1.740 | 1.740 | 1.468 | 0.788 | 0.385 |
| 120 | 3.881 | 3.548 | 3.175 | 2.487 | 2.487 | 2.379 | 1.864 | 1.864 | 1.864 | 1.864 | 1.864 | 1.864 | 1.864 | 1.864 | 1.864 | 1.596 | 0.933 | 0.385 |
| 125 | 3.964 | 3.633 | 3.273 | 2.648 | 2.648 | 2.538 | 1.989 | 1.989 | 1.989 | 1.989 | 1.989 | 1.989 | 1.989 | 1.989 | 1.989 | 1.724 | 1.078 | 0.385 |
| 130 | 4.047 | 3.717 | 3.371 | 2.810 | 2.810 | 2.697 | 2.114 | 2.114 | 2.114 | 2.114 | 2.114 | 2.114 | 2.114 | 2.114 | 2.114 | 1.852 | 1.223 | 0.385 |
| 135 | 4.131 | 3.802 | 3.470 | 2.971 | 2.971 | 2.855 | 2.239 | 2.239 | 2.239 | 2.239 | 2.239 | 2.239 | 2.239 | 2.239 | 2.239 | 1.979 | 1.369 | 0.385 |
| 140 | 4.214 | 3.887 | 3.568 | 3.084 | 3.084 | 3.012 | 2.364 | 2.364 | 2.364 | 2.364 | 2.364 | 2.364 | 2.364 | 2.364 | 2.364 | 2.107 | 1.514 | 0.385 |
| 145 | 4.297 | 3.971 | 3.666 | 3.182 | 3.182 | 3.114 | 2.488 | 2.488 | 2.488 | 2.488 | 2.488 | 2.488 | 2.488 | 2.488 | 2.488 | 2.235 | 1.659 | 0.385 |
| 150 | - | 4.056 | 3.764 | 3.280 | 3.280 | 3.216 | 2.613 | 2.613 | 2.613 | 2.613 | 2.613 | 2.613 | 2.613 | 2.613 | 2.613 | 2.363 | 1.804 | 0.385 |
| 155 | - | 4.141 | 3.863 | 3.391 | 3.377 | 3.317 | 2.738 | 2.738 | 2.738 | 2.738 | 2.738 | 2.738 | 2.738 | 2.738 | 2.738 | 2.491 | 1.949 | 0.385 |
| 160 | - | 4.225 | 3.961 | 3.532 | 3.475 | 3.419 | 2.863 | 2.863 | 2.863 | 2.863 | 2.863 | 2.863 | 2.863 | 2.863 | 2.863 | 2.618 | 2.095 | 0.385 |
| 165 | - | 4.310 | 4.059 | 3.674 | 3.573 | 3.521 | 2.987 | 2.987 | 2.987 | 2.987 | 2.987 | 2.987 | 2.987 | 2.987 | 2.987 | 2.746 | 2.240 | 0.385 |
| 170 | - | 4.395 | 4.157 | 3.815 | 3.671 | 3.623 | 3.112 | 3.112 | 3.112 | 3.112 | 3.112 | 3.112 | 3.112 | 3.112 | 3.112 | 2.874 | 2.385 | 0.385 |
| 175 | - | - | 4.256 | 3.957 | 3.769 | 3.725 | 3.237 | 3.237 | 3.237 | 3.237 | 3.237 | 3.237 | 3.237 | 3.237 | 3.237 | 3.002 | 2.530 | 0.385 |
| 180 | - | - | 4.354 | 4.098 | 3.867 | 3.826 | 3.362 | 3.362 | 3.362 | 3.362 | 3.362 | 3.362 | 3.362 | 3.362 | 3.362 | 3.130 | 2.675 | 0.385 |
| 185 | - | - | - | 4.239 | 3.964 | 3.928 | 3.486 | 3.486 | 3.486 | 3.486 | 3.486 | 3.486 | 3.486 | 3.486 | 3.486 | 3.257 | 2.821 | 0.385 |
| 190 | - | - | - | - | 4.062 | 4.030 | 3.611 | 3.611 | 3.611 | 3.611 | 3.611 | 3.611 | 3.611 | 3.611 | 3.611 | 3.385 | 2.966 | 0.385 |
| 195 | - | - | - | - | - | - | - | 3.831 | 3.811 | 3.736 | 3.736 | 3.736 | 3.736 | 3.736 | 3.736 | 3.513 | 3.111 | 0.385 |
| 200 | - | - | - | - | - | - | - | 4.126 | 4.112 | 4.047 | 4.047 | 3.861 | 3.861 | 3.861 | 3.861 | 3.641 | 3.256 | 0.578 |
| 205 | - | - | - | - | - | - | - | - | - | 4.371 | 4.371 | 4.014 | 3.985 | 3.985 | 3.985 | 3.769 | 3.401 | 0.974 |
| 210 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.110 | 3.897 | 3.546 | 1.370 |
| 215 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.235 | 4.024 | 3.692 | 1.766 |
| 220 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.360 | 4.152 | 3.837 | 2.163 |
| 225 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.280 | 3.982 | 2.559 |
| 230 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.408 | 4.127 | 2.955 |
| 235 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.272 | 3.352 |
| 240 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.748 |
| 245 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 255 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 260 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 265 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 270 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 275 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 280 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 285 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 290 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 295 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 305 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 310 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 315 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 320 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 325 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 330 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 335 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 340 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 44 Rectangular Hollow Beams 90 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 580 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 40 | 1.974 | 1.456 | 1.012 | 0.662 | 0.536 | 0.536 | 0.536 | 0.492 | 0.489 | 0.478 | 0.478 | 0.420 | 0.410 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 45 | 2.406 | 1.689 | 1.214 | 0.834 | 0.663 | 0.663 | 0.663 | 0.606 | 0.603 | 0.590 | 0.590 | 0.523 | 0.512 | 0.489 | 0.454 | 0.385 | 0.385 | 0.385 |
| 50 | 2.872 | 1.923 | 1.415 | 1.006 | 0.791 | 0.791 | 0.791 | 0.720 | 0.717 | 0.702 | 0.702 | 0.626 | 0.614 | 0.587 | 0.548 | 0.429 | 0.385 | 0.385 |
| 55 | - | 2.255 | 1.617 | 1.178 | 0.919 | 0.919 | 0.919 | 0.835 | 0.831 | 0.814 | 0.814 | 0.730 | 0.716 | 0.685 | 0.643 | 0.513 | 0.385 | 0.385 |
| 60 | - | 2.632 | 1.818 | 1.350 | 1.047 | 1.047 | 1.047 | 0.949 | 0.944 | 0.926 | 0.926 | 0.833 | 0.819 | 0.782 | 0.737 | 0.596 | 0.385 | 0.385 |
| 65 | - | 3.009 | 2.036 | 1.522 | 1.175 | 1.175 | 1.175 | 1.064 | 1.058 | 1.038 | 1.038 | 0.936 | 0.921 | 0.880 | 0.831 | 0.680 | 0.434 | 0.385 |
| 70 | - | - | 2.364 | 1.694 | 1.303 | 1.303 | 1.303 | 1.178 | 1.172 | 1.150 | 1.150 | 1.039 | 1.023 | 0.977 | 0.926 | 0.763 | 0.497 | 0.385 |
| 75 | - | - | 2.692 | 1.866 | 1.443 | 1.431 | 1.431 | 1.292 | 1.286 | 1.262 | 1.262 | 1.142 | 1.125 | 1.075 | 1.020 | 0.846 | 0.560 | 0.385 |
| 80 | - | - | 3.012 | 2.064 | 1.591 | 1.559 | 1.559 | 1.407 | 1.400 | 1.374 | 1.374 | 1.245 | 1.227 | 1.172 | 1.114 | 0.930 | 0.623 | 0.385 |
| 85 | - | - | 3.105 | 2.339 | 1.739 | 1.687 | 1.687 | 1.521 | 1.514 | 1.486 | 1.486 | 1.349 | 1.329 | 1.270 | 1.209 | 1.013 | 0.687 | 0.385 |
| 90 | - | - | 3.197 | 2.614 | 1.887 | 1.825 | 1.815 | 1.635 | 1.627 | 1.598 | 1.598 | 1.452 | 1.431 | 1.367 | 1.303 | 1.097 | 0.750 | 0.385 |
| 95 | - | - | 3.290 | 2.890 | 2.465 | 1.970 | 1.943 | 1.750 | 1.741 | 1.710 | 1.710 | 1.555 | 1.533 | 1.465 | 1.397 | 1.180 | 0.813 | 0.385 |
| 100 | - | - | 3.383 | 3.066 | 3.066 | 3.032 | 2.127 | 1.864 | 1.855 | 1.822 | 1.822 | 1.658 | 1.636 | 1.562 | 1.492 | 1.263 | 0.876 | 0.497 |
| 105 | - | - | 3.475 | 3.167 | 3.149 | 3.116 | 2.349 | 1.979 | 1.969 | 1.933 | 1.933 | 1.761 | 1.738 | 1.660 | 1.586 | 1.347 | 0.939 | 0.631 |
| 110 | - | - | 3.568 | 3.267 | 3.232 | 3.199 | 2.571 | 2.166 | 2.148 | 2.082 | 2.082 | 1.865 | 1.840 | 1.757 | 1.681 | 1.430 | 1.002 | 0.764 |
| 115 | - | - | 3.660 | 3.368 | 3.314 | 3.283 | 2.793 | 2.365 | 2.346 | 2.277 | 2.277 | 1.968 | 1.942 | 1.855 | 1.775 | 1.514 | 1.065 | 0.898 |
| 120 | - | - | 3.753 | 3.469 | 3.397 | 3.366 | 3.012 | 2.564 | 2.545 | 2.471 | 2.471 | 2.122 | 2.076 | 1.952 | 1.869 | 1.597 | 1.129 | 1.032 |
| 125 | - | - | 3.845 | 3.570 | 3.480 | 3.450 | 3.135 | 2.763 | 2.743 | 2.665 | 2.665 | 2.294 | 2.245 | 2.091 | 1.989 | 1.724 | 1.192 | 1.165 |
| 130 | - | - | 3.938 | 3.670 | 3.563 | 3.534 | 3.257 | 2.962 | 2.941 | 2.859 | 2.859 | 2.466 | 2.414 | 2.261 | 2.114 | 1.852 | 1.299 | 1.299 |
| 135 | - | - | 4.030 | 3.771 | 3.645 | 3.617 | 3.379 | 3.117 | 3.103 | 3.043 | 3.043 | 2.638 | 2.583 | 2.431 | 2.258 | 1.979 | 1.432 | 1.432 |
| 140 | - | - | 4.123 | 3.872 | 3.728 | 3.701 | 3.502 | 3.259 | 3.246 | 3.190 | 3.190 | 2.811 | 2.753 | 2.601 | 2.415 | 2.107 | 1.566 | 1.566 |
| 145 | - | - | 4.216 | 3.972 | 3.811 | 3.784 | 3.624 | 3.401 | 3.388 | 3.337 | 3.337 | 2.983 | 2.922 | 2.771 | 2.573 | 2.235 | 1.699 | 1.699 |
| 150 | - | - | 4.308 | 4.073 | 3.894 | 3.868 | 3.746 | 3.542 | 3.531 | 3.485 | 3.485 | 3.165 | 3.101 | 2.941 | 2.731 | 2.363 | 1.833 | 1.833 |
| 155 | - | - | - | 4.174 | 3.976 | 3.951 | 3.869 | 3.684 | 3.674 | 3.632 | 3.632 | 3.348 | 3.293 | 3.137 | 2.888 | 2.491 | 1.966 | 1.966 |
| 160 | - | - | - | 4.275 | 4.059 | 4.035 | 3.991 | 3.825 | 3.817 | 3.779 | 3.779 | 3.532 | 3.484 | 3.349 | 3.072 | 2.618 | 2.100 | 2.100 |
| 165 | - | - | - | 4.375 | 4.142 | 4.118 | 4.114 | 3.967 | 3.959 | 3.927 | 3.927 | 3.715 | 3.675 | 3.562 | 3.344 | 2.746 | 2.240 | 2.234 |
| 170 | - | - | - | - | 4.236 | 4.236 | 4.236 | 4.109 | 4.102 | 4.074 | 4.074 | 3.899 | 3.866 | 3.774 | 3.615 | 2.874 | 2.385 | 2.367 |
| 175 | - | - | - | - | 4.307 | 4.285 | 4.358 | 4.250 | 4.245 | 4.222 | 4.222 | 4.083 | 4.057 | 3.987 | 3.886 | 3.002 | 2.530 | 2.501 |
| 180 | - | - | - | - | - | - | - | - | - | 4.369 | 4.369 | 4.266 | 4.248 | 4.199 | 4.157 | 3.130 | 2.675 | 2.634 |
| 185 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.690 | 2.821 | 2.768 |
| 190 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2.966 | 2.901 |
| 195 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.706 | 3.082 |
| 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.461 |
| 205 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.840 |
| 210 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.219 |
| 215 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 220 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 225 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 230 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 235 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 240 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 245 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 255 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 260 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 265 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 270 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 275 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 280 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 285 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 290 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 295 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 305 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 310 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 315 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 320 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 325 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 330 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 335 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 340 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 45 Rectangular Hollow Beams 105 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 580 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 40 | 2.832 | 1.910 | 1.439 | 1.064 | 0.878 | 0.878 | 0.878 | 0.817 | 0.813 | 0.801 | 0.801 | 0.734 | 0.724 | 0.699 | 0.658 | 0.523 | 0.385 | 0.385 |
| 45 | - | 2.354 | 1.693 | 1.287 | 1.049 | 1.049 | 1.049 | 0.972 | 0.968 | 0.953 | 0.953 | 0.877 | 0.865 | 0.836 | 0.792 | 0.650 | 0.399 | 0.385 |
| 50 | - | 2.860 | 1.948 | 1.509 | 1.220 | 1.220 | 1.220 | 1.127 | 1.122 | 1.105 | 1.105 | 1.019 | 1.007 | 0.972 | 0.927 | 0.776 | 0.508 | 0.385 |
| 55 | - | - | 2.364 | 1.731 | 1.391 | 1.391 | 1.391 | 1.282 | 1.277 | 1.258 | 1.258 | 1.162 | 1.148 | 1.109 | 1.061 | 0.902 | 0.616 | 0.385 |
| 60 | - | - | 2.816 | 1.953 | 1.579 | 1.561 | 1.561 | 1.437 | 1.431 | 1.410 | 1.410 | 1.304 | 1.290 | 1.246 | 1.196 | 1.029 | 0.725 | 0.385 |
| 65 | - | - | - | 2.311 | 1.775 | 1.732 | 1.732 | 1.592 | 1.585 | 1.562 | 1.562 | 1.447 | 1.431 | 1.383 | 1.330 | 1.155 | 0.833 | 0.456 |
| 70 | - | - | - | 2.699 | 1.972 | 1.918 | 1.903 | 1.747 | 1.740 | 1.714 | 1.714 | 1.589 | 1.572 | 1.520 | 1.465 | 1.281 | 0.942 | 0.677 |
| 75 | - | - | - | - | 3.013 | 2.728 | 2.145 | 1.902 | 1.894 | 1.867 | 1.867 | 1.732 | 1.714 | 1.656 | 1.599 | 1.407 | 1.050 | 0.897 |
| 80 | - | - | - | - | 3.095 | 3.073 | 2.469 | 2.114 | 2.098 | 2.041 | 2.041 | 1.874 | 1.855 | 1.793 | 1.734 | 1.534 | 1.159 | 1.118 |
| 85 | - | - | - | - | 3.178 | 3.155 | 2.794 | 2.414 | 2.397 | 2.335 | 2.335 | 2.036 | 1.998 | 1.930 | 1.868 | 1.660 | 1.338 | 1.338 |
| 90 | - | - | - | - | 3.260 | 3.238 | 3.043 | 2.713 | 2.696 | 2.628 | 2.628 | 2.307 | 2.265 | 2.136 | 2.010 | 1.786 | 1.559 | 1.559 |
| 95 | - | - | - | - | 3.343 | 3.320 | 3.143 | 3.010 | 2.994 | 2.922 | 2.922 | 2.579 | 2.533 | 2.406 | 2.265 | 1.913 | 1.779 | 1.779 |
| 100 | - | - | - | - | 3.426 | 3.403 | 3.243 | 3.114 | 3.107 | 3.082 | 3.082 | 2.850 | 2.801 | 2.676 | 2.520 | 2.074 | 2.000 | 2.000 |
| 105 | - | - | - | - | 3.508 | 3.486 | 3.343 | 3.217 | 3.211 | 3.187 | 3.187 | 3.054 | 3.033 | 2.947 | 2.776 | 2.301 | 2.220 | 2.220 |
| 110 | - | - | - | - | 3.591 | 3.568 | 3.444 | 3.321 | 3.315 | 3.291 | 3.291 | 3.163 | 3.143 | 3.095 | 3.019 | 2.527 | 2.441 | 2.441 |
| 115 | - | - | - | - | 3.673 | 3.651 | 3.544 | 3.424 | 3.419 | 3.396 | 3.396 | 3.272 | 3.253 | 3.206 | 3.135 | 2.754 | 2.661 | 2.661 |
| 120 | - | - | - | - | 3.756 | 3.734 | 3.644 | 3.528 | 3.522 | 3.500 | 3.500 | 3.381 | 3.362 | 3.317 | 3.252 | 2.981 | 2.882 | 2.882 |
| 125 | - | - | - | - | 3.839 | 3.816 | 3.744 | 3.631 | 3.626 | 3.604 | 3.604 | 3.489 | 3.472 | 3.429 | 3.368 | 3.121 | 3.048 | 3.048 |
| 130 | - | - | - | - | 3.921 | 3.899 | 3.845 | 3.735 | 3.730 | 3.709 | 3.709 | 3.598 | 3.581 | 3.540 | 3.484 | 3.249 | 3.140 | 3.140 |
| 135 | - | - | - | - | 4.004 | 3.982 | 3.945 | 3.838 | 3.833 | 3.813 | 3.813 | 3.707 | 3.691 | 3.652 | 3.600 | 3.378 | 3.232 | 3.232 |
| 140 | - | - | - | - | 4.087 | 4.064 | 4.045 | 3.942 | 3.937 | 3.917 | 3.917 | 3.816 | 3.800 | 3.763 | 3.717 | 3.506 | 3.324 | 3.324 |
| 145 | - | - | - | - | 4.169 | 4.147 | 4.145 | 4.045 | 4.041 | 4.022 | 4.022 | 3.924 | 3.910 | 3.874 | 3.833 | 3.634 | 3.417 | 3.417 |
| 150 | - | - | - | - | 4.252 | 4.246 | 4.246 | 4.149 | 4.144 | 4.126 | 4.126 | 4.033 | 4.019 | 3.986 | 3.949 | 3.762 | 3.509 | 3.509 |
| 155 | - | - | - | - | 4.334 | 4.312 | 4.346 | 4.252 | 4.248 | 4.230 | 4.230 | 4.142 | 4.129 | 4.097 | 4.065 | 3.890 | 3.601 | 3.601 |
| 160 | - | - | - | - | - | - | - | 4.356 | 4.352 | 4.335 | 4.335 | 4.251 | 4.239 | 4.208 | 4.182 | 4.019 | 3.693 | 3.693 |
| 165 | - | - | - | - | - | - | - | - | - | - | - | 4.360 | 4.348 | 4.320 | 4.298 | 4.147 | 3.814 | 3.785 |
| 170 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.275 | 4.007 | 3.877 |
| 175 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.403 | 4.201 | 3.970 |
| 180 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.394 | 4.062 |
| 185 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.154 |
| 190 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.246 |
| 195 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.338 |
| 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 205 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 210 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 215 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 220 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 225 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 230 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 235 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 240 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 245 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 255 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 260 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 265 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 270 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 275 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 280 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 285 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 290 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 295 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 305 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 310 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 315 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 320 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 325 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 330 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 335 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 340 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

| Table 46 Rectangular Hollow Beams 120 minutes | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required Thickness (mm) for a Design Temperature (°C) | | | | | | | | | | | | | | | | | | |
| Section Factor ($m^{-1}$) | 350 | 400 | 450 | 500 | 544 | 550 | 553 | 575 | 576 | 580 | 580 | 600 | 603 | 610 | 620 | 650 | 700 | 750 |
| 40 | - | 2.691 | 1.865 | 1.467 | 1.221 | 1.221 | 1.221 | 1.142 | 1.138 | 1.123 | 1.123 | 1.049 | 1.038 | 1.011 | 0.972 | 0.844 | 0.578 | 0.385 |
| 45 | - | - | 2.329 | 1.739 | 1.434 | 1.434 | 1.434 | 1.337 | 1.333 | 1.316 | 1.316 | 1.230 | 1.219 | 1.186 | 1.145 | 1.010 | 0.731 | 0.385 |
| 50 | - | - | 2.908 | 2.026 | 1.670 | 1.648 | 1.648 | 1.533 | 1.528 | 1.508 | 1.508 | 1.412 | 1.399 | 1.362 | 1.319 | 1.176 | 0.884 | 0.547 |
| 55 | - | - | - | 2.531 | 1.914 | 1.868 | 1.862 | 1.729 | 1.723 | 1.701 | 1.701 | 1.594 | 1.580 | 1.538 | 1.493 | 1.343 | 1.036 | 0.856 |
| 60 | - | - | - | - | 2.772 | 2.542 | 2.157 | 1.924 | 1.917 | 1.894 | 1.894 | 1.776 | 1.760 | 1.713 | 1.667 | 1.509 | 1.189 | 1.164 |
| 65 | - | - | - | - | - | - | 2.586 | 2.252 | 2.237 | 2.183 | 2.183 | 1.957 | 1.941 | 1.889 | 1.840 | 1.675 | 1.472 | 1.472 |
| 70 | - | - | - | - | - | - | - | 2.655 | 2.639 | 2.579 | 2.579 | 2.293 | 2.255 | 2.144 | 2.034 | 1.841 | 1.781 | 1.781 |
| 75 | - | - | - | - | - | - | - | - | - | 2.976 | 2.976 | 2.668 | 2.627 | 2.518 | 2.392 | 2.089 | 2.089 | 2.089 |
| 80 | - | - | - | - | - | - | - | - | - | 3.098 | 3.098 | 3.018 | 2.998 | 2.892 | 2.750 | 2.397 | 2.397 | 2.397 |
| 85 | - | - | - | - | - | - | - | - | - | 3.195 | 3.195 | 3.115 | 3.103 | 3.076 | 3.036 | 2.706 | 2.706 | 2.706 |
| 90 | - | - | - | - | - | - | - | - | - | 3.292 | 3.292 | 3.212 | 3.201 | 3.173 | 3.135 | 3.010 | 3.010 | 3.010 |
| 95 | - | - | - | - | - | - | - | - | - | 3.389 | 3.389 | 3.309 | 3.298 | 3.271 | 3.233 | 3.108 | 3.086 | 3.086 |
| 100 | - | - | - | - | - | - | - | - | - | 3.486 | 3.486 | 3.407 | 3.395 | 3.368 | 3.332 | 3.207 | 3.163 | 3.163 |
| 105 | - | - | - | - | - | - | - | - | - | 3.583 | 3.583 | 3.504 | 3.492 | 3.465 | 3.430 | 3.306 | 3.239 | 3.239 |
| 110 | - | - | - | - | - | - | - | - | - | 3.680 | 3.680 | 3.601 | 3.589 | 3.563 | 3.529 | 3.405 | 3.315 | 3.315 |
| 115 | - | - | - | - | - | - | - | - | - | 3.777 | 3.777 | 3.698 | 3.687 | 3.660 | 3.627 | 3.504 | 3.391 | 3.391 |
| 120 | - | - | - | - | - | - | - | - | - | 3.874 | 3.874 | 3.795 | 3.784 | 3.757 | 3.726 | 3.603 | 3.467 | 3.467 |
| 125 | - | - | - | - | - | - | - | - | - | 3.971 | 3.971 | 3.892 | 3.881 | 3.854 | 3.824 | 3.702 | 3.544 | 3.544 |
| 130 | - | - | - | - | - | - | - | - | - | 4.068 | 4.068 | 3.989 | 3.978 | 3.952 | 3.923 | 3.801 | 3.620 | 3.620 |
| 135 | - | - | - | - | - | - | - | - | - | 4.165 | 4.165 | 4.087 | 4.076 | 4.049 | 4.022 | 3.900 | 3.706 | 3.696 |
| 140 | - | - | - | - | - | - | - | - | - | 4.262 | 4.262 | 4.184 | 4.173 | 4.146 | 4.120 | 3.999 | 3.812 | 3.772 |
| 145 | - | - | - | - | - | - | - | - | - | 4.359 | 4.359 | 4.281 | 4.270 | 4.244 | 4.219 | 4.098 | 3.917 | 3.848 |
| 150 | - | - | - | - | - | - | - | - | - | - | - | 4.378 | 4.367 | 4.341 | 4.317 | 4.197 | 4.023 | 3.925 |
| 155 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.296 | 4.128 | 4.001 |
| 160 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.234 | 4.077 |
| 165 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.339 | 4.153 |
| 170 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.229 |
| 175 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.305 |
| 180 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4.382 |
| 185 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 190 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 195 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 205 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 210 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 215 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 220 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 225 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 230 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 235 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 240 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 245 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 255 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 260 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 265 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 270 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 275 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 280 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 285 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 290 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 295 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 305 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 310 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 315 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 320 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 325 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 330 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 335 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 340 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Thickness is intumescent only. Results apply to beams with concrete slabs with 3-sided fire exposure.

## 4.0 Direct field of application

- This certificate relates to the use of FIRETEX® FX6010 for the fire protection of I and H shaped beam and column sections, rectangular / square hollow beam sections, and circular and rectangular / square hollow column sections.
- The data presented in this certificate refers to both beams (3-sided fire exposure) and columns (four sided or surface exposure). Column results also apply to beams with four side fire exposure, as specified in the results.
- The precise scope is given in section 2 of this certificate which shows the total dry film thickness of FIRETEX® FX6010 (excluding primer and topcoat) required to fire protect up to 120 minutes for I / H-section beams, circular hollow columns, rectangular / square hollow columns and beams, and up to 150 minutes for H-section columns, and steel temperatures in the range of 350°C to 750°C for various design temperatures and section factors.
- The data shown are applicable to steel sections blast cleaned to AS 1627.9-2002, ISO 8501-1 SA2.5 or equivalent and primed with a suitable and compatible primer. Specifications of surface preparations, primers and top sealers are available from Sherwin-Williams UK Limited who's responsibility is to ensure that FIRETEX® FX6010 Is compatible for use in respect of both ambient and fire conditions. The total dry film thickness of primer should not exceed that tested.
- The data shown is applicable to FIRETEX® FX6010 applied by spray to horizontal, vertical, flexural and compression members supporting loads up to the maximum design loads specified in AS 4100:1998 (R2016). Specifications for other steel design temperatures are available from Sherwin-Williams UK Limited.
- The dry film thickness of FIRETEX® FX6010 specified within this certificate must not vary. Changes in specification will affect the performance of the paint.
- The product is approved on the basis of:
  - Approval testing in accordance with the principles of AS 1530.4:2014.
  - A design appraisal adopting the principles defined in AS 4100:1998 (R2016).

## 5.0 Accreditation

The Jensen Hughes FireMark Product Certification scheme operated by Jensen Hughes Fire Testing Pty Ltd is accredited by JASANZ as a Conformity Assessment Body providing Product Certification in the Jensen Hughes FireMark Scheme. Our scope is available on the JASANZ website at **JASANZ register**.

## 6.0 Validity

Jensen Hughes does not endorse the tested or assessed product in any way. The conclusions of the results in this certificate may be used to directly assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.

Due to the nature of fire testing and the consequent difficulty in quantifying the uncertainty of measurement, it is not possible to provide a stated degree of accuracy. The inherent variability in test procedures, materials and methods of construction, and installation may lead to variations in performance between elements of

similar construction.

The assessed systems within this certificate are based on information and experience available at the time of preparation. The published procedures for the conduct of tests and the assessment of test results are subject to constant review and improvement. It is therefore recommended that this report be reviewed on, or before, the stated expiry date.

The assessed results represent our opinion about the performance of the proposed system/s expected to be demonstrated on a test carried out in accordance with the requirements of the referenced technical schedule.

The client has requested product certification for the specified product under the Jensen Hughes FireMark scheme for their own purposes, and this certificate has been prepared to meet the requirements of the relevant product technical schedule and any disclosed and agreed objectives reflected in the fee proposal. This certificate may be used as Evidence of Suitability in accordance with the requirements of the relevant National Construction Code. However, Jensen Hughes cannot guarantee the following:

- Whether it will be accepted by the relevant building authorities and / or any other relevant parties.
- The suitability of the system/s for a specific installation. This must be determined by the installer, builder and / or relevant building authority.

## *7.0 Authority*

### Applicant undertakings and conditions of use

Sherwin-Williams UK Limited confirms that:

- To their knowledge the component or element of structure, which is the subject of the assessed results within this certificate, has not been subjected to a fire test to the standard against which assessment of this product is being made.
- They agree to withdraw this certificate from circulation should the component or element of structure be the subject of a fire test by a test authority in accordance with the standard against which the assessed results are being made and the results are not in agreement with this certificate.
- They are not aware of any information that could adversely affect the conclusions of the assessed results in this certificate and if they subsequently become aware of any such information, agree to ask the assessing authority to withdraw the assessment and subsequent product certificate.

### General conditions of use

This certificate may only be reproduced in full without modifications by the report sponsor. Copies, extracts or abridgments of this certificate in any form must not be published by other organisations or individuals without the permission of Jensen Hughes Fire Testing Pty Ltd.

# *Appendix A - Overview of test / assessment evidence*

Table 3 and Table 4 outline all the fire resistance test evidence and assessed configurations that form the basis of approval for the scope outlined in this certificate.

*Table 3 Test Evidence*

| Number | Report number | Test sponsor | Test date | Testing authority |
|---|---|---|---|---|
| 1. | FT12720 (FTR 108) | Sherwin-Williams | 11-Jun-18 | Sherwin-Williams, Bolton |
| 2. | FT12723 (FTR 109) | Sherwin-Williams | 13-Jun-18 | Sherwin-Williams, Bolton |
| 3. | FT12725 (FTR 110) | Sherwin-Williams | 14-Jun-18 | Sherwin-Williams, Bolton |
| 4. | FT12729 (FTR 111) | Sherwin-Williams | 18-Jun-18 | Sherwin-Williams, Bolton |
| 5. | FT12731 (FTR 112) | Sherwin-Williams | 19-Jun-18 | Sherwin-Williams, Bolton |
| 6. | FT12734 (FTR 129) | Sherwin-Williams | 21-Jun-18 | Sherwin-Williams, Bolton |
| 7. | FT12737 (FTR 113) | Sherwin-Williams | 22-Jun-18 | Sherwin-Williams, Bolton |
| 8. | FT12740 (FTR 114) | Sherwin-Williams | 25-Jun-18 | Sherwin-Williams, Bolton |
| 9. | FT12744 (FTR 115) | Sherwin-Williams | 27-Jun-18 | Sherwin-Williams, Bolton |
| 10. | FT12751 (FTR 117) | Sherwin-Williams | 2-Jul-18 | Sherwin-Williams, Bolton |
| 11. | FT12752 (FTR 118) | Sherwin-Williams | 3-Jul-18 | Sherwin-Williams, Bolton |
| 12. | FT12754 (FTR 119) | Sherwin-Williams | 4-Jul-18 | Sherwin-Williams, Bolton |
| 13. | FT12756 (FTR 126) | Sherwin-Williams | 5-Jul-18 | Sherwin-Williams, Bolton |
| 14. | FT12761 (FTR 130) | Sherwin-Williams | 6-Jul-18 | Sherwin-Williams, Bolton |
| 15. | FT12763 (FTR 121) | Sherwin-Williams | 9-Jul-18 | Sherwin-Williams, Bolton |
| 16. | FT12765 (FTR 124) | Sherwin-Williams | 10-Jul-18 | Sherwin-Williams, Bolton |
| 17. | FT12767 (FTR 123) | Sherwin-Williams | 11-Jul-18 | Sherwin-Williams, Bolton |
| 18. | FT12773 (FTR 125) | Sherwin-Williams | 13-Jul-18 | Sherwin-Williams, Bolton |
| 19. | FT12779 (FTR 127) | Sherwin-Williams | 17-Jul-18 | Sherwin-Williams, Bolton |
| 20. | FT12789 (FTR 128) | Sherwin-Williams | 23-Jul-18 | Sherwin-Williams, Bolton |
| 21. | FT12793 (FTR 131) | Sherwin-Williams | 24-Jul-18 | Sherwin-Williams, Bolton |
| 22. | FT12795 (FTR 116) | Sherwin-Williams | 25-Jul-18 | Sherwin-Williams, Bolton |
| 23. | FT12798 (FTR 120) | Sherwin-Williams | 26-Jul-18 | Sherwin-Williams, Bolton |
| 24. | FT12801 (FTR 122) | Sherwin-Williams | 27-Jul-18 | Sherwin-Williams, Bolton |

| Number | Report number | Test sponsor | Test date | Testing authority |
|---|---|---|---|---|
| 25. | FT12976 (FTR 136 Issue 2) | Sherwin-Williams | 13-Nov-18 | Sherwin-Williams, Bolton |
| 26. | WF Gent No.18934A | Sherwin-Williams | 23-Mar-18 | Warringtonfire, Gent |
| 27. | WF Gent No.19694A Issue 2 | Sherwin-Williams | 17-Jun-19 | Warringtonfire, Gent |
| 28. | WF Gent No.19695A | Sherwin-Williams | 10-Jul-19 | Warringtonfire, Gent |
| 29. | WF Gent No.19946A | Sherwin-Williams | 25-Sep-19 | Warringtonfire, Gent |
| 30. | WF No. 394855 | Sherwin-Williams | 7-Apr-18 | Exova Warringtonfire, UK |
| 31. | WF No. 394856 | Sherwin-Williams | 15-Apr-18 | Exova Warringtonfire, UK |
| 32. | WF No. 395159 | Sherwin-Williams | 9-Jun-18 | Exova Warringtonfire, UK |
| 33. | WF No. 395161 | Sherwin-Williams | 19-Jun-18 | Warringtonfire, UK |
| 34. | WF No. 395162 | Sherwin-Williams | 25-Jun-18 | Exova Warringtonfire, UK |
| 35. | WF No. 413500 Issue 2 | Sherwin-Williams | 23-Jun-19 | Warringtonfire, UK |
| 36. | WF No. 415692 | Sherwin-Williams | 4-Aug-19 | Warringtonfire, UK |
| 37. | WF No. 415693 | Sherwin-Williams | 20-Aug-19 | Warringtonfire, UK |

*Table 4 Assessment evidence*

| Number | Report number | Assessed standard | Sponsor | Latest issue date | Authority |
|---|---|---|---|---|---|
| 1. | FAS190187 | AS 4100-1998 (R2016) | Sherwin-Williams | 1 April 2020 | Warringtonfire, AUS |
| 2. | WF 409488 | AS 4100-1998 (R2016) | Sherwin-Williams | 17 March 2021 | Warringtonfire, UK |
| 3. | Issue 4 | EN 16623:2015 | Sherwin-Williams | 17 August 2022 | Warringtonfire, UK |
| 4. | WF 521685 | EAD 350402-00-1106 | Sherwin-Williams | 5 October 2022 | Element Materials Technology Rotterdam B.V. |